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The Effect of Modeling Learning on Early Grade Numeracy Learning in Public Primary Schools in Banguntapan Sub-District

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ABSTRACT: The purpose of this study was to determine the effect of modeling learning on the counting ability of early grade students in the District Public Elementary School P. The type of research conducted was quantitative quasi experiment. The research was conducted by involving two groups of classes, namely the experimental group and the control group. The research population included all early grade elementary school students in the District P area. The research sampling technique used was purposive sampling technique. Data were collected through two main techniques, namely counting tests through pre-test and post-test, and observation. Data analysis used descriptive statistical techniques and Paired t-test. The results of the Paired t-test test for modeling learning have an effect on early grade counting learning with a statistical calculation of t count (3.76) > t table (1.68). The conclusion of this research is that modeling learning can significantly improve learning outcomes in arithmetic learning for early grade elementary school students.

KEYWORDS: Modeling Learning, Counting Skills, Elementary School

INTRODUCTION

Learning in the early grades of primary school is a crucial phase in building a foundation of basic knowledge and skills for students. One of the essential competencies taught is numeracy, which forms the basis for learning further mathematical concepts. Numeracy learning in the early grades plays an important role in building a solid foundation for more complex mathematical understanding in the future. However, many students in the early grades often face difficulties in understanding basic numeracy concepts, which can have a negative impact on their subsequent academic development (Fuchs et al., 2018). To address this problem, various learning strategies have been proposed, one of which is modeling learning.

Modeling involves direct demonstration by the teacher or the use of visual aids to explain abstract concepts. This strategy allows students to see the thought processes and steps involved in problem solving, so that they can internalize and apply these strategies independently (Clarke, 2020). Research shows that the use of modeling in mathematics learning can significantly improve students' conceptual understanding and numeracy skills (Hattie & Donoghue, 2016).

According to Ramani and Siegler (2018), students who learn through modeling tend to have better critical thinking skills and more confidence in dealing with mathematical problems. This is supported by Boaler's (2019) findings showing that the modeling approach helps students develop a deeper understanding of mathematical concepts compared to traditional methods.

Fuchs and Fuchs (2019) suggested that modeling helps reduce mathematics anxiety often experienced by students in the early grades. Their research found that students who engaged in modeling learning showed lower levels of anxiety and better performance in mathematics tests. This is in line with the view of Maloney et al. (2020) who stated that modeling can serve as a tool to increase students' motivation and interest in mathematics. Research results from Woodward (2020) also show that modeling learning can help students understand the relationships between different mathematical concepts, which in turn can improve their problem-solving abilities. This opinion is in line with research by Zimmerman and Schunk (2018), who found that modeling can strengthen students' metacognitive skills, helping them become more independent and reflective learners.

Maryati and Purwanto (2020) stated that modeling can help students overcome mathematics learning difficulties, especially in understanding abstract concepts. They found that the use of visual aids and live demonstrations can make mathematical concepts more concrete and easily understood by students. The use of modeling in mathematics learning in elementary schools can significantly improve students' concept understanding and numeracy skills (Suherman, 2019).

According to Zulkardi (2020), the use of modeling in mathematics learning in Indonesia has proven effective in improving students' conceptual understanding. Zulkardi also emphasized the importance of teacher training to improve the quality of modeling learning. Novianti and Wulandari (2019) found that the implementation of modeling learning in elementary schools not only improved students' numeracy skills, but also increased their learning motivation. This research shows that students become more active and enthusiastic in participating in mathematics learning when modeling strategies are applied. The use of technology in modeling learning can improve students' mathematics learning outcomes in Indonesia. Technology integration is essential to support more interactive and interesting learning for students (Wahyudin, 2020).

However, implementing modeling learning is not always easy. According to Clarke and Hollingsworth (2019), teachers often face challenges in designing and implementing effective learning activities and in measuring the impact of these strategies. In addition, Clements and Sarama (2018) mentioned that the lack of training and resources for teachers can hinder the effectiveness of modeling in mathematics teaching. Without adequate training, teachers may struggle to utilize modeling as an effective learning tool. This training should include different modeling techniques, how to use visual aids, as well as strategies for measuring learning impact,

Herman and Anggraini (2019) also emphasize that support from schools and supportive education policies are needed to overcome this challenge. If schools provide adequate support, such as time for planning and collaboration between teachers, the implementation of modeling in learning becomes more effective. In addition, the use of technology can also be a solution to overcome some of these challenges. Technology can provide more diverse and engaging visual aids and allow teachers to save and repeat effective demonstrations. However, they also noted that access to and skills in using technology are still an obstacle in many schools, especially in remote areas (Wulandari, 2020).

Gersten et al. (2019) found that administrative support and collaboration between teachers are critical to the successful implementation of modeling learning. They also emphasized the importance of continuous assessment to assess student progress and adjust learning strategies as needed. This finding is supported by research results from LeFevre et al. (2019) who showed that a collaborative approach in mathematics teaching can increase the effectiveness of modeling.

This study aims to explore the effect of modeling learning on the numeracy skills of early grade students in Sekolah Dasar Negeri sub-district P. This research will examine how the application of modeling strategies can improve students' understanding and numeracy skills, as well as identify factors that influence the effectiveness of such learning. Thus, it is expected that the results of this study can make an important contribution to the development of more effective learning practices in primary schools.

RESEARCH METHODS

This study adopted a quasi-experimental research type with a pretest-posttest group design to test the effectiveness of modeling learning in improving the counting skills of early grade students at the Public Elementary School of Kecamatan P. The research was conducted by involving two class groups, namely the experimental group that received learning using the modeling method, and the control group that received conventional learning. Based on the research design, the research population included all early grade students at the Kecamatan P Public Elementary School. The research sample was selected using purposive sampling technique with criteria including early grade students who were willing to be the experimental and control classes, as well as students who did not have significant learning barriers and had parental consent to participate in the research.

The main instrument used was a numeracy test, which was designed to measure students' ability in numeracy, including addition, subtraction, multiplication and division. Before use, the test was validated by mathematicians and pilot-tested to ensure its validity. Data were collected through two main techniques: arithmetic tests conducted before and after the learning treatment, as well as observations during the learning process in the experimental and control classes. Data analysis used descriptive statistical techniques to describe student characteristics, numeracy test results, and student learning activities. In addition, inferential analysis was conducted using t-test to compare the difference in learning outcomes between the two groups before and after the learning treatment. By using this approach, this research is expected to be able to provide a deeper understanding of the effectiveness of modeling learning in improving the counting skills of early grade students at Banguntapan State Elementary School, Banguntapan Subdistrict, Bantul.

RESULTS AND DISCUSSION

Results

Data from students' post-test and pre-test results

The first result of the pretest data analysis is used to determine the initial data on the initial state of problem solving ability in numeracy learning in the initial class conducted by the research. The data used is the value derived from giving pretest questions. The question is from a question that is already valid. This initial data analysis uses normality test and homogeneity test.

Second, data analysis is obtained from the post-test scores given by students according to the problem solving ability indicators. After the initial class is given material and adapted to modeling learning according to the treatment. This data analysis uses normality test and homogeneity test.

Table 1. Average results of pre-test and post-test in the initial class

Description	Experiment		Control	
	Pre-test	Post-tets	Pre-tets	Post-test
Number of Learners	26	26	26	26
Nilai Maximum	65	100	70	85
Nilai Minimum	40	75	35	55
Mean	47.65	87.75	45.50	75.50
Completeness	0%	95.33%	12.35%	87.45%

Based on the table data above, the average value of the pre-test results in the initial experimental class was 47.65 and the control class for 45.50. While the average value of the post-test results in the experimental initial class was 87.75 and for the control class was 75.50.

Data on the results of student learning activities

Table 2 Results of Student Learning Activity Questionnaire

Table 2. Hasil Angket Aktivitas Belajar Peserta Didik

Description	Experiment	Control
N	26	26
Mean	23.35	16.65
Skor maxsimum	5	4
Skor minimum	1	1
Criteria	Active	Less active

Based on the table above, it can be seen that the average activity of the experimental class was in the active category when using the modeling learning method, so it can be concluded that students responded positively to the learning method used. Furthermore, it can be seen that the average activity of the control class is in the less active category. So it can be concluded that the experimental class that uses the modeling learning method has a higher category than the control class that does not use the modeling learning method.

Prerequisite analysis data

1) Normality test

Student pretest data

Table 3. Normality Test of Pretest and Post-test

Description	Class	Sig.	Conclusion
Pre-test	Eksperimen	0.211	Normal
	Kontrol	0.078	Normal
Post-test	Eksperimen	0.188	Normal
	Kontrol	0.191	Normal

Based on the results of the calculation of the normality test of the Pretest and Post-test of students, it shows that the significance value of the data in table 3> the specified significant level (0.05), so it can be concluded that the data obtained is distributed data.

2) Homegenity test

Table 4. Homogeneity test of Student Pre-test Data

Homogeneity Test	Sig.
Based on Mean	0.387

The test uses the Levene test, with the information that if the significance value of Based on Mean> significant level (0.05), then the data is homogeneous (has the same variance). Conversely, if the significance of Based on Mean < the significant level (0.05) then the data is not homogeneous (does not have the same variance). looking at table 4, the data obtained in the study is homogeneous.

3) Balance Test

The balance test is carried out to see the two groups have the same condition before treatment. The balance test was calculated using the independent sample Paired t-test. The balance test results are as follows:

Table 5. Two Group Balance Test

Item	**Experiment**	**Control**
S^2	121.765	115.652
Mean	47.65	45.50
Calculation		
Sp2	1142.376	
Sp	38.635	
T count	-0.684	
T table (0.025, 26)	2.056	

Based on the table above, t count (-0.684) < t table (2.056), it can be concluded that the two groups have the same ability before the research action.

4) Hypothesis testing

After it is known that the data from the pretest and posttest results of students are normally distributed and homogeneous, then the two classes are tested for differences in student math learning outcomes in accordance with the predetermined hypothesis using parametric statistics, namely the Paired t-Test test. The table in determining the t-test is as follows:

Student pretest and posttest data

Table 6. Paired t-Test Test Results

Class	N	T count	T_{table}	Conclusion
Experiment	26	3,76	1.68	H_a Accepted
Control	26			

Based on the results of the calculation of the statistical test of students' pretest and posttest data using the t-test formula, it shows that t count (3.76) > t table (1.68) in accordance with the t-test testing criteria and the t table shown in the t table with a significant level of 5%, Ha is accepted.

DISCUSSION

The results showed that the application of the Modeling learning method significantly improved students' numeracy learning achievement in the early grades of elementary school. The increase in the average post-test score in the experimental group shows that this method is effective in helping students understand basic counting concepts. The Modeling method allows students to see and follow concrete examples, which is very helpful in learning basic math concepts.

Based on the post-test results in table 3 above, it can be seen that the results of students' arithmetic learning achievement in the early elementary school class using the Modeling the Way learning method with the average score result is 87.75 with the highest and lowest scores are 100 and 75 and classical completeness is 95.33%. While the class taught using other learning models obtained an average score of 75.50 with the highest and lowest scores being 85 and 55 and classical completeness was 87.45%. The average score on student activity for the experimental class was 23.35 with the highest and lowest scores being 5 and 1. Meanwhile, the control class obtained an average score of 16.65 and the highest and lowest scores were 4 and 1.

Based on the results of these calculations, the pretest and post-test difference data entered into the t test formula obtained the value of tcount = 3.76 and t table = 1.68 at a significant level of 5%. Because t count> t table, so it can be said that students taught with the Modeling the Way method have more influence on the results of counting in early elementary school classes.

Based on the discussion above, it shows that the Modeling the Way learning method has an effect on early grade arithmetic learning. And when compared to when using other methods, students' numeracy learning outcomes are more influential using modeling the Way. This is because using the Modeling the Way learning method each student is required to understand the concept or material presented. In this learning method, students are invited to play a rotating role to make questions about counting until they get the correct answer. Here it will be seen that the student's ability to absorb the material presented. With the application of this method, the atmosphere in learning is not tense because students are actively involved directly, then it will attract student attention. Thus, based on the discussion above, the Modeling the Way learning method has an effect on early grade counting skills.

CONCLUSION

Based on the results of the research that has been carried out, this study shows that the Modeling learning method significantly improves the learning outcomes of early grade elementary school students. This is evidenced by an increase in the average post-test score in the experimental group using the Modeling method. The average post-test score in the experimental class (87.75) was higher than the control class (75.50). In addition, the T-test results strengthen the hypothesis that students who are taught with the Modeling the Way method have more influence on the numeracy results of early elementary school classes. The Modeling method is effective to use for several reasons: 1) it helps students in understanding the basic concept of counting through concrete examples, 2) it involves students actively in the learning process, 3) it creates a learning atmosphere that is not stressful and interesting.

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Analysis of Non-Violence Education Verses in the Tafsir of Al-Azhar

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ABSTRACT: Hamka is an Indonesia Muslim scholar and he is known as a Qur'anic sholar. He has interpreted the Qur'an verses about specific topic of Islam such as education and non-violence education. Hamka's concept on nonviolence education has been widely adopted and implemented in Indonesia education institutions. This study aim is to investigate the concept Hamka's non-violence education based on Qur'an verses in his book Tafsir of Al-Azhar. This study is a literature review study and used qualitative approach. Data was gathered from publiashed books, journal articles, conference proceedings, and research reports. The results of this study show that in al-Azhar's interpretation there are several verses from the Koran that discuss the theme of anti-violence education. These verses include messages about love, gentleness, wisdom and good examples in educating children. Apart from that, there are also verses that condemn acts of violence against children. Hamka, in interpreting these verses, places a strong emphasis on the importance of avoiding violence in educating children.

KEYWORDS: Tafsir Al-azhar, non-violence education, Islamic education, Qur'an verses

I. INTRODUCTION

The key to realizing anti-violence education is to instill the values of tolerance and compassion, which are essential foundations (Mikulincer & Shaver, 2007). Several methods have been used to shape the characteristics of people who love peace or are non-violent. A prior research shows that one very effective effort in campaigning for anti-violence education is through the "a watchout" campaign (Aderibigbe et al., 2023). This campaign was carried out massively through media message appeals. This method successfully increases people's awareness of humanizing each other, especially when interacting on social media.

Apart from anti-violence campaigns through the media, educational efforts are also carried out through cultural reconstruction (Liritzis, Volonakis, & Vosinakis, 2021). The patriarchal culture that is still rooted in society is one of the important points that encourage violence, especially violence against women in the domestic space. The unequal power relations between men and women cause women always to be oppressed and become the object of venting anger from men (husbands). Ironically, such patriarchal culture is often supported by religious understandings and interpretations, which tend to be produced by those who are pro-culture (Duderija, 2017). As a result, the interpretation of the Qur'an is directed at justifying the increasingly powerful status quo of men in front of women. Several verses and hadiths were produced to strengthen male superiority in all aspects. This fact is indeed hazardous and hurts the values of Islamic humanism, and is contrary to the basic principle of women being equal to men before Allah and the law.

Education in the Islamic discussion space has been discussed for quite a long time. This topic exists simultaneously as the transmission of Islamic teachings from the first speaker (Rasulullah) to subsequent generations across time and space. Among the Islamic thinkers who are pretty firm in discussing the issue of education is Abu Hamid al-Ghazali, the author of the book "Ihya' Ulumuddin," which discusses many aspects of life, including education. In his book, Imam al-Ghazali discusses the aims of education, teaching methods, and the importance of morals in education (Taja, Nurdin, Kosasih, & Suresman, 2021). Apart from al-Ghazali, there is also the name Ibn Kathir. This clever Muslim scholar who wrote a commentary on the Qur'an with a label attributed to his name, "Tafsir Ibn Kathir," discusses many educational topics such as morals, morality, and the importance of education in human life.

Discussions about education are still ongoing in the modern era. Among the figures who are concerned about discussing this is Muhammad Abduh. This great thinker from Egypt, who contributed significantly to the writing of the interpretation of "al-Manar," dissected many educational issues primarily linked to reform and renewal. In terms of education, Abduh made the West an ideal model. Education in the West has proven successful in producing knowledge and technology, influencing almost all of the earth's inhabitants.

Apart from Abduh, another name that also discusses education is Fazlur Rahman. This Islamic scholar from Pakistan has written extensively on theology, philosophy, and other Islamic studies. In his famous book, "Islam," Rahman discusses education in Islam and the importance of education in Muslim life. In the book "Islam and Modernity," Rahman discusses various educational issues in the context of the Muslim world, which is experiencing modernization. He argued that education was essential in the transformation of Muslim societies and in building social, political, and economic progress. Rahman criticized traditional education, which only focuses on religious knowledge and pays little attention to modern science. However, he also highlights the weaknesses of contemporary education, which ignores moral and spiritual values too much, resulting in individuals who are too materialistic and insensitive to social problems. Rahman proposed a holistic educational approach that integrates Islamic aspects, modern science, and moral and spiritual values. He believes holistic education will help produce qualified graduates who can contribute to contemporary society. Besides that, Rahman also discussed women's education, technology education, and Islamic education in Western countries. He emphasized the importance of providing equal opportunities for women in education. He suggested that technology education be integrated into Islamic education to produce graduates who can adapt quickly to the modern world of work. He also highlights the challenges faced by Muslim students in Western countries and provides suggestions on how they can develop their Islamic identity without neglecting secular education.

If several Islamic commentators and thinkers discussed the theme of education in general, then other Muslim commentators and figures who addressed the issue of anti-violence education specifically were no less numerous. Among several names that can be raised here is Muhammad Abu Zahrah, an Islamic jurist and exegete from Egypt who wrote tafsir of the Qur'an and several books of fiqh. In his interpretation, Abu Zahrah discusses peaceful education in Islam and emphasizes the importance of avoiding violence in children's education. Another Qur'an study scholar who discusses non-violence education is Muhammad Shahrur. In his work entitled "Al-Kitab wa al-Qur'an," he discusses peace education in Islam. Shahrur emphasized the importance of education that respects human rights and individual freedoms and avoids all forms of violence. The same as Sahrur, Tariq Ramadan: A philosopher, and a scholar from Switzerland who wrote the book "Radical Reform: Islamic Ethics and Liberation." In his book, Ramadan discusses the concept of peace education in Islam and emphasizes the importance of developing a mindset based on peace and justice. Some Muslim thinkers from the land of Sudan also participate in the discourse on non-violence education. This figure is named Abdullahi Ahmed An-Na'im, a legal expert and philosopher who wrote the book "Toward an Islamic Reformation: Civil Liberties, Human Rights, and International Law ."In his book, An-Na'im discusses peaceful education and emphasizes that Islam recommends avoiding violence in education.

Departing from this problem, this research wants to elaborate more deeply on the concept of anti-violence education in the world of Buya Hamka's interpretation in al-Azhar's interpretation. The anti-violence education referred to in this research is a conceptual formulation of anti-violence education based on the interpretation of the Qur'an. This research also aims to counter unwise interpretations of verses from the Qur'an, which are often used as justification for violent behavior both in the family context and violence in the name of religion. In this context, presenting a humanist and friendly interpretation is very important as an alternative interpretation that is more sensitive to the values of equality and oriented towards universal benefit.

II. LITERATURE REVIEW

A. *Definition of Education*

The word "education" has been used by Indonesian people for quite a long time. Therefore, it is easy to understand the context of the meaning contained in this word. Indonesian speakers, if asked, can easily demonstrate the scope of the meaning of the word "education." In the Main Indonesian Dictionary, the word "education" means 1) the process, methods, and actions of educating; 2) changing the attitudes and behavior of a person or group of people to mature humans.

In the first meaning, the education entry refers to the category of nouns. The noun nature of education is abstract; that is, it cannot be perceived by the power of the senses (see, hear, smell, and touch). Meanwhile, in the second case, the education entry refers to a complete understanding of the form of education. In this case, education means certain actions to change humans (individuals and groups) into adults (Campbell, 1999).

Many groups use this last meaning when formulating definitions of education, including what is understood by the people themselves when this word is explained. So, it is not surprising that the public equates education with schools, madrasas, Islamic boarding schools, seminaries, and other educational institutions. In these institutions, there is a process of coaching, training, teaching, and guiding people to achieve certain targets in knowledge, skills, and morality.

The term "education" in Indonesian is similar to "education" in English. The Oxford Dictionary defines the meaning of "education" as "a process of teaching, training, and learning, especially in schools, colleges or universities, to improve knowledge and develop skills (Brewer, 1993). This definition overlaps with what is stated in the Indonesian Dictionary. In this case, "education" is defined as the process of teaching, training, and learning, as in schools, dormitories, or universities, aimed at increasing knowledge and developing skills.

B. *Nonviolence Education*

The long explanation of the meaning, history, philosophy, and scope of education above has led to the understanding that education is a planned and systemic process so that students actively develop their potential to have religious and spiritual strength, self-control, personality, intelligence, morals, and knowledge. The actualization of this educational vision is reflected in learning activities organized by academic institutions, such as schools, colleges, Islamic boarding schools, and other institutions (Kioupi & Voulvoulis, 2019).

Apart from discussing the established system, the educational discourse remains open to discussions and research. Academic discussions are usually related to actual phenomena occurring in society. The debate is intended so that education can participate in resolving these phenomena. One of the issues that is quite prominent in society and which education is expected to join in solving is violence. Violence is a banal event that is widespread at all levels of society. If Galtung categorizes violence into direct, structural, and cultural forms, then all three are equally widespread in society. In short, violence in society is alarming. The results of reports from several institutions that are concerned about cases of violence show that this phenomenon continues to creep up. The growth graph from year to year is quite significant. This has triggered many groups to hack the roadmap for resolution or at least minimize it. One way is through education. So, a concept known as non-violence education was born.

The term "non-violence education" is a combination of three words, namely "education," "non-," and "violence (Arweck & Nesbitt, 2008)." As discussed previously, education is synonymous with "pedagogy," which means "nurturing." Meanwhile, "non" means "reject," "avoid," or "against." The word "violence" means an action carried out by an individual against another individual, which results in physical or mental disorders. This is a basic understanding commonly encountered and even understood by the public. Thus, non-violence education can be understood as a conscious and systematic effort so that the trained students have a vision, mentality, character, attitude, and concern that is non-violence in any form, level, condition, and mechanism.

Various efforts to build education with a vision of non-violence continue to be carried out by educational practitioners and the wider public. As a result, several theories and concepts were released. So, the idea of non-violence education is different even though the terms used are relatively similar, namely both non-violence education. If the theoretical realm is rich in color, so is the practical realm. This means that schools' efforts to cultivate human resources who care about the problem of violence are very diverse. Some inject it through the curriculum, some emphasize the inclusion model, and some create programs that stimulate empathy, a sense of humanity, and other forms of practice.

III. METHODOLOGY

This study is a literature review study with a qualitative method. In qualitative research, the theory is only a guide, so the research focuses on the facts in the field (Nurdin Nurdin & Sagaf S Pettalongi, 2022; Nurdin, Stockdale, & Scheepers, 2016). The data was collected through reviewing published literature such as books, journal articles, proceedings, and research reports. The data from the literature review was analysed using thematic approach as outlined by Corbon and Strauss (Corbin & Strauss, 1990; Nurdin Nurdin & Sagaf Sulaiman Pettalongi, 2022; Nurdin Nurdin & Sagaf S Pettalongi, 2022) The data analysis used a deductive thinking technique, interpreted as a research procedure that produces deductive data from the interviews and field notes. Data analysis was conducted using thematic analysis from Strauss and Corbin (1998). The analysis started with open, axial, and selective coding. The final result of the data analysis is themes found from the data.

IV. RESULTS AND DISCUSSION

A. *Structure of Hamka's Interpretation of Nonviolence Education Verses*

Hamka's interpretation of the verses about non-violence education is constructed in a general way. There are no partial explanations like classical interpretations, such as starting by dissecting the meaning of words, phrases, or sentences. It also does not include concepts that are commonly known in *qawaid al-tafsir*. The consideration of *asbab al-nuzul* needs to be added to the language. What still seems to be an intersection between Hamka's work and classical commentaries is the part that links verses with other verses, which in the terminology of *al-Qur'an ulum* is known as *munasabah*.

Thus, the semantic analysis that will be carried out in this discussion focuses on Hamka's word choice and sentence structure, including the language style presented. From this analysis, conclusions will be drawn regarding Hamka's important points about non-violence education.

Analysis of Non-Violence Education Verses in the Tafsir of Al-Azhar

QS. Surah Ali Imran (3):159:

فَبِمَا رَحْمَةٍ مِّنَ اللّٰهِ لِنْتَ لَهُمْ ۚ وَلَوْ كُنْتَ فَظًّا غَلِيْظَ الْقَلْبِ لَانْفَضُّوْا مِنْ حَوْلِكَ ۖ فَاعْفُ عَنْهُمْ وَاسْتَغْفِرْ لَهُمْ وَشَاوِرْهُمْ فِى الْاَمْرِۚ فَاِذَا عَزَمْتَ فَتَوَكَّلْ عَلَى اللّٰهِ ۗ اِنَّ اللّٰهَ يُحِبُّ الْمُتَوَكِّلِيْنَ

Translation

So, because of Allah's grace, you (the Prophet Muhammad SAW) were gentle towards them. If you act harshly and have a rude heart, they will distance themselves from those around you. Therefore, forgive them, ask for forgiveness, and consult with them. Then, when you have decided, put your trust in Allah. Indeed, Allah loves those who trust in themselves.

Hamka opened his interpretation of this verse by explaining Allah SWT's praise for the Prophet Muhammad. In this case, Allah praised the personality of the Prophet Muhammad, who was gentle and did not get angry quickly, which made his da'wah process successful. Hamka further wrote:

In this verse, we find high praise from God towards His Messenger because of his gentle attitude and not being rude towards His people who were being guided and educated in their faith to be perfect. This was the mistake of some people who abandoned their duties because they were vying for wealth, but the Messenger of Allah did not remain angry. But with a big soul, they were led. In this verse, God emphasizes, as a compliment to the Apostle, that his gentle attitude is because God has put His grace into him. God has instilled a sense of grace, mercy, and love into him, and grace also influences his attitude toward leading. This follows God's praise, in other words, in the last verses in Surah at-Taubah (sura 9), verse 128.

This quote makes several important points. First, a gentle attitude is a gift from Allah SWT, not the result of the Prophet's choice. Even though Hamka did not explain it, this meaning likely emerged from considering the term mercy in the sentence: فبما رحمة من الله لنت لهم. Second, Hamka describes the context of gentleness in attitudes, such as a sense of grace, mercy, and love. Third, Allah's praise aligns with what is contained in the QS. 9:128. According to Hamka, Allah praised the Prophet Muhammad with the characteristics of Allah himself, such as the characteristics of Rauf and Rahim. This is Hamka's statement:

At the end of this verse, God gives the highest praise to His Messenger; He was given the two titles Rauf and Rahim, which means very loving, caring, and merciful. The two names Rauf and Rahim are the attributes of God, the names of God, included in al-Asmaul Husna, of which there are 99 in number. He has carried out the grace of Allah that has been bestowed upon him well, so it has become his life attitude, and God Himself gave him the title with the name of God. This is where we meet what is often recommended by Sufism experts, namely that humans should try to make themselves imitate the qualities of Allah that are worthy of imitation. So, in the verse that we are interpreting, we find the words of God praising His Prophet gently and respectfully, saying that his gentle attitude towards the ignorant ummah was due to the grace of Allah, which had incarnated within him. God's grace has become the nature of the womb.

At the beginning of verse 128 of Surah at-Taubah, you find the sentence *min anfusikum*, which means that the Messenger is not someone else to you. He is you, or like you. For the Arabs he visited, he was no one else but rather a part of themselves. To the Quraysh, he was a blood relative. For the Ansar, he was a child (*khal*) because Abdullah's mother (the Prophet's grandmother) was from the Bani Najjar. nd for us as a whole human race, he too is a descendant of Adam, the same as us, not angels sent from heaven and not jinn. He knows our pain and pleasure and has "*Al-Musyarakatil Wijdaniyah*" in common. If there is weakness, he knows the causes of that weakness, and then he leads him to a stronger faith. If you're stupid today, hopefully, you won't be stupid again after lots of experience and learning.

In terms of attributing Allah's qualities to the Prophet Muhammad, a vital part to underline is the strong impression of Hamka's pantheism. Followers of Sufism commonly hold this understanding. This pantheistic assumption confirms that Hamka believes that the Prophet Muhammad is reflected in the presence of Allah. The Prophet was not an ordinary human, even though the verse contains the phrase *min anfusikum*. This phrase emphasizes the biological (bodily) aspects of the Prophet Muhammad, a descendant of Adam. Meanwhile, in the spiritual aspect, the Prophet Muhammad is an extension of Allah.

Hamka's presentation of the figure of the Prophet Muhammad as an extension of Allah has a specific purpose, namely, to allow humans to accept what the Prophet Muhammad displayed in his personality. If the Prophet Muhammad had a gentle nature, his people were also required to have the same nature. Hamka's conclusion is reminiscent of what Hasan Hanafi introduced when discussing the importance of reformulating the science of kalam from traditional, theocentric to modern, anthropocentric. In this renewal, Hanafi emphasizes the reinterpretation of Allah's attributes. In this case, how can humans implement these characteristics? If Allah has the nature of Rahman, then humans must imitate him in social interaction practices.

Analysis of Non-Violence Education Verses in the Tafsir of Al-Azhar

Repetition of the characteristics of the Prophet Muhammad, who was gentle, kind, and merciful, will guide his people toward success in leading. This conclusion can be captured in Hamka's statement as follows: God's high praise for His Messenger because of his gentle attitude means that God is pleased if that attitude continues. With this, God has given instructions about the "Science of Leading." Because of that, God said, "Because if you act harshly, stubbornly, they will scatter from those around you. "A leader who is rude and stubborn or has a rigid attitude, people will be reluctant to approach him. People would move away individually so that he "would walk through the smoke" alone. If someone has run away, don't blame that person. Instead, investigate your defects.

To some of us in the Ummah of Muhammad, who Allah also gave the task of inheriting the Prophet to continue his leadership, this verse also guides us that a leader who is always rude and stubborn will not be successful in leading. Indeed, a leader must be firm in maintaining his stance, as the Messenger of Allah SAW did after signing the Hudaibiyah peace. Loudly and firmly, he ordered Ali to write down what he had dictated. He also strictly ordered his people to shave their heads, cut their dams (fines), and take off their ihram clothes because they would not go on the Hajj that year. So, a firm attitude at such a time is very different from being gentle towards some people who were at fault in the Uhud battle. It is clear that at the time of the Uhud battle, he taught the ignorant and inexperienced so that they would understand better and that such an incident should not happen again. But his firm attitude in Hudaibiyah was a leadership attitude that felt one hundred percent responsible. He was obliged to show a firm attitude to people like Umar and Ali, who seemed disappointed because of emotional impulses (sentiment) that they did not go on the Hajj that year because people left their duties in the battle of Uhud. Then, not even a few months later, Umar apologized to the Apostle because he had seen how superior and far-sighted the Apostle was. The polytheists initially asked that one clause of the agreement be abolished, namely the return of the Makkan youth who had joined Medina, to be revoked with mutual consent. Because the losers are not the Muslims but the Quraysh themselves, as we will interpret at length, God willing, in Surah al-Fath later.

Even though the prologue of this verse contains a depiction of the gentle figure of the Prophet Muhammad, Hamka also emphasizes that the Prophet was also a firm figure. The Prophet's firmness and gentleness were directly proportional. These two characters are shown according to the needs of the context faced. In war situations, the Prophet was more dominant in showing firmness. He showed one of them when leading the battle of Uhud and betraying the Hudaibiyah agreement.

In this way, Hamka sees that being gentle does not mean you have to always position yourself as the one who gives in. Meekness is put forward in everyday interactions. However, a person must change direction in certain situations to become a firm figure. This flexibility is an asset that a leader must have.

In this verse, Hamka also believes that a leader should avoid harsh characters and be stubborn in leading. This negative character will thwart a person's leadership mission. People around him will stay away from him. In explaining the effects of these negative traits, Hamka cited an expression commonly used by the Malay community: "hanging smoke ."This expression is a metaphor for futile behavior. No matter how hard someone invites, these efforts will end in futility, as Hamka stated: "*A leader who is rude and stubborn or has a rigid attitude will be reluctant to have people approach him. People will move away one by one so that he "will be filled with smoke" alone. If someone has run away, don't blame that person, but investigate your defects"*

B. *Inter-textual relations in the interpretation of Hamka in the context of verses on non-violence education*

In interpreting the verses of the Qur'an, especially the verses on non-violence education, it is clear that Hamka is not only conducting literary studies. It also involves a lot of text. The Qur'an, the Prophet Muhammad's hadith, historical texts, scholarly literature, local treasures, community views, and humanities knowledge disciplines are among them. Hamka combines all data sourced from multi-disciplinary sources to form a unique, contextual, critical, and nuanced interpretation of locality.

Hamka demonstrated his involvement in the Qur'an by emphasizing the context of the verse. For example, when he interpreted QS 3:159 with QS. 9:128. The munasabah analysis by Hamka was when linking Allah's praise to the Prophet Muhammad. In this case, the Prophet is said to have the noble qualities Allah attributes to himself. The association of these two verses with different locations of the surah proves that Hamka sees the Qur'an not in a partial way. The verses of the Qur'an, their parts are related to each other. So, it is only possible to conclude a holistic analysis.

Hamka also carried out interpretations involving different verses when explaining the meaning of the prohibition on making fun of or insulting other people (QS. 49:12). Here, Hamka firmly states that making fun of other people is not permissible. The threat to the perpetrator is the *Wail* state. To strengthen this argument, Hamka quoted QS. 104: 1, which expressly mentions the threat. Linking these two verses indirectly gives Hamka's interpretation of a sequence between actions (morals) and sanctions.

A model like this can be categorized as comprehensive reasoning. When giving moral direction (code of conduct), he also conveys what kind of sanctions will be received if it is violated.

Apart from the Qur'an, Hamka also quoted the Prophet Muhammad's hadiths when explaining the verses' meaning. Using hadith in his explanation makes Hamka treat hadith according to its function appropriately. As is known, one of the functions of hadith in the Qur'an is to provide a context for meaning (*bayan al-tafsir*). In the tafsir *bi al-ma'tsur* tradition, almost no commentators do not involve hadith in their interpretation. These commentators believe that the text after the Qur'an (the second text) that is most authoritative in interpreting the meaning of the Qur'an is the hadith of the Prophet.

Among the hadiths of the Prophet that Hamka uses to interpret verses about non-violent education is the hadith about pride. In this hadith, it is revealed that arrogance has several characteristics. These include rejecting the truth and demeaning people. Hamka used this hadith to interpret the verse about prohibiting making fun of or insulting others. For him, because this insulting behavior is born of arrogance (considering other people to be inferior), this insulting attitude or action can also be categorized as arrogance. The next hadith quoted by Hamka relates to the prohibition of prejudice. The hadith says: *Never be prejudiced because truly evil thoughts are the most false words. And let yourselves be snooping around, and don't make trouble, and don't be side by side, and don't be envious and don't hate and don't turn around, and let all of you servants of Allah be brothers"*

V. CONCLUSION

This research concludes that in al-Azhar's interpretation there are several verses from the Koran that discuss the theme of anti-violence education. These verses include messages about love, gentleness, wisdom and good examples in educating children. Apart from that, there are also verses that condemn acts of violence against children. Hamka, in interpreting these verses, places a strong emphasis on the importance of avoiding violence in educating children. He interprets the verses by prioritizing the values of love, gentleness, wisdom and good examples in educating children. Hamka firmly opposes all forms of emotional physical violence that can damage a child's soul and future. Hamka's interpretation provides a comprehensive perspective on anti-violence education based on the Koran. Hamka's thoughts on non-violent education provide a very valuable contribution to the world of contemporary education. Hamka's views on the importance of avoiding violence in educating children are in line with modern educational trends which emphasize respect for children's rights and the use of a humanist approach that is free from violence. The findings of this research can be a basis and inspiration for educators and educational practitioners in creating a learning environment that is safe, healthy and supports children's positive development.

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Factors Related to Complaints Regarding Carpal Tunnel Syndrome (CTS) Among Batik Craftsmen

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ABSTRACT: The prevalence of complaints regarding CTS still become unknown problem due to very few people can make diagnosis and there are minimal reports of incidents from the formal and informal sectors. Batik craftsmen those who have a risk of complaints regarding CTS. This may occur due to repetitive hand movements, forceful hand movements, pressure on the hands or wrists, static hand positions, non-ergonomic hand and upper body positions, as well as flexion and extension positions. This study aims to determine the factors related to complaints regarding CTS among Batik Craftsmen. This was a cross sectional study with a quantitative approach. The study population involved all batik craftsmen in Trusmi Kulon Village, with total number of 135 people. There were 57 samples selected based on the Slovin formula and Accidental Sampling technique. The study instruments applied were questionnaire and observation sheet regarding working posture using RULA. Data were analyzed using the Chi Square test. The results that old age, long years of service and highrisk working posture were found as factors related to the incidence of CTS among batik craftsmen.

KEYWORDS: Carpal Tunnel Syndrome (CTS), Batik Craftsmen

INTRODUCTION

Carpal Tunnel Syndrome (CTS) is a disorder that occurs due to compression of the median nerve in the carpal tunnel with the main symptoms of tingling and pain that radiates to the fingers and hands which are triggered by the median nerve. Such symptoms can be accompanied by numbness, muscle weakness, stiffness and possible muscle atrophy, especially of the thumb, index, and middle fingers. CTS is related to work that uses a combination of strength and repetitive movements of the fingers over a long period (Wulandari E, 2020).

CTS is influenced by several factors including age, gender, nutritional status, history of illness, work factors (years of service, length of work, wrist posture, repetitive motion), and work environment (temperature, ventilation, humidity, noise, lighting and local cleanliness) (Tarwaka, 2015). CTS rates vary between 1% and 16% depending on the diagnostic criteria used. In fact, women are 3 times more likely to experience CTS than men (Fitri Octaviana, 2022).

One of the jobs related to using the hands to carry out repetitive movements for quite a long time is making batik. Batik craftsmen are informal sector workers who draw or design, make batik, dye and dry various types of cloth as raw materials to be processed into batik cloth using traditional work methods (Hidayatulloh, 2018). Batik making process has risk factors for CTS due to repetitive hand movements, forceful hand movements, pressure on the hands or wrists, static hand positions, non-ergonomic hand and upper body positions, as well as flexion and extension positions. (Hidayatulloh, 2018).

Based on the results of preliminary study and various problems supported by previous studies, it was shown that workers who routinely used their hands to carry out repetitive movements for a long time are at risk of experiencing complaints regarding CTS. Based on the results of the preliminary study, the most common complaints among batik makers were pain sensation in the wrists and tingling sensation in the fingers. Therefore, researchers are interested in conducting a study on factors related to the incidence of CTS among batik craftsmen in Trusmi Kulon Village, Cirebon Regency.

METHOD

This was a analytical study with a quantitative approach. The independent variables in this study included age, years of service and working posture. Meanwhile, the dependent variable in this study was Complaints regarding Carpal Tunnel Syndrome (CTS).

Factors Related to Complaints Regarding Carpal Tunnel Syndrome (CTS) Among Batik Craftsmen

The population in this study involved 135 hand-written batik craftsmen in Trusmi Kulon Village, Cirebon Regency (Buku Profil Desa Trusmi Kulon dan Kelurahan, 2017) Based on the calculation of the number of samples using the Slovin formula, 57 samples were obtained. The study samples were obtained using the accidental sampling technique. Data regarding CTS were collected through interviews using a questionnaire developed based on the BCTQ (Boston Carpal Tunnel Syndrome Questionnaire) (CILA, 2019), while working posture measurement was performed using the RULA (Rapid Upper Limb Assessment) by means of observation (Tarwaka, 2015). Bivariate analysis was conducted using the chi square test.

RESULT AND DISCUSSION

A. General Description of Age, Years of Service, Working Posture, Carpal Tunnel Syndrome (CTS)

Table 1. Frequency distribution of respondents

Varible	n	(%)
Age		
1. Young <35	25	44
2. Old ≥35	32	56
Years of Service		
1. New ≤5 years	18	32
2. Old >5 years	39	68
Working Posture		
1. Low risk	28	49
2. High risk	29	51
Carpal Tunnel Syndrome (CTS)		
1. No	7	12.3
2. Yes	50	87.7

Based on Table 1, it was revealed that more than half of respondents were in the old category or aged ≥35 years by 32 people (56%), years of service of >5 years by 39 people (68%), a highrisk working posture by 29 people (51%), and complaints regarding CTS by 50 people (87.7%).

B. Relationship between Age and Complaints regarding CTS

Table 2. Relationship between Age and Complaints regarding CTS among Batik Craftsmen

Age	Complaints regarding CTS				Total		p *value*
	No		Yes		n	%	
	n	%	n	%			
Young	7	28.0	18	72.0	25	100	0.002
Old	0	0.0	32	100	32	100	
Total	7	12.3	50	87.7	57	100	

Based on Table 2 regarding the analysis of age, it was found that more than half of respondents in the young category experienced complaints regarding CTS by 18 people (72%). Meanwhile, in the older age category, all respondents experienced complaints regarding CTS by 32 people (100%).

The results of the Chi Square test using the Fisher Exact Test value obtained a probability value (P value) of 0.002 (< 0.05). So, it can be concluded that there was a relationship between age and complaints regarding CTS among batik craftsmen in Trusmi Kulon Village, Cirebon Regency.

C. Relationship between Years of Service and Complaints regarding CTS

Table 3. Relation Between Years Of Service And Complaints Regarding Cts

Years of Service	Complaints regarding CTS				Total		p value
	No		Yes		n	%	
	n	%	n	%			
New	5	27.8	13	72.2	18	100	0.027

Old	2	5.1	37	94.9	39	100
Total	7	12.3	50	87.7	57	100

Based on Table 3 regarding the analysis of years of service, it was found that more than half of respondents who experienced complaints, 13 people (72.2%) were in the new worker category. Meanwhile, in the old worker category, most of respondents by 37 people (94.9%) experienced complaints regarding CTS.

The results of the Chi Square test using the Fisher Exact Test value obtained a probability value (P value) of 0.027 (< 0.05). So, it can be concluded that there was a relationship between years of service and complaints regarding CTS among batik craftsmen in Trusmi Kulon Village, Cirebon Regency.

D. Relationship between Working Posture and Complaints regarding CTS

Tabel 4. Relationship between Working Posture and Complaints regarding CTS

Working Posture	Complaints regarding CTS				Total		p value
	No		Yes				
	n	%	n	%	n	%	
Low risk	7	25.0	21	75.0	28	100	0.004
High risk	0	0.0	29	100	29	100	
Total	7	12.3	50	87.7	57	100	

Based on Table 4. regarding the analysis of working posture, it was found that more than half of respondents in the lowrisk category experienced complaints regarding CTS by 21 people (75%), while in the highrisk working posture, all respondents experienced complaints regarding CTS by 29 people (100%).

The results of the Chi Square test using the Fisher Exact Test value obtained a probability value (P value) of 0.004 (< 0.05). So, it can be concluded that there was a relationship between working posture and complaints regarding CTS among batik craftsmen in Trusmi Kulon Village, Cirebon Regency.

E. Age, Years of Service, Working Posture, and Carpal Tunnel Syndrome

Age is the period of a person's life which is calculated from birth to the present (Wahyuni ID, 2022). The results of study among 57 batik craftsmen revealed that more than half (56%) if respondents were included in the old category. The youngest age of the respondents was 23 years old and the mean age of batik craftsmen was 38 years old. Such finding is similar to a study conducted by Najmatun Nisa in 2018 regarding the description of the risk factors for CTS among editorial employees at the X Jakarta news agency in 2018, which found that CTS was more common in those aged over 30 years. In such study, 15 people (45.5%) were positive for CTS (Nisa N, 2018). The results of a study conductes by Farhan and Kamrasyid regarding factors that influenced the incidence of CTS among motorbike taxi drivers in 2018 further revealed that respondents were mostly in the ≥40 year group by 64 respondents (66.7%) and CTS was often found in the adult population at the age of 40-60 years. (FS, 2018)

In the results of the current study, more than half of respondents were aged 35 years and over, but the number was slightly different from those aged <35 years and most of the batik craftsmen were married. It seemed that young people aged <35 years old preferred to look for work outside the city.

Table 1 showed that more than half of respondents had years of service of >5 years by 39 people (68%). The newest workers had been working for 1 year and the mean yeras of service was 17 years. Such finding is similar to a study conducted by Elsye in 2019 regarding the relationship between years of service and the incidence of CTS in informal sector tailors in Solo sub-district, Kupang city. In such study, 5 people were positive for CTS with years of service of <4 years. On the other hand, 23 people were positive for CTS with years of service of ≥4 years. (Lulupanda EY, 2020)

Based on this study, it was shown that more respondents fell into the long years of service category and experienced a decrease in their ability to work. In fact, the longer the years of service, the more often they performed repetitive movements. Batik craftsmen carry out repeated painting movements following the pattern depicted on the cloth. In addition, the demand to complete work on time meant that workers did not use rest time properly. So, they could not reduce repetitive movements which resulted in the risk of CTS. Respondents who had been working for a long period were those who had families. So, they felt comfortable with their work and had no desire to look for another job.

Table 1 showed that of the 57 batik craftsmen, more than half of respondents were in high risk working posture by 29 people (51%) with a score of 7, while those with low risk obtained scores of 5 and 6. Such finding is similar to a study conducted by Muthoharoh in 2018 regarding factors related to the incidence of CTS among SPBE employees in Indramayu. In this study, there were 24 respondents (85.7%) who had a high risk. Furthermore, in a study conducted by Nabila in 2021 on the relationship between repetitive movements and working posture with the incidence of CTS, 31 people (91.2%) manual coconut peeling workers in traditional markets in the city of Surakarta had high RULA scores (Aprilia NP, 2021).

Most of the working postures in this study fell into the highrisk category with a score of 7. Batik craftsmen usually worked with a bent neck and had repeated flexion and extension movements of the arms and wrists. Monotonous and repetitive work will cause swelling of the tendons in the wrist. Muscle contractions that exceed 20% will reduce blood circulation to the muscles according to the level of muscle contraction carried out due to the large amount of force required. Such condition may cause the oxygen supply to the muscles to decrease and the metabolic process can be hampered, resulting in a buildup of lactic acid which further causes pain in the muscles.

Based on table 1, it was shown that of the 57 batik craftsmen, the majority of respondents experienced complaints regarding CTS by 50 people (88%) with the highest score of 3.3, the mean score was 2.2 and the lowest score of 1.0. The assessment of complaints regarding CTS among batik craftsmen was obtained by conducting interviews in the form of questions based on the CTS complaint questionnaire. The study finding is similar to a study conducted by Muthoharoh in 2018 on factors related to the incidence of CTS among SPBE employees in Indramayu. In this study, there were 30 respondents (75%) who experienced subjective complaints of regarding CTS. The study finding is also in line with a study conducted by Kirom in 2019 on the relationship between age, yeras of service and reactive movement of pressing the nozzle with subjective complaints of CTS among fuel filler operators at three gas stations in the city of Yogyakarta in 2019. In this study, there were 34 respondents (73.9%) who experienced risky complaints (CILA, 2019). The study finding is also similar to a study conducted by Isodorus et al in 2020 regarding the relationship between years of service and work attitudes with complaints regarding CTS among ulos weaving workers at the Sianipar Medan ulos gallery in 2020 which found 34 respondents (65.4%) who experienced complaints regarding CTS (Jehaman I, 2021)

CTS is a disorder on the hand that causes pain and numbness, especially in the thumb and three main fingers, namely the index finger, middle finger and part of the ring finger. Complaints regarding CTS founf in this study had the main cause of CTS which was often very difficult to determine, whether due to working conditions or due to an illness. The underlying cause of the complaints could not be found. However, due to economic pressures that required workers to continue doing this work and in the end the symptoms were considered normal conditions, the workers only treated such complaints with minimal medication. This can turn an ordinary condition into a serious illness.

F. Relationship between Age and Complaints regarding CTS

Table 2 shows the frequency distribution of chi square test results. It was known that there was a relationship between age and complaints regarding CTS among batik craftsmen in Trusmi Kulon Village, with a p value of 0.002. Such finding is similar to previous study conducted by Erlangga, et al in 2018 regarding factors related to the incidence of CTS with a p value of 0.000 (Wardana ER, 2018). Moreover, according to a study conducted by Farhan and Kamrasyid on the factors that influenced the incidence of Carpal Tunnel Syndrome among motorbike taxi drivers, it was found that 20 respondents (62.5%) in the age group of less than 40 years and 52 respondents (81.2%) in the age group of ≥40 years experienced complaints regarding CTS with a significant level of 0.000 ($p<0.05$). Such finding revealed a relationship between age and complaints regarding CTS (Wahyuni ID, 2022).

Age is one of the risks that is closely related to the incidence of CTS. As a person gets older, the synovial fluid decreases which can cause swelling in the joints. Bone degeneration occurs starting at the age of 30 years, where degeneration occurs in the forms of tissue damage, tissue change into scar tissue, and fluid reduction, which may decrease the stability of the bones and muscles (Wahyuni ID, 2022).

The current study revealed that there was a relationship between age and complaints regarding CTS among batik craftsmen. Such work involves a lot of repetitive and monotonously movements of the hands and wrists for quite a long duration. They are likely to be improper movements. One cause of complaints regarding CTS is that the older the age, the longer the exposure to the batik making movements, and the greater the risk of experiencing complaints regarding CTS. The incidence of CTS is caused by age factors which may be related to the biological effects of aging processes or to long exposure.

Relationship between age and batik craftsmen's complaints regarding CTS is because CTS is most often found at ages ≥ 35 years. Based on interviews, there were several respondents who experienced complaints such as tingling, numbness and pain in the wrist due to lack of rest. This can happen because the decreasing physical abilities of the workforce.

G.Relationship between Years of Service and Complaints regarding CTS

Based on statistical test, it was obtained the expectation value of <5. So, the Fisher Exact Test value of 0.027 was applied, meaning that there was a relationship between years of service and complaints regarding CTS. Such finding is in line with a study conducted by Asfian et al in 2021 on factors related to complaints regarding CTS among fuel filler operators at Kendari city gas stations which found that there was a relationship between years of service and complaints regarding CTS with a p-value of 0.012 (Pitrah Asfian, 2021). Such finsing is also in line with a study conducted by Putri et al in 2022 on the effect of vibration levels and length of exposure to using sewing machines on signs of complaints regarding CTS among workers at Malang Embroidery Palace. It was found that there was a relationship between working period and complaints regarding CTS among workers at Malang Embroidery Palace, with a p value of 0.035. Respondents who experienced CTS had been working for ≥5 years. Such workers might experience a decrease in their ability to work and the longer the years of service, the more often they performed repetitive movements (Tarwaka, 2015).

The study finding is also similar to a study conducted by Lalupanda in 2019 on the relationship between years of service and the incidence of CTS among informal sector tailors in Solor sub-district, Kupang City, which found that there was a significant relationship between years of service and the incidence of CTS with a P-value of 0.025 (Lulupanda EY, 2020). Based on the results of the interview, respondents who had been working for ≥5 years but did not have complaints regarding CTS was due they were used to batik work as well as complaints such as pain or tingling. So, they considered such complaints to be normal problems and ignored the perceived complaints. Meanwhile, for respondents who had been working for ≥5 years, complaints regarding CTS were because more frequent and continuous flexion or extension of the wrist could increase the risk of CTS. Repetition of hand movements can double the risk of CTS since the longer the years of service, the more the repetitive movements of the fingers over a long period of time, which can cause compression of the tissue around the carpal tunnel. In addition, an increase in years of service where hands are dominant indicates repetitive work on the hands for a long time, which may lead to a higher risk of CTS.

H. Relationship between Working Posture and Complaints regarding CTS

Based on statistical test, it was obtained the expectation value of <5. So, the Fisher Exact Test value of 0.004 was applied, meaning that there was a relationship between working posture and complaints regarding CTS. Such finding is similar to a study conducted by Nabila in 2021 on the relationship between repetitive movements and working postures with the incidence of CTS among manual coconut peeling workers in traditional markets throughout the city of Surakarta. In such study, a significance value of 0.013 was obtained, meaning that there was a significant relationship between the working posture variable and the complaints regarding CTS variable (Pertama IG, 2023). The study finding is also similar to a study conducted by Muthoharoh in 2018 regarding factors related to the incidence of CTS among SPBE employees in Indramayu. In this study, the Fisher Exact Test regarding the relationship between working posture and the incidence of CTS obtained a probability value (P value) of 0.041 (Aprilia NP, 2021). A further study was conducted by Hanna in 2018 regarding the relationship between repetitive movements, wrist posture, years of service and age with the incidence of CTS among iron workers (case study among column reinforcement forming workers, apartment construction project by PT X). It was obtained a p-value of 0.018 which revealed a relationship between working posture and complaints regarding CTS (Mariana HV, 2018).

Unnatural working postures and unergonomic ways of working for a long time can cause various health problems for employees, one of which is difficulty moving the legs, hands, neck or head. The working posture used by batik craftsmen while making batik was one of the factors in the incidence of CTS. The worse the worker's arm position, the more severe the symptoms of CTS (Wahyuni ID, 2022).

Monotonous work and repetitive movements carried out by batik craftsmen can cause complaints regarding CTS. In general, when making batik, people use both hands. Tje right hand is used to paint batik and the left hand is used to hold the cloth, this depends on the craftsman's habits when making batik. Movements such as bending and straightening the forearm, bending and straightening the wrist, rotating body position, shoulder movement position, position when the hand rotates, and the number of repetitive movements can influence the value in determining the risk level. The higher the risk level, the greater the chance of the incidencr of CTS. Static working positions and unergonomic hand postures on the shoulders, arms and wrists over a long period of time will cause inflammation of the muscle tissue, nerves or both. Swelling condition will put pressure on the median nerve of the hand, which can further cause CTS.

CONCLUSIONS

Based on the study results, it was found that the majority of respondents experienced complaints regarding CTS (88%). Furthermore, age, years of service and work posture had a significant relationship with complaints regarding CTS among batik craftsmen.

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Minahasan Traditional Food in Manado Songs

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ABSTRACT: Various seafood items, such as octopus, fish, shrimp, lobsters, mussels, scallops, oysters, and others, are commonly displayed on ice. Popular seafood items like salmon, lobster, and shrimp are often collectively called "seafood." Although previous studies have explored the lyrics of Manado songs extensively, there remains a notable lack of research specifically focused on traditional Minahasan food names within these songs. The research utilizes a qualitative approach, specifically a phenomenological method, within an ethnographic research framework. The analysis aims to evaluate the frequency and preferences of international tourists regarding Minahasan cuisine. The research employs a combination of observation, participant observation, and interviews to gather data. Manado City and Minahasa Regency informants are selected using purposive sampling for interviews and observations. This perspective is supported by evidence showing that some communities can effectively engage with various forces. The finding show that the vocabulary of traditional Minahasa food names in Manado songs includes various types of *Dabu-Dabu*, such as *Dabu-Dabu Biasa*, *Dabu-Dabu Lilang, Dabu-Dabu Iris, Dabu-Dabu Lemong, Dabu-Dabu Roa, Dabu-Dabu Cakalang, Dabu-Dabu Bakasang,* and *Dabu-Dabu Lompa*. These terms illustrate the rich and intricate culinary diversity of Minahasa, showcasing the depth of local culture. Secondly, the meanings of these food names in Manado songs go beyond their literal definitions, serving as homonyms with social, cultural, and economic implications. These meanings highlight the profound relationship between food and Minahasa identity, underscoring food's role as a symbol and essential element of their daily life and cultural traditions.

KEYWORDS: Minahasa, Traditional Food, Song

I. INTRODUCTION

A variety of aquatic foods chilling on ice, including octopus, fish, shrimp, lobsters, mussels, scallops, oysters, and more. Foods like salmon, lobster, and shrimp, are often categorized as "seafood."Aquatic foods are a diverse category of nutrient-dense, protein-rich foods that can also be a healthful animal-based alternative when cutting down on red meat or other land-sourced animal foods. Misconceptions exist, such as having a strong off-putting odor (fresh fish should not smell!) or higher cost than other animal protein foods, which may deter people from choosing aquatic foods. However, many aquatic foods are a major source of omega-3 fatty acids and various nutrients that are helpful in the prevention and treatment of cardiovascular disease, and that are vital for normal fetal development. They can also be delicious and satisfying, and incorporated into many meals like salads, stews, sandwiches, and main courses.

Aquaculture is emerging to fill gaps in seafood supply from reductions in existing wild fish stocks. Today, aquaculture represents the world's fastest growing food production industry, based largely in Asia (China, India, Vietnam, Bangladesh), Europe (Norway), and increasingly in Africa (Egypt) (2021). Modern production of aquatic foods can be split into two different sectors: wild capture and aquaculture. Wild capture production involves harvesting wild fish and other aquatic species from the ocean and freshwater sources. Aquaculture is the practice of farming aquatic plants and animals.

Previous scholars have frequently conducted research on the lyrics of Manado songs; however, studies specifically focusing on traditional Minahasan food names within these songs remain relatively scarce. This gap is significant because understanding food names is crucial for preserving Minahasan culture and local wisdom in the province of North Sulawesi. Previous research on Manado songs includes works by Senduk (2010), titled *Forms and Cultural Meanings of Manado Songs*, and Jansen (2011), titled *Cultural Meanings in the Lyrics of Manado Songs*. These studies primarily explore the cultural meanings of the words in Manado song lyrics. In contrast, research addressing traditional Minahasan food names in Manado songs is limited. The emerging issues are: 1) What forms of traditional Minahasan food vocabulary appear in Manado songs, and 2) What are their meanings?

II. ORAL TRADITION

Oral tradition encompasses the various forms of knowledge and customs passed down verbally from one generation to another within a specific community. According to Prudential (2008:184), oral tradition includes not only mythological stories and fairy tales but also a range of elements that pertain to the community's way of life, such as local wisdom, value systems, traditional knowledge, history, law, medicine, religious beliefs, artistic achievements, and ceremonial practices, including traditional marriage customs. These components are integral to oral tradition and are vital for preserving cultural heritage. Oral tradition can be viewed as a cultural event or as a form of culture continuously recreated, utilized, developed, and preserved, making its maintenance essential. One of the efforts to explore and enhance the potential of oral tradition, including protecting Indonesia's cultural intellectual property, involves structured and continuous research. The primary sources of study are the speakers and informants who hold and convey oral traditions, whether verbal or non-verbal. Oral traditions, therefore, are the culturally inherited activities of a community passed down through generations, encompassing both verbal and non-verbal forms.

Further, Sibarani (2012:43-46) outlines several characteristics of oral tradition: 1. it consists of cultural activities, habits, or practices that are verbal, partially verbal, or non-verbal. 2. It involves specific activities or events as its use context. 3. It can be observed and witnessed. 4. It is traditionally rooted. This means that oral traditions must include ethnic elements, whether purely ethnic or newly created with ethnic elements. 5. It is transmitted from one generation to the next. 6. The transmission occurs through oral means from mouth to ear. This characteristic includes non-verbal culture as an oral tradition because non-verbal customs, such as rituals, are communicated from elders to younger generations through speaking and listening. 7. It embodies cultural values and norms. 8. It has multiple versions. 9. It is collectively owned by specific communities or by all society collectively. It holds potential for revitalization and can be promoted as a cultural industry resource.

Given these explanations, building a paradigm that views oral tradition as a strength is essential. This perspective is supported by evidence showing that some communities can effectively engage with various forces, including hegemonic and external powers. This paradigm is based on the view that oral tradition represents the social and cultural activities of the communities that practice it. The connection between cultural products and the communities that produce them is inseparable; both highly depend on each other. Without the supporting community, the tradition cannot be presented or continued. Conversely, without the tradition, the community would lose its human identity and many essential elements, particularly traditional knowledge, local wisdom, and values that were once integral to the community. To understand these values thoroughly, it is necessary to compare them with facts in the context of oral tradition to extract and appreciate the traditional values. Traditional knowledge enables communities to address environmental challenges by developing appropriate technologies, while local wisdom helps them understand their environment. According to Fortes (in Tilaar, 2000: 54-55), when examining cultural transmission, attention must be given to the elements transmitted, the process of transmission, and the methods of inheritance. In this context, the transmitted elements include cultural values, community traditions, and life views that contain wisdom, essential truths, and ideas.

Local wisdom is formed as a result of the cultural excellence of local communities and their geographical conditions in a broad sense. It represents the cultural products of the past that should continuously serve as a guide for living. Despite being specific to local contexts, the values embedded in local wisdom are considered highly universal and relevant to a wider audience. Sibarani (2012:1) elaborates that local wisdom involves "remembering the past, understanding the present, and preparing for the future." This means that remembering the past entails efforts to explore and identify past traditions, discerning the values within them, and extracting valuable elements from those traditions. Understanding the present involves addressing current life issues, recognizing their strengths and weaknesses, and providing solutions based on the values of past traditions. Haba (2007:11) further explains that local wisdom refers to the cultural richness that grows and develops within a society, recognized and trusted as crucial elements that enhance social cohesion. Haba (2007:4) outlines several functions of local wisdom: (1) serving as a marker of a community; (2) acting as a cohesive element across citizens, religions, and beliefs; (3) not being coercive or top-down but rather an intrinsic cultural element within the society, thereby having a more profound and lasting impact; (4) adding a sense of unity within a community; (5) changing thought patterns and reciprocal relationships between individuals and groups by positioning them on common ground or shared culture; and (6) encouraging the development of mutual understanding, appreciation, and serving as a collective mechanism to counter potential threats that could undermine or damage communal solidarity, which is nurtured through shared awareness within an integrated community. Meanwhile, Rahyono (in Sinar, 2011:4) asserts that local wisdom represents the intelligence possessed by a group (ethnic group) that is acquired through their life experiences and manifested in their distinctive cultural traits. In other words, a member of a cultural community has intelligence shaped by learning processes within their home and life.

III. RESEARCH METHOD

The research method employed is qualitative, utilizing a phenomenological approach within the framework of ethnographic research. The study focuses on traditional Minahasan food names that carry cultural and linguistic significance, treating these as measurable facts through descriptive statistical analysis. Descriptive statistical analysis is applied to assess the frequency of international tourists' consumption levels based on their preferences for Minahasan cuisine. Data collection methods include observation, participant observation, and interviews. The interviews and observations are conducted with informants in the city of Manado and Minahasa Regency, selected through purposive sampling. Data analysis is carried out through interpretive steps involving descriptive statistical analysis.

The research method is qualitative and phenomenological. It uses an ethnographic approach to examine the categorization and variations of Minahasan food names from international tourists' perspectives, opinions, thoughts, or ideas. Data collection involves direct field observations and interviews with informants. The research method used is qualitative and phenomenological, employing an ethnographic approach to examine the categorization and variations of Minahasan food names from international tourists' perspectives, opinions, thoughts, or ideas. Data collection is conducted through direct field observations and interviews with informants.

IV. RESEARCH METHOD

4.1 Forms of Vocabulary for Traditional Minahasan Food Names in Manado Songs

The names of traditional Minahasan foods in Manado songs can be described as follows. After researching the lyrics of Manado songs, traditional Minahasan food vocabulary such as “Batata rubus”, “Dabu-dabu”, and “Aer kalapa muda” was found. These terms appear in the lyrics of the song **"Kota Manado."**

Kota Manado
Kota Manado yang kucintai
Kita nyanda mo lupa
Dari kita masih kecil sampe kita so basar
Jaga pigi di kobong
Makang Batata rubus, colo deng Dabu-dabu
Adodo pe pedis skali
Cari aer nyanda dapa minung Aer kalapa muda
Adodo pe sadap skali

When singing this song, people are sure to encounter several important vocabulary words. The lyrics in the first and second verses discuss a city, namely Manado, which is deeply loved and unforgettable. The lyrics are as follows.

Kota Manado yang kucintai (1)
Kita nyanda mo lupa (2)

The lyrics in the third and fourth verses discuss a person's life in the city of Manado, who often goes to the garden from childhood until adulthood, as reflected in the following song lyrics.

Dari kita masih kecil sampe kita so basar (3)
Jaga pigi di kobong (4)

The lyrics in the fifth and sixth verses state that the person eats boiled sweet potatoes and very spicy dabu-dabu (a type of sambal), as reflected in the following song lyrics.

Makang *Batata rubus*, colo deng *Dabu-dabu (5)*
Adodo pe pedis skali (6)

Meanwhile, the lyrics in the seventh and eighth verses state that the person is so spicy that they look for water to drink, but since no water is available, they end up drinking coconut water instead. The lyrics are as follows.

Cari aer nyanda dapa minung *Aer kalapa muda (7)*
Adodo pe sadap skali (8)

In the fifth and seventh stanzas of the song, the food names Batata Rubus and Dabu-Dabu appear. While in the seventh stanza of the song, the name of the drink Aer kalapa muda is found.

The vocabulary of the food name Batata rubus can be included in a noun phrase consisting of Batata as the core (head), while Rubus is a modifier. The word Batata belongs to the noun class as a type of yam is the core because it is fixed and cannot be changed. On the other hand, the word Rubus can be changed to fried or steamed.

The word Dabu-dabu is a type of chili food in the Minahasa region that can be further detailed. Dabu-Dabu consists of regular Dabu-Dabu, Dabu-Dabu Lilang, Dabu-Dabu Iris, Dabu-Dabu Lemong, Dabu-Dabu Roa, Dabu-Dabu Cakalang, Dabu-Dabu Bakasang, and Dabu-Dabu Lompa. The name of ordinary Dabu-Dabu food is a chili sauce that only consists of chili peppers, shallots, tomatoes, which are kneaded and salted. The food name Dabu-Dabu Lilang, is a chili sauce consisting of chili peppers, shallots, tomatoes, which are kneaded and salted. The food name Dabu-Dabu Iris is a chili sauce consisting of chili peppers, shallots, tomatoes, which are kneaded and salted. Dabu-Dabu Lemong is a chili sauce consisting of chili peppers, shallots, tomatoes, which are mixed with salt and orange juice. The food name Dabu-Dabu Roa, is a chili sauce consisting only of chilies, shallots, tomatoes, which are mixed with roa fish, and given salt. The food name Dabu-Dabu Lemong is a chili sauce consisting only of chili, shallots, tomatoes, which is kneaded and given salt and orange juice.

The food name Dabu-Dabu Roa, is a chili sauce consisting of chili peppers, shallots, tomatoes, which are mixed with roa fish, and given salt. Dabu-Dabu Cakalang is a chili sauce consisting of chili peppers, shallots, tomatoes, mixed with skipjack fish, kneaded, and salted. Dabu-Dabu Lompa is a chili sauce consisting of chili peppers, shallots, tomatoes, mixed with lompa fish, kneaded, and salted. The food name Dabu-Dabu as a reduplication word is a hyponym which can be explained as follows. The word Dabu-Dabu is a superordinate, while some Dabu-Dabu names are sub-ordinate. Its tree diagram in taxonomy is as follows.

Dabu-Dabu (DD)
DD Biasa DD Lilang, DD Iris, DD Lemong, DD Roa, DD Cakalang, DD Lompa

4.2 Vocabulary meaning of traditional Minahasa food names in Manado songs

The vocabulary meanings of traditional Minahasa food names such as Batata Rubus, Dabu-Dabu, and Aer Kalapa Muda are as follows.

1. Batata Rubus
2. Dabu-Dabu
3. Aer Kalapa Muda

Homonyms

Food names, serving as lexical devices within the Minahasa community, encompass a broad spectrum of meanings and cultural significance. These names are not merely labels for dishes but are imbued with rich cultural and social connotations that reflect the Minahasa people's culinary heritage. For instance, names of traditional foods like Dabu-Dabu, which comes in various forms such as Dabu-Dabu Biasa, Dabu-Dabu Lilang, Dabu-Dabu Iris, Dabu-Dabu Lemong, Dabu-Dabu Roa, Dabu-Dabu Cakalang, Dabu-Dabu Bakasang, and Dabu-Dabu Lompa, illustrate a deep connection between language and local gastronomy. Each variant of Dabu-Dabu highlights different aspects of Minahasa cuisine and carries specific regional, historical, or social meanings. Additionally, these food names serve as homonyms that convey broader socio-cultural and economic contexts, revealing how food is intertwined with community identity, social practices, and economic interactions. In essence, food names in the Minahasa community function as vital markers of cultural identity and heritage, reflecting the complex interplay between language, tradition, and everyday life.

Dabu-dabu

The lexical unit dabu-dabu consists of dabu-dabu lilang, dabu-dabu bakasang, dabu-dabu lompah, dabu-dabu rica, dabu-dabu trasi, and dabu-dabu biasa. Dabu-dabu is pronounced dabu-dabu even though the ingredients mixed in the food vary, namely fruit, fish or fish belly components. The fruit component consists of tomatoes, chilies, onions; while the fish is called ikan lompah and roa. In the lexical unit of *dabu-dabu* with its parallel form, the core meaning is found in dabu-dabu with the basic food components, namely chili, tomato, shallot, while the following lexemes or words such as bakasang, trasi, lompa, and roa are only additions with an emphasis on what ingredients are mixed and the taste is different from ordinary dabu-dabu without the addition of other ingredients. Homonymy in dabu-dabu lexical units is psychological because people choose food ingredients based on what they like and what ingredients are around them (Leech, 1981).

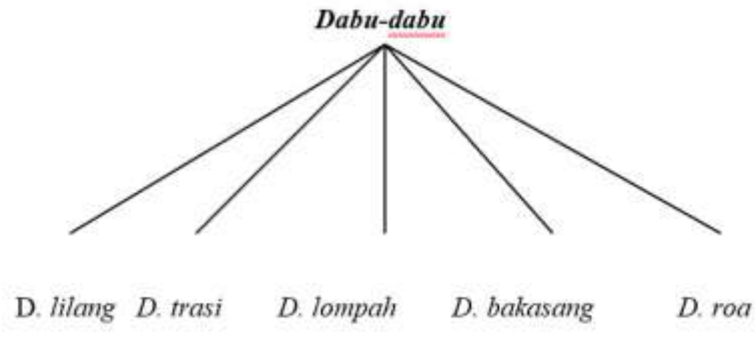

Figure 1. Diagram of *Dabu-dabu*

V. CONCLUSIONS

After conducting a study of Manado song lyrics containing names of traditional Minahasa foods, several key conclusions can be drawn. First, the vocabulary forms of traditional Minahasa food names found in Manado songs consist of phrases referring to various types of Dabu-Dabu, including Dabu-Dabu Biasa, Dabu-Dabu Lilang, Dabu-Dabu Iris, Dabu-Dabu Lemong, Dabu-Dabu Roa, Dabu-Dabu Cakalang, Dabu-Dabu Bakasang, and Dabu-Dabu Lompa. These phrases reflect the rich and complex culinary diversity of Minahasa and highlight the richness of local gastronomic culture. Second, the meanings of these traditional food names in Manado songs are literal and serve as homonyms, encompassing social, cultural, and economic connotations. These meanings underscore the deep connection between food and the identity of the Minahasa people, as well as the role of food as a symbol and an integral part of their daily lives and traditions.

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Islamic Personal Building to Build Students Character at Integrated Islamic Primary School Mutiara Hati Banjarnegara

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ABSTRACT: The purpose of this reaserch to describe and analyze the Islamic Personal Development program to shape the character of students at SD IT Mutiara Hati Purwareja Klampok Banjarnegara. This research is qualitative research with a phenomenological approach. The subjects of this research were the principal, teachers and students at SD IT Mutiara Hati Purwareja Klampok Banjarnegara. The object of this research is the Islamic Personal Development program which is implemented at SD IT Mutiara Hati Purwareja Klampok Banjarnegara to shape the character of students. The methods used to obtain data are observation, interviews and documentation. The results of this research show that the Islamic Personal Development program implemented at SD IT Mutiara Hati Purwareja Klampok Banjarnegara includes Routine Development through Teaching and Learning Activities, BPI infaq, Commemoration of Islamic, Welcoming the Month of Ramadan, Ramadan Cheerful, Mutabaah, and Courtesy Practices at school. The Islamic Personal Development program is forming the religious, honest, disciplined, responsible and socially caring character of students at SD IT Mutiara Hati Purwareja Klampok Banjarnegara.

KEYWORDS: Islamic Personal Development, character, students.

I. INTRODUCTION

The concept of principal leadership concerns the role and ability of the principal in carrying out management functions. The principal as the leader of the educational unit carries out a dimensional role. Leadership of the Madrasah/School head as: creator, visionary, curriculum developer, professionalization driver, change agent, and effective communicator. Therefore, leadership is a person's ability to influence and motivate other people to do something according to a common goal. An effective leader is a leader whose members can feel that their needs are met, whether for work, motivation, recreation, health, clothing, food, shelter, or other needs that they deserve. Studies on the concept of leadership have long been carried out by management experts. Leadership is defined as the ability to direct and convince colleagues or staff to voluntarily carry out collaborative activities to achieve organizational goals in accordance with the organization's vision and mission. Leadership or leadership includes groups, applied sciences from the social sciences. Because the principles, the formula and its postulates are useful in improving human welfare. As a branch of science, Leadership has an important role in optimizing management. Because the role of a leader is basically a description of a series of leadership functions. Apart from that, a leader must be able to make decisions. Decision making is a prerequisite for determining action, is also the causa (cause) for the response (action).

The development of science and technology in the era of society 5.0 makes it very easy for us to obtain important information that is useful for their lives. However, this also creates an impact on the moral degradation of the younger generation (Ikhsan et al., 2023). Moral decline is one of the factors inhibiting the nation's progress (Suprobo & Sari, 2023). It must also be understood that moral decline is a serious problem for a nation (Efa & Syari, 2023). Many non-normative behaviors are committed by children, school-aged teenagers, students, and others. Non-normative behavior will certainly damage the life of the nation and state (Karmila & Tarmana, 2021). All this non-normative behavior certainly shows the low level of Islamic personality, resulting in low morals for the nation's generation and moral decadence (Julkarnain & Tamam, 2022). Therefore, for the sake of the nation's progress, it is important to instill education from an early age (Nurrofi'i, 2023). Education is interpreted as a process of operating normative knowledge, which will give color to the social life of each individual in society and life in the future (Dr. Akrim, 2020). Through education, Good and civilized character can be shaped into individuals (Khulfanudin et al., 2023). However, in reality, in the last decade education in Indonesia has not been implemented as expected. Many problems occur, one of which is the weak morals of the younger generation. Meanwhile, the progress of a nation is determined by the quality of the young generation (Rahmawati, 2022).

Forming individuals with good morals is the responsibility of all parties, including educational institutions. In fact, educational institutions are at the forefront of forming a young generation with noble personalities (Rizki Febrian & Yozi, 2023). Noble morals or good personality are very closely related to Islamic personality, or in other words, if someone has good morals, it can be said that he also has a good personality (Julkarnain & Tamam, 2022). However, until now not all educational institutions in Indonesia have been able to mold their students into a generation with noble morals (Aslim & Makruf, 2021). It has been proven that there are still many cases of students behaving in violation of norms. This is a serious problem that must be immediately found a solution. To successfully produce a generation with good morals, educational institutions need to implement moral development programs that are Islamic personal development (Khulfanudin et al., 2023). Through programs that are Islamic personal development, it is hoped that they will be able to form individuals with an Islamic, pious and tough character so that in the future students will have good abilities in living in society and grow into a religious, independent, intelligent and superior generation (Suryani et al., 2022).

One program that is Islamic personal development that can be developed in educational institutions as an effort to educate, guide and direct students to have good morals is the Islamic Personal Development program (BPI). This program is a flagship program of Integrated Islamic Schools (SIT) under the auspices of the Integrated Islamic School Network (JSIT). Islamic Personal Development (BPI) is included in the curriculum, implemented in the students' learning process which aims to strengthen development in forming students' Islamic character (Rahman et al., 2022). Like the concept launched by the government regarding Strengthening Character Education, the Islamic Personal Development program (BPI) is a step taken by the Integrated Islamic School (SIT) to implement this government program. In this way, it is hoped that SIT will play a role in forming and developing good morals for students from an early age (Parittiga et al., 2023). Through the Islamic Personal Development (BPI) program, great hopes can be realized to produce the next generation who have an Islamic personality.

Previous research related to the Islamic Personal Development (BPI) program has been carried out by several researchers, including the following:

First, the results of research by Masriqa Aslim and Imam Makruf, 2021, entitled "Management of the Islamic Personal Development Program at SMP IT Insan Scholar Klaten" states that the management of the BPI program goes through five stages, namely determining a series of activities to achieve the desired results and goals, organizing the program BPI, implementation of the PBI program, guidance on the BPI program, and evaluation of adab values.

Second, research by Mohamad S. Rahman, et al., 2022, entitled "Implementation of the Islamic Personal Development Program (BPI) in Instilling Character Values in Students at the Integrated Islamic Middle School Harapan Bunda Manado" states that the instillation of religious, honest and responsibility is carried out through the delivery of BPI material about character values at weekly BPI program meetings, as well as habits that are routinely carried out in schools such as morning dhikr, strengthening homeroom teachers, sunnah dhuha prayers, midday prayers in congregation, sunnah fasting, cleaning picket duties and school work.

Third, Khulfanudin, et al., 2023, in research entitled "Implementation of Character Education as an Effort to Improve the Quality of Islamic Personal Development for Students" stated that through an exemplary approach, habituation and coaching the results have a positive impact on the discipline of worship routines, speaking politely and well. towards others, understand the basic teachings of Islam and practice them.

II. RESEARCH METHODS

This research at Integrated Islamic Primary School Mutiara Hati Banjarnegara uses qualitative methods which are based more on phenomenological philosophy which emphasizes appreciation (versteher) of human behavior. Data collection techniques use observation, interviews and documentation and triangulation as data validity testing techniques where researchers try to gain data credibility by combining observation, documentation and interview techniques for the same data collection. Djam'an Satori and Aan Komariah (2009: 22) state that qualitative research is research that emphasizes quality or the most important thing about the nature of a good service. Meanwhile, according to Sugiyono (2013), qualitative research methods are suitable for researching research problems that are unclear, still unclear, or perhaps still dark. This kind of condition is suitable for research using qualitative methods, because qualitative researchers will go directly into the object, carry out exploration using Grand Tour Questions, so that the problem can be found clearly and for strengthening and completing research data collection, researchers also used a tape recorder as a tool in collecting data and recording non-verbal information.

III. RESULT AND DISCUSSION

Islamic Personal Development (BPI) is a flagship program of Integrated Islamic Schools (SIT) under the auspices of the Integrated Islamic School Network (JSIT). Through this program, it is hoped that students with Islamic personalities will be formed. Various activities are designed and implemented in schools to provide positive guidance in accordance with Islamic teaching values. The following are the results of research and explanations regarding the implementation of the Islamic Personal Development (BPI) program at SD IT Mutiara Hati Purwareja Klampok Banjarnegara.

1. Program of Islamic Personal Development (BPI)

Amroh Sufiati, Head of SD IT Mutiara Hati Purwareja Klampok Banjarnegara explained that Islamic Personal Development is the study or study of various Islamic life concepts, Islamic doctrines, and life skills related to the role of humans as caliphs on earth to become lessons in social and national life. Islamic Personal Development can also be interpreted as a study of the advantages and values of Islamic life to be transformed to the next generation so as to give birth to a generation of people who believe in and are devoted to God Almighty. (interview Friday, November 10, 2023).

Furthermore, Eti Endarwati, deputy head of BPI SD IT Mutiara Hati Purwareja Klampok Banjarnegara also believes that Islamic Personal Development is an inseparable part of the Islamic Religious Education subjects given at the primary and secondary education levels. Islamic Personal Development has a strategic role in forming the religious character and civilization of the Indonesian nation. (interview Monday, November 13, 2023).

Furthermore, Suwarno, one of the BPI teachers at SD IT Mutiara Hati Purwareja Klampok Banjarnegara also believes that Islamic personal development is an activity carried out by teachers in integrated Islamic schools, where these teachers are provided with the curriculum or SKL from the Islamic Personal Development program. The teachers who provide Islamic personal development are called BPI Mentors. Islamic Personal Development is a superior program of Integrated Islamic Schools (SIT) which is under the auspices of the Integrated Islamic School Network (JSIT) in order to strengthen the development of students' Islamic character formation. The BPI program is also included in the curriculum, namely in the Teaching and Learning Activities (KBM) process. (interview Wednesday, November 15, 2023).

In accordance with the explanation above, here are several opinions regarding the Islamic Personal Development program.

a. Islamic Personal Development is a program designed by integrated Islamic foundations throughout Indonesia. Islamic Personal Development is a multidimensional mentoring process to improve relationships between children and parents, peers and teachers to help children face challenges and problems in their daily lives. Basically, the essence of Islamic Personal Development is Islamic development (Karmila & Tarmana, 2021).

b. The Islamic Personal Development Program (BPI) is an Islamic character education and development activity, in the form of group-based recitations which are routinely carried out every week. With the BPI program, students are guided and nurtured according to the material determined by the Integrated Islamic School Network (JSIT) and supported by familiarization carried out by the school (Rahman et al., 2022)

c. Islamic Personal Development education and learning is the process of internalizing Islamic personal values, knowledge and skills from a series of learning facilities that are designed and arranged in such a way as to support the learning process of students.

Based on these opinions, it can be concluded that Islamic Personal Development (BPI) is a study that discusses Islamic life which is a reference for Integrated Islamic school students. Islamic Personal Development (BPI) as a study aims to combine the applied knowledge of Islamic religious education into the form of charity in everyday life. Apart from that, Islamic Personal Development is carried out in the form of educational and learning activities to form an Islamic personality for students.

2. The Neccessity of Islamic Personal Development (BPI) at SD IT Mutiara Hati Purwareja Klampok Banjarnegara

Education is effort for guide strength nature in self every children so that they apable grow and develop as man nor as member community that can reach safety and happiness in life them (Tsoraya et al., 2022). Education is an effort to guide the qualities of strength within each child so that they are able to grow and develop as humans and as members of society who can achieve safety and happiness in their lives. Education can also be achieved through 2 things, namely formal and non-formal education. Through this education, guidance is carried out to become a good person according to Islamic teachings so that we become a human being who has an Islamic personality.

Amroh Sufiati, Head of SD IT Mutiara Hati Purwareja Klampok Banjarnegara also explained that hhe Islamic Personal Development Program (BPI) is very important to implement in schools in order to form Islamic character for students. The Islamic Personal Development Program (BPI) aims to ensure that students have the following abilities: First, to build students' awareness of the importance of having an Islamic personality and a preacher's personality. Second, to develop students' abilities in strengthening their Islamic personality and a preacher's personality. Third, foster students' appreciation and respect for the holy book Al Qur'an, hadith, fatwas and the works of ulama. Fourth, foster students' understanding of themselves, their families, Muslims and the entity of the Indonesian nation from an Islamic perspective. Fifth is to foster awareness in students as part of the Indonesian nation who have a sense of pride and love for their homeland, giving birth to empathy and tolerant behavior that can be implemented in various areas of community and national life. (interview Friday, November 10, 2023).

The Islamic Personal Development Program (BPI) implemented in schools can form students' Islamic personalities who have straight aqidah, are able to carry out correct worship, have a mature personality and noble character, become serious individuals, disciplined and able to restrain themselves, have the ability to read, memorize and understand the Qur'an well, have broad insight and have life skills (Julkarnain & Tamam, 2022).

The Islamic personality possessed by each individual is a very important characteristic for every individual, including students in an educational institution, to have (Julkarnain & Tamam, 2022). Thus, it can be concluded that the Islamic Personal Development program in schools is very important to implement because it can be an alternative in forming students' Islamic character. The activities carried out in the Islamic Personal Development program are character development which functions to provide students with an understanding of the character of a Muslim and how it is applied in everyday life. With this character development, it is hoped that students will have an attitude that is obedient to Allah The Almighty and dutiful to their parents and useful to the nation and state. The Islamic Personal Development Program is carried out once a week according to the schedule of each BPI supervising teacher. The second activity is like taking a walkin nature, this activity is an activity of how we learn the meaning or wisdom of the creation of the universe, apart from that, with this experience of nature, students can take lessons from the natural world around them so as to grow their love for Allah The Almighty, the creator of this universe.

3. Implementation of Islamic Personal Development (BPI) in SD IT Mutiara Hati Purwareja Klampok Banjarnegara

The Islamic Personal Development Program is carried out intensively, each teacher covers from 10 to 12 students. With intensive management, character education instilled in students can be carried out intensively (Agra, 2021). The implementation of the BPI program is a breakthrough for Islamic educational institutions with a religion-based curriculum, namely using the JSIT curriculum. The BPI program activities provide psychological fulfillment by planting religious material, while physical fulfillment, one of which is through siyahah activities with the aim of commemorating the Prophet's hijrah as well as for students' physical fitness (Aslim & Makruf, 2021).

Amroh Sufiati, Head of SD IT Mutiara Hati Purwareja Klampok Banjarnegara also explained that the activity carried out in the Islamic Personal Development program at SD IT Mutiara Hati Purwareja Klampok Banjarnegara is character development which functions to provide students with an understanding of the character of a Muslim and how it is applied in everyday life. With this character development, it is hoped that students will have an attitude of obedience to Allah SWT, be filial to their parents and be useful for the nation and state. BPI is carried out routinely, namely once a week according to the schedule made by each BPI supervising teacher. In the BPI program at our school there are also nature tadabur activities. This activity aims to teach our students to be able to learn the meaning or wisdom of the creation of the universe, apart from that, with this nature, students can take lessons from the natural world around them so that their love for Allah SWT grows even more. the creator of this universe. (interview Friday, November 10, 2023).

BPI program activities are divided into two, namely program activities included in the curriculum and program activities outside the curriculum. Meanwhile, for activities that are outside the curriculum, the activities and learning or series of activities depend on each BPI teacher and adjust to student needs. To finance extra-curriculum activities in accordance with the BPI program group agreement (Aslim & Makruf, 2021).

In implementing the Islamic Personal Development program, there are supporting factors that make this program more effective in improving the character education that will be formed in students. The supporting factor in the Islamic Personal Development program is that the program created by the school is neatly structured and easy to understand by the teachers who run it. The objectives of the program can be clearly described so that the output obtained will be more effective. The program is carried out in strategic locations and supporting facilities (Agra, 2021).

a. Training

Eti Endarwati, as deputy head of schools for BPI also said that supervision of the BPI program is carried out by the school principal and head of student affairs, monitoring activities directly through official reporting every week on Saturday, but reporting can be reported every day via the BPI WA group. Meanwhile, coaching students through the BPI program includes teachers collecting information about difficulties or problems through self-mutab'ah and then identifying it from checking the student's mutaba'ah book, such as during the Fajr prayers, students often do not join together due to the laziness of students praying in congregation, so that is one alternative. solving problems by giving taujih the priority of morning prayers in congregation. (interview, 13 November 2023).

The explanation given by the deputy principal for BPI SD IT Mutiara Hati Purwareja Klampok Banjarnegara is in line with Najib's opinion (2016:14-15) regarding effective coaching through five main sequential steps. The five steps are: collecting information, identifying problems, analyzing problems, searching for and determining alternative problem solutions and implementing problem solving efforts.

b. Evaluation

There are 2 types of evaluation carried out in the BPI program at SD IT Mutiara Hati Purwareja Klampok Banjarnegara, namely evaluation of the BPI learning program and evaluation of the BPI non-learning program. Amroh Sufiati, Head of SD IT Mutiara Hati Purwareja Klampok Banjarnegara also explained that the most important evaluation of BPI activities is evaluation using student muttaba'ah books which are filled with BPI achievement targets both carried out at school and at home. Meanwhile, for evaluation of BPI's external learning programs such as mabit, visits from community leaders, siyahah, etc., evaluations are used from the results of children's worksheets. Thus, the BPI program assessment has input, namely changes in student attitudes or behavior, the output is the student's etiquette or attitude value with assessments A, B, and C, then the outcome is the student's etiquette value which will be reported or conveyed to the student's parents with use description. Descriptive reporting regarding evaluation results or BPI program scores aims to establish communication with students' parents in the hope that good communication and cooperation can be established between the school and the students' parents to jointly follow up on the evaluation results and jointly find solutions. best for achieving BPI program objectives. (Friday interview, 10 November 2023).

Eti Endarwati, deputy head of BPI SD IT Mutiara Hati Purwareja Klampok Banjarnegara also added that to find out the results of achieving BPI learning objectives, teachers here carry out regular evaluations. Based on the evaluation results obtained, the teacher will then carry out follow-up actions. If the teacher still finds that there are students who are not optimal in understanding and applying BPI material, positive character in the students has not yet emerged or is still lacking, then the teacher will give more attention and also more intense guidance so that positive character develops. students can improve. This BPI program is actually an alternative program at SDIT Mutiara Hati Purwareja Klampok Banjarnegara as an effort to shape the character of students. The Islamic Personal Development Program (BPI) is actually the right partner for teachers in educating and guiding students here to become individuals with positive character. (Interview, 13 November 2023).

Evaluation of the Islamic Personal Development (BPI) program is carried out regarding all students' daily activities at school and at home which include worship activities, attitudes or behavior, and other activities that students have received as a result of BPI activities. Evaluation of the Islamic Personal Development (BPI) program should ideally be carried out once a week (Agra, 2021).

Next, regarding the evaluation of the Islamic Personal Development (BPI) program at SD IT Mutiara Hati Purwareja Klampok Banjarnegara, Eti Endarwati stated that it is important to carry out the evaluation of the Islamic Personal Development (BPI) program in a well-planned, directed and sustainable manner to obtain data and ensure that the program is running smoothly. Islamic Personal Development (BPI) has been successful and has had an impact on increasing students' faith and devotion to Allah SWT, students' morals have improved, the quantity and quality of worship has increased, and students' concern for the environment and society has also increased. (Interview, 13 November 2023)

Evaluation of the Islamic Personal Development (BPI) program must be carried out regularly. There are 2 types of BPI evaluation, namely BPI learning program evaluation and BPI external learning program evaluation. The most important evaluation of BPI activities is evaluation using student mutabaah books with targets filled in at school and at home. Meanwhile, for evaluation of BPI's external learning programs such as mabit, visits to community figures, siyahah, etc., evaluations are used from the results of student worksheets. Thus, the BPI program assessment has input, namely changes in student attitudes or behavior, the output is the student's etiquette or attitude value with the criteria for grades A, B, and C. Furthermore, the student's etiquette score will also be reported to the student's parents using a description. This also aims to establish communication with students' parents who hope to follow up and get the best joint solution.

c. Development

The development stage of the Islamic Personal Development (BPI) program in an institution is carried out based on the evaluation results. Regarding the development of the Islamic Personal Development (BPI) program at SD IT Mutiara Hati Purwareja Klampok Banjarnegara, Eti Endarwati said that the development of the Islamic Personal Development (BPI) program is carried out in accordance with previously established plans. The follow-up to the development of the Islamic Personal

Development (BPI) program is carried out by modifying the grouping of students in the implementation of Islamic Personal Development (BPI) in schools so that it is more effective and efficient. Through this strategy, it is hoped that the Islamic Personal Development (BPI) program which is implemented in the next period or stage can optimally achieve the goals as previously set, namely a change in children's attitudes to be better than before. (interview Wednesday, 15 November 2023).

Furthermore, Amroh Sufiati, Head of SD IT Mutiara Hati Purwareja Klampok Banjarnegara also explained that every implementation of a program must have supported and inhibiting factors. In implementing the Islamic Personal Development program, there are supporting factors that make this program more effective in improving the character education that will be formed in students. The supporting factor in the Islamic Personal Development program is that the program created by the school is neatly structured and easy to understand by the teacher who will run or implement it. The next supporting factors for implementing the Islamic Personal Development (BPI) program are that the BPI program is a favorite subject, improving students' morals or attitudes for the better and BPI is a JSIT program that is based on Islam with material tailored to the needs of students in each class and level of education. On the other hand, there are also obstacles in implementing the Islamic Personal Development (BPI) program. One of the most influential obstacles in implementing the Islamic Personal Development (BPI) program is the lack of Islamic Religious Education (PAI) educators or religious teachers. Other barriers or constraints that exist include the condition of students' abilities or understanding, students' family backgrounds, available time, as well as other obstacles originating from the surrounding community. (Thursday interview,16 November 2023)

In developing BPI at SD IT Mutiara Hati Purwareja Klampok Banjarnegara, the objectives that must be achieved are also clarified. The objectives of the BPI program are clearly outlined so that the output obtained will be more effective. The Islamic Personal Development Program (BPI) is implemented in the form of learning and activities. BPI learning activities contain the delivery of theoretical and practical learning material as designed and determined by the Integrated Islamic School Network (JSIT). The core material in the BPI program is the moral development of students. In BPI learning, the teacher delivers material and provides coaching and guidance regularly at every BPI lesson hour according to the schedule. The guidance provided regarding morals is in accordance with graduate competency standards (SKL) as stated in the curriculum so that students have good morals as exemplified by the Prophet. In implementing the BPI program, apart from being carried out in the classroom, there are also several BPI activities carried out outside the classroom, including nature taddabur, Friday almsgiving, watching movies together, Night of Building Faith and Piety (MABIT), cleaning the environment, and planting trees. Facilities and infrastructure must be available to support the implementation of BPI. The program has been well structured and prepared, learning tools are available and prepared by teachers and teachers are equipped with a comprehensive understanding of BPI. The school's strategic geographical location, far from crowds, and a beautiful environmental atmosphere also really support an effective learning process and support the achievement of BPI program goals in schools so that it is very effective in improving Islamic habits and personal development in an effort to form positive character in students.

In BPI learning at SD IT Mutiara Hati Purwareja Klampok Banjarnegara, there is a "watching films together" program which is carried out regularly according to schedule. By using an LCD projector, students accompanied by the teacher together watched Islamic films with the theme of adab, morals and the character of a Muslim. This BPI program is very fun for students and is a subject program that students have been waiting for.

Furthermore, Amroh Sufiati also said that to find out the results of BPI learning achievements, teachers periodically carry out evaluations. Based on the evaluation results, the teacher then carries out follow-up actions. When teachers still find students who are not optimal in understanding and applying BPI material, positive character is still not emerging or lacking, then the teacher will give more attention and also more intense guidance so that the positive character of students can be improved. The BPI program is an alternative program in integrated Islamic schools as an effort to shape the character of students so that they become individuals with Islamic character. The Islamic Personal Development Program (BPI) is the right partner for teachers in educating and guiding students to become individuals who have positive character according to the values of Islamic teachings as exemplified by the Prophet. (interview, November 16, 2023).

BPI development is carried out based on evaluation results. Furthermore, program development must also be adjusted to the plans that have been set so that the follow-up of the development is by modifying student groupings to make them more effective and efficient. In this way, it is hoped that the goal that has been set can be achieved, namely the formation of positive character in students over time to become better.

4. Forming and shaping student character through the Islamic Personal Development (BPI) program at SD IT Mutiara Hati Purwareja Klampok Banjarnegara.

Character education is needed to develop the basic potential of a person, and to improve behavior that is not good for the better. With the cultivation of character education, it is hoped that it can reduce social deviations that occur in the era of *disruption. Therefore, the role of education is closely related to character educatio*n (Prayitno & Nur, 2022). Character education is needed to develop a person's basic potential, as well as improve bad behavior for the better. Characters are formed as an effort to strengthen the character of students, apart from being religious, honest, disciplined, independent and responsible. *Characters that are formed as an effort to strengthen character for students in addition to being religious, honest, disciplined, independent, and responsible* (Hanafiah et al., 2022). Through the cultivation of character education, it is hoped that it can reduce social deviations that occur in the era of disruption. Therefore, the role of education is closely related to character education.

Amroh Sufiati, also said that the Islamic Personal Development Program (BPI) at SD IT Mutiara Hati Purwareja Klampok Banjarnegara aims to shape the character or morals of students so that all potential, attitudes and behavior within students can develop well according to Islamic teachings. (interview Saturday, November 18, 2023).

Based on the results of observations on Monday to Wednesday 13-18 November 2023, to shape the character of students at SD IT Mutiara Hati Purwareja Klampok Banjarnegara, the Islamic Personal Development (BPI) programs at this school include:

a. Routine Guidance through Teaching and Learning Activities (KBM).

In the learning process or teaching and learning activities, Islamic Personal Development is carried out by providing regular guidance to all students. The implementation of BPI for lower- and upper-class students is carried out differently. The implementation of BPI for grades 1 to 4 is carried out in the form of large classes, while for grades 5 and 6 it is carried out in groups or small groups. This program is implemented routinely in the learning process at school. Through routine coaching in learning activities carried out by teachers, it is hoped that they will be able to form positive characters in students as exemplified by the Prophet.

b. Charity of BPI.

BPI Infaq (charity and donation) has been carried out regularly at SD IT Mutiara Hati Purwareja Klampok Banjarnegara. The following is the explanation by Eti Endarwati, deputy head of BPI SD IT Mutiara Hati Purwareja Klampok Banjarnegara:

The BPI donation program is carried out regularly every Friday. This program aims to train students to get used to setting aside some of their pocket money for charity. Furthermore, the collected Infaq money is used for several social activities such as Friday blessings, gifts for the poor or needy, and visiting sick people. (interview Friday, November 17, 2023).

Furthermore, based on the results of the interview with Eti Endarwati, the following is an explanation regarding the use of infaq funds obtained through the Friday Infaq program at SD IT Mutiara Hati Purwareja Klampok Banjarnegara:

1) Berkah Jum'at (Friday Charity)

Part of the donations collected were used to buy food and drinks to be distributed to the Friday prayer congregation at the mosque around the school. Here there are social caring character-building values which are very useful for forming Islamic character in students.

2) Gifts for the underpriviledged community.

As an effort to form a socially caring character, students are also trained to get used to sharing basic food parcels with the poor and needy. Gift sharing activities are routinely carried out. Funds to purchase the gifts were taken from donations collected by students through the Friday Infaq program.

3) Visiting The Sick.

The next use of donation money is to visit sick people. It is inevitable that in everyday life you will find teachers, friends, neighbors or other people who are sick. Islam teaches its followers to visit sick people and then pray for their recovery. As an expression of social care, we are taught to help people who are sick. In the BPI program, students are accustomed to visiting friends or teachers who are sick.

Islam teaches its people to care for others. Donation activities at school can help students channel their wealth in the way of Allah without expecting anything other than Allah's blessing. Helping can ultimately provide benefits not only for the party being helped, but also for those helping. In the process, the formation of this socially caring character must start from an early age using various methods, one of which is habituation. BPI Infaq is one of the habits that is carried out routinely in schools, which can form a positive character in students, namely social care.

c. Commemoration of Islamic Holidays (PHBI)

Commemorating important Islamic holidays is carried out as one of the Islamic Personal Development (BPI) programs in schools. This program is carried out in collaboration with the deputy head of student affairs. Through the Commemoration of Islamic Holidays (PHBI), students can find out what the meaning of the commemoration activities are and can take away good character values that can be instilled in them and applied in everyday life (Fauzi et al., 2023).

Islamic Personal Building to Build Students Character at Integrated Islamic Primary School Mutiara Hati Banjarnegara

The following are several activities to commemorate Islamic holidays (PHBI) which are routinely carried out at SD IT Mutiara Hati Purwareja Klampok Banjarnegara as part of the Islamic Personal Development (BPI) program at the school:

1) Commemoration of the Prophet Muhammad's birthday.

Eti Endarwati, deputy head of BPI at SD IT Mutiara Hati Purwareja Klampok Banjarnegara said that commemoration of the Prophet Muhammad's birthday. It is very important to implement it in schools as one of the Islamic Personal Development (BPI) programs for students. This activity aims to introduce the Prophet Muhammad saw. to students, through detailed stories of the Prophet's life so that students feel close to the Prophet Muhammad. and can emulate the praiseworthy qualities of the Prophet Muhammad. in everyday life so that good morals are formed in students. (interview Friday, November 17, 2023).

2) Commemoration of Isra Mi'raj

Eti Endarwati, deputy head of BPI SD IT Mutiara Hati Purwareja Klampok Banjarnegara also said that the Isra Mi'raj commemoration is one of the very important religious activities carried out at this school as one of the Islamic Personal Development (BPI) programs for students here. Through this activity, it is hoped that it can improve the religious character of students at school. Apart from that, what is no less important is that the Isra Mi'raj commemoration at school is also very useful as a learning tool for students. Through this religious activity, students can learn about history, important events carried out or experienced by the Prophet. Apart from that, students can also learn organizational responsibility, self-confidence, and respect for other people. In implementing the Isra Mi'raj commemoration, the school involves students to occupy various positions such as committee members, presenters, performers, and so on. This is of course also useful for training children to have self-confidence and responsibility. (interview Friday, November 17, 2023).

The Isra' Mi'raj event of the great prophet Muhammad SAW was an event of the spiritual journey of the Prophet Muhammad SAW from the Grand Mosque to the Aqsa Mosque in Palestine, then continued to Sidratul Muntaha (seventh heaven). One of the most important messages from the Isra' Mi'raj event is the obligation of Muslims to pray five times a day and night. Isra' Mi'raj is an event that Muslims must believe in. This event is part of the historical record which is clearly recorded in the Qur'an and hadith of the Prophet Muhammad SAW., although many experts discuss the journey of Isra' and Mi'raj as being carried out by the Prophet's spirit alone or together with his body, historical studies show that the theory the zero kevin (absolute zero) indicates that the Prophet performed Isra' and Mi'raj with his soul and body. Isra Mi'raj commemoration in schools can increase religiosity in students (Hidayatullah, Tahajudin, 2023).

3) Eid Al-Fitr

Eid al-Fitr is a Muslim holiday which is celebrated after Muslims finish fasting during the month of Ramadan. Eid al-Fitr is a special moment for the victory of Muslims who are able to fast, refrain from thirst, hunger and all things that break the fast during the full month of fasting in the month of Ramadan.

Amroh Sufiati, Head of SD IT Mutiara Hati Purwareja Klampok Banjarnegara also explained that to instill religious character and social care, commemoration of the Eid al-Fitr holiday can be used as one of the activities in the Islamic Personal Development (BPI) program for students here. In commemorating the Eid al-Fitr holiday, all students, teachers and employees here apologize to each other. Apart from that, we also have social activities as a series of activities to commemorate the Eid al-Fitr holiday, namely sharing Eid gifts for underprivileged communities around the school. This activity is intended so that students understand the true meaning of Eid al-Fitr so that it is hoped that students will increasingly have good morals, namely being religious and caring socially. (interview Saturday, November 18, 2023).

Commemoration of Eid al-Fitr at school is useful for instilling positive character values in students. The values contained in the commemoration of Eid al-Fitr are religious and social care. Students are trained to carry out Eid al-Fitr prayers followed by friendship events, forgiving each other, sharing, caring for others, and so on.

4) Eid Al-Adha

Amroh Sufiati, Head of SD IT Mutiara Hati Purwareja Klampok Banjarnegara explained that we regularly celebrate Eid al-Adha at school, one of which is by slaughtering sacrificial animals, namely cows and goats. Students witnessed firsthand the procession of slaughtering sacrificial animals from start to finish. Apart from that, we also involved fifth and sixth grade students to participate in distributing sacrificial meat. Eid al-Adha is the biggest Muslim holiday. Eid al-Adha is eagerly awaited, because on that day, apart from carrying out the Salah Id worship, Muslims will also carry out sacrificial services. That is why Eid al-Adha is also called the Feast of Sacrifice. Apart from that, Eid al-Adha is known as Hari Raya Haji or Eid Haji. That's because the Eid al-Adha holiday coincides with the day when Muslims who carry out the Hajj pilgrimage are performing wukuf in Padang Arafah. Therefore, Eid al-Adha is not only interpreted as a day when Muslims rejoice, but also has a deep meaning, namely sharing with others sincerely, which is manifested in the ritual of worship in the form of slaughtering sacrificial animals. Those are the values we instill in our students here. (interview, November 18, 2023).

The following are several important meanings related to the Eid al-Adha holiday which is carried out or celebrated by Muslims:

a) Eid al-Adha has the meaning of sacrifice and sincerity.

This is what Prophet Ibrahim taught when he received the order to slaughter his son, Prophet Ismail from Allah. However, because Prophet Ibrahim carried it out sincerely, Allah Swt. also replaced Prophet Ismail with a sheep.

b) Spiritual Training to Get Closer to Allah.

There are many practices that Muslims can carry out during Eid al-Adha, such as fasting on Arafah, praying Eid al-Adha, and slaughtering sacrificial animals (sacrificing). Through these acts of worship, a devout Muslim can get closer to Allah.

c) Islamic Charity.

In celebration of the Eid al-Adha holiday, it is sunnah for Muslims to slaughter sacrificial animals. The meat of the sacrificial animal that is slaughtered is not only eaten by the sacrificial family but is also distributed to neighbors and the poor in the area. Therefore, sacrificing on the Eid al-Adha holiday is one way to give alms to others.

d) Cultivate a sense of humility.

Eid al-Adha also fosters a sense of humility among Muslims. Through sacrificial worship dedicated to Allah SWT, a Muslim realizes that everything on earth belongs to Allah. Humans are servants of Allah who must obey Him. Therefore, we must obey all God's commands.

e) Strenghten Islamic Brotherhood.

For Muslims, the Eid al-Adha holiday is an occasion for gathering with family and relatives. Muslims usually use the Eid al-Adha holiday to visit family, friends, relatives or friends to strengthen ties. Visiting each other has become a tradition during Eid al-Adha. This is very useful for instilling religious character and social care.

5) Commemoration of Islamic New Year

Amroh Sufiati, Head of SD IT Mutiara Hati Purwareja Klampok Banjarnegara said that Islamic New Year commemoration is one of the Islamic Personal Development (BPI) programs for students at our school. The purpose of the Islamic New Year commemoration is to remember the moment when our Prophet Muhammad SAW. migrated from Mecca to Medina. The event of the Prophet's hijrah is used as a guideline for the initial year of the Hijri calendar, the Muslim calendar. The civilizing nature of Islamic New Year celebrations is mandatory, as an effort to form a disciplined character for students. Therefore, if during the Islamic New Year commemoration event there are students who do not enter without permission or notification, they will be given sanctions in the form of alpha for learning absences. (interview Saturday, November 18, 2023).

Islamic New Year celebrations are usually held in schools. A series of events with Islamic nuances such as reading verses from the holy Qur'an, collective zikr, tausiyah or religious lectures, compensation for orphans, and so on were chosen as vehicles to increase students' religiosity (Hidayatullah et al., 2022).

It is very important to introduce the Islamic New Year to students at school, so that students understand Islam more deeply. In this way, it is hoped that students will increasingly understand and love Islam and have a religious character.

d. Welcoming Ramadan Month

Regarding activities to welcome the month of Ramadan, Amroh Sufiati explained the following things The Welcoming the Month of Ramadan program aims to prepare students to carry out worship during the month of Ramadan. One of the activities that we routinely carry out to welcome the arrival of the holy month of Ramadan is Tarhib Ramadan. This activity is one of the Islamic Personal Development (BPI) programs for students at our school which is carried out in the form of a carnival to welcome the month of Ramadan which is attended by all teachers, employees, students and parents of students. In this carnival, we distributed posters with words of wisdom to welcome the month of Ramadan to the people we met so that they were more motivated Muslims to carry out Ramadan practices with joy. Apart from that, we also have events to share bathroom necessities such as bath soap, toothbrushes, toothpaste, and so on. We carry out this activity in the school environment. This carnival program to welcome Ramadan is one of the efforts we have made to instill religious character and social care in students at this school. (interview Saturday, November 18, 2023).

The program to welcome the month of Ramadan which is packaged in the form of a carnival parade which is attended by the entire school community and the students' parents is useful for instilling religious character and social care. Apart from that, this program is also useful for training students to carry out Islamic teachings.

e. Ramadan Ceria (Happy Ramadan)

One of the Islamic Personal Development (BPI) programs for students at school is Ramadan Ceria. Regarding the Ramadan Ceria activities, Amroh Sufiati, Head of SD IT Mutiara Hati Purwareja Klampok Banjarnegara explained that in the month of

Ramadan, at school we implement the Ramadan Ceria program. There are Ramadan Islamic Boarding School activities and various competitions that we hold here such as the call to prayer competition, pildacil competition, calligraphy competition, and also sharing takjil for the local community. This program aims to familiarize students with a sense of happiness in welcoming the arrival of the holy month of Ramadan. Through this activity, it is hoped that students will be willing and able to carry out the Ramadan fast properly and correctly according to the Shari'a and can practice other amaliyah worship in the month of Ramadan, both obligatory and sunnah worship. This Ramadan Ceria activity is very beneficial because students can develop into individuals who have religious character, responsibility, self-confidence and social care. (interview Saturday, November 18, 2023).

The cheerful Ramadan program implemented in schools is useful for instilling religious character in students. Apart from that, this program is also designed in the form of competitions which are also very useful for instilling the character of self-confidence, responsibility and social care in students.

f. Mutabaah Sheet

In implementing various Islamic Personal Development (BPI) programs for students in schools, a mutabaah sheet is required. This functions as a form of collaboration between the students' parents and the school regarding the students' daily worship. The mutabaah sheet is filled in by students and parents. Filling out the mutabaah sheet also trains students' honesty. Honesty is a commendable trait that is very important in life. Honesty is the biggest factor in upholding religion and the world. Honesty and faith are very close ties to the apostles and believers. Honesty is a commendable trait which is the biggest factor in upholding religion and the world (Imam Tabroni et al., 2022).

So, it is clear that this mutabaah sheet is one of the means or media in implementing the Islamic Personal Development (BPI) program in schools because through filling in the mutabaah sheet which is done alone or independently by students, there are values of honesty that are instilled in students.

g. Habitual Etiquette at School

Regarding the practice of etiquette in schools, Eti Endarwati gave the following explanation to implement the Islamic Personal Development (BPI) program in schools, one of the strategies that can be used in our schools is the practice of etiquette in schools. Some habits that can be implemented as an effort to form Islamic character for students at our school include etiquette in eating, etiquette in social relations, etiquette when at the mosque, etiquette towards teachers, etiquette when there are guests, etiquette when talking to friends, and so on. (interview Friday, November 17, 2023).

Through moral education, students are expected to have commendable morals and be able to distance themselves from bad morals (Rachman et al., 2023). Through moral education, it is hoped that students will have commendable morals and be able to distance themselves from bad morals. Regarding the practice of etiquette in schools, Amroh Sufiati as the school principal stated that moral education requires direct example from educational figures or teachers at school. Through the example set by educators at school, it is very effective in forming positive character for students because the teacher's example has extraordinary power to be imitated by students so that it can change student behavior. Therefore, personality and character development patterns must be carried out in a planned, systematic and continuous manner involving aspects of knowledge, feelings and actions. Character education that is instilled through habituation must be carried out continuously, both in the family, community and school environment.

The most ideal foundation for character education is the values of faith and piety. Through this education, students are expected to be able to develop their personality and have a strong personality, independent character, understand their rights and obligations, be responsible, disciplined and strong in facing future challenges (Rahmawati, 2022).

The practice of Islamic etiquette in schools is carried out on an ongoing basis and is beneficial for forming positive character in students. Through the habit of applying Islamic etiquette, students will grow into individuals who understand Islamic etiquette and will then become accustomed to applying them in everyday life.

V. CONCLUSIONS

Islamic Personal Development (BPI) is a flagship program of Integrated Islamic Schools (SIT) which is under the auspices of the Integrated Islamic School Network (JSIT) in order to strengthen the development of students' Islamic character formation. Islamic Personal Development (BPI) is carried out at SD IT Mutiara Hati Purwareja Klampok Banjarnegara to shape the Islamic personality of students so that they have straight aqidah, are able to perform worship correctly according to the Shari'a, have a mature personality, have noble character, become serious, disciplined individuals have the ability to read, memorize and understand the Qur'an well, have broad insight, and good life skills.

Islamic Personal Building to Build Students Character at Integrated Islamic Primary School Mutiara Hati Banjarnegara

The Islamic Personal Development Program (BPI) at SD IT Mutiara Hati Purwareja Klampok Banjarnegara is implemented as an effort to form Islamic character for students. Through this program, students at SD IT Mutiara Hati Purwareja Klampok Banjarnegara can develop into individuals with religious character, honesty, discipline, responsibility and social care.

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The Effect of Rondo Game Practice Method on Passing Skills of Football Players

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ABSTRACT: This study aims to determine the effect of rondo game practice on the passing skills of football players. This study is a type of experimental research of one group pretest-posttest design with 16 treatments. The population in this study is 40 people, then the 40 population is not all used, only 24 athletes meet the criteria as subjects in this study. The instruments in this study are tests, observations, interviews, and documentation. The validity of the test in this study was 0.812 and the reliability was 0.879. The data analysis techniques of this study use prerequisite tests including normality tests, homogeneity tests, and t-test or t-est. The results of this study prove that training based on the rondo game method has a significant impact on the accuracy of passing in football games. This is proven by the results of data analysis in this study with a percentage of 0.000 < 0.05, thus the hypothesis in the study is proven to have an influence on football athletes of the Student Activity Unit of the University of the Union of Teachers 1945 East Nusa Tenggara. Then it is strengthened by the statistical results of the mann whitney test with an asymp. sig. (2-tailed) value of 0.750 > 0.05, Ha is rejected and Ho is accepted. The result of the score for the rondo game was 48.69 which means that the influence of the rondo game was greater. Based on the results of the study, the researcher concluded that there is a significant influence of the rondo game practice method on improving passing skills.

KEYWORDS: rondo game, passing skills, football, athlete.

I. INTRODUCTION

Football is a very popular sport around the world, almost in every region there is a football field, not only adults who play football, old and young, big and small, rich and poor, employees, traders, farmers and even women also play football [1], [2]. Millions of people in this day and age are fascinated by the game of football [3]. Football is a game to seek victory according to the rules of FIFA (World Football Federation), namely by scoring more goals to the opponent's goal than conceding [4]. Football is a type of sport that has strict rules about physical contact, tripping from behind, body collisions and other aspects of violence like in the game of football [5]. When viewed from the beginning and end of the movements that underlie various football game skills, such as running, jumping, jumping, kicking, and shooting. His skills can be categorized as discrete [6]. When viewed from the pattern of the environment in which football is carried out, football is a game that relies on open skills [7].

The purpose of the game of football is to put the ball into the opponent's goal, by manipulating the ball with the foot [8]. In addition to the eleven main players, each squad is also allowed to have reserve players [9]. During the 90 minutes, you must try to get points from the goals that have been scored, provided that the ball must go all the way through the goal line to be considered a legitimate goal [10]. Inserting the ball with any part of the body is allowed, but it is not allowed to use the hand except for a goalkeeper [11], [12]. Another goal of the football game is to prevent the opponent from putting the ball into the team's own goal [13]. After the first 45 minutes of play are completed, players will get a 15-minute break called half-time. The second half, which also lasted 45 minutes, will continue and the referee will give additional time (injury time) if necessary, and accordingly [14]. In addition, the purpose of passing in a football game is to pass the ball to teammates to create space, so that it can create goals into the opponent's goal and can maintain a defensive area for defensive players. The purpose of passing creates a pass that leads to the opponent's goal to score a goal and when the opponent attacks can defend the defensive area Santos et al, (2017:37). When you have a good pass, it will reduce mistakes on the field and the game of football will be more enjoyable for the spectators [16]. In addition to sports, football is very effective in growing and developing players' abilities and honing their skills in playing football on the field [17]. Football is a game of kicking the ball with the aim of putting the ball into the opponent's goal and defending the ball itself from entering the ball and the player can use all limbs except the arm [18].

In the game of football, there are several basic techniques that need to be possessed by football players, namely kicking, stopping, dribbling, heading, tackling, throwing in and goal keeping. The goal is to provide passes, shoot many balls into the enemy's goal, to break the enemy's attacks, corner kicks, goal kicks, and free kicks [20]. Controlling the ball in playing football is an attempt to stop or take the ball until it is fully controlled. Throw in is a way to restart the game after the ball is out, that is, the ball leaves the field of play through the side line [12]. Because in the game of football not only techniques are needed, but teamwork is also needed, which is commonly called tactics. So that good basic techniques are needed for each player to be able to carry out tactics optimally. So in improving the basic technique of football players, there are several forms or training methods that want to be applied to UPG 1945 NTT UKM players, namely the rondo game practice method to improve the basic passing technique in the football game.

There are many practice methods that are often used, namely passing and moving methods, triangle passing, one-two passing combinations, diamond passing, etc. to be able to improve the passing skills of football players. However, there are two training methods used to improve players' passing skills which have been supported by previous studies. The first training method is training using the rondo game method. The researcher is interested in choosing this method because in the rounddo game players are not only required to pass quickly but players also have to always move to open up space and have to think quickly because the modified field is smaller than the actual field. Rondo differs from other ball possession exercises in that the players take up a predetermined space, but variations of the rondo also involve movement outside of a predetermined rondo space [21]. Thus, the rondo exercise is an exercise that involves 2 groups in one game place that has different tasks where there are more groups of ball owners and fewer groups of scramblers. The purpose of rondo training is to be able to make passes between players or some skills to maintain possession. Rondo is an exercise applied in football and futsal to improve passing skills that require a minimum of three people to pass the ball to each other [22].

Passing is the art of transferring the momentum of the ball from one player to another [23]. Passing is one of the ways to give/pass the ball to teammates with the outside foot, the back of the foot, and can also be with the inside foot of this pass is very much used by players, especially with an attacking player or can also be an attacking midfielder [23]. Meanwhile, Pratama et al, (2022:34), interpret passing as one of the efforts to move the ball from one place to another using the inside foot. This means that basic passing techniques are needed in doing football games because in football games a team is able to carry out its tactics well must also be supported by good basic passing techniques [24]. Examples of players who have poor basic passing techniques are not close to the position of the ball, unbalanced balance of the player's body and the use of the foot on the ball that does not fit, there will be a wrong pass or the ball is cut by the opponent. Meanwhile, players who have good basic passing techniques, such as the position of the feet not far from the ball and the foot of the pedestal is right next to the ball, body balance that must be maintained and the contact of the feet with the right ball in the middle of the ball. So it can be concluded from the description above that good passing is needed by every football player in order to be able to carry out football game tactics.

UPG 1945 NTT students are very active in playing football, especially PJKR students, there is also a UPG 1945 NTT football team that is still active in training. In this training, students are trained to be able to improve the quality of playing football so that it can be useful for the teams in East Nusa Tenggara, especially in the UPG 1945 NTT football team. In addition, the UPG 1945 NTT football team also strives to create quality players so that they can excel, especially in football at the national and international levels. The UPG 1945 NTT football team also often participates in several inter-university football tournaments in Kupang City, but the UPG 1945 NTT football team always fails to achieve achievements because there are still problems that occur in players, especially the problem of poor basic passing techniques, Therefore, the researcher is interested in providing a training method that can improve passing skills, namely the rondo game practice method. The problem in this study was found based on the results of data obtained from the observation of the UPG 1945 NTT UKM football team in previous matches where the team always failed in a match because the players still made many mistakes in basic passing techniques and practice and when making selections. The researcher also conducted an interview with the head coach of the UPG 1945 NTT football UKM and found that there was a gap in the football players who were still lacking in passing in the football game. This is the main basis for researchers to conduct scientific research at the UPG 1945 NTT football UKM, to find out what is the main obstacle for players not to have good passing skills in the game of football, so that they fail to achieve achievements in various competitions both between universities and competitions between clubs. Achievements for each player are due to the quality of the player's passing skills that are still lacking. And supported by several coaches' submissions to researchers that the training programs implemented at UKM UPG 1945 NTT are still not fixed and still conventional so that in the training process at UKM UPG 1945 NTT the programs provided still use unusual programs and the training methods provided are also not effective so that there are problems with the quality of passing skills in players. In a football team, the coach is required to be able to provide a good training program so that the training process can also run effectively, but the coach also admits that the knowledge in providing the program is still limited and has not found a suitable training method to be able to improve passing skills. But as a coach, you must be able to prepare several good training methods in improving passing skills in players so that the team can compete in a match and can even achieve achievements for the team and achievements for each player. Players who have good passing skills are players who get an effective and regular training program and the training methods obtained also affect the improvement of passing skills. So that it can be proven by players being able to provide achievements for the team and achievements for the player.

Based on the description above, the researcher is interested in conducting research related to the rondo game with the overall title "The Influence of the Rondo Game Practice Method on the Passing Skills of Football Players".

II. MATERIAL AND METHOD

This study is a type of experimental research of one group pretest and posttest design with 16 treatments. [25] Experimental research is a way to find a causal relationship between two factors that are deliberately caused by researchers to find out a treatment. The population in this study is 40 people, which are in the form of football players of UPG 1945 NTT. The researcher chose this population because the SMEs are still active in conducting training. Population is a generalization area consisting of Objects/Subjects that have certain qualities and characteristics that are determined by the researcher to be studied and then drawn conclusions. The sample is part of the number and characteristics possessed by the population. So, the sample taken must be representative of the whole population. So in this study, the sample to be taken is 24 people from the existing population of 40 people. The researcher took this sample based on the criteria of players who had poor passing skills based on the results of the researcher's observations in the matches participated in by the UPG 1945 NTT football UKM team and during the training and selection of the UPG 1945 NTT football UKM team.

The instrument used in this study is a low passing accuracy test. The test is carried out to measure the passing accuracy ability of football players. This test is intended to measure the accuracy of the bottom pass. Data collection in this study uses tests and measurements. The tool used is a small goal with a width of 1.5 m and a height of 0.5 m with a kicker distance from the goal of 9 m, a line behind the goal is also 9 m, and a legal line of 1.5 m in length. A kick is valid and considered to be entered if it enters the field of the target field, hits the upper limit and/or hits the stake, and the severity of the kick must reach the back boundary line of the goal (distance 9 m). Assessment is the number of valid kicks out of ten kicks, with the standard norm given a score of 5-7 is categorized as poor, 7-10 is categorized as good and 10-14 is categorized as very good.

III. RESULT AND DISCUSSION

Result

1. Normality test

The normality test aims to find out whether the data from the research results comes from a normal distribution or not. To test the normality of the data in this study, the researcher used the Shapiro-Wilk test with the provision that if sig. > 0.05, the data is normally distributed. In the analysis of this study, the researcher used the help of SPSS 29.0 for windows.

Table 1. Normality Test

Tests of Normality							
	Rondo	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	Df	Sig.
Rondo	1	.304	12	.003	.777	12	.005
	Posttest	.364	12	.000	.753	12	.003

Based on statistical analysis of the normality test that has been carried out using the Shapiro-Wilk test in table 1. above, it shows that the posttest data in the Rondo game with a significance value of 0.005 < 0.05, which means that the data is not normally distributed.

2. Homogenity test

The homogeneity test on the data in this study aims to find out whether the variance of the two research samples is homogeneous or not. In praising the data at the test stage, the two researchers used the same device, namely SPSS 29.0 for Windows with the provision that if sig. > 0.05, the data is homogeneous. If the data in this study are homogeneous, then the researcher conducts an advanced analysis stage

Table 2. Homogenity Test

Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
Pretest	Based on Mean	3.667	1	22	.069
	Based on Median	3.385	1	22	.079
	Based on Median and with adjusted df	3.385	1	20.888	.080
	Based on trimmed mean	3.652	1	22	.069

Based on the statistical analysis of the homogeneity test that has been carried out using the descriptive test in the table above, it shows that the data in the rondo game with a significance value of 0.069 < 0.05, which means that the data is not homogeneous.

3. Hypothesis Test

Based on the data above, there are abnormal and non-homogeneous data, so it is carried out with a non-parametric mann whitney statistical test to process the research data. The non-parametric mann whitney statistical test was used to determine the effect between the rondo game practice method on the improvement of passing skills in UKM athletes of UPG 1945 NTT Football UKM.

The non-parametric mann whitney statistical test is an output used to test whether there is an influence of the rondo game practice method on improving passing skills. The results of the analysis are said to have an effect, if the significance value obtained is less than 0.05 ($p < 0.05$). The non-parametric mann whitney statistical test in the rondo game practice group is presented in the following table.

Table 3. Rondo game practice method

Test Statistics^a	
	hasil tes
Mann-Whitney U	.000
Wilcoxon W	78.000
Z	-4.282
Asymp. Sig. (2-tailed)	.000
Exact Sig. [2*(1-tailed Sig.)]	.000^b
a. Grouping Variable: rondo	
b. Not corrected for ties.	

Based on the results of the analysis in table 11 above, it is known that the asymp value sig. (2-tailed) obtained by the variable is 0.000 < 0.05 ($p<0.05$), so Ho is rejected and Ha is accepted. It can be concluded that there is an influence of the rondo game practice method on improving passing skills.

Discussion

The results of this data analysis are theoretical discussions based on the theories and frameworks underlying this research. The research was carried out for 1.5 months at the Merdeka stadium involving 24 athletes from the UPG 1945 NTT football UKM. The players are given a rondo game practice method, which is a practice method that can improve passing skills for football players [26], [27]. It can be proven from the statistical results where 24 athletes were able to perform basic passing techniques better, compared to the results of the pretest. Rondo is known as cat-cat, it is an exercise applied in football and futsal to improve passing skills which requires a minimum of three people to pass the ball to each other.

Based on the results of the data analysis conducted by the researcher, presented in the table above that the result data in the rondo game practice method is not normally distributed with a value of 0.005 for the rondo game and 0.018. Based on the results in the table above, it is stated that the data value in the rondo game is 0.069 which means that the data is not homogeneous. After the data was declared abnormal and not homogeneous, the T test was then carried out using the non-parametric Mann Whitney test where the result of the Rondo game practice method was 0.000.

El rondo is a form of exercise with a circle scheme filled with several players and placing one or two players in the center of the circle. The form of training is that the players who stand around the circle must try to continue to control the ball by passing the ball to each other. On the other hand, the player who is in the middle of the circle must try to win the ball. In el rondo exercises there are many variations, but the basic concept is that 3- 10 people stand in a circle and 1-3 players stand in the middle and try to snatch the ball, block or force the player to make a mistake with the ball out of the circle. Situation games are games that resemble real games, but in this game the area is reduced to read a condition and have a specific target. Situational games are one of the important components in football that must be trained in the hope of improving the quality of individual and team games.

In the modern era of football like today, every player is required to have a vision of playing fast, precise and effective, the development of football now no longer allows players to play a lot of the ball because of the fast pressing of the opposing player, therefore the player must be able to make a decision before receiving the ball [28]. Whether it is to make direct movements to pass the ball, cross, outwit the opponent, dribble or shoot directly at the goal. That way every player has a clear vision of playing, accurate and quick decision-making. Evolving playing skills and effective movements.

It can be concluded that the el rondo training program with this situational game approach has a good impact and influence on the ability of passing skills and neatness of the players at the time of the match. Therefore, this training program is highly recommended to be able to improve the technique of football passing skills with the appropriate portion of practice. Movement is the process of implementing sports activities that have been planned and structured systematically over a long period of time in order to improve motor skills both physical, technical, tactical, and mental in order to achieve maximum success for students or athletes [29]. In addition to technique, there are also tactics, physical, and mental that must be trained so that all the components in football that are needed can be owned by all players. This is a support for playing skills because the playing skills themselves are not all the techniques needed but must be accompanied by mastery of tactics in playing so that players know what tactics or decisions to take in the match, excellent physicality is an important component to support playing skills so that players do not get tired easily when controlling the ball and playing until the end of the match while still playing focus then mentally as a match determinant because the player's focus will be centered on the player's mentality. If the mentality of the competition is lacking, then the game will not go according to expectations because physicality, technique and tactics will be affected.

From the results of the research I conducted, it turned out to have a positive impact on the ability to play basic techniques when playing football during competitions. Exercise is a basic process to prepare for higher achievement, which aims to develop athletic and psychological skills that improve one's abilities [30]. Structured training and the provision of the right training program and the right portion of training make the goals of the training program get good results.

IV. CONCLUSION

Based on the results of the above research, it can be concluded that the rondo game has a very significant impact on the results of football players' passing skills, this is because the rondo game has great benefits for football athletes' ball possession, including, practicing basic techniques, such as passing, control, and first touch, practicing decision-making, building teamwork with communication and doing Passes, Can increase ball possession, Practice physical ability, Practice ball grabbing or pressing skills.

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Estimating Heat Gain Using Window Filming in Different Geographies

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ABSTRACT: Many disasters are occurring around the world in connection with global warming. Many studies are being carried out to find ways to reduce emission levels of greenhouse gases. Reducing fossil fuel consumption is the most common method used to reduce emissions. In this study, the heat gain of a model building with specific window film properties is estimated. The results are presented comparatively for three film types coated on clear and tinted glass. The heat gain estimation is performed adaptively for summer days considering geographical location, glazing, building and humidity characteristics. Estimations are made for seven types of window films. A cost analysis is carried out considering the location, temperature and façade of the sample building.

KEYWORDS: Window film, Energy efficiency, Carbon emission, Solar heat gain, Cost analysis

I. INTRODUCTION

The economic growth that began in the nineteenth century as a result of the industrial revolution continued into the twentieth century and was accompanied by significant population growth. Rapid population growth, intensive urbanization and improvement in the quality of life have significantly increased energy consumption. This increase in energy use has led to environmental problems and associated costs. The negative impacts of high energy consumption on the environment were largely ignored until they began to visibly affect the global economy and quality of life. However, waste gases contributing to the greenhouse effect have been exacerbated by the increased use of fossil fuels, leading to air, water and soil pollution in cities and global climate changes.

Windows are designed to provide adequate interior lighting and a visual connection between indoors and outdoors. Windows made of transparent materials are the components most vulnerable to heat loss. Buildings play a crucial role in saving energy and reducing greenhouse gas emissions and windows account for about 60% of heat losses. As a result, windows are a critical focus of research aimed at reducing energy consumption in buildings [1]. Energy costs can be reduced by improving the thermal insulation performance of windows, leading to high energy savings. All components of a building function as part of an integrated system, including windows. Energy-efficient windows are designed with specific optical and thermophysical properties for optimum performance in winter or summer, ultimately contributing to the reduction of energy consumption. The thermal efficiency of a building depends on the size and characteristics of the windows [2]. Window films are a cost-effective and efficient solution to minimize heat gain through windows. These thin films consist of metallic-polyester layers with thermal properties designed to reflect solar heat. In addition, they can block UV rays from entering the building and protect the décor inside the building from the harmful effects of solar radiation [3]. The metallic component of the film reflects solar heat, while the polyester component allows sunlight to pass through the metallic layer. Films applied to the outer surface of windows are more expensive due to the need for materials that can withstand outdoor conditions. Studies in the literature have shown that smart window technologies are effective but often costly [4]. Five different climatic conditions were analyzed in China and opaque flexible window blinds were found to be the most effective solution for energy saving. The effect of window size, aspect ratio and position on heat loss was also studied and the effects of window slope and size in cold climates were investigated [5]. While one study reported that double-glazed windows with window films increase energy use [6], another study using simulations showed a 17% to 47% reduction in cooling load in hot and other climates [7]. Human habits significantly affect the heat loss of buildings, suggesting that automatic air conditioning systems can reduce the negative impact of human behavior on energy savings. This study involves the estimation of the heat gain through windows of a building given room and window dimensions. By comparing the results in terms of heat gain efficiency, it is aimed to determine the most efficient window film after cost analysis.

II. METHOD

The method is based on the Kirchoff radiation law. The given radiation law was applied iteratively. The iterative steps are implemented by following the proposed Boles procedure [8]. The formulation includes solar heat gain coefficient, shadowing coefficient and surface area of the window. The final temperature is estimated by implementing a function with inputs of total heat gain, room volume, air mass in the room and air density. Here, the final temperature of the room is estimated by iteratively updating the air density in the room with the developed function and taking into account the humidity effect. In the method proposed in this study, heat gain and final temperature estimation are adaptively integrated iteratively. The types of window films used in this study include clear glass and tinted glass, as well as both types of glass coated with films of types A, B and C [9]. In this study, an iterative method structure for heat gain and final temperature estimation is developed. The glass film properties depend on the shading coefficient (SC), solar heat gain coefficient (SHGC) and surface solar absorption coefficient (SSA) parameters, which are presented in Table 1.

Table 1. Glass and Film SC, SHGC and SSA Coefficients

	Clear	**Tinted**	**Clear with film**			**Tinted with film**		
Film	-	-	A	B	C	A	B	C
SC	0.94	0.69	0.47	0.47	0.24	0.43	0.43	0.31
SHGC	0.82	0.60	0.41	0.41	0.21	0.37	0.38	0.27
SSA	0.88	0.50	0.39	0.36	0.09	0.23	0.21	0.05

The total solar energy incident on the surface in one hour was estimated by estimating the hourly global solar radiation on inclined surfaces according to the method given in a study [10]. For this purpose, diffuse radiation, direct beam radiation and reflected radiation are integrated into calculations. Also, the constants derived from the ASHRAE algorithm are used in the implementation for June, July and August [11]. Iterative estimation of the final room temperature is implemented using the characteristics of mass, heat capacity and initial temperature where heat gain is introduced into calculations iteratively by taking into account dry air pressure and vapor pressure.

A. Implementation and Results

With the specified parameters, it is aimed to estimate the heat gain of a room in a certain volume. Heat gain estimation is performed to estimate the solar heat gain of a window with certain transmittance and reflectivity properties and dimensions in a building volume with certain properties. The method is applied for Abu Dhabi, Moscow and Tokyo. In addition, separate simulations were carried out on certain days of the summer months for the cases where the building volumes face four main directions. The surface inclination of the windows is assumed to be equal to 90^o. The calculations were performed for three days in the middle of the three summer months: morning, noon and evening, according to standard local time. In this way, the characteristics of the cities required for the calculation of hourly solar radiation, the longitude and latitude, the number of days , the local standard time and the azimuth angle at the given date and time are given in Table 2.

Table 2. Geographical Characteristics.

	Local time	**Latitude**	**Longitude**	**Azimuth angle**		
				Day 165	Day 195	Day 225
Abu Dhabi	9 AM	54.38^o	24.45^o	80.56	82.21	91.59
	12 PM			102.03	111.49	146.12
	15 PM			276.36	273.31	261.58
Moscow	9 AM	37.62^o	55.76^o	108.30	108.08	113.27
	12 PM			167.38	165.46	167.49
	15 PM			235.86	233.08	228.77
Singapore	9 AM	103.82^o	1.35^o	64.46	66.41	74.43
	12 PM			34.36	38.78	51.66

	15 PM			310.39	309.42	297.08
Tokyo	9 AM	139.65°	35.68°	98.45	99.58	109.07
	12 PM			199.80	192.82	189.66
	15 PM			267.96	265.13	256.79

These four cities are densely populated and have different geographical locations and climatic characteristics. In this respect, consistent results of the simulation can be easily observed. For each city, the total solar energy incident on the surface and the final temperature of the room for all glazing types were calculated. The total heat gain (W/m^2) required for the final temperature calculation was calculated. Total solar energy calculations are given in Table 3.

Table 3. Total Solar Energy Calculations.

		9 AM	12 PM	15 PM
Abu Dhabi	June	804.27 W/m^2	999.31 W/m^2	661.81 W/m^2
	July	753.05 W/m^2	1000.40 W/m^2	708.15 W/m^2
	August	821.28 W/m^2	986.52 W/m^2	587.86 W/m^2
Moscow	June	792.78 W/m^2	788.42 W/m^2	478.80 W/m^2
	July	757.42 W/m^2	786.09 W/m^2	498.14 W/m^2
	August	714.27 W/m^2	682.14 W/m^2	333.40 W/m^2
Singapore	June	807.79 W/m^2	883.12 W/m^2	394.46 W/m^2
	July	775.10 W/m^2	909.22 W/m^2	463.80 W/m^2
	August	886.74 W/m^2	918.45 W/m^2	360.66 W/m^2
Tokyo	June	840.33 W/m^2	964.32 W/m^2	618.94 W/m^2
	July	793.38 W/m^2	964.72 W/m^2	657.48 W/m^2
	August	822.87 W/m^2	916.20 W/m^2	515.06 W/m^2

The calculated total solar energy values are highest in June, when the sunlight comes at the steepest angle to the northern hemisphere, and in parallel with this, the value gradually decreases in the following months. Calculations were made for three periods of the day. The morning period covers the interval between 9-12 AM, the midday period covers the interval between 12-15 PM and the evening period covers the interval between 15-18 PM.

Table 4, 5, 6 and 7 show the difference between the final indoor temperature and the reference temperature at the geographical locations on 15 June, 15 July and 15 August for 8 types of window film usage. The temperature rise is lower in tinted glass than in clear glass. However, the temperature rise decreases significantly with the use of film. It is observed that the temperature difference is at the lowest level when using type C film.

Table 4. Temperature Decrease for the Sample Room in Abu Dhabi.

Clear Window			
	9 AM	12 PM	15 PM
June, 15	1.3513	1.7622	1.2860
July, 15	1.2427	1.7385	1.3407
August, 15	1.2869	1.6560	1.0813
Tinted Window			
	9 AM	12 PM	15 PM
June, 15	0.3797	0.5051	0.3597
July, 15	0.3465	0.4978	0.3764
August, 15	0.3600	0.4727	0.2973
Clear Window - Film A			
	9 AM	12 PM	15 PM

June, 15	0.1301	0.1756	0.1228
July, 15	0.1181	0.1730	0.1289
August, 15	0.1229	0.1638	0.1002
Clear Window - Film B			
	9 AM	12 PM	15 PM
June, 15	0.1174	0.1594	0.1107
July, 15	0.1063	0.1570	0.1163
August, 15	0.1108	0.1485	0.0897
Clear Window - Film C			
	9 AM	12 PM	15 PM
June, 15	0.0008	0.0035	0.0003
July, 15	0.0000	0.0033	0.0007
August, 15	0.0003	0.0028	-0.0010
Tinted Window - Film A			
	9 AM	12 PM	15 PM
June, 15	0.0514	0.0736	0.0479
July, 15	0.0455	0.0723	0.0508
August, 15	0.0479	0.0678	0.0368
Tinted Window - Film B			
	9 AM	12 PM	15 PM
June, 15	0.0456	0.0664	0.0423
July, 15	0.0401	0.0652	0.0451
August, 15	0.0423	0.0610	0.0319
Tinted Window - Film C			
	9 AM	12 PM	15 PM
June, 15	-0.0061	-0.0036	-0.0065
July, 15	-0.0068	-0.0037	-0.0062
August, 15	-0.0065	-0.0042	-0.0078

Table 5. Temperature Decrease for the Sample Room in Moscow.

Clear Window			
	9 AM	12 PM	15 PM
June, 15	1.2825	1.7741	1.3644
July, 15	1.1674	1.7433	1.4160
August, 15	1.2244	1.6804	1.1734
Tinted Window			
	9 AM	12 PM	15 PM
June, 15	0.3587	0.5087	0.3837
July, 15	0.3235	0.4993	0.3994
August, 15	0.3409	0.4801	0.3254
Clear Window - Film A			
	9 AM	12 PM	15 PM
June, 15	0.1225	0.1769	0.1315
July, 15	0.1097	0.1735	0.1372
August, 15	0.1160	0.1665	0.1104
Clear Window - Film B			

	9 AM	12 PM	15 PM
June, 15	0.1103	0.1606	0.1187
July, 15	0.0986	0.1575	0.1240
August, 15	0.1044	0.1510	0.0992
Clear Window - Film C			
	9 AM	12 PM	15 PM
June, 15	0.0003	0.0036	0.0008
July, 15	-0.0005	0.0034	0.0012
August, 15	-0.0001	0.0030	-0.0004
Tinted Window - Film A			
	9 AM	12 PM	15 PM
June, 15	0.0477	0.0742	0.0521
July, 15	0.0415	0.0725	0.0549
August, 15	0.0445	0.0691	0.0418
Tinted Window - Film B			
	9 AM	12 PM	15 PM
June, 15	0.0421	0.0670	0.0463
July, 15	0.0363	0.0654	0.0489
August, 15	0.0392	0.0622	0.0366
Tinted Window - Film C			
	9 AM	12 PM	15 PM
June, 15	-0.0065	-0.0035	-0.0060
July, 15	-0.0072	-0.0037	-0.0057
August, 15	-0.0069	-0.0041	-0.0072

Table 6. Temperature Decrease for the Sample Room in Singapore.

Clear Window			
	9 AM	12 PM	15 PM
June, 15	1.3972	1.7880	1.2590
July, 15	1.2905	1.7702	1.3214
August, 15	1.3481	1.6924	1.0599
Tinted Window			
	9 AM	12 PM	15 PM
June, 15	0.3937	0.5129	0.3515
July, 15	0.3611	0.5075	0.3705
August, 15	0.3787	0.4838	0.2907
Clear Window - Film A			
	9 AM	12 PM	15 PM
June, 15	0.1352	0.1785	0.1199
July, 15	0.1233	0.1765	0.1268
August, 15	0.1297	0.1679	0.0978
Clear Window - Film B			
	9 AM	12 PM	15 PM
June, 15	0.1221	0.1620	0.1079
July, 15	0.1111	0.1602	0.1143
August, 15	0.1170	0.1522	0.0876

Clear Window - Film C			
	9 AM	12 PM	15 PM
June, 15	0.0011	0.0037	0.0001
July, 15	0.0003	0.0036	0.0006
August, 15	0.0007	0.0030	-0.0012
Tinted Window - Film A			
	9 AM	12 PM	15 PM
June, 15	0.0539	0.0749	0.0464
July, 15	0.0481	0.0740	0.0498
August, 15	0.0512	0.0698	0.0357
Tinted Window - Film B			
	9 AM	12 PM	15 PM
June, 15	0.0479	0.0677	0.0409
July, 15	0.0425	0.0668	0.0441
August, 15	0.0454	0.0628	0.0308
Tinted Window - Film C			
	9 AM	12 PM	15 PM
June, 15	-0.0058	-0.0034	-0.0067
July, 15	-0.0065	-0.0035	-0.0063
August, 15	-0.0061	-0.0040	-0.0079

Table 7. Temperature Decrease for the Sample Room in Tokyo.

Clear Window			
	9 AM	12 PM	15 PM
June, 15	1.2397	1.7992	1.4226
July, 15	1.1195	1.7653	1.4760
August, 15	1.1985	1.7255	1.2499
Tinted Window			
	9 AM	12 PM	15 PM
June, 15	0.3456	0.5163	0.4014
July, 15	0.3089	0.5060	0.4177
August, 15	0.3330	0.4939	0.3487
Clear Window - Film A			
	9 AM	12 PM	15 PM
June, 15	0.1177	0.1797	0.1380
July, 15	0.1044	0.1760	0.1439
August, 15	0.1132	0.1715	0.1188
Clear Window - Film B			
	9 AM	12 PM	15 PM
June, 15	0.1059	0.1632	0.1247
July, 15	0.0937	0.1597	0.1301
August, 15	0.1017	0.1556	0.1070
Clear Window - Film C			
	9 AM	12 PM	15 PM
June, 15	0.0000	0.0038	0.0012
July, 15	-0.0008	0.0035	0.0016

August, 15	-0.0003	0.0033	0.0001
Tinted Window - Film A			
	9 AM	12 PM	15 PM
June, 15	0.0454	0.0756	0.0552
July, 15	0.0389	0.0737	0.0581
August, 15	0.0432	0.0716	0.0459
Tinted Window - Film B			
	9 AM	12 PM	15 PM
June, 15	0.0399	0.0682	0.0492
July, 15	0.0339	0.0665	0.0519
August, 15	0.0379	0.0645	0.0405
Tinted Window - Film C			
	9 AM	12 PM	15 PM
June, 15	-0.0068	-0.0033	-0.0057
July, 15	-0.0075	-0.0036	-0.0053
August, 15	-0.0071	-0.0038	-0.0067

The findings indicate that the final temperature approaches the reference temperature as the windows are coated with the specified film. The most energy-efficient glazing film is Type C. All types of films permit a notable reduction in temperature rise compared to a clear window without film application, and a further reduction compared to tinted glazing. The findings of this study can be extended to estimate and demonstrate the efficiency of using glazing films for energy saving. This can be achieved by calculating the amount of energy saved by a reference air conditioner with a given datasheet. Furthermore, the amount of carbon emission saving can also be demonstrated. Additionally, a cost analysis may be conducted to determine the feasibility of window filming in terms of cost. This can be achieved by providing a cost-saving of energy against the cost of film application.

V. CONCLUSIONS

When the cities are compared in terms of , the results follow a complicated pattern due to the locations of cities in reference to the standard meridian of the country and the effect of distance from the equator since the incident angle of the solar light is directly related to latitude. The results show that the total solar energy is highest at midday and lowest in the morning. The cities were selected considering different locations and populations. Therefore, they have different climatic conditions and allow to observe the results at different population scales. The results follow a complex pattern due to the location of the cities relative to the country's standard meridian and the influence of distance from the equator, as the angle of incidence of sunlight is directly related to latitude. Considering the cost of film application, film application must be cost effective and feasible in order to be a successful investment.

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Analyzing Organizational Culture and Work Environment's Impacts on Employee Knowledge

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ABSTRACT: The Utility Department is a critical component that helps a company's processes work smoothly. The Utility Department is responsible for a number of activities, such as waste treatment, fuel delivery, and electrical supply units. Considering the significance of this position, the Department must take into account a number of factors, including employee performance, information sharing, and organizational culture. Thus, the purpose of this study is to ascertain and evaluate how organizational culture and information sharing impact workers' performance at PT XYZ's Utility Department. This study employed a quantitative approach using a descriptive research design. Subsequently, 40 employees of PT XYZ's Utility Department participated in the sample, which was conducted utilizing a saturated sampling method and a non-probability sampling technique. Partial least squares based structural equation modelling and descriptive analysis are the methods of data analysis that are employed. The result of this research, we find that organizational culture has a positive impact on employee performance while Knowledge Sharing has no influence on employee performance.

KEYWORDS: Organizational Culture, Knowledge Sharing, Employee Performance

INTRODUCTION

An organization, whether it be institutional or commercial, cannot exist without its human resources (HR). Human resources are individuals who work for an organization as planners and implementers who push it toward its goals. As such, human resources are a crucial component that has to be effectively managed in terms of both availability and competency. The availability of human resources has evolved into a critical requirement for any business. This is true because the only resources with abilities, emotions, logic, knowledge, and creativity are human resources (Annisa & Silvianita, 2023).

A crucial component of every firm, human resources serve as a planner for all of its operations. A few HRM tasks include employee motivation, monitoring, evaluation, and punishment, among others. Human resources are assets that must be continuously taken into account in order to acquire high-performing human resources that can help firms grow in response to changing societal needs. In order to optimize the attainment of corporate goals that are impacted by the performance of the firm's own employees, dependable human resources must be created via good and optimum management (Yugusna et al., 2016).

The requirement for clothing will only grow at the rate that the global population is growing. This will have an impact on the requirement for raw fiber. At the moment, rayon, a synthetic fiber created by humans, and cotton, a natural fiber, meet half of the world's fiber needs, yet both are in high demand. Synthetic fibers with a quality comparable to natural fibers can be produced from cellulose basic materials by PT XYZ using Lenzing AG Technology. A foreign investment company is called PT XYZ. The Utility Department is one of the departments that supports the company's production process among other departments. This division is essential to the business's production process.

This undoubtedly merits the Department's attention, particularly in light of the need to consistently sustain staff performance at an optimal level in order to positively impact the business. Regarding this problem, the Department must focus on a number of issues, including employee performance, knowledge sharing, and organizational culture. Suwondo and Sutanto (2015:17) state that there are a number of variables that can be assessed in order to gauge an employee's performance, including: (1) Accuracy in completing tasks, or the worker's capacity to finish tasks within the allotted time and with the guidance provided. (2) An employee's degree of initiative at work, or their capacity to participate actively in all corporate events, whether or not they fall under their purview. (3) Mental dexterity, which refers to the worker's capacity for teamwork with coworkers and comprehension of all instructions from superiors. (4) Time management, or the worker's capacity to show up at his workplace on schedule (Hindami & Silvianita, 2023).

Pre-questionnaire sheets were distributed to forty employees, and the results indicate that there is a phenomena where employee performance is still below company expectations. Organizational culture is a factor that affects employee performance. As stated by Triatna in A Rijanto (2018), organizational culture consists of the fundamental principles, norms, and learning strategies that constitute the foundation of the company and serve as its other distinguishing features.

LITERATURE REVIEW

The relationship between organizational culture, work environment, and employee creativity has been a subject of extensive research in organizational behavior and management literature. This literature review aims to provide a comprehensive overview of key findings and theoretical frameworks that underpin the intricate dynamics among these variables (Fakhri et al., 2024).
Organizational culture, defined as the shared values, beliefs, and norms that shape behavior within an organization, has long been recognized as a significant determinant of employee creativity. Numerous studies have demonstrated that organizations with a culture that encourages risk-taking, experimentation, and openness to new ideas tend to have more creative employees. The model of organizational culture, which identifies three levels of culture - artifacts, espoused values, and underlying assumptions - has been widely used to understand how organizational culture influences employee behavior and creativity (Larasati et al., 2023).
In parallel, the work environment plays a crucial role in shaping employee creativity. Factors such as physical workspace design, organizational structure, leadership style, and reward systems can either facilitate or hinder creative thinking and innovation. For example, the componential theory of creativity suggests that the work environment influences creativity through various factors, including challenge, freedom, resources, supervisory encouragement, and organizational support (Fakhri et al., 2024).
Furthermore, recent research has highlighted the moderating role of employee creativity in the relationship between organizational culture, work environment, and employee creativity outcomes. Employees with higher levels of creativity are better able to navigate and thrive in diverse organizational cultures and work environments, leveraging their innovative thinking to overcome obstacles and generate novel solutions. This moderating effect underscores the importance of not only fostering a conducive environment for creativity but also recognizing and nurturing the creative potential of employees (Asghar et al., 2022).
To enhance innovation and competitiveness, organizations must prioritize the development of strategies and initiatives aimed at cultivating a culture that values creativity and fosters collaboration. This may involve promoting a culture of psychological safety, where employees feel comfortable expressing and experimenting with new ideas, as well as providing them with the autonomy and resources necessary to pursue creative endeavors. Additionally, leaders play a critical role in shaping organizational culture and setting the tone for creativity through their actions and behaviors.

In conclusion, this literature review highlights the complex interplay between organizational culture, work environment, and employee creativity. By understanding and leveraging these dynamics, organizations can create an environment that nurtures creativity, fosters innovation, and drives sustained success in today's dynamic business landscape.

Organizational Culture

The complex structure of values, presumptions, symbols, and beliefs that characterize an organization's operations and interactions with important constituencies like managers, staff, clients, and rival businesses is known as its organizational culture (Deal & Kennedy, 1982; Juliana et al., 2021). Schein and Ogbeibu (2018) assert that organizational culture is a representation of the fundamental hypotheses that a group develops to address issues of internal integration and external adaptation. These hypotheses, once validated, can be taught as the proper way to perceive, feel, and think about these issues. On the other hand, Mclean in Jeong et al. (2017) defines organizational culture as a collection of values, presumptions, and beliefs shared by all members of the organization that serve as behavioral norms and have an impact on behavior. According to Zhang et al., (2008) organizational culture fosters social connections among its members and fosters trust and positive communication, all of which contribute to the generation of social capital. But the formation of an organizational culture is a gradual process that is influenced by a range of interactions that take place within the workplace. "Organizational culture is a shared perception shared by members of the organization," claims Robbins (2014:289). All members of an organization have a same way of thinking, which is known as its organizational culture. In order to be welcomed into the organization, new members must understand and embrace certain aspects of this culture. Risk tolerance and strong ethical standards are often formed by an organization's culture. Strong cultures that uphold high moral standards will have a significant and favorable impact on employee behavior. The firm, represented by the management, must prioritize fostering employee strength, rewarding behavior over punitive action, and highlighting the importance of personal development in order to establish an ethical workplace culture. According to Luthans (2011: 137) in

Damayanti and Fakhri (2014), is a fundamental style of thinking that is taught to new employees as a method to feel, think, and behave appropriately on a daily basis. "Said that organizational culture is something that is related to a system within an organization or company that is held and interpreted together by all members or employees so that it can differentiate an organization with other organizations," according to Robbins and Judge (2014) in Frida and Christina (2018).

There are seven (seven) indications of organizational culture, according to Robbins & Coulter (in Ganyang, 2018): (1) innovation and taking risks; (2) attention to detail; and (3) outcome oriented; (4) Focus on people; (5) Focus on teams; (6) Aggressiveness; and (7) Stability.According to the definition given above, an organization's culture may thus be described as a system of meanings or values. shared by every employee in the company.

Knowledge Sharing

Knowledge sharing, according to Danuputra (2019), is the process of sharing, disseminating, and exchanging information and knowledge between individuals, communities, and communities themselves in order to improve implementation and generate new knowledge. The mechanisms of social interaction and communication between the knowledge providers and the knowledge recipients enable this. According to Lanlika et al. (2005) knowledge sharing is one way for organizations to open themselves to external organizations in developing organizational competence. Liao et al. (in Danuputra & Sary, 2019) contend that knowledge sharing is beneficial for institutions or organizations since it generates shared intellectual capital, which is why it's critical for organizations to establish knowledge processes. In its implementation in a company, knowledge sharing certainly cannot run well if it is not supported by a conducive company environment. And also to implement this knowledge sharing of course, all elements in the company must be able to work together. The efficacy of knowledge-management practices within an organization is contingent upon employee knowledge sharing and the consequences that ensue (Hislop, 2013). Due to the complexity of knowledge sharing and the multitude of interpersonal, organizational, and environmental elements that impact it, a significant area of study has been devoted to identifying the characteristics that either promote or impede it (Mahnke et al., 2009). As a result, one critique leveled at knowledge-sharing research is that it pays relatively little attention to the value realization of knowledge sharing and instead concentrates too much on factors that facilitate knowledge sharing, such as organizational culture, technology, and rewards (Henttonen et al., 2016).

According to Hoof and Weemen in Harjanti and Noerchoidah (2017), knowledge sharing is the act of people trading and sharing new information via the process of gathering, giving, and exchanging knowledge. According to this definition, all knowledge-sharing activities include:

1. Knowledge donating
   specifically, the process or voluntary activity of people or organizations freely imparting knowledge, information, or skills to other individuals or the broader public. Employees' capacity to exchange ideas, skills, knowledge, work experiences, and contextual information with one another is one example. Knowledge gathering is the capacity of an employee to gather data from other workers, such as ideas, skills, context, and knowledge about work experiences. Knowledge donation seeks to strengthen organizations, quicken the learning process, and provide access to information and skills. Actors who donate their knowledge want to make a good difference and advance larger societal growth.
2. Knowledge collecting
   is a term that refers to the process of gathering and keeping data, knowledge, and information from a variety of sources that are pertinent to the operations, plans, and objectives of the business. In a corporate setting, the primary goal of knowledge collection is to produce and use useful information that facilitates decision-making, creativity, efficiency, and the accomplishment of organizational objectives.

Employee Performance

Performance is the degree of efficacy and efficiency displayed by workers in completing regular activities inside a firm or organization within a specified amount of time (Ganyang, 2018). According to Mangkunegara (2013), performance is defined as the outcome of work as judged by the amount and quality of work that can be accomplished by an employee in carrying out their assigned duties. according to Wibowo (2016) stated "Performance is the result of work that has a strong strategic relationship with the organization, customer satisfaction and contributes to the economy". Meanwhile, according to Ratundo and Sacket (in Dewi, 2021) defines "Performance is an activity that includes all actions or behaviors that are controlled by individuals and contribute to the achievement of company goals". Johari et al. (2018) state that an employee's performance can be defined as their capacity to complete a task using the resources at their disposal. Based on the perspectives of the aforementioned experts, it can be inferred that an individual's performance is an accomplishment; the outcomes of their labor are in line with the duties and tasks assigned by the organization, as evidenced by the caliber and volume of work produced. Behavioral preferences on qualitative, as opposed to quantitative, qualitative aspects are used to quantify employee performance. Behavior-based measurements are usually arbitrary, particularly when it's believed that workers can properly characterize what constitutes successful performance for both themselves and their colleagues. According to Etalong (2023) employee performance refers to the level of productivity, efficiency, and effectiveness with which an employee performs their job responsibilities and meets the expectations set by their employer. It includes various aspects of an employee's work, such as the quality and quantity of their output, their ability to meet deadlines, their adherence to company policies and procedures, their communication and teamwork skills, and their overall work ethic and attitude. Employee performance refers to a person's achievements as measured by the standards and criteria set by the company. Management to achieve high human resource performance is intended to improve the company as a whole (Mas'ud, 2014).

Gomes (2018) identifies eight variables that should be considered when assessing employee performance, including:

The criteria include work quantity, quality, job knowledge, creativity, teamwork, initiative, reliability, and personal qualities.

The quality and quantity of an employee's work in fulfilling tasks in the workplace in accordance with responsibilities and in accordance with targets—or targets that have been predetermined and agreed upon by the institution and its employees—are considered to be part of the employee's performance, according to the aforementioned assumption.

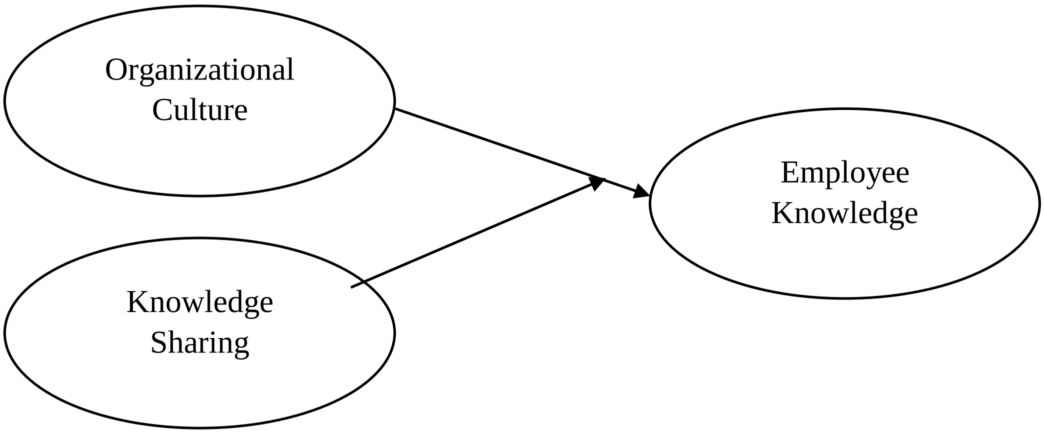

Fig. 1 Research Model

METHODS

Participant and Procedures

The data for this study was obtained from employees working in private companies located in Bandung, Indonesia. Data collection was conducted through the distribution of questionnaires, which were filled out by employees who worked on utility department. The questionnaires were electronically sent to 40 employees working in private companies in Bandung. The respondents were asked if they were willing to participate in an electronic survey consisting of 39 questions related to the variables of interest. The respondents provided information regarding organizational culture and knowledge sharing on employee performance within their current company.

Participating in the study were 40 individuals who answered questions about organizational culture, knowledge sharing, and employee performance. The questionnaires that were administered will be used to interpret the data that has been gathered. Analysis of the data collected will be done to determine how organizational culture and knowledge sharing affect employee performance.

The respondents in this study were divided based on job rank, and length of employment. Out of the 40 respondents, all were male, It is well known that respondents with managerial positions receive a 2% percentage. responders with official jobs had a proportion of 5%, whilst supervisory responders received 10%. And with 83% of the total, individuals who work as mechanics, technicians, or operators received the highest percentage. Meanwhile for the length of employement In the Utility Department of PT XYZ, specifically, the percentages are as follows: 5% for respondents who have worked for less than a year, 32% for those who have worked for one to five years, 25% for those who have worked for five to ten years, and 38% for those who have worked for more than ten years.

Analysis

The present study utilized a quantitative research methodology. Acquiring information that characterizes the thing, occasion, or circumstance being studied is the goal of quantitative research (Sekaran & Bougie, 2016:43). This method aims to develop, anticipate, and clarify hypotheses. Numerical information from measurements, observations, or experiments is referred to as quantitative data (Sugiyono, 2020)

Descriptive research was the method utilized in this investigation. The goal of descriptive research is to present an event or phenomena as fact (Sekaran & Bougie, 2016). Causal research is used in this study based on the aims. Nurdin and Hartati (2019) state that causal research looks at the relationship between two or more variables in terms of cause and effect. The use of causal research is employed to examine the impact of knowledge sharing, employee performance, and organizational culture.

Partial least square (PLS) is a statistical technique used in structural equation modeling (SEM) that attempts to determine whether or not there is a link between constructs in order to analyze the predictive relationship between them (Abdillah & Hartono, 2015). It is possible to employ PLS versions that test the measurement and structural measurement models at the same time. PLS is used to explain the theoretical relationship between the two variables and forecast the impact of variable X on variable Y. However, SmartPLS 3.0 eliminates the assumptions of OLS (ordinary least squares) regression, such as the need that the data be multivariate regularly distributed and the absence of multicollinearity between exogenous variables (Ramayah et al., 2018)

RESULT AND DISCUSSION

In this research, questionnaire data was given to 40 respondents who were employees of the Utility Department of PT XYZ. The results obtained from the organizational culture variable were 82%. This percentage is in the good category on the continuum line. The results of the knowledge sharing variable are 86% so that if measured along a continuum it is included in the Very Good category. The results of the employee performance variable of 80% if measured in percentage terms along a continuum line are included in the good category.

Reliability Test

A correlation with the idea of evaluating a concept is revealed by the validity test. Chin (1995) in Abdillah and Hartono (2015) states that the three key criteria used to test convergent validity are outer loading>0.7, communality>0.5, and average variance extracted (AVE)>0.5. A reliability test was used in this study to evaluate the measurement tool's internal consistency. Two benchmarks are provided for the PLS reliability test: composite reliability from indicator blocks that measure structures and Cronbach's alpha (Ramayah et al., 2018). According to Hair et al. , the composite dependability or rule-of-thumb alpha value needs to be better than 0.7 in (Abdillah & Hartono, 2015), even though a value of 0.6 is still acceptable. The reliability and validity test obtained the following results using the SmartPLS software:

The alpha value output results or the Cronbach composite reliability for each must be more than 0.7 in order to be considered highly reliable. In particular, it is possible to draw the conclusion that all variables have a high degree of reliability and that the data may be trusted because three latent variables—employee performance, knowledge exchange, and organizational culture—had CA and CR values more than 0.7. The validity requirements have been satisfied, since Table 1 demonstrates that each of the three variables—organizational culture, knowledge sharing, and employee performance—has an AVE value that is higher than the necessary cutoff of 0.5.

Table 1. Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Organizational Culture	**0.916**	**0.927**	**0.933**	**0.667**
Employee Performance	**0.939**	**0.942**	**0.950**	**0.704**
Knowledge Sharing	**0.924**	**0.929**	**0.937**	**0.624**

Source: Author's Result (2024)

Outer Model

The model that explains the relationship between latent variables and indicators quoted in references known as external models (outer models) or measurement models.

Table 2. Outer Loadings

	Organizational Culture	Employee Performance	Knowledge Sharing
X1.10	0.798		
X1.2	0.747		
X1.4	0.891		
X1.6	0.758		
X1.7	0.779		
X1.8	0.876		
X1.9	0.853		
X2.10			0.782
X2.2			0.759
X2.3			0.749
X2.4			0.826
X2.5			0.883
X2.6			0.769
X2.7			0.769
X2.8			0.800
X2.9			0.765
Y10		0.923	
Y2		0.852	
Y3		0.781	
Y4		0.866	
Y5		0.761	
Y6		0.823	
Y8		0.852	
Y9		0.846	

Factor loading indications are considered valid based on table 2 if it has a value of> 0.7, where this size can be declared high (Budiastuti & Bandur, 2018) In addition there is an AVE value used as a determinant of convergent validity. If the value of Ave> 0.5 then is considered valid, in table 2 there is one indicator that has a value of <7.0 namely x1.1, x1.3, x1.5, x2.1, y1, and y7. Furthermore, re -processing is carried out and all indicators of loading factors and all AVE variables have valid values on each variable and its indicators.

Inner Model

Inner Model is a model that can describe the relationship between constructs based on certain theories or assumptions.

Variabel Laten

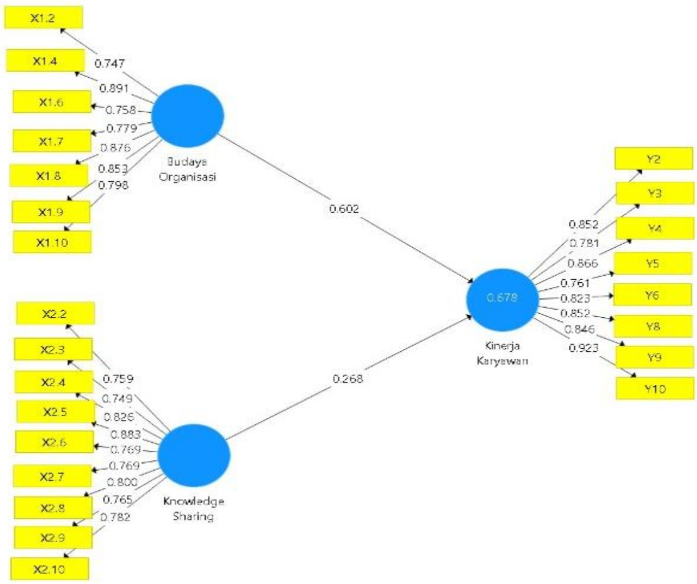

Fig. 2 Research Model and Result of Path Analysis

Based on Figure 2 it can be seen that organizational culture on employee performance has a value of 0.602. Then, knowledge sharing of employee performance has a value of 0.268.*R Square*

Table 3 R Square

	R Square	R Square Adjusted
Employee Performance	0.678	0.661

Based on table 3 above it can be seen that the organizational cultural variable and knowledge sharing have a contribution of 0.678 or 67.8% to the performance of temporary employees 32.2% is influenced by other variables that are not included in this study.

Table 4. Hypothesis Test

	Original Sampel	Sampel Mean	Standard	T Statistic	P Values
Organizational Culture -> Employee Perfomarnce	0.602	0.615	0.145	4.149	**0.000**
Knowledge Sharing -> Employee Performance	0.268	0.261	0.157	1.706	**0.089**

Based on table 4 above, there is a significant positive relationship between organizational culture and employee performance, while there is a negative relationship between knowledge sharing and employee performance.

Organizational culture's effect on employee performance

According to hypothesis testing in Table 4 there is an impact of organizational culture that affects employee performance. This proves that the values, norms, habits, and practices that exist in an organization can influence how employees work and how well they carry out their duties.

Knowledge sharing's effect on employee performance

According to hypothesis testing in Table 4 there is an impact of Knowledge Sharing that does not affect employee performance. This proves that the process of sharing knowledge among employees in an organization does not have a significant impact on how well employees carry out their duties.

CONCLUSION

In conclusion, this study has shed light on the intricate relationship between organizational culture, work environment, and employee creativity, with a particular focus on the moderating role of employee creativity. Through a comprehensive analysis, it has been demonstrated that organizational culture and work environment significantly influence employee creativity, both individually and interactively.

The findings underscore the importance of fostering a supportive organizational culture and conducive work environment that stimulate and nurture creativity among employees. Moreover, the moderating effect of employee creativity emphasizes the need for organizations to recognize and leverage the creative potential of their workforce to enhance innovation and competitiveness in today's dynamic business landscape.

Moving forward, organizations should prioritize the development of strategies and initiatives aimed at cultivating a culture that values creativity, promotes collaboration, and provides employees with the autonomy and resources necessary to explore new ideas and approaches. By doing so, they can not only harness the full creative potential of their employees but also drive sustained growth and success in an increasingly competitive marketplace.

Based on the findings of data analysis, we find that organizational culture has a positive impact on employee performance while Knowledge Sharing has no influence on employee performance. This study proves that a strong and positive organizational culture can create a work environment that supports and motivates, so that employees can achieve their best performance. Meanwhile, although knowledge sharing is considered a good practice, in a certain context or specific conditions, it does not always make a direct or significant contribution to improving employee performance.

Limitation, recommendation, and future research directions

Due to the limited time of the implementation of this research, conducting research with the number of respondents more than 40 employees in the company/organization because the increasing number of respondents will increasingly potentially increase the level of accuracy of research. If the next researcher uses the same three variables, try to with a different object. It is expected that further researchers can use more variables affect employee performance.

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Classroom Management Practices and Academic Performance in Multigrade Classes

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ABSTRACT: Multigrade classes hold significant importance in the field of education as they address several critical needs simultaneously. This study sought to determine the levels of classroom management practices and academic performance of learners in multigrade classes and its relationship. It employed a descriptive-correlational research design with documentary analysis. This study utilized a survey questionnaire from TS MPPE (2017) and conducted to Two Hundred Twenty-Four (224) learners in four (4) multigrade schools of Talisayan District, Division of Misamis Oriental. The learners' average grade for the First and Second Quarter of the School Year 2023-2024 was also used. It employed the Mean and Standard Deviation and Pearson Product Moment Correlation Coefficient (r) to ascertain significant relationship between classroom management practices of multigrade classes and learners' academic performance. Results showed an overall high classroom practice with facilities and resources as very high. Learners have Very Satisfactory average rating for their academic performance. A significant relationship exists between classroom management practices and learners' academic performance, thus rejecting the null hypothesis. It concluded that the availability of the facilities and resources like technology play a fundamental role in enhancing the academic performance of the learners. Thus, multigrade teachers may sustain the best classroom management practices to maintain if not to reach the highest academic performance of learners while they are in the multigrade classes.

KEYWORDS: Academic Performance, Classroom Management Practices, Learning Environment

I. INTRODUCTION

Multigrade classes hold significant importance in the field of education as they address several critical needs simultaneously. They enable access to education in resource-constrained areas where maintaining separate classes for every grade may be impractical. Additionally, multigrade classes promote a sense of community and cooperation among learners of different ages and abilities, fostering a supportive learning environment. These settings encourage peer teaching and collaborative problem-solving, enhancing learners social and cognitive skills. Moreover, multigrade classes challenge teachers to employ innovative, personalized teaching methods, which can benefit all students, regardless of the class structure. Ultimately, multigrade classrooms exemplify the versatility of education, showcasing how a well-designed program can adapt to diverse circumstances and empower learners to thrive.

The legal basis for this research lies in the Philippine Constitution and the Education Act. Article XIV, Section 1 of the Philippine Constitution recognizes the State's duty to protect and promote the right of all citizens to quality education. Moreover, the Education Act of 1982 (Republic Act No. 9155) mandates the provision of equitable and inclusive education for all learners, regardless of their geographical location or socioeconomic background. In this context, investigating classroom management practices and their relationship with academic performance in multigrade classes becomes essential for fulfilling these constitutional and legal obligations.

Research studies that were conducted in the past have provided light on the difficulties that are encountered by both instructors and learners in multi-grade classrooms. The different learning requirements and skills of learners, limited resources and instructional materials, time management restrictions, and the need to create a conducive learning environment for all grade levels at the same time are some of the obstacles that are included in this category.

The teachers of multigrade classes then look for methods to improve their service to the learners. According to Castigador (2019), there was a percentage of their budget that was allocated to the acquisition of instructional supplies for their learners. They are combining their resources in order to better serve the needs of their teachers. The primary school teachers get training during the course of their practicum experience in order to better prepare them for the issues that they would face in the classroom. On the other hand, this preparation does not expressly address the special challenges that come with teaching multigrades at the same time (Cadosales, 2017). One of the most important things for learners to have is the ability of their teachers to successfully deliver the lessons.

Nevertheless, there is a lack of extensive research that explicitly examines the effects of classroom management strategies on academic achievement in multi-grade courses, particularly in Talisayan, Misamis Oriental Division. This proposal sought to address on classroom management practices and their relationship on academic achievement in multi-grade classes in the Talisayan District, Misamis Oriental Division. The study aimed to analyze the distinct features of multigrade classrooms in the area through an extensive investigation.

The study was anchored on the Social Learning Theory of Bandura, and Cognitive Load Theory of Sweller respectively. Social Learning Theory, as proposed by Albert Bandura, emphasized the role of observational learning and social interactions in shaping behavior. When applied to the context of classroom management, the Social Learning Theory proposed that the conduct and academic performance of learners are impacted by the management styles and behaviors that are shown by their teachers. Learners have a greater chance of adopting good habits and achieving higher academic achievements if they are exposed to competent classroom management strategies.

On the other hand, Cognitive Load Theory developed by John Sweller explored how the cognitive demands placed on learners during instruction affect learning outcomes. In the multi-grade classroom setting, where teachers need to address the diverse needs of learners across different grade levels, understanding cognitive load is crucial. Effective classroom management practices that minimize extraneous cognitive load and optimize intrinsic and germane cognitive load can enhance learners' understanding and retention of academic content. These theories serve as frameworks for understanding the complex dynamics of classroom management and its significant relationship on academic performance in multi-grade classes. By using these theories, the researcher may get a deeper understanding of the fundamental factors that lead to effective classroom management strategies and use this knowledge to develop interventions which aimed at enhancing academic achievements within the Talisayan, Misamis Oriental Division.

II. METHODOLOGY

The researcher used descriptive correlational with content analysis method by Technical Support in Multi-grade Program in Philippine Education (TS MPPE 2017) that investigates the relationship between Examining Classroom Management Practice and Academic Performance in Multigrade Classes in the four (4) schools of Talisayan District, namely Bugdang Elementary School, Luyong Baybayon Elementary School, Magkarila Elementary School and Sindangan Elementary School. With the use of statistical analysis, this research that does not include any experiments and investigates the importance of the variables.

This study aimed at describing the nature of the situation as it exists and explores the classroom management in terms of learning environment, facilities & resources, teaching strategies and multi-grade class It involves systematically examining and evaluating classroom practices to ensure their suitability for diverse grade levels.

This study utilized the following statistical tools in treating the gathered data:

The mean and standard deviation were used in order to ascertain the classroom management practices that were implemented throughout the three components, which presented the first problem. In order to solve Problem 2, which concerned on the academic performance of the learners, both frequency and percentage information were used. In order to determine whether or not there was a significant link between the Independent Variables and the Dependent Variables, the Pearson – Product Moment Correlation was used.

III. RESULTS AND DISCUSSION

Problem 1. What is the level of classroom management practices employed by teachers in multigrade classes in terms of:

1.1 teaching strategies;
1.2 learning environment; and
1.3 facilities and resources?

Table 1: Overall Classroom Management Practices

Classroom Practices	Mean	SD	Description	Interpretation
Learning Environment	4.10	0.83	All the Time	High
Teaching Strategies	3.84	0.95	Most of the Time	High

Facilities and Resources	4.37	0.69	All the Time	Very High
Overall Mean	**4.10**	**.82**	**Most of the Time**	**High**

Note:4.21-5.0 Very High; 3.41-4.20 High; 2-61-3.40 Moderate; 1-81-2.60 Low; 1.0-1.80- Very Low

Table 1 presents a summary table of classroom management practices employed by teachers. It has an overall Mean of 4.10 with SD=.0.82 which is described as Most of the Time and interpreted as High. It implies that effective classroom management, comprising a positive school learning environment, well-designed classroom strategies, and adequate facilities resources, positively impacts learners' academic performance. Moreover, there is a collaboration of school administrator and stakeholder because teaching in multigrades is very challenging. Classroom practices that the teachers do everything to impart learning to the learners despite inadequate facilities, learning materials and even teachers lack teaching strategy, they strive more to cope with and achieve the good quality education especially the outcomes performance of the learners. According to Du Plessis & Mestry (2019), The parents lack of interest to their children's education because of insufficient resources and facilities and even teacher less of training and seminar or workshop to uplift their knowledge to face the battle of the diverse needs of the learners. As cited by Checci and De Pala (2018), in the multigrade that are poor of classroom management practices, the academic performance of the learners is also poor.

Moreover, the level of facilities and resources got the highest Mean of 4.37 with SD=0.67 which is described as All the Time and interpreted as Very High. This means that facilities and resources play as a important role in enhancing classroom practices, particularly in multigrade classes where the learners of the different age groups and academic level share a common learning space. Adequate facilities such as well-equipped classrooms, effective learning resources including educational materials, and diverse learning aids to cater the diverse need of the learners across various grade level. In multigrade setting, the teacher must address a range of academic abilities and learning styles simultaneously, having the right facilities and resources become most important in contributing highest impact of academic performance of, the learners. According to Costigador (2019), multigrade teacher may find ways to serve the learners better. They also gave part of their salary to purchase learning materials for their learners. They are sharing their resources for the welfare of their learners.

On the other hand, teaching strategy has the lowest Mean of 3.84 with SD= 0.95, described as Most of the Time and interpreted as High. It implies that teachers need to prioritize individual instruction and student-centered learning in teaching. Teachers need more training to accommodate multigrade learners, through training, teachers can implement well-designed teaching strategy effectively. Teaching multigrade classroom needs collaborative and flexibility in teaching, so the enhancement and engagement of learning will better achieve. As cited by Gomez and Garcia (2020), during the practice teaching years of elementary teachers, their teachers were trained to be ready in the actual world of teaching, yet the training does not focus on multigrade teaching but the most important is to enhance the teacher's ability to teach the learners well so that the academic performance result better.

Problem 2. What is the academic performance of learners for School Year 2023-2024?

Table 2: Academic Performance of Learners

Grades	Frequency	Mean	Standard Deviation	Interpretation
90-100	56			
85-89	137	87.95	2.17	Very Satisfactory
80-84	29			
75-79	2			
Total	224			

Note: 90-100 Outstanding; 85-90 Very Satisfactory; 80-84 Satisfactory; 75-79 Needs Improvement 74-below Poor/Failed

Table 2 shows that Academic performance of 224 learners. It has an overall Mean of 87.95 with Standard Deviation of 2.17 is interpreted Very Satisfactory. This implies that effective classroom management practices in multigrade classes can significantly enhance academic performance, fostering a positive learning environment. Implementing differentiated instruction strategies tailored to diverse learning levels within the class allows teachers to address individual needs more effectively, promoting better understanding and retention of the material. Well-organized classroom routines and transitions minimize disruptions, maximizing instructional time and creating a focused learning atmosphere. Positive behavior reinforcement and a supportive classroom culture encourage active participation, collaboration of stakeholder, and a sense of belonging among learners contributing to their overall academic motivation. Utilizing varied instructional materials and technology aligns with diverse learning styles, ensuring that all learners have access to resources that facilitate their understanding of the subject matter.

Teachers' ability to create a safe and inclusive learning environment in multigrade classes positively impact learners' engagement and motivation, ultimately leading to improved academic outcomes. Ruiz (2020), stated that the development of good learning environment, good teaching strategy and good facilities and resources, provide better result of academic performance to the learners. More so, Olivar and Naparan (2023) conducted a study on multigrade class and found out that the students had an outstanding performance.

Problem 3. Is there a significant relationship between classroom management practices and academic performance of learners in multigrade classes?

The table 3 shows Pearson's correlation test between classroom management practices and academic performance. The test reveals a low positive correlation between the academic performance and facilities and resources wherein, if the facilities and resources change its direction the academic performance also changes in the same direction. Moreover, two of the independent variables which are learning environment and teaching strategy shows weak positive correlation towards academic performance, which also indicate lower correlation than other classroom management practices.

Table 3: ***Correlation Analysis between Classroom Management Practices and Academic Performance***

Classroom Management	R-value	P-value	Decision on Ho	Interpretation
Learning Environment	0.230**	0.001	Reject	Significant
Teaching Strategy	0.139**	0.046	Reject	Significant
Facilities and Resources	0.339**	0.000	Reject	Significant

Note: **. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The table took the analysis at the independent variable level by looking at the correlation test while holding the dependent variable constant at a time. As can be seen from the same table, all independent variables are significant at 0.05. In summary, taking it at the coefficient level, those classroom management practices are correlated to students' academic performance, with a *p*-value less than 0.05. Thus, the correlation analysis yielded that the null hypothesis test (Ho1) was rejected. With the following findings, low and weak positive correlation.

This further represent that classroom practices of multigrade classes as to teaching strategy learning environment and facilities and resources has very important in raising the academic performance for the learners. It has been determined that there is a weak positive association between teaching method and academic achievement, and when this relationship is shown to be significant, the null hypothesis is rejected. This suggests that the degree of teaching approach used by the instructor is the primary factor in determining the academic success of the students. It is possible for there to be a significant association between the classroom management strategies that are used by the instructor and the academic success of the participants.

However, implementing effective teaching strategies in multigrade classes is very important because it allows teacher to address various learning needs and abilities within a single classroom. Teacher needs to have a well-designed strategy in helping minimize disruption and enhance pupils' engagement for the learning activity.

On the other hand, learning environment has a moderate positive relationship, thus rejecting the null hypothesis. This shows how important the learning environment in classroom management practices for multigrade classes. It means that the ;earners' academic performance will rise to high level when teacher implement the well-organized and conducive learning environment Similarly to this, the poor learning environment can hinder the pupil's ability to focus and comprehend the lessons which will most likely result to low academic performance.

Moreover, the facilities and resources have a low positive relationship, thus rejecting the null hypothesis. This implies that the level of facilities and resources significantly affect pupil's academic performance. School having adequate facilities, access to diverse and sufficient resources including educational materials, technology. and teaching aids, enable teacher to address the varying needs of learners. When facilities and resources are aligned and supportive. they enhance the overall educational experience and improved academic performance among learners.

Classroom Management Practices and Academic Performance in Multigrade Classes

According to Shareefa, (2021) teachers play a pivotal role in cultivating an effective and conducive learning environment. They are tasked with not only imparting knowledge but also with creating an atmosphere that encourages curiosity, collaboration, and critical thinking among learners. To ensure the learning environment is appropriate, teachers must be adept at adapting their teaching methods to cater to diverse learning styles, fostering open communication, and establishing a sense of inclusivity in the classroom. By being attuned to the individual needs of learners, maintaining a positive and supportive atmosphere, and incorporating innovative teaching techniques, educators contribute significantly to shaping an environment that enhances the overall learning experience and promotes academic success.

IV. CONCLUSIONS

Based on the findings presented above, the following conclusions can be drawn:

1. The availability of the appropriate facilities and resources play a fundamental role in enhancing the academic performance of the learners. It motivates learners to do better in class even if it is multigrade class.

2. It may be deduced from the fact that the learners' total academic performance is at a very good level that they are extremely driven to study. Teachers are able to address each learner's academic requirements in a multigrade class.

3. The academic performance of learners in multigrade classes was shown to have a strong association with the classroom management strategies. Thus, the null hypothesis is rejected.

V. RECOMMENDATIONS

Based on the findings and conclusions presented above, the researcher has formulated the following recommendations.

1. Multigrade teachers may tailor their teaching methods to accommodate diverse learning needs of the learners. This way, classroom management practices such as learning environment, teaching strategy, facilities and resources are very important in teaching multigrade classes.

2. The multigrade teachers may continuously use effective classroom management practices to maintain or ensure higher academic performance of the learners.

3. Multigrade teachers, may examine classroom management practices to provide learners in multigrade classes with appropriate teaching strategies, proper learning environment, facilities and resources that could cater the diverse academic requirements of each learner.

4. A similar study maybe conducted to validate and negate the findings of this study.

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Teachers' Classroom Management and Students' Performance

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ABSTRACT: Efficient classroom management can bolster students' motivation to attend school regularly, therefore enhancing their academic performance. This study investigated the degree to which teachers' classroom management in terms of modeling behavior, assessment practices, and learning atmosphere. Furthermore, it investigated the relationship between teachers' ability to manage their classrooms and students' academic performance. This study employed a descriptive-correlational research methodology, which involved analyzing documents and administering a questionnaire designed by the researcher. The study was conducted with a sample size of 143 teachers from the East 2 District in the Cagayan de Oro City Division. The teachers were selected by the use of the Stratified Random Sampling approach, which involved the application of Slovin's Formula. The students' grades for the first and second quarters of the School Year 2023-2024 were also considered. Evidence suggests that teachers routinely apply classroom management techniques. The modeling behavior and learning atmosphere are extensively nurtured and given priority. Most students are at the level of Very Satisfactory in their academic performance. There exists a moderate positive correlation between the effectiveness of teachers' classroom management and the academic performance of students. Teachers can act as good role models for students in a supportive learning environment, which can help to cultivate students' motivation to attend school and improve their academic performance.

KEYWORDS: Academic Performance, Assessment, Classroom Management

I. INTRODUCTION

Education is the fundamental basis for the continued development and progress of a nation. High school education is a pivotal phase in a students' academic growth, as it establishes the fundamental knowledge base and fosters lifetime study habits. The significance of teachers in influencing the academic path of student cannot be overstated. Teachers, as the main facilitators of knowledge and mentors during this time, are given the task of not only sharing their expertise in the subject matter but also creating a favorable learning atmosphere.

The classroom environment and the teachers themselves are crucial factors in affecting students' success in the pursuit of educational excellence. Several studies have examined the topic of classroom management and have produced significant findings. Farinde-Wu et al. (2017) emphasized the need of establishing explicit expectations and regulations in order to create a pleasant classroom environment. Their study revealed that when teachers successfully communicated their objectives and consistently enforced regulations, pupils demonstrated increased levels of engagement, improved behavior, and enhanced academic performance.

Additionally, Ibrahim and El Zaatari (2020) emphasized the significance of positive teacher-student interactions in managing various aspects of the classroom. It was found in their study that when teachers established rapport, shown empathy, and fostered a sense of belonging, pupils exhibited greater motivation, reduced disruptive conduct, and improved academic performance. In contrast, a limited number of studies have provided valuable understanding of the challenges and obstacles that instructors encounter when managing their classes. For example, Blatchford and Russell (2019) conducted a study to examine the impact of large class sizes on classroom management strategies. Findings of their study revealed that as teachers faced overcrowded classes, they encountered increasing difficulty in providing individualized attention, managing students' conduct, and fostering a connection with the learning environment. In essence, Egeberg et al. (2021) conducted a study that examined how external factors, such as school resources and support, influenced classroom management. Their findings revealed that a lack of resources, limited regulatory support, and inadequate professional development created obstacles that hindered teachers' ability to implement effective tactics and maintain discipline in the classroom.

As to strive for continuous improvement in the realm of education, understanding the interplay between teachers' classroom management and students 'performance becomes indispensable. Therefore, the central inquiry of this research is to determine whether a significant relationship exists between teachers' modeling behavior, assessment practice, and learning atmosphere, and the academic performance of the students in the selected schools in Cagayan De Oro City.

II. METHODOLOGY

For the purpose of determining whether or not there is a connection between teachers' classroom management and students' academic achievement, this study utilized a descriptive correlational research approach in conjunction with documentary analysis. Both the management of the classroom and the performance of the students were the subjects of the investigation. The relationship between efficient classroom management practices and the many dimensions of student performance, including academic achievement, engagement, and behavior, is the subject of this study.

A research design, a procedure for sampling and responders, data collection instruments, protocols for data analysis, and ethical issues were all incorporated in the approach. A statistical measure that describes the relationship between two variables without claiming that one variable causes the other is called a descriptive correlation. The researchers were able to gain a better understanding of the association between the variables as a result of the information that it supplied regarding the degree and direction of the relationship within the variables. According to McCombes (2019), the purpose of descriptive research is to provide an accurate and systematic description of a population, situation, or phenomenon. The inquiries of what, where, when, and how can be answered by it, but it cannot answer those of why. A descriptive research design, on the other hand, allows for the utilization of a wide range of research methods in order to explore one or more variables. It is not possible to determine cause and effect through descriptive correlation; rather, it offers insights into the ways in which two variables are associated to one another. It involved the use of questionnaires that were administered to high school teachers from Agusan, Bugo, and Puerto National High School in Cagayan de Oro City. This method is often utilized in observational and survey research in order to investigate patterns and trends in data.

III. RESULTS AND DISCUSSION

Problem 1. What is the level of teachers' classroom management in terms of:

1.1 modeling behavior;
1.2 assessment practice, and
1.3 learning atmosphere?

Table 1 shows the level of teachers' classroom management in terms of modeling behavior. It reveals that it has an overall Mean of 4.68 with SD = 0.58, described as Always and interpreted as Extremely Practiced. This indicates that a dedication to maintaining high standards of professionalism and actively involving students in the learning process. It implies a beneficial impact on the interactions within the classroom and possibly on the academic achievements of the students. Teaching requires upholding ethical and polite behavior, displaying a strong level of expertise, and being committed to ongoing learning and enhancement. A teacher who embodies professionalism serves as a role model for students, cultivating an atmosphere of reverence and self-control that promote effective learning. The significance of teachers' behavioral modeling in promoting a favorable learning environment is highlighted by Lian et al. (2020) in their research on character development through teacher exemplification.

Table 1: Modeling Behavior

Indicators	**Mean**	**SD**	**Description**	Interpretation
As a teacher, I…				
1. wear proper uniform.	4.84	0.40	Always	Extremely Practiced
2. come to class on time.	4.60	0.64	Always	Extremely Practiced
3. keep my things in the class tidy.	4.68	0.56	Always	Extremely Practiced
4. deal with my students honestly.	4.88	0.32	Always	Extremely Practiced
5. make my own performance task.	4.55	0.69	Always	Extremely Practiced
6. join the class in cleaning the classroom.	4.15	1.29	Most of the time	Highly Practiced
7. organize my class discussion and activities.	4.66	0.56	Always	Extremely Practiced

8. show positive attitude in dealing with my students.	4.69	0.64	Always	Extremely Practiced
9. acknowledge the efforts and contributions of others.	4.86	0.34	Always	Extremely Practiced
10. show a commitment to learning and personal growth.	4.91	0.33	Always	Extremely Practiced
Overall	**4.68**	**0.58**	**Always**	**Extremely Practiced**

Note: 4.26-5.0 Extremely Practiced; 3.41-4.2 Highly Practiced; 2.61-3.4 Moderately Practiced; 1.81-2.6 Slightly Practiced; 1.00-1.80 Not Practiced

Moreover, the indicator 10, *As a teacher, I show a commitment to learning and personal growth*, has the highest Mean of 4.91 with SD = 0.58, described as Always and interpreted as Extremely Practiced. This means that displaying a commitment to education and personal growth is a crucial element of becoming a teacher. This commitment not only enhances one's own skills and knowledge but also serves as a model for one's students, inspiring them to engage in continuous learning. In order for teachers to advance professionally, they must demonstrate effectiveness in the classroom, which will in turn inspire and engage students. They must possess a strong commitment to their own education. The process requires continuous self-reflection, openness, continuous learning, adaptability, and a passion for acquiring knowledge. This implies that promoting a culture of ongoing improvement among instructors is crucial for improving student results Lian et al. (2020).

On the other hand, the indicator 6, As a teacher, *I join the class in cleaning the classroom*, got the lowest Mean of 4.15 with SD = 1.29, described as Most of the Time and interpreted as Highly Practiced. By engaging in school cleaning activities can cultivate a feeling of inclusiveness and collaboration. Additionally, it promotes collaboration and synergy by encouraging students to collaborate towards a shared objective. Engaging in extracurricular activities, such as cleaning, enhances the relationship between students and teachers. Encouraging a learning environment that promotes outstanding communication and mutual respect between teachers and students can enhance communication and foster respect. Teachers can foster academic and personal success in their pupils by developing skills such as active listening, open communication, and tolerance for diversity.

This indicates a possible opportunity for enhancing teachers' demonstration of behavior. Teachers should strive to maintain a consistent and reliable demeanor in the classroom to promote a sense of predictability. Teachers can enhance their capacity to cultivate a sense of community and collective accountability in the classroom by concentrating on these specific aspects to refine their behavior modeling. This will facilitate the establishment of a nurturing and all-encompassing educational setting for every student. Ambiguous conduct can lead to perplexity among students and weaken the notion of collective accountability and community. The promotion of a sense of community and shared responsibility inside the classroom is very important (Richardson & Mishra, 2018).

Table 2

Assessment Practices

Table 2 shows that the level of teachers’ classroom management in terms of assessment practices. It reveals that it has an overall Mean of 4.19 with SD = 0.72, described as Most of the Time and interpreted as highly Practiced. This indicates that teachers generally implement assessment practices. There is a noteworthy implication for enhancing students' academic performance through consistent and structured evaluation methods. This aligns with the literature emphasizing the importance of teachers' assessment competence and its influence on students' progress Herppich et al. (2018). By maintaining a consistent approach to assessment, educators can better identify students' needs, provide targeted support, and ultimately contribute to improved learning outcomes.

Indicators	**Mean**	**SD**	**Description**	**Interpretation**
As a teacher, I…				
1. give Summative test every end of the topic.	4.16	0.59	Most of the time	Highly Practiced
2. give special activities to PWD/SNED and IPs.	3.76	0.94	Most of the time	Highly Practiced
3. give special test to those who missed any test.	4.12	0.73	Most of the time	Highly Practiced
4. give pretest or diagnostic before the start of a new lesson.	4.17	0.81	Most of the time	Highly Practiced

5. give remedial classes to students with different concerns.	4.12	0.77	Most of the time	Highly Practiced
6. provide a baseline for setting clear goals and expectations.	4.36	0.79	Always	Extremely Practiced
7. consider the multiple intelligence of the students during my formative assessment.	4.34	0.66	Always	Extremely Practiced
8. give various activities/drills/exercises during discussion to check the students' understanding during discussion.	4.26	0.61	Always	Extremely Practiced
9. create a sense of accountability by measuring performance against predefined or benchmark.	4.34	0.64	Always	Extremely Practiced
10. group students according to their skills and abilities during any formative and summative assessment.	4.27	0.62	Always	Extremely Practiced
Overall	**4.19**	**0.72**	**Most of the time**	**Highly Practiced**

Note: 4.26-5.0 Extremely Practiced; 3.41-4.2 Highly Practiced; 2.61-3.4 Moderately Practiced; 1.81-2.6 Slightly Practiced; 1.00-1.80 Not Practiced

Moreover, the indicator 6, *As a teacher, I provide a baseline for setting clear goals and expectations*, has the highest Mean of 4.36 with SD = 0.79, described as Always and interpreted as Extremely Practiced. This means that by providing a clear learning path with goals and expectations, teachers may help students understand what is expected of them and how to get there. Students are better able to concentrate on their efforts since they have a clearer understanding of the goal of their learning activities. However, in order to guide and motivate students, support self-regulation and equity, provide efficient evaluation and feedback, and improve communication.

Teachers must establish clear objectives and define a baseline. It is essential to have efficient instruction and learning. This suggests a consistent practice among teachers, indicating a proactive approach to fostering academic achievement. This finding aligned with the literature review, emphasizing the significance of clear goal-setting in effective classroom management Crosby et al (2018).

On the other hand, the indicator 2, *As a teacher, I give special activities to PWD/SNED and IPs*, got the lowest Mean of 3.76 with SD = 0.94, described as Most of the time and interpreted as Highly Practiced. This indicates that teachers provide special activities to students with disabilities (PWD/SNED) and Indigenous Peoples (IPs). This suggests further that there is a potential area for improvement in inclusive teaching practices. By specialized activities catered to the requirements of students with disabilities and Indigenous Peoples creates inclusivity in the classroom by establishing an inclusive environment. By building confidence and self-esteem it guarantees that all students regardless of their background or ability have the chance to participate in and engage in learning activities. Specifically designed activities can help students with disabilities and Indigenous Peoples feel more confident and positive about themselves.

This finding underscores the importance of ensuring equitable access to educational opportunities for all students, aligning with research emphasizing the significance of catering to diverse student needs Lian et al.(2020) Van der Lans et al (2018).

Table 3.

Learning Atmosphere

Table 3 shows that the level of teachers' classroom management in terms of learning atmosphere. It reveals that it has an overall Mean of 4.60 with SD = 0.56, described as Always and interpreted as Extremely Practiced. This indicates a consistently positive environment, underscores the critical role of fostering a conducive and supportive atmosphere in promoting effective teaching practices and student engagement. By establishing clear and consistent expectations for behavior, participation and academic performance effective classroom management contributes to the creation of a structured learning environment that helps students engage, collaborate, and succeed academically. Students are more likely to maintain their focus and interest in the material when they are aware of what is expected of them.

Indicators	**Mean**	**SD**	**Description**	**Interpretation**
As a teacher, I…				
1. create a calm and happy atmosphere while teaching.	4.68	0.53	Always	Extremely Practiced

2. prepare appropriate instructional materials for each topic.	4.65	0.48	Always	Extremely Practiced
3. listen to students' and teachers' concerns towards school.	4.67	0.47	Always	Extremely Practiced
4. open all the windows and doors, electric fans during my class.	4.77	0.42	Always	Extremely Practiced
5. acknowledge efforts/participation of the students during class.	4.60	0.55	Always	Extremely Practiced
6. start classes with clean classroom/blackboards/tables and chairs.	4.58	0.68	Always	Extremely Practiced
7. ask students' understanding/queries before I proceed to the next topic.	4.18	0.97	Most of the time	Highly Practiced
8. stop students from having unnecessary talks but I consider intelligent noise.	4.68	0.47	Always	Extremely Practiced
9. see to it that students are settled on their seats before I start my class discussion.	4.56	0.50	Always	Extremely Practiced
10. let them fix themselves like combing hair, change t-shirts and the like, before I start my class.	4.64	0.54	Always	Extremely Practiced
Overall	**4.60**	**0.56**	**Always**	**Extremely Practiced**

Note: 4.26-5.0 Extremely Practiced; 3.41-4.2 Highly Practiced; 2.61-3.4 Moderately Practiced; 1.81-2.6 Slightly Practiced; 1.00-1.80 Not Practiced

On the other hand, encouraging students to display desired behaviors and academic success can be accomplished by using positive reinforcement techniques like praise, awards, and recognition. By praising and recognizing students' accomplishments, teachers can strengthen a supportive learning atmosphere. This finding aligns with the study of Richardson and Mishra (2018) who emphasized the importance of creating learning environments that encourage creativity and problem-solving, which are essential for enhancing students' performance in both academic and real-world contexts.

Moreover, the indicator 4, *As a teacher, I open all the windows and doors, electric fans during my class*, has the highest Mean of 4.77 with SD = 0.42, described as Always and interpreted as Extremely Practiced. The consistent practice of opening windows, doors, and electric fans during classes, as reported by teachers suggests a proactive approach to creating a conducive learning atmosphere. Using an electric fan and opening windows and doors can help increase air circulation in the classroom. For both students and teachers, this can avoid the accumulation of stale air, lessen stuffiness and provide a more pleasant and breathable environment. Proper ventilation is crucial to preserving indoor air quality. The classroom can be made healthier and cozier by letting in more natural light, which promotes focus and well-being in the students.

Moreover, giving ventilation in the classroom priority can improve air quality, temperature control, student focus and general well-being. Examples of these benefits include opening windows and doors and employing an electric fan. By putting these strategies into effect may create a learning atmosphere that is more conducive, comfortable, and supportive of students' involvement academic success. This finding aligns with the literature highlighting the significance of environmental factors in promoting student engagement and academic performance Richardson and Mishra (2018).

On the other hand, the indicator, *As a teacher, I Ask students' understanding/queries before I proceed to the next topic,* got the lowest Mean of 4.18 with SD = 0.97, described as Most of the time and interpreted as Very Significant. This suggests that this aspect of fostering student engagement and comprehension may require further attention and improvement in classroom practice. This finding aligns with the literature indicating that inadequate teacher-student interaction can hinder academic performance Olivier and Archambault, (2017). Therefore, enhancing strategies for soliciting student feedback and addressing queries could contribute to a more supportive and effective learning environment.

Table 4: Overall Classroom Management

Variables	Mean	SD	Description	Interpretation
Modeling Behavior	4.68	0.58	Always	Extremely Practiced
Assessment Practices	4.19	0.72	Most of the time	Highly Practiced

Learning Atmosphere	4.60	0.62	Always	Extremely Practiced
Overall	**4.49**	**0.62**	**Always**	**Extremely Practiced**

Note: 4.26-5.0 Extremely Practiced; 3.41-4.2 Highly Practiced; 2.61-3.4 Moderately Practiced; 1.81-2.6 Slightly Practiced; 1.00-1.80 Not Practiced

Table 4 shows that the overall level of teachers' classroom management. It reveals that it has an overall Mean of 4.49 with SD = 0.62, described as Always and interpreted as Extremely Practiced. By building a constructive learning environment where students can flourish intellectually and socially requires good effective classroom management. Students can learn academic standards, classroom norms and behavioral expectations early on when clear expectations are set. Enforcing expectations consistently contributes to the creation of a predictable and organized atmosphere that fosters learning. Students are more likely to participate in learning and adhere to classroom rules when they feel appreciated and encouraged. This can be achieved by developing positive connections with them that are built on respect, trust and empathy. Good communication keeps lines of communication open and transparent with coworkers and the parents of students. Give students regular feedback on their progress, respond quickly to issues, and work with parents to promote their conduct and learning.

Additionally, as a teacher use a variety of teaching strategies to actively engage students in learning. Incorporate interactive activities such as group work, hands-on projects and technology to keep students motivated and interested in the lesson and also have a self-reflection and professional development growth to continuously reflect on teaching practices seek feedback from colleagues and students and engage in professional development opportunities to enhance classroom management skills and effectiveness as a teacher. The consistently high level of teachers' classroom management, particularly in aspects such as modeling behavior and fostering a conducive learning atmosphere suggest a promising foundation for promoting positive student outcomes Olivier & Archambault, (2017).

Moreover, the variable, Modeling Behavior, has the highest Mean of 4.68 with SD = 0.58, described as Always and interpreted as Extremely Practiced. One of the most effective ways for teachers to impact and mold their students' attitudes, values and behaviors is by modeling appropriate behavior. By role modeling teacher can set an example of the students. Teachers' attitudes behaviors and behaviors establish an example of the students to follow both within and outside of the classroom. Encourage students to imitate positive characteristics by modeling them such as kindness, respect, perseverance and honesty. Teachers can give their students practical examples on how to handle social interactions and obstacles by modeling behaviors like active listening, problem-solving, teamwork and empathy. Additionally, setting a good example for students in behavior, teaching morals, developing trust, encouraging social learning and creating a supportive classroom environment may all be accomplished by modeling behavior as a teacher. By exhibiting the traits and by establishing a nurturing and motivating learning environment that fosters academic achievement, personal growth and constructive social interactions in the students. This indicates that teachers consistently exhibit positive conduct and actions within the classroom, underscores the critical role of educators as models for students' character development and academic success Lian et al. (2020).

On the other hand, the variable, Assessment Practices, got the lowest Mean of 4.19 with SD = 0.72, described as Most of the time and interpreted as Very Practiced. The relatively lower mean score for Assessment Practices suggests a potential area for improvement in classroom management strategies. An essential component of efficient instruction that offers insightful feedback on students' development, comprehension, and material mastery. Assessment is used for a variety of reasons including as gauging student progress, pinpointing areas for development, guiding instruction and assessing how well instructional methods are working. Teachers can create tests that support learning objectives and instructional goals by having a clear understanding of the purpose of assessments. Integrating peer and student assessments into the evaluation process is one possible area for improvement in classroom management techniques related to assessment procedures as a teacher.

Additionally monitoring student progress, giving feedback, directing instruction and encouraging student learning and achievement all depend on efficient assessment procedures. Using a range of assessment techniques providing prompt feedback and utilizing assessment results to guide instructional strategies in order to enhance students' achievement teachers can establish a nurturing and stimulating learning environment. Addressing this aspect could enhance the overall effectiveness of teachers' classroom management approaches, thereby positively impacting student outcomes Babaii & Adeh, (2019); Habeeb & Ebrahim (2019).

Problem 2. What is the level of students' academic performance based on their 1st and 2nd quarter grades in the class for the school year 2023-2024?

Table 5 shows that the Mean and Standard Deviation, as well as the Frequency and Percentage distribution of the students' performance on their 1st and 2nd quarter for School Year 2023-2024. It reveals that it has a Mean of 87.32 with SD of

4.43 described as Very Satisfactory; 61 or 42.66% of the respondents have Very Satisfactory performance; followed by 36 or 25.17% are Outstanding, and 30 or 20.98% are Satisfactory.

Table 5 : Students' Academic Performance based on their 1st and 2nd quarter grades in the class for the School Year 2023-2024

General Average	Frequency	Percentage	Mean	SD	Description
90-100	36	25.17%			
85-89	61	42.66%	87.32	4.43	Very Satisfactory
80-84	30	20.98%			
75-79	9	6.29%			
Below 75	7	4.90%			
Total	**143**	**100%**			

Note: 90%-100% Outstanding 85%-89% Very Satisfactory, 80%-84% Satisfactory, 75%-79% Fairly Satisfactory, 74% and below Did Not Meet Expectation

Moreover, only 9 or 6.29% of the total sample population got Fairly Satisfactory and 7 or 4.90% Did Not Meet Expectation. This means that students have consistently shown growth, achievement, and interest in their studies. Consistent improvement that performs exceptionally well usually shows a trend of steady improvement from the first to the second quarter. Their willingness to learn and advance is demonstrated by their improvement. Students who achieved in both quarters have a positive outlook on education, obstacles and criticism. With a growth mentality, perseverance, and excitement, students are able to tackle their academics. Through effective studying techniques, well-organized, note-taking and active learning are examples of effective study techniques that successful students frequently display.

Good academic results are frequently a sign of a supportive learning environment where students are respected, inspired, and driven to do well. Peers, parents, and teachers are all very important in creating this atmosphere. By addressing this, it will be understood that every student learns in a unique way. Some may learn better through hands-on experiences, while others may be visual learners or oral learners. Finding out students' preferred learning style can help teachers adapt their lessons to fit to their requirements. It can also facilitate parent-teacher collaboration which can be a desirable way to discover more about the interests, strengths and limitations of each student. Ensuring that each student receives support at home and at school can be achieved through regular communication between parents and teacher.

However, it is crucial for teachers to continue being kind and patient. For struggling students, to succeed academically, they are frequently required a sense of understanding and support. This variation in academic performance aligns with the findings by Muhid et al. (2018), emphasizing the importance of understanding and addressing diverse factors influencing students' outcomes to foster overall academic success.

Problem 3. Is there a significant relationship between the teachers' classroom management and students' academic performance?

Table 6 shows that the Pearson's Correlation tests between teachers' classroom management and students' academic performance. The test reveals a Very Strong Positive Correlation between learning atmosphere and students' academic performance. Strong Positive Correlation between modeling behavior and Moderate Positive Correlation between assessment practices and students' academic performance. Table 6 took the analysis at the independent variable level by looking at the correlation test while the dependent variable constant at a time. As can be seen from the same table, all independent variables are significant at 0.05.

Table 6: Pearson's Correlation Test between the Teachers' Classroom Management and Students' Academic Performance

Independent	Dependent Variable	r-value	p-value	Description	Interpretation
Modeling Behavior	Students' Academic Performance 1st and 2nd quarter	0.60	0.00	SPC	Significant
Assessment Practices		0.38	0.00	MPC	Significant
Learning Atmosphere		0.72	0.00	VSPC	Significant

Note: 0.71-1.0 Very Strong Positive Correlation, 0.51-0.70 Strong Positive Correlation, 0.31-0.50 Moderate Positive Correlation, 0-0.30 Weak Positive Correlation Significant when computed p-value <0.05

Teachers' Classroom Management and Students' Performance

In summary, taking it at the coefficient level, that classroom management is correlated to students' academic performance, with a p value less than 0.05. Thus, the correlation analysis yielded that the null hypothesis test (Ho1) was rejected with the following findings very strong and strong positive correlation. This means that teachers demonstrate positive behavior and create a supportive learning environment. This has an effective effect on students' academic performance. The combination of modeling behavior and an enjoyable atmosphere for learning in the classroom can have huge advantages for students, teachers, and the learning environment. This can lead to increased academic performance and a greater retention of knowledge. Teachers can foster a supportive and empowering environment where students develop academically, socially, and emotionally by giving these elements the utmost importance. As stated by Kapur (2018), understanding the factors that influence students' academic performance is essential in assessing the broad range of variables that can impact students' outcomes.

Furthermore, students' academic achievement is significantly associated with classroom management strategies used by teachers. A favorable learning environment that encourages motivation, engagement and academic success is produced by effective classroom management. By creating a positive learning environment, teachers who successfully manage their classrooms creates a friendly and encouraging atmosphere for learning. Academic achievement depends on students' participation, teamwork and a sense of belonging, all of which are fostered in this setting. It demonstrates how better classroom management raises students' achievement.

IV. CONCLUSIONS

Based on the findings of the study, the following conclusions are formulated:

1. Classroom management is one of the basic responsibilities of the teachers.
2. The students show an in-depth knowledge and skills with a commitment to be the best however not all made it on top.
3. A well-managed classroom sets the stage for students' success and fosters a positive and enriching educational experience and academic performance.

V. RECOMMENDATIONS

Based on the findings and conclusions generated from this study, the researcher has formulated the following recommendations:

1. In order to maintain an effective classroom management and continue to foster a positive learning environment, teachers may prioritize building strong relationships with their students. By creating a supportive and inclusive atmosphere where students feel valued and respected, teachers can enhance student engagement and motivation. Consistent reinforcement of expectations, clear communication, and proactive problem-solving strategies are key components in sustaining a positive classroom environment. Additionally, incorporating interactive and student-centered teaching methods can further promote a sense of collaboration and enthusiasm for learning.

2. Intervening with students who have low grades requires a strategic and personalized approach to address their academic needs effectively. It is crucial to identify the root causes of their academic struggles through assessments, observations, and discussions with the students themselves. Once the challenges are identified, targeted interventions such as tutoring, extra support sessions, and differentiated instruction can be implemented to help these students improve their grades. Regular monitoring of their progress and ongoing communication with parents and guardians are essential to ensure that the interventions are yielding positive results.

3. Effective classroom management is essential for creating a conducive learning environment where students can thrive academically and socially. A well-managed classroom is characterized by clear expectations, consistent routines, and positive relationships between the teacher and students. By establishing rules and procedures from the beginning of the school year, teachers can prevent disruptions and promote a sense of safety and respect among students. Utilizing strategies such as positive reinforcement, active engagement, and differentiated instruction can help address individual student needs and maintain a harmonious classroom atmosphere.

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Social Capital on 21st Century Employment Competencies

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ABSTRACT: Graduating students must think critically, work well in teams, and handle challenging situations to succeed in today's fast-paced world. The objective of this study was to explore how the dimensions of social capital (economic, symbolic, cultural, and social) influenced the development of critical thinking, communication, and collaboration skills in graduating students. Using a descriptive-correlational design with regression analysis an adapted and modified questionnaire was conducted to 329 graduating students through stratified random sampling using Slovin's formula from Manolo Fortich and Alae High Schools. Findings revealed that students perceived social connections as the most prominent aspect of their social capital, with collaboration emerging as the most valued 21st century employment skill. Through collaboration, social connections, and team trust, the students adapted by openly discussing diverse perspectives, challenging assumptions, and collectively innovating solutions to intricate technical challenges. While the symbolic, cultural, and social dimensions positively correlated with employment skills, the symbolic dimension showed the strongest relationship. The economic dimension, however, did not exhibit a significant correlation. The study highlighted the symbolic dimension as the most influential predictor of employment skills, followed by the cultural dimension. It was recommended to focus on improving the economic dimension to enhance overall social capital, positively impacting 21st century employment skills.

KEYWORDS: 21st Century Skills, Critical Thinking, economic, social capital , symbolic

I. INTRODUCTION

Social capital was a useful tool that helped people navigate the difficulties of the modern workforce. It was based on social network theory and the strength of interpersonal relationships. It included social, cultural, symbolic, and economic aspects, all of which had a significant influence on a person's employment and future professional opportunities. As students prepared to enter a workforce characterized by innovation, collaboration, and adaptability, understanding how social capital influenced their development of 21st century employment competencies, including critical thinking, creative thinking, effective communication, and collaboration, became imperative. By probing into the levels of social capital across its various dimensions and assessing the proficiency of students in critical employability skills, this study endeavors to provide valuable insights into the mechanisms through which social capital may either facilitate or impede their readiness for the workforce. In a high school where the administration had noticed a decline in students' performance in 21st century employment competencies such as critical thinking, creative thinking, effective communication, and collaboration, the students suspected that the level of social capital within the school community might have influenced their proficiency in these areas.

This research investigated the connection between social capital and the development of essential employment skills for the 21st century among senior high school students (Grade 12) in Manolo Fortich National High School and Alae National High School, Division of Bukidnon, during the academic year 2023 to 2024. The study focused on 329 students and aimed to answer specific questions. First, it assessed the current level of social capital across four dimensions: economic, symbolic, cultural, and social. Second, it evaluated the students' proficiency in critical thinking, creative thinking, effective communication, and collaboration – all considered crucial competencies for employment in the 21st century. Finally, the research explored the relationship between social capital and these competencies. It determined if a link existed and, if so, which specific aspects of social capital (or combinations thereof) most significantly influenced the students' preparedness for the modern workforce.

This study served as a guide for policymakers and educational institutions as the students adjusted to the changing needs of the labor market. It oversaw programs and regulations designed to give graduates the tools they needed to thrive in a rapidly evolving labor market. This study offered insightful information about how to prepare for the workforce to meet the needs of the contemporary labor market.

This study was anchored in the theoretical foundations of Pierre Bourdieu's seminal work on social capital and cultural capital. Bourdieu's theories were fundamental in sociology, emphasizing the critical role of social networks, relationships, and affiliations in determining an individual's access to resources and opportunities in society. Bourdieu's introduction of social capital as a distinct entity from economic and cultural capital was particularly pertinent to understanding how individuals navigated the socioeconomic landscape (Bathmaker, 2021).

Bourdieu's work extended to cultural capital theory, which delved into the transmission of cultural knowledge, skills, and habits within different social groups, as evident in Reproduction in Education, Society, and Culture, co-authored with Jean-Claude Passeron. This perspective was crucial in contextualizing how educational institutions and social structures played a role in shaping individuals' cultural capital, and consequently, their social mobility.

Social Network Theory further highlighted the significance of weak ties bridging social capital and strong ties bonding social capital in facilitating access to diverse information and resources. This access, in turn, influenced the development of critical thinking, creative thinking, communication skills, and collaboration capabilities among K to 12 graduating students. This perspective was instrumental in understanding how social networks could contribute to the acquisition of 21st century employment competencies.

Moreover, the theory delved into the structural aspects of social networks, including network density, centrality, and brokerage, which shaped individuals' ability to bridge different social circles and leverage their social capital effectively. By integrating Social Network Theory with Bourdieu's framework, this conceptual model provided a more comprehensive understanding of how social capital and social networks collectively shaped students 21st century employment competencies.

II. METHODOLOGY

The study utilized a combination of descriptive-correlational and causal research designs. A correlational study sought to understand the natural relationships between existing variables. In simpler terms, correlational research aimed to determine if two or more variables were related and, if so, how (Katzukov, 2020). Furthermore, it also incorporated causal elements by identifying which independent variables, singly or combined, influenced 21st century employment competencies (Indeed Editorial Team, 2021).

In this research, given the specific focus on senior high school students on the point of graduating and potentially entering the job market aligned with their chosen field of study. To achieve this, the researchers chose a stratified random sampling technique using Slovin's formula, a method to determine the required sample size. When deciding on the minimum number of samples necessary for a study, it is important to consider the set error tolerance criteria (Anugraheni et. al., 2023).

The total enlistment number of 329 senior high school students is shown in Table A, carefully chosen to ensure the students met the essential prerequisites for the research objectives. The sampling approach allowed for a meticulous selection process, aligning the participants closely with the study's core focus. It was calculated that the sample size from a total population of approximately 1209 was 329, as shown in Table A, given the specified combination of precision, a confidence level of 95%, and a variability of 0.5.

III. RESULTS AND DISCUSSION

Problem 1. What is the prevailing level of Social Capital, encompassing:

1.1 economic;
1.2 symbolic;
1.3 cultural; and
1.4 social dimensions?

Table 1: Overall Social Capital Dimensions

Variable	Mean	SD	Description	Interpretation
Economic Dimension	3.11	0.53	Undecided	Moderate
Symbolic Dimension	3.20	0.62	Undecided	Moderate
Cultural Dimension	3.16	0.58	Undecided	Moderate
Social Dimension	3.24	0.60	Undecided	Moderate
Overall Mean	**3.18**	**0.58**	**Undecided**	**Moderate**

Note: 4.5-5.0 Very High; 3.50-4.49 High; 2.50-3.49 Moderate; 1.50-2.49 Low; 1.0-1.49 Least Moderate

Social Capital on 21st Century Employment Competencies

Table 1 provides a summary of the social capital dimensions and reveals that students are unsure about their employment status upon graduation. This uncertainty is highlighted by an overall Mean of 3.18 with SD=0.58, which falls within the undecided category, interpreted as moderate. This rating means that the social capital of graduating students, encompassing economic, symbolic, cultural, and social aspects, is at a moderate level.

Among the four social capital, social dimension has a Mean of 3.24 with SD = 0.60 rank as the highest Mean, describe as Undecided, interpreted as Moderate. Mishra, (2020) stressed that social networks encompass the relationships and interactions students have with peers, teachers, family members, and other individuals within their academic environment. These networks can offer valuable resources, support, and opportunities for learning and growth. Similarly, social capital refers to the collective benefits derived from these social connections, including access to information, mentorship, and emotional support. Students who possess strong social capital often have greater resilience, confidence, and academic motivation.

Moreso, symbolic capital with a Mean of 3.20 with SD = 0.62 rank as the second Mean score describe as Undecided, interpreted as Moderate. Tomlinson et. al., (2022), stressed that a student's believe their degrees hold some value and recognition but are not overwhelmingly confident that this will translate directly into employment opportunities. This could be due to a variety of factors, such as the perceived value of their institution's reputation or their field of study (Vu et. al., 2021).

In addition, cultural capital has a Mean of 3.16 with SD = of 0.58 the third Mean score describe as Undecided, interpreted as Moderate. Diouani, (2023) stated that the educational qualifications, skills, and cultural knowledge that students possess. The moderate rating implies that while students feel to have acquired relevant skills and knowledge, students are uncertain about how effectively these will be utilized or recognized in the job market. This could be a reflection of the gap between academic training and industry requirements, or concerns about the applicability of their skills. This implicates that in this dimension the students have some level of social networks and support, but may not be extensive enough to significantly boost their employment prospects.

Finally, economic dimension got the lowest Mean of 3.11 with SD = of .53 described as Undecided, interpreted as Moderate. The data suggests that while there are variations in the mean ratings across the four constructs of social capital dimensions, graduating students are actively engaged in building their symbolic, cultural, and social capital. From the basis of Boadi et. al., (2022), the economic dimension refers to the financial resources available to the students, which can impact their job prospects and financial stability post-graduation. The moderate rating indicates that students feel neither confident nor entirely pessimistic about their economic opportunities. Therefore, graduating students may benefit from targeted interventions aimed at bolstering their economic resources and enhancing their confidence in securing employment and achieving financial stability after graduation. These interventions could include career counseling services, workshops on financial literacy, internships or experiential learning opportunities, and networking events with alumni and industry professionals. By addressing the perceived uncertainty in the economic dimension of social capital, educational institutions can better prepare their students for the transition into the workforce and empower them to thrive in their chosen career paths.

Overall, by recognizing and addressing the multidimensional nature of social capital, educational institutions can play a pivotal role in equipping students with the resources and skills necessary to navigate the complexities of the modern economy and achieve their goals.

Problem 2. To what extent do Senior High School Students exhibit 21st century Employment Competencies:

2.1 critical thinking;
2.2 creative thinking;
2.3 effective communication; and
2.4 collaboration?

Table 2: Overall 21st Century Employment Competencies

Variable	Mean	SD	Description	Interpretation
Critical Thinking	3.21	0.53	Undecided	Moderate
Creative Thinking	3.24	0.54	Undecided	Moderate
Communicating	3.32	0.55	Undecided	Moderate
Collaboration	3.38	0.51	Undecided	Moderate
Overall	**3.29**	**0.53**	**Undecided**	**Moderate**

Note: 4.5-5.0 Very High; 3.50-4.49 High; 2.50-3.49 Moderate; 1.50-2.49 Low; 1.0-1.49 Least Moderate

Social Capital on 21st Century Employment Competencies

Table 2 presents the students self-assessed competencies in critical thinking, creative thinking, effective communication, and collaboration, all essential for success in the modern workforce. The table disclosed that students rated collaboration as the highest, with a Mean of .38 and SD = 0.51. This rating is described as Undecided and interpreted as Moderate. Followed by the collaboration, effective communication received a mean score of 3.38 and a SD = of 0.55, also described as Undecided and interpreted as Moderate. Third is creative thinking, with a Mean score of 3.24 with SD = 0.54, described as Undecided and interpreted as Moderate. The lowest rating is for critical thinking, with a Mean of 3.21 and SD = 0.53, described as Undecided and interpreted as Moderate.

The results indicate the overall Mean of 3.29 with SD = 0.53, described as Undecided and interpret as Moderate. This means that given the high demand for innovation, educators should prioritize strategies to enhance students' confidence and ability in these areas. The findings highlight a moderate level of self-assessed proficiency in critical thinking, creative thinking, effective communication, and collaboration among students. Educational institutions should use this data to strengthen these competencies through targeted interventions and experiential learning opportunities.

According to Gusta et. al., (2020), the goal of developing the 4Cs—Critical Thinking, Collaboration, Communication, and Creativity—is to produce graduates who excel in these essential skills. To achieve this, educators must understand each student's unique abilities and strengths. Therefore, by fostering these competencies, teachers can help students become adept at critical analysis, effective teamwork, multi-way communication, and creative problem-solving, all of which are crucial for success in the modern job market. By doing so, learners can better prepare graduates to meet the demands of the 21st century workforce, ensuring to possess the necessary skills to thrive in a dynamic and collaborative professional environment.

Problem 3. Is there a significant relationship between the level of Social Capital and the 21st century Employment Competencies among Senior High School Students?

Table 3: Correlation Analysis

Independent	r-value	p-value	Decision on Ho	Interpretation
Economic Dimension	0.069	0.469	Accept	Not Significant
Symbolic Dimension	0.472	0.000**	Reject	Significant
Cultural Dimension	0.291	0.003**	Reject	Significant
Social Dimension	0.198	0.048*	Reject	Significant

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The correlation analysis reveals relationships between different dimensions and their impact on the variables under study. Table 11 discloses the summary of social capital dimension. It can be deduced from the table that the computed r-value 0.069; p-value=0.469 is higher than the critical p-value 0.05 level of significant. This means that there is no significant relationship. Thus, the null hypothesis is accepted. Economic resources alone may not directly influence employment competencies. This means that simply increasing financial resources or economic support might not be sufficient to enhance student engagement or success. Educational institutions and policymakers should consider complementing economic support with other forms of capital that have a more direct impact on outcomes.

In light of the discussion articulated by Michael (2017), suggests that students from less privileged backgrounds receive fewer benefits in terms of money and prestige from their education compared to those from higher social classes. Therefore, these students often need to work harder to keep up with their wealthier peers. This shows that just giving more financial help might not be enough to help students succeed. Schools and policymakers should also think about giving support in other ways, like helping students build social connections or effective communications, which can have a bigger impact on how well they do in school. Moreso, the results of symbolic dimension computed r-value 0.472 P:value:0.000 is lower than the critical p-value of 0.01 level of significant of symbolic dimension. This means that institutions should invest in building and maintaining their reputations, and students should be encouraged to achieve distinctions and awards that enhance their symbolic capital. This dual approach, providing financial support while also building social and symbolic capital—could help level the playing field for students from diverse backgrounds. Social connections can offer networking opportunities, mentorship, and access to resources that are often readily available to more privileged students. Similarly, effective communication skills can empower students to advocate for themselves, seek help when needed, and build valuable professional relationships.

Social Capital on 21st Century Employment Competencies

These efforts can help improve students' prospects in the job market and their overall success, also the computed r-value 0.291; P:value:0.003 of cultural dimension. This means that there is a significant relationship between the social capital and 21st century employment competencies of the 329 graduating students resulted that the null hypothesis is rejected. Lastly, the social dimension computed r-value 0.198; P:value:0.048 is lower than the critical p-value of 0.05 level of significant of social dimension. This means that there is a significant relationship between the social capital and 21st century employment competencies of the 329 graduating students resulted that the null hypothesis is rejected. These findings align with Kuo et al. (2021), who highlight the crucial role of social capital in developing employment competencies. By rejecting the null hypothesis in both cultural and social dimensions, it becomes clear that educational institutions must adopt a holistic approach to student development. This approach should integrate financial support with initiatives that build social and cultural capital, ensuring that all students, regardless of their socioeconomic background, have equal opportunities to succeed. Therefore, the significant relationships between social capital and 21st century employment competencies indicate that enhancing both cultural and social dimensions of social capital is vital. Educational institutions should prioritize programs and policies that foster social connections, cultural knowledge, and academic excellence. These efforts would help bridge the gap between students from different backgrounds, improve their job market readiness, and ultimately contribute to their overall success.

Problem 4. Which of the independent variable/s singly or in combination influence/s the dependent variable?

Regression analysis is a statistical tool used to explore relationships between variables. Typically, researchers aim to determine the causal effect of one variable on another, such as the impact of a price increase on demand (Montgomery et. al., 2021). The multiple regression analysis conducted aimed to explore the relationship between four predictor variables—Economic Dimension, Symbolic Dimension, Cultural Dimension, and Social Dimension—and the dependent variable, which is 21st Century Employment Skills. The model's overall significance is confirmed by an F-statistic of 9.649 with a p-value of 0.000, indicating that the predictors collectively provide a meaningful explanation of the variance in the dependent variable. Examining the unstandardized coefficients, we see that the constant term is 1.586, which is significant with a t-value of 4.592 ($p < 0.001$). This means that when all predictors are held at zero, the expected value of the dependent variable is 1.586. Among the predictors, the Symbolic Dimension has a high standardized coefficient (Beta = 0.434) and a significant t-value of 4.922 ($p < 0.001$), highlighting its strong positive effect and significance as a predictor.

Table 4: Regression Analysis

Variables	Unstandardized Coefficients		Standard Coefficient Beta	T	Sig.
	B	**Std. Error**			
Constant	1.586	0.345		4.592	0.000
Economic Dimension	0.044	0.073	0.054	.601	0.550
Symbolic Dimension	0.275	0.056	0.434	4.922	0.000
Cultural Dimension	0.158	0.067	0.209	2.350	0.020
Social Dimension	0.065	0.058	0.100	1.111	0.269
	R=0.538	R^2=0.289	F=9.649	Sig.=0.000	

a. Dependent Variable: 21st Century Employment Skills

b. Predictors: (Constant), economic, symbolic, cultural, social dimensions

The Cultural Dimension also shows a significant positive relationship with the dependent variable. This finding means that the more culturally competent graduating students are, the more employable to become. Cultural competence may include understanding and valuing diversity, being adaptable to various cultural contexts, and effectively communicating across cultures (Tan, 2020). Its t-value of 2.350 is significant ($p = 0.020$), indicating that increases in the Cultural Dimension are associated with moderate increases in 21st Century Employment Skills. Furthermore, the R^2 value explains the influence of the whole set of independent variables taken as one on the 21st century employment competencies. The measure of the total variation of the dependent variable consisted of 28.9 percent, which reflects the amount of variance explained by the five (4) independent variables. In comparison, 71.1 percent of the influence can be attributed to other factor variables not included in the study.

On the other hand, the Economic Dimension, is not a significant predictor. While the economic dimension was hypothesized to influence employment competencies, the data shows that it does not have a significant impact. This could be factors such as students economic background or economic conditions during their studies do not directly enhance their employability skills (Pham et al., 2019). Similarly, the social dimension was expected to influence employment competencies, the data indicates it does not have a statistically significant impact. This means that social factors such as networking skills, community engagement, or social support systems might not directly enhance the employability of students to a significant degree (Martin et al., 2020). The regression analysis reveals that while the model as a whole explains a moderate portion of the variation in 21st century employment competencies among graduating students, not all dimensions of social capital contribute equally. Notably, the Symbolic and Cultural Dimensions emerge as significant predictors, with the Symbolic Dimension exerting a particularly strong positive influence. When it comes to preparing graduating students for employment in the 21st century, symbolic and cultural dimensions of social capital are particularly influential. This indicates that factors such as shared values, cultural practices, and symbolic resources like prestige and recognition play a significant role in shaping essential employment competencies. Therefore, symbolic and cultural are most influential in fostering essential employment skills, educators and policymakers can better tailor interventions and support mechanisms to prepare students for success in the modern workforce.

IV. CONCLUSIONS

Based on the significant findings of the study the following conclusions are drawn:

1. Students considered their social ties to be the most important element of their social capital, appreciating the immediate emotional support, mentorship, and access to information that these relationships provided.
2. Collaboration in workplace prepares students to succeed in future occupations that require teamwork.
3. A comprehensive student support strategy that combines financial assistance with programs that foster social connections, cultural knowledge, and academic excellence will be necessary for improving the multiple facets of employment competencies in the 21st century, emphasizing the importance of developing all dimensions of social capital.
4. Educators have increasingly recognized cultural competency as resulted in the creation of programs that include simulations, workshops, and guest speakers who have shared their cultural experiences. Furthermore, educators have begun to boost the student’s employability by giving opportunities for them to gain recognitions. These chances may include internships, awards, or projects that increase a student's symbolic capital in a specific sector.

V. RECOMMENDATIONS

From the significant findings and conclusions of the study the following are offered:

1. Implementers and institutions should prioritize financial literacy and economic empowerment initiatives, such as budgeting and savings workshops, as well as courses on economic self-sufficiency and entrepreneurship. Targeted interventions such as career counseling, financial literacy classes, apprenticeships, and networking events should also be prioritized by educational institutions to better prepare students for the workforce and help them achieve their career objectives.
2. Integrating critical thinking into the curriculum, creating an inquiry-based learning environment, developing analytical skills, enhancing reflective thinking, and providing constructive feedback are all essential phases toward improving students critical thinking abilities, preparing them for the challenges of the 21st century job market, and promoting their overall academic and professional success.
3. Based on the correlation research, it is recommended that the Economic Dimension be prioritized for improvement, as it currently has the smallest correlation with 21st Century Employment Skills. This emphasized the importance of a comprehensive approach that combines financial assistance with activities aimed at increasing symbolic and cultural capital in order to better prepare students for success in the job market.
4. Cultural competency was widely recognized by educators as an important talent for managing different companies, motivating the inclusion of cultural communication training, worldwide collaborations, and various resources in curriculum. Guest lectures, simulations, apprenticeships, and industry-specific initiatives were highlighted to assist students in developing symbolic capital and reputation in their disciplines, so effectively preparing them for the intricacies of modern industries and competitive labor markets.

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4Ps Parents' Involvement and Pupils' Academic Performance: Basis for Intervention Plan

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ABSTRACT: Parents have greatly influenced the overall development of children. This study set out to evaluate the degree of parents' participation among beneficiaries of 4Ps program and the correlation between it and their academic performance. Academic performance of students is the dependent variable, while parents' involvement in parenting, communication, volunteering, at-home learning, decision-making, and community collaboration are the independent variables. This study was conducted at Villanueva South District, Villanueva Misamis Oriental. It employed a descriptive-correlational study design with documentary analysis. Respondents were selected through stratified random sampling. An adapted and modified questionnaire was used. Descriptive and inferential statistical tools like frequency and percentage, mean and standard deviation, and Pearson Product Moment Correlation Coefficient were utilized to analyze and interpret the collected data. Results revealed that 4Ps parents are partially involved. The pupils' academic performance is at satisfactory level. Parents' involvement and pupils' academic performance are significantly correlated. Thus, if parents are greatly involved with their children's affairs including studies, it would increase the pupils' academic performance. This calls for continued parents' involvement by strengthening collaboration with teachers to support pupils' academic performance and track their pupils' learning activities at school and home.

KEYWORDS: 4Ps Parents' Involvement, Intervention, Pupils' Academic Performance

I. INTRODUCTION

Many factors are the most reliable indicators of academic success. Some of these can be socio-economic or perhaps parents' involvement. Parents have greatly influenced the overall development of children. Parents act as their first teachers and provide them with the building blocks they need to adjust to life in school. Parents' involvement is typically seen to support academic progress and collaborating with parents and teachers can improve social functioning. Parents' involvement can also help children behave better at-home and in school. It was found to numerous recent studies that parents' involvement can be beneficial.

Augmenting parents' involvement in education was one of the objectives of the Pantawid Pamilyang Pilipino Program (4Ps). Increasing funding for the 4Ps grant can help achieve this goal by providing parents with more resources to support their children's education. Parents can opt to use the extra cash for things like paying for transportation to and from school or purchasing uniforms and school supplies. To address the issues of poverty and education, the Philippine government established RA 11310, also known as the Pantawid Pamilyang Pilipino Program (Flores et al., 2019).The Philippine government contributes billions of money to the Pantawid Pamilyang Pilipino Program and gives money to deserving students from low-income families. Several social programs and policies to reduce poverty (Aguado, 2021)

Meanwhile, Durisic et al. (2017) stated that by including parents in the educational process, parents' involvement offers schools a significant chance to improve the curricula now offered. Studies have indicated that greater parents' involvement results in better school climate, greater satisfaction among parents and teachers, and higher achievement levels for students. To ensure successful parents' involvement, schools may have partnership programs in place that are constantly developing, putting into practice, evaluating, and improving methods and strategies that encourage involvement in the family and community. Parenting, at-home learning, communication, volunteering, decision-making, and community collaboration are just a few of the activities that schools can promote. Programs for parents' engagement that are effective are based on a thorough analysis of the requirements of the community. Effective parent participation strategies emphasize pleasant interactions and use a strength-based approach to establish trust. Furthermore, parents' involvement in school activities is important since it fosters pupils' academic achievement. Additionally, when parents participate in school events, administrators and teachers can talk to them and find out what they think of their child and the school.

Furthermore, an academic study conducted in Ghana discovered a strong positive correlation between pupils' academic achievement and parents' involvement. Their study shows that parents' help with homework, setting high but reasonable expectations, inspiring and motivating children, and establishing a home study space, all contribute to better academic achievement. It is the duty of parents to take the initiative to direct and encourage their children's education since they are the ones who socialize them, teach them in school, and expose them to the outside world. It is important for parents to take the initiative and have high standards for their kids' academic achievement (Amponsah et al., 2018).

The researcher's observations indicate that many students benefit from the 4Ps program. Parents of program participants are required to support their children's academic pursuits. In line with this, the researcher sought to determine the level of 4Ps parents' involvement among Grade 4 and 5 students in Villanueva South District, as well as its impact on academic performance. Thus, this study was conducted.

The study was anchored on Epstein's Theory, which holds that for many reasons, especially to support the success of the younger generation in school and in the future, families, schools, and communities must act without boundaries but as partners. Epstein's model is part of the parents' involvement model, which is education carried out informally at-home but is integrated with the school program so that parents must contribute optimally to shape the child (Waluyandi et al., 2020).

The approach divides parent-teacher collaboration into six categories: parenting, communication, volunteering, at-home learning, decision-making, and community collaboration. The theory's central concept is the value of multiple experiences in assisting students with their overall schooling and academic accomplishment. Epstein also explains that (1) parenting - assisting all families in developing positive home settings for children and assisting the school in understanding their families; (2) interacting — facilitating two-way talks about school programs and children's achievement utilizing various technology; (3) volunteering entails recruiting and coordinating parent assistance at school, at-home, or elsewhere, including audiences for school programs; (4) learning at-home entails providing families with information and suggestions on how to assist students with homework and other curriculum-related materials, and,; (5) decision making entails having family members act as representatives and stakeholders in school communication (Epstein et al., 2018)

On the other hand, DepEd Order 8, series of 2015, the Policy Guidelines on Classroom Assessment for the K–12 Basic Education Program, was released by the Department of Education (Llego, 2019). It distinguishes between formative and summative classroom assessments, as well as what is examined in each. It also describes how students are evaluated, the components of summative assessment, the grading system, how learners progress is recorded and computed, how grades are computed at the end of the year for promotion, how learners progress is reported, and how attendance is reported.

II. METHODOLOGY

In this study, content analysis was combined with a descriptive-correlational research design. The researcher looked into the problem and developed solutions in an effort to uphold and accomplish the study's objectives. It also looked at the connection between academic achievement in Grades 4 and 5 at Villanueva South District and parents' participation in a similar manner. Descriptive-correlational research investigates relationships between variables without controlling or manipulating them. A correlation demonstrates the strength and direction of the correlation among two or more variables (Bhandari 2022).

This method is an accurate and systematic description of something, which refers to the extent of the phenomenon or characteristics such as feeling or attitude. Further, it is also a systematic description of someone, which may be an individual, group, or community. Through a survey questionnaire, the learner-respondents who were 4Ps beneficiaries will answer their parents' involvement indicators. The data was collected through a survey questionnaire and administered by the researcher. This research entails gathering, tabulating, computing, analyzing values, and interpreting results. Therefore, all the data gathered from the respondents was organized, tallied, tabulated, and presented in a series of tables.

The respondents in this study were one hundred eighty (180) Grade 4 and 5 selected pupils who were 4Ps beneficiaries in the Villanueva South District during the School Year 2022-2023. This study used a stratified random sampling procedure. The respondents were identified using Slovin's formula with a 5 percent margin of error. From the seven (7) schools, a total of 180 out of 328 pupils were involved in the study taken as respondents of the study. Table A shows the distribution of respondents by school.

III. RESULTS AND DISCUSSION

Problem 1. What is the level of 4Ps parents' involvement in terms of;

1.1 parenting;
1.2 communication;
1.3 volunteering;
1.4 at-home Learning

1.5 decision-making; and
1.6 community collaboration?

Table 1. Overall Level of Parents' Involvement

Variables	Mean	SD	Description	Interpretation
Parenting	3.78	0.89	Most of the time	Partially Involved
Communication	3.88	0.90	Most of the time	Partially Involved
Volunteering	3.54	0.86	Most of the time	Partially Involved
At-Home Learning	3.42	0.86	Most of the time	Partially Involved
Decision-making	3.45	0.86	Most of the time	Partially Involved
Community collaboration	3.32	0.86	Sometimes	Moderately Involved
Overall Mean	**3.56**	**0.87**	**Most of the time**	**Partially Involved**

Note: 4.21 - 5.00 Highly Involved 3.41 – 4.20 Partially Involved 2.61 – 3.40 Moderately involved 1.81 – 2.60 Less involved1.00 – 1.80 Not Involved

Table 1 presents the overall level of parents' involvement data. It registered an overall Mean of 3.56 and SD=0.87, described as Most of the time and interpreted as Partially Involved. This implies that the pupils appreciate the efforts given by their parents. According to Durisic et al. (2017), parents' involvement gives schools a crucial chance to enhance their current curricula by involving parents in the learning process. Higher levels of parent and teacher satisfaction, better student achievement, and a more positive school climate have all been linked to increased parents' involvement. Through partnership programs, schools can effectively encourage parents' involvement by continuously creating, putting into practice, evaluating, and refining strategies and procedures that promote family and community involvement. Numerous activities, such as parenting, home education, volunteering, communication, making decisions, and community cooperation, can be encouraged by schools. Parents' participation initiatives that are successful are based on a thorough understanding of the particular needs of the community. Utilizing a strength-based approach that emphasizes positive interactions to build trust is one of the most efficient ways to promote parent involvement.

Moreover, the highest rated indicator is Communication with a Mean of 3.88 and SD=0.90, which is described as Most of the time and interpreted as Partilly Involved. This means that pupils believe in communicating with their parents and family members. This implies that parents should communicate well and consistently with their pupils to promote openness, trust, and honesty from the pupils. There are two (2) ways communication can be placed: spoken or unspoken. Parents communicate verbally by using their voice in a particular pitch and tone, saying things in a certain way, and speaking in a dialect their child can comprehend. Intentional and inadvertent body language communication is nonverbal communication. Your words are not the only thing that counts. It's also crucial to pay attention to how you embrace and kiss someone, how you speak, and how you seem. Not only does your communication style help your child learn how to interact with others and influences your child's emotional growth and future ability to form relationships (Unicef.org, 2020).

Meanwhile, the lowest rated indicator, community collaboration, has a Mean of 3.32 and SD=0.86, described as Sometimes and interpreted as Moderately Involved. This data means that the pupils believe their parents or guardians must provide time to collaborate with the authorities or activities at school. Collaborating with others allows both sides to prosper as they can determine their strengths and weaknesses and make innovations to improve them. Salac et al. (2022) confirmed that schools and communities are inextricably connected and that partnership with all community sectors is vital to aiding children in realizing their maximum potential. Community collaboration and schools improves and reinforces the values, culture, and learning experiences schools should provide for their pupils.

Problem 2. What is the academic performance of the 4Ps beneficiary pupils for the SY 2022-2023?

Table 2. Overall Pupils' Academic Performance

Grade Range	Frequency	Percentage	Mean	SD	Description
90-100	2	1.11			
85-89	34	18.89			
80-84	95	52.78	81.14	3.11	Satisfactory
75-79	49	27.22			
74 and Below	0	0.00			
Total	**180**	**100.00**			

Note: 90-100 Outstanding 85-89 Very Satisfactory 80-84 Satisfactory 75-79 Fairly Satisfactory 74 and Below Did not meet Expectations

Table 2 exposes the Overall Pupils' Academic Performance. It registered an Overall Mean of 81.14 and SD=3.11, described as a Satisfactory level. Moreover, 52.78% of the pupils had academic performance at a satisfactory level, while 27.22% were at a Fairly Satisfactory Level, and 18.89% were at a Very Satisfactory Level. Finally, 1.11% of the pupils achieved an Outstanding Level. This means that the academic performance of the 4Ps pupils is between moderate to low levels. Teachers may provide additional time and activities via remediation or interventions to improve their academic performance. Parents must give opportunities to assist, follow up on, and monitor their pupils' activities at-home so that they will have more time to study and master the lessons they have at school. According to the research done by Pañares and Rapista (2023), the majority of pupils who get financial aid from 4Ps perform well, and the majority of the beneficiaries who get financial aid do satisfactorily academically.

Meanwhile, a study conducted by Rai and Penjor (2020), stated that the remedial class increased the competency of the low performers. Remedial programs aim to get students back on track and uplift them; they are regarded as an integral component of education. It is considered a quickly expanding strategy to prevent pupils from losing their learning. Remedial education is intended to individually help students with trouble in particular subject areas. Moreover, remedial programs are meant to reduce the discrepancies between students' current knowledge and expectations. They refresh essential abilities. Due to the high number of children experiencing learning difficulties, remedial programs are growing. The core subjects are the focus of remedial programs. The program provides additional support to help the pupils catch up to their peers. Additionally, they accept all pupils, even those with learning difficulties (Guban & Revilla, 2022).

Problem 3 Is there a significant relationship between the 4Ps parents' involvement and pupils' academic performance?

Table 3. Test Correlation between Parents' Involvement and Pupils' Academic Performance

Parent's Involvement	r-value	p-value	Level of Correlation	Description	Interpretation
Parenting	0.439	0.002	Moderate Positive Correlation	Reject Ho	Significant
Communicating	0.484	0.002	Moderate Positive Correlation	Reject Ho	Significant
Volunteering	0.544	0.002	Moderate Positive Correlation	Reject Ho	Significant
At-Home Learning	0.453	0.001	Moderate Positive Correlation	Reject Ho	Significant
Decision-Making	0.544	0.002	Moderate Positive Correlation	Reject Ho	Significant
community Collaboration	0.424	0.001	Moderate Positive Correlation	Reject Ho	Significant
Overall	**0.481**	**0.002**	**Moderate Positive Correlation**	**Reject Ho**	**Significant**

Note: Significant if the computed p-value is less than 0.05

Table 3 shows the Overall Test Correlation between parents' involvement and pupils' academic performance. It registered a computed r-value of 0.481 with a p-value of 0.002. The computed p-value is lower than the p-critical value of 0.05 level of significance. Thus, the null hypothesis is rejected. This means that the independent variables of parents' involvement in terms of parenting, communicating, volunteering, at-home learning, decision-making, and community collaboration significantly correlate with the dependent variable of pupils' academic performance. This suggests that parents' involvement in their children's school activities improves academic performance. The findings of the study of Pinatil (2022), that when parents are more involved in and supportive of their children's education, the results speak for themselves. As a result, the study recommends that parents take a more active role in the education of their children by helping school authorities and administration create programs and events.

For Parenting, it registered a computed r-value of 0.439 with a computed p-value of 0.002. The computed p-value is lower than the p-critical value of 0.05 level of significance. Thus, the null hypothesis is rejected. This indicates that parenting significantly affects the pupils' academic performance. This implies that parents must consistently provide parenting time to their pupils so they will have better academic performance. The study conducted by Weicker (2020) yielded noteworthy findings, suggesting that pupils who expressed satisfaction with their upbringing performed better academically than those who did not. The current study's findings broaden our understanding of the relationship between successful academic performance and parents' practices. Furthermore, the study indicates that parents' style still significantly impacts adolescents' academic careers. The study showed that tough, supportive parents typically produce the most successful academic outcomes.

For Communication, it registered a computed r-value of 0.484 with a computed p-value of 0.002. At the 0.05 level of significance, the calculated p-value is less than the p-critical value. Thus, the null hypothesis is rejected. This means that students' academic performance is significantly affected by communication. This implies that parents must be consistent in communicating with their pupils as well as with their teachers to check and monitor their struggles and progress. Whatever challenges the pupils have, they will be addressed appropriately. Academic attainment is noticeably greater for parents who communicate fearlessly with their children and teachers than for those who do not. Academic achievement is much lower in students whose parents cooperated less with the teachers' demands.

Thus, it is crucial to communicate with the pupils and their teachers to check their progress and even the challenges the child faces at school and in their studies (Fu et al., 2022).

For Volunteering, it registered a computed r-value of 0.544 with a computed p-value of 0.002. At the 0.05 level of significance, the calculated p-value is less than the p-critical value. Thus, the null hypothesis is rejected. Thus, volunteering has a big impact on students' academic achievement. This suggests that parents may provide time to volunteer and participate in various school-led activities as it allows them to bond with their pupils and show support to the school and its teachers' vision and dreams for the betterment of their pupils. According to Oco (2022) and Das et al. (2023), pupils are more motivated and inspired when they witness their parents getting involved in school-related activities, such as helping with assignments or attending different school functions. This is because students manage to find time to assist their school and parents despite knowing they are busy.

For At-Home learning, it registered a computed r-value of 0.453 with a computed p-value of 0.001. The computed p-value is lower than the p-critical value of 0.05 level of significance. Thus, the null hypothesis is rejected. This means that at-home learning has a significant impact with the pupils' academic performance. This implies that parents must monitor their pupils' activities at-home, especially regarding their studies. Grades improve when parents relate to their children because they are more driven to learn. A significant impact on a student's achievement depends on how involved they are. The degree of parents' participation increasingly impacts a child's academic progress. As a result, parents must support and mentor their children's at-home learning to reinforce and extend what they learn in the classroom (Durisic et al., 2017).

For Decision-Making, It registered a computed r-value of 0.544 with a computed p-value of 0.002. The computed p-value is lower than the p-critical value of 0.05 level of significance. Thus, the null hypothesis is rejected. This means that parents' decision-making significantly relates to the pupils' academic performance. This implies that parents must give importance to helping or assisting their pupils in making decisions vital to their pupils' activities and things to do. According to Drasti (2021), students are more motivated when they observe their parents attending and engaging in different school-related activities. They are pleased to see their parents participating in decision-making processes since this will help the school implement its policies and ensure its safety and security.

For Community collaboration, It registered a computed r-value of 0.424 with a computed p-value of 0.001. The computed p-value is lower than the p-critical value of 0.05 level of significance. Thus, the null hypothesis is rejected. This means that collaboration with the community has a significant relationship with the pupils' academic performance. This implies that parents may emphasize the impact of community participation or involvement on their pupils. Children with involved parents learn more outside of the classroom, have a better overall experience, and do better academically. Parents must also help their children develop outside of the preschool setting. Parents aware of what is happening in their child's preschool classroom find it simpler to draw connections between what is taught at school and what happens at-home. A child's growth and the promotion of lifelong learning are significantly reliant on this interaction. Consequently, it is critical to spend quality time together with kids by taking them to libraries or museums (Spreeuwenberg, 2020).

IV. CONCLUSIONS

In the light of the above-cited findings, the following conclusions are drawn from the study:

1. Pupils believe in the necessity of Communication with their parents. Parents who are highly involved in their child's education, mainly through effective communication with teachers, play a sinificant role in ensuring their child's success inside and outside the classroom.
2. The pupils demonstrated basic proficiency but still needs enhancement activities and remediation.
3. Since parents' involvement is partial, academic performance is less. Pupils are more motivated when they see their parents participating in various school-related activities.

V. RECOMMENDATIONS

Based on the above findings and conclusions, the following recommendations are presented:

1. Parents may give time to accompany their children to reading libraries or other reading centers and encourage them to participate in community-based activities to foster a supportive learning environment and engagement outside of school, which help improve and contribute to the child's overall performance.
2. School heads, teachers, and parents may create programs, trainings, and interventions that uplift the pupils' academic performance level and include stakeholders' involvement at school.
3. The school head and teachers may create programs and activities that promote collaboration and strengthen parents' involvement to help improve and increase pupils' academic performance.
4. The intervention plan made in this study is recommended to be implemented.

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Instructional Supervision Practices and Efficacy of Teachers

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ABSTRACT: Assessing and enhancing teachers' ability to deliver high-quality instruction significantly relies on the instructional supervision practices of school heads. The objective of this study was to determine the level of instructional supervision practices of school heads, the level of efficacy of teachers, the significant correlation between these variables and the specific instructional supervision practices that impact the efficacy of teachers among the four (4) schools of Impasugong I District, Division of Bukidnon for School Year 2023-2024. The study employed a descriptive correlational and causal design to one hundred seventeen (117) teachers. The data was collected using an adapted and modified questionnaire. The statistical tools used were mean, standard deviation, Pearson Product Moment Correlation Coefficient (r), and linear regression. The study revealed that respondents hold an excellent view of the school heads' instructional supervision practices, particularly those conducted on pre-observations. Additionally, it was demonstrated that these practices were Highly Effective in boosting teachers' confidence and effectiveness. A significant relationship exists between the school heads' instructional supervision practices and efficacy of teachers, thus rejecting the null hypothesis and that pre-observation practices were most emphasized by school heads. Based on these findings, it is recommended to enhance post-observation practices by providing allocation of resources towards supporting teachers' professional growth, and prioritizing pre- and post-observation practices to improve teacher effectiveness.

KEYWORDS: Instructional supervision, Pre-observation, Teachers' efficacy

I. INTRODUCTION

Supervision is essential for enhancing educational practices and supporting teachers and administrators in performing their roles more effectively. In education, supervision is crucial for maintaining consistency and effectiveness in teaching. It serves as a mechanism to enhance teaching and learning by incorporating elements such as monitoring, investigation, data collection, guidance, leadership, assessment, correction, proactive measures, motivation, assessment, improvement, and informal aspects.

Teacher Efficacy is a critical factor that influences instructional practices and student outcomes. Research has shown that teacher efficacy beliefs are positively related to instructional practices, class planning, decision-making, and post-class reflection (Khanshan & Yousefi, 2020). The study by Perera et al. (2019) emphasized the importance of understanding teachers' perceptions of efficacy and its link to actual classroom practices. This emphasizes the need to explore the specific indicators of teacher efficacy and their relationship with classroom observation practices to enhance teaching effectiveness. Furthermore, the effectiveness of the teacher is enhanced when teachers see their peers provide effective training (Withy, 2019).

In the international context and in the Philippines context, there are challenges in the classroom observation practices of school heads and their impact on teacher efficacy. Research has shown that, although classroom observation is widely recognized as a valuable tool for professional development, there is a lack of consistency in its implementation and feedback. For example, a study in the Philippines showed that teachers thought classroom observation was an indicator of how well they were working towards their objectives, but there are inconsistencies and variations in the quality of feedback given during post-observation practices (Caratiquit & Pablo, 2021). This inconsistency in feedback can impact the efficacy of teachers, as they may not receive the necessary support and reinforcement to enhance their instructional practices.

In line with this, the Department of Education in the Division of Bukidnon has requested the field to enhance classroom instruction and the execution of instructional supervision. This directive is a response to the urgent necessity of addressing learning losses, recovering from educational setbacks, and mitigating educational disadvantage among schoolchildren, out-of-school youths, and adults. Therefore, school administrators and supervisors are anticipated to carry out effective instructional supervision and offer technical assistance to teachers while also increasing their monitoring of classroom activities (DepEd SDO Bukidnon, 2023).

One effective method for enhancing teachers' teaching abilities is through instructional supervision. This process involves supporting teachers in enhancing the quality of their teaching methods and classroom settings, ultimately aiming to improve student learning outcomes. However, while instructional supervision is designed to achieve these goals, its impact on learning quality has not been conclusively demonstrated (Maisyaroh et al., 2021).

Additionally, Mecgley (cited in Peter et al. 2021) emphasizes the primary role of a supervisor to support teachers in becoming efficient and effective in the teaching and learning process. Instructional supervision, particularly as it pertains to school heads, is about directly engaging with teaching staff, who are the primary implementers of education. In this regard, school heads should prioritize instructional supervision in fulfilling their duties.

Thus, the researcher sought to ascertain how the instructional supervision practices exhibited by school heads—pre-, during, and post-observation in relation to the efficacy of teachers.

II. METHODOLOGY

This study employed a descriptive correlational and causal research design. Descriptive correlational research is designed to assess the relationships between and among two or more variables. It allows testing of expected relationships between variables and making predictions, but it cannot be used to draw inferences about cause and effect. Causal research, a type of conclusive research, attempts to establish a cause-and-effect relationship between variables. It allows conclusions to be drawn about the causal relationships among variables and is used to assess the causal impact of one or more experimental manipulations on a dependent variable (Walters, 2020). In this study, the researcher examined the significant relationship between the instructional supervision practices of school heads and efficacy of teachers. This study employed the following statistical tools to analyze the data. For problems 1 and 2, Mean and Standard Deviation were used. For problem 3, to get the significant relationship between the instructional supervision practices of school heads and efficacy of teachers, the Pearson Product Moment Correlation Coefficient was utilized. For Problem 4, to determine which of the school heads' instructional supervision practices singly or in combination influence the efficacy of teachers, Linear Regression was employed.

III. RESULTS AND DISCUSSION

Problem 1. What is the level of instructional supervision practices of school heads in:

1.1 pre-observation;
1.2 during observation; and
1.3 post-observation?

Table 1 shows the overall result of the instructional supervision practices conducted by school heads. It reveals an overall Mean of 3.76 with SD=0.54, which is described as Always and interpreted as Excellent. This implies that school heads are consistently and effectively engaging in instructional supervision. For teachers, this means they receive regular feedback, guidance, and support to improve their instructional practices. This, in turn, can lead to enhanced teaching effectiveness and professional growth. For students, effective instructional supervision can result in a more engaging and impactful learning experience, tailored to meet their diverse needs. Overall, the excellence of these practices indicates a strong commitment to educational quality and student success within the school.

As supported by Barrogo (2020), the implementation of classroom observation practices by school heads is highly substantial for various reasons. One key reason is that classroom observation serves as a critical means to evaluate and enhance teachers' effectiveness, aligning with the quality education standards outlined in the K to 12 Law in the Philippines.

Table 1. Overall Level of Instructional Supervision Practices

Instructional Supervision Practices	Mean	SD	Description	Interpretation
Pre-Observation Practices	3.79	0.54	Always	Excellent
During Observation Practices	3.78	0.53	Always	Excellent
Post-Observation Practices	3.71	0.54	Always	Excellent
Overall	**3.76**	**0.54**	**Always**	**Excellent**

Note: *3.26 – 4.00 Excellent, 2.51 – 3.25, Good 1.76 – 2.50, Fair 1.00 – 1.75, Poor*

Instructional Supervision Practices and Efficacy of Teachers

Moreover, the variable, *Pre-Observation,* has the highest Mean of 3.79 with SD=0.54, which is described as Always and interpreted as Excellent. This indicates that pre-observation practices hold significant implications for instructional supervision practices. This means that the preparation practices before classroom observation are consistently and effectively carried out. The school heads are diligently preparing for observations, which can lead to more focused and productive observations. By adequately preparing beforehand, school heads can tailor their observation focus, identify specific areas for feedback, and ensure that the observation process is conducted smoothly. Ultimately, by devoting sufficient time to preparation prior to the observation, instructional supervision may be made more successful overall, which will benefit both teaching strategies and student performance.

The insights of Llego (2021) support this finding that pre-observation practices conducted by school heads before classroom observations are essential for ensuring the observation process is both effective and fair. These practices encompass various steps that school heads commonly take before engaging in classroom observations.

Nevertheless, the variable, *Post-Observation,* got the lowest Mean of 3.71 with SD=0.54, described as Always and interpreted as Excellent. This finding implies a potential area for improvement in the instructional supervision practices of school heads, particularly concerning the professional growth of teachers. One possible reason for this result could be a lack of comprehensive follow-up strategies after classroom observations; thus, the effectiveness of the post-observation practices, including providing feedback, offering support, and facilitating professional development opportunities, may not be as impactful.

Benton (2019) emphasized that after conducting classroom observations, school heads play a vital role in providing teachers with constructive and supportive feedback. Specific feedback should be given, highlighting strengths and areas where improvements are needed. By offering targeted feedback, school heads can support teachers enrich their teaching practices and improve student learning outcomes. Additionally, providing assistance and guidance after observations can enable teachers to reflect on their teaching methods.

Problem 2. What is the teachers' level of efficacy?

Table 2. Overall Level of Efficacy of Teachers

Indicators	Mean	SD	Description	Interpretation
1. I can maintain discipline in the classroom.	3.42	0.58	Strongly Agree	Highly Effective
2. I can get my learners interested in the subject I teach.	3.48	0.57	Strongly Agree	Highly Effective
3. I can use a variety of teaching strategies to help learners understand the subject matter.	3.63	0.53	Strongly Agree	Highly Effective
4. I can get through to even the most difficult learners.	3.23	0.60	Agree	Effective
5. I can help my learners to feel that they are important.	3.77	0.51	Strongly Agree	Highly Effective
6. I can develop a good relationship with my learners.	3.80	0.51	Strongly Agree	Highly Effective
7. I can get my learners to work hard.	3.63	0.53	Strongly Agree	Highly Effective
8. I can cope with the stress of my work.	3.46	0.57	Strongly Agree	Highly Effective
9. I can remain calm when facing difficulties in teaching.	3.45	0.58	Strongly Agree	Highly Effective
10. I can solve problems that occur in teaching.	3.55	0.55	Strongly Agree	Highly Effective
11. I can get my learners to be creative.	3.58	0.55	Strongly Agree	Highly Effective
12. I can get my learners to be curious.	3.62	0.53	Strongly Agree	Highly Effective
13. I can get my learners to be persistent.	3.53	0.55	Strongly Agree	Highly Effective
14. I can get my learners to be organized.	3.48	0.57	Strongly Agree	Highly Effective
15. I can get my learners to be critical thinkers.	3.44	0.58	Strongly Agree	Highly Effective
Overall	**3.54**	**0.55**	**Strongly Agree**	**Highly Effective**

Note: *3.26 – 4.00 Highly Effective, 2.51 – 3.25, Effective 1.76 – 2.50, Somewhat Effective 1.00 – 1.75, Ineffective*

Table 2 shows the level of efficacy of teachers. It reveals that it has an overall Mean of 3.54 with SD=0.55, which is described as Strongly Agree and interpreted as Highly Effective. This means that teachers have a strong belief in their ability to positively influence the learning and results of students. The high level of efficacy may inspire them to put in more work and be more motivated to succeed in their duties as teachers. Additionally, the positive perception of efficacy implies that teachers feel confident in their instructional practices and strategies. This confidence can result in more innovative and effective teaching methods, ultimately benefiting student learning.

A research article in the Journal of Educational Research discovered a favorable connection between the efficacy of teachers and their instructional methods, underlining the significance of how teachers perceive their efficacy in shaping how they teach (Poulou et al., 2019). Furthermore, Bellibaş (2023) investigated how feedback from school heads' observations affected teacher efficacy and instructional methods. The study revealed a positive relationship between observation feedback and teacher efficacy, which subsequently influenced instructional practices.

Moreover, the indicator 6, *I can develop a good relationship with my students,* has the highest Mean of 3.80 with SD=0.51 which is described as Strongly Agree and interpreted as Highly Effective. It means that teachers in Impasugong I district believe they can build a positive relationship with their students. In order to create a supportive and more engaged classroom, such relationships are crucial. Teachers who feel confident in their ability to connect with students are likely to be more effective in managing classroom dynamics, fostering student engagement, and ultimately, enhancing learning outcomes. Therefore, this finding stresses the importance of teacher-student relationships in shaping teacher efficacy and the positive impact that relationships can have on teaching effectiveness.

Social persuasion and mastery experiences are interconnected aspects of teacher efficacy. Social support and feedback help build teachers' confidence, leading them to create successful learning experiences for their students. As teachers witness the positive impact of their teaching, their sense of efficacy grows, motivating them to continue refining their practices and contributing to their professional growth (Pajares, 2019).

On the other hand, indicator 4, *I can get through to even the most difficult learners,* has the lowest Mean of 3.23 with SD=0.60, which is described as Strongly Agree and interpreted as Effective. The finding implies potential challenges in teacher efficacy related to reaching and engaging with challenging students. Teachers may feel less confident in their ability to connect with these students due to various factors such as behavior issues, learning difficulties, or lack of support systems. Therefore, enhancing teachers' efficacy in reaching difficult learners could involve providing additional training, resources, and support to help them develop specialized strategies and approaches tailored to the needs of these students. By improving teachers' confidence and skills in this area, schools can better support the academic and personal development of all students, including those who are the most challenging to reach.

A study by Frontiers in Psychology found that the efficacy of teachers is influenced by their attitudes. More positive attitudes in teachers indicate that they will be more positively reflected in their efficacy. The study also noted that teachers' efficacy is defined as their judgment of their capabilities to bring about even among students who may be difficult or unmotivated (Binammar et al., 2023).

Problem 3. Is there a significant relationship between school heads' instructional supervision practices and efficacy of teachers?

Table 3. Test Correlation between Instructional Supervision Practices and Efficacy of Teachers

Variables	r-value	p-value	Level of Correlation	Description	Interpretation
Pre-Observation Practices	0.532	0.001	Moderate Positive Correlation	Reject Ho	Significant
During Observation Practices	0.394	0.027	Weak Positive Correlation	Reject Ho	Significant
Post-Observation Practices	0.568	0.001	Moderate Positive Correlation	Reject Ho	Significant

Note: *r= r-value (Correlation Coefficient), p= p-value (Significant Level) $p<0.05$*

The table 3 shows the Pearson's Correlation test between the instructional supervision practices of school heads and the efficacy of teachers. The result reveals a moderate positive correlation between pre-observation and post-observation practices and a weaker positive correlation during observation practices. The moderate positive correlation between pre- and post-observation and efficacy of teachers means that the practices undertaken by school heads before and after observing teachers are sufficient in supporting teacher development. On the other hand, the during observation practices show a weaker positive correlation with other practices. This suggests that the practices exhibited by school heads while observing teachers in the classroom might not align as closely with other practices of instructional supervision. This weaker correlation could indicate a potential area for improvement in how during observation practices are conducted or integrated into the overall supervision framework.

Moreover, a significant correlation between pre-observation practices and teacher efficacy, indicated by a p-value below 0.05 and the rejection of the null hypothesis (Ho1), suggests a meaningful relationship between these variables. This finding implies that the activities undertaken by school heads before observing teachers in the classroom are associated with higher levels of teacher efficacy. The moderate positive correlation further indicates that as pre-observation practices increase in effectiveness or frequency, teacher efficacy tends to improve as well. This inference highlights the importance of thorough preparation and engagement by school heads prior to observing teachers. It suggests that when school heads invest time and effort into practices such as setting clear expectations, providing support, and establishing rapport before observations, they contribute positively to teachers' confidence and effectiveness in their roles. Furthermore, this finding underscores the potential impact of proactive leadership strategies on teacher professional development and overall school performance.

According to Barrogo (2021), the effective utilization of observation serves as a powerful method for assessing and enhancing a teacher's progress. When employed effectively, it can serve as a means of supporting teachers, offering comprehensive insights and enabling the establishment of precise goals. However, proficient observation and constructive feedback delivery constitute complex skills that demand training and experience to master.

A p-value of less than 0.05 in the correlation analysis indicated a significant relationship between the efficacy of teachers and the post-observation practices carried out by school heads. Consequently, the null hypothesis (Ho1) was rejected. This means that the practices employed by school heads following classroom observations have a tangible impact on teacher efficacy. The moderate positive correlation underscores the importance of post-observation practices in fostering an environment conducive to teacher growth and development. By providing constructive feedback, guidance, and support after classroom observations, school heads can contribute to enhancing teacher effectiveness and ultimately improving student outcomes.

One method of providing feedback on teachers' performance in the classroom is called classroom observation. The aim of this is to encourage teachers to reflect on their teaching practices and to be aware of their own self. Observations in the classroom are also a means to gather evidence of an teacher's actual performance, highlighting their strengths and areas needing improvement (Riego de Dios, 2020).

Furthermore, the analysis of the correlation between during observation practices and teacher efficacy revealed a statistically significant relationship, as indicated by a p-value of less than 0.05. This result led to the rejection of the null hypothesis, indicating that there is indeed a correlation between these two variables. However, the correlation was found to be weakly positive, implying that while there is some association between the way teachers are observed in the classroom and their efficacy, this relationship is not particularly strong. This finding highlights the complexity of factors influencing teacher efficacy and suggests that while during observation practices play a role, they are not the sole determinants of teacher effectiveness. Further research and analysis may be needed to better understand the nature of this relationship and its implications for improving instructional supervision practices in schools.

In a research undertaken in the Philippines, Aquino et al. (2021) discovered a notable relationship between the observation practices of school heads and the efficacy of teachers. Their findings indicate that the manner in which school heads conduct their observations significantly influences teachers' feelings about their work. This implies that the manner in which school leaders oversee and engage with teachers during observations can influence teachers' confidence and effectiveness in their work.

Problem 4. Which of the school heads' instructional supervision practices singly or in combination influence the efficacy of teachers?

Table 4. Regression Analysis Between Instructional Supervision Practices and Efficacy of Teachers

Variables	**UC**		**SC**	**t-value**	**Sig. (P-value)**	**Decision**
	B	**SE**	**B**			
Constant	0.4526	0.5346	0.3748	5.9418	0.001	
Pre-Observation	0.8549	0.6766	0.6879	6.6493	0.001	Reject Ho
During Observation	0.0698	0.0877	0.0469	1.0782	0.064	Accept Ho
Post-Observation	0.4958	0.7964	0.6985	6.7583	0.001	Reject Ho
Model	**R**	**R^2**	**Adjusted R^2**	**f-value**	**Sig. (P-value)**	**Decision**
	0.572	0.561	0.389	12.542	0.001	Reject Ho

Note: UC = Unstandardized Coefficients, SC = Standardized Coefficients, Dependent Variable = Efficacy

Significant when computed p-value <0.05.

Table 4 in the previous page shows the regression analysis with moderating variables that predict the efficacy of teachers. Pre-observation was a significant predictor of efficacy teachers (β = 0.6879, p = 0.001), and so was post observation (β = 0.6985, p = 0.001). However, during observation was not a significant predictor of efficacy of teachers, (β = 0.0469, p = 0.064). This suggests that pre-observation and post-observation practices implemented by school heads are crucial in assessing teacher efficacy and confidence in their skills. On the other hand, during observation practices were not found to be a significant predictor of teacher efficacy. This suggests that the procedures implemented before and after classroom observations may have a greater impact than the actual observation process on teachers.

Specifically, a statistically significant positive effect of pre-observation practices on teachers' efficacy ($\beta = 0.6879$, $p = 0.001$) suggests a strong relationship between the pre-observation and teacher effectiveness. This implies that when school heads spend time and resources into thorough preparation before classroom observations, such as setting clear objectives, providing relevant resources, and establishing a supportive environment, teachers are more likely to feel confident and capable in their roles. Additionally, it indicates that proactive measures taken before classroom observations can positively influence teachers' beliefs in their ability to meet instructional goals and effectively engage students. Thus, prioritizing and enhancing pre-observation practices may lead to improved teacher efficacy, ultimately benefiting student learning outcomes and overall educational quality. Therefore, the regression analysis led to the rejection of the null hypothesis test (Ho2).

Engaging in a pre-observation discussion can enhance a teacher's confidence and readiness for an observation by offering clarity on the observation's purpose, the evidence to be gathered, and how it will be collected. This clarity allows teachers to align their preparation with their teaching objectives and ensures that the observer's focus is in sync with their goals (Ferlazzo, 2022: Oco, 2022). This process can contribute to improving teachers' efficacy by providing them with a clear understanding of what is expected during the observation and helping them feel more supported and prepared, ultimately leading to more effective teaching practices.

The result ($\beta = 0.6985$, $p = 0.001$) indicates that post-observation practices significantly predict teacher efficacy. This means that the practices taken after observing teachers in the classroom play an essential role in determining their effectiveness and confidence in their abilities. Thus, it implies that providing constructive feedback, guidance, and support to teachers following classroom observations can greatly impact their sense of efficacy. When post-observation practices are well-implemented, teachers are more likely to feel supported, understand areas for improvement, and receive the necessary resources to enhance their teaching practices. Hence, the regression analysis yielded that the null hypothesis test (Ho2) was rejected.

As stated by Zepeda, as cited in Lavigne et al. (2023), when principals excel as instructional leaders, they validate and empower teachers. Teachers view classroom visits and post-observation feedback as coaching opportunities that enhance their professionalism. This approach also reinforces the principal's role as a visible presence in both the classroom and the school. This dynamic fosters a culture of collaboration and continuous improvement, where teachers feel supported in their growth and development. Ultimately, this contributes to a positive school environment that prioritizes student success.

Moreover, the finding that during observation practices do not have a statistically significant effect on teachers' efficacy ($\beta = 0.0469$, $p = 0.064$). This means that the practices taken specifically during classroom observation sessions may not strongly influence teachers' sense of effectiveness and confidence in their abilities. Consequently, the null hypothesis test (Ho2) was accepted. This means that the observations conducted by school heads are too infrequent and might not capture the full range of teaching practices and interactions that contribute to teacher effectiveness. Moreover, if the observation practices are perceived as evaluative rather than developmental, teachers may feel pressured or anxious, which can hinder their ability to reflect on and improve their practice. Furthermore, if the criteria or indicators used for evaluation are unclear or inconsistent, teachers may find it challenging to understand what is expected of them and how they can improve.

IV. CONCLUSIONS

Based on the above findings, the following conclusions can be drawn:

1. The school heads primarily focus on pre-observation practices, indicating a high emphasis on preparation before classroom observations. However, post-observation practices receive the least attention, suggesting a potential area for improvement in the overall extent of instructional supervision practices.
2. The high level of efficacy of teachers indicates a strong sense of confidence and effectiveness among teachers in this aspect of their work.
3. The significant correlation between school heads' instructional supervision practices and the efficacy of teachers underscores the importance of effective observation processes in influencing teacher performance and confidence.
4. Pre- and post-observation practices are key determinants of teachers' efficacy, highlighting the need for school heads to prioritize these aspects in order to positively impact teacher effectiveness. Conversely, during observation practices do not appear to directly influence teachers' efficacy, indicating a potential area where adjustments or enhancements may not yield significant improvements in teacher performance.

V. RECOMMENDATIONS

The researcher has come up with the following recommendations as a result of this study's findings and conclusions:

1. School heads may allocate resources to support teachers' professional growth. Investing in professional development opportunities and resources can significantly enhance teacher effectiveness and overall educational outcomes within the school community.
2. School heads may implement targeted strategies and support systems for teachers to engage and support the most difficult learners effectively. Addressing the needs of these learners can further enhance teaching effectiveness and student outcomes. Providing additional training, resources, and collaborative opportunities focused on these learners can be particularly beneficial.
3. School heads may sustain pre- and post-observation practices, as they have been identified as significant predictors of teachers' efficacy. This may entail establishing structured pre-observation conversations to clarify observation objectives and post-observation feedback sessions to provide constructive guidance for professional growth.
4. It is essential for school heads to continually assess and refine their observation practices to ensure alignment with teacher needs and goals. By focusing on enhancing pre- and post-observation practices while addressing any deficiencies in during observation techniques, schools can create a more supportive and effective observation process that positively influences teacher performance and confidence.

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Competency and Barriers in Using ICT among Public School Teachers in Tagoloan District

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ABSTRACT: Technology integration in education transforms teaching and learning by improving efficiency, accessibility, and student participation in the classroom. This study examines the teachers' profile, competency, and barriers that influence the use of ICT between public school teachers in Tagoloan East and West Districts during the School Year 2023–2024. Specifically, the study sought to determine the respondents' level of competency in the ICT domain and the barriers to using ICT. This study involved two hundred thirty-six (236) respondents from the public elementary and secondary schools of Tagoloan District using the Slovins formula. It used the descriptive research design and an adapted and modified survey questionnaire to collect data. The descriptive correlational method was used to evaluate the samples with statistical analysis including standard deviation, frequency, percentage, mean scores, and Pearson r correlation. The findings showed that teachers' ICT ability is significantly influenced by age, teaching experience, and attitude, and there is a notable relationship between ICT skills and barriers related to manpower, policy, and facilities. Further, enhancing teachers' ICT competence through advanced technology training and effective integration methods aims to provide proficient educational experiences for 21st-century learners and improve teaching professionalism and efficacy. It is concluded that teachers face challenges in implementing ICT policies, including limited resources, reluctance to change, technological issues, and inadequate training. Factors like age, experience, and attitude influence these barriers. Additionally, it is recommended that schools should train proficient teachers as ICT experts to assist in incorporating technology into classroom teaching. This expert should provide ongoing support and training through mentoring programs. Teachers with limited technology experience are encouraged to improve their ICT integration skills, ensuring they can adapt to current trends and provide advanced educational experiences in the 21st century.

KEYWORDS: ICT competency domain and teachers' barrier in ICT

I. INTRODUCTION

Information and communication technology (ICT) integration in education is essential in today's digital world. Recognizing its potential to enhance teaching and learning, educational institutions strive to incorporate it into lessons. However, effective utilization remains a significant challenge, particularly for public school teachers in Tagoloan East and West District, Division of Misamis Oriental. This study explores the competencies and barriers these teachers face in leveraging this fully.

Many teachers in Tagoloan District lack the necessary skills and knowledge to integrate ICT effectively, hindering pedagogical enhancement and student engagement. Insufficient ICT infrastructure, such as limited computer access, poor internet connectivity, and outdated software and hardware, poses significant barriers. Limited opportunities for training and professional development further exacerbate the competency gap, making it difficult for teachers to adapt to new technologies. Additionally, some teachers exhibit reluctance or skepticism towards ICT integration, emphasizing the need to foster a positive attitude and drive meaningful transformation.

Further, key issues include inadequate policies, insufficient infrastructure, labor shortages, and cyber threats. Addressing these challenges is crucial for developing targeted interventions to empower educators in harnessing ICT for educational advancement. According to Balaba (2022), teachers must adapt to new techniques and technologies to stay current. The Department of Education's ICT for Education Strategic Plan aims to establish competency standards, professional development, and enhanced curricula. However, it needs detailed implementation strategies regarding personnel, facilities, policies, and digital risks (Durante, 2020).

Teachers face significant workload pressures, making it difficult to learn and use new technologies. Resistance to change is a recurring issue, as some educators may feel intimidated by digital teaching methods. Support is crucial to help them recognize the benefits of the integration. Effective use can make learning more engaging and improve teaching efficiency. However, the lack of essential equipment and expertise across schools hinders effective lesson delivery. This study evaluates the ICT competencies and requirements of public school teachers in Tagoloan District, aiming to develop a needs-based capacity-building strategy. By identifying and addressing the challenges, the goal is to facilitate teachers' transition to the digital era and enhance learning opportunities for students.

Furthermore, teachers have a lot on their plates: lesson planning, grading, meetings, you name it. It might be overwhelming to attempt to fit learning and using new technologies into a schedule that is already packed. One recurring issue was resistance to change. However, several barriers hindered teachers' usage of ICT. Some of these barriers were: Teaching without technology can be uninteresting for learners. Technology helps learners stay interested and do well in their lessons. It also helps teachers work better and faster.

Specifically, as one of the teachers in Tagoloan District, one of the primary concerns highlights the challenges faced by every school. Therefore, school administrators need to enhance the ICT integration and application knowledge and abilities of each faculty member. In this study, is to evaluate the requirements for and ICT abilities of public school teachers in Tagoloan District, Division of Misamis Oriental, which were used to develop a needs-based capacity-building strategy. The goal of this study was to establish a basic framework that shapes the subsets of ICT competencies (technological and pedagogical) in all teachers at all levels (Primary, Secondary, and Higher Education); and second, to determine how various personal and contextual factors influence these subsets. Understanding how and why technology was used and the variety of devices that were available to children and young people was necessary to help educators and families make informed decisions on technology use in childhood and adolescence (Gottschalk, 2019).

Hence, the objective of this study was to provide useful insights by investigating the level of competency teachers have with ICT and identifying the obstacles they encounter. Not only must we identify the problems, but we also need to work out how to facilitate teachers' transition to the digital era of education and give them the courage to embrace it. After all, improved learning opportunities for learners result from well-equipped teachers.

The main purpose of this study was to examine the competency and barriers to using ICT among the public school teachers in the Tagoloan District Division of Misamis Oriental during the School Year 2023-2024. Specifically, it aimed to determine the respondents' profile, identify the respondents' level of competency in using ICT , assess the level of barriers, and evaluate the significant relationship between the levels of competency and barriers considering the respondents' profile.

This study makes use of the competence in Information and Communication Technology among Public School Teachers as a dependent variable anchored on the four competency domains based on the National ICT Competency Standards (NICS) or teachers, namely Technology Operations and Concepts, Social and Ethical, Pedagogical and Professional Development.

The NICS was developed through the conduct of several activities such as comparative research on current industry's best practices in the Philippines and other countries, focused group discussions or consultation with various government and private agencies, institutions, academe, and stakeholders, and validation of shops.

Information and Communications Technology (ICT) offers access to information via telecommunication technologies to engage in the digital world and continues to improve to bring about significant changes in the educational system. In the current setting, descriptive research determined and described the level of teachers' ICT competence in various skill sets using a standardized survey questionnaire adapted from the Commission of Information and Communication Technology's National Information and Communications Technology Competency Standards NICS-Basic (Fuente & Biñas, 2020).

The Technology Operations and Concepts Domain contains competencies related to technical operations and concept and productivity of various ICT tools like computers and communication devices, as well as an application available online or offline. In addition, it includes knowledge in basic computer operations and basic troubleshooting, identifying functions of the different main.

The Social Domain, the second of the four domains in the NICS, includes competencies related to social, ethical, legal, and human issues and community linkage. This calls special attention to issues surrounding the responsible use of technology, ranging from respect for Intellectual Property to safeguarding students' privacy.

The Pedagogical Domain includes competencies related to planning, designing learning environment and experience, teaching, learning, and curriculum, assessment and evaluation, and educational technology. Teachers were looking for the best ways to lighten the thinking skills of their learners, and one significant way was to utilize ICT in the teaching process. It was also in this domain where teachers create rubrics for assessing students' academic performance using technologies and even use electronic means in administering quizzes and examinations.

The last one was the Professional Domain which includes competencies related to professional growth and development, research, innovation, and collaboration.

In general, this set of competencies aims to prepare teachers to become users of various ICTs to help both the students and their benefit from the technology. The prime benefits are (1) access to information and knowledge resources, (2) communication and knowledge sharing, and (3) work efficiency.

The department has mandated guidelines in accepting Information and Communication Technology equipment and internet access services for classroom instruction and administrative use through DepEd Order No. 28, series 2009. Through the years, public schools have received various Information and Communication Technology equipment/peripherals.

To further appreciate the study's result on the level of competency and barriers to using ICT among Public School Teachers, one may look at the correlation between teacher's ICT competency levels as variables in the study, such as Technology Operations and Concepts, Social and Ethical, Pedagogical, and through looking at the barriers in using ICT such as Manpower, Policy and Facility in a specific district.

II. METHODOLOGY

This study used descriptive research. It is designed for the researcher to collect data about the present existing situation. The primary objectives and goals of this research were to characterize the nature of the event as it emerged at the time of study and to look into the causes of specific situations. This study uses a descriptive correlational research design because the researcher wants to determine the level of competency and barriers in using ICT among Public School Teachers in terms of technology operations and concepts, social and ethical, pedagogical, professional, and barriers in using ict such as; manpower, facility, and policy.

To attain the objectives set in this study, this research design was considered the most useful in determining the level of competency and barriers to using ICT among Public School Teachers in the Division of Misamis Oriental, particularly in the Tagoloan East and West District. A questionnaire was distributed to collect data as it provides a quantitative way of data gathering, such as evidence, facts, or information stated numerically. The researcher's respondents were the selected Public School Teachers from Tagoloan East and West District, Division of Misamis Oriental, which would make data collection easier for the researcher.

The researcher used Slovin's Formula to determine the sample size. Random sampling was also used to determine the respondents of the study. The researcher visited the school and gave questionnaires to the teachers present on that day which will be limited based on sample size in every school. The municipality is split into ten (10) barangays. The District of Tagoloan East and West has nine (9) Elementary Schools, four public schools in the Junior High School category, one (1) Integrated School, and two(2) Senior High Schools.

The Division Office is located in Cagayan de Oro City and is led by the Schools Division Superintendent, who oversees the efficient operations of the Department of Education in Misamis Oriental with the assistance of the Assistant Schools Division Superintendent and the education program supervisors. There were five hundred seventy-four (574) public school teachers in Tagoloan District and random sampling using the Slovins formula was utilized to obtain data from the whole population for the study. Its purpose was to focus on features of a sample that would be relevant to make it easier for the researcher to respond to research questions. Using the Slovins formula, the total number of respondents would be two hundred thirty-six (236)

III. RESULTS AND DISCUSSION

Problem 1. What is the respondents' profile in terms of age, sex, teaching experience, and attitude towards ICT?

Table 1. Distribution of Respondents' Age

Age	Frequency	Percentage
61 years old and above	3	1.30
51 – 60 years old	51	21.60
41 – 50 years old	47	19.90
31 – 40 years old	96	40.70
30 years old below	39	16.50
Total	**236**	**100%**

Table 1 shows the respondents' profile in terms of **age**. Results showed that the **Highest Frequency of 96 (40.70%)** teachers' age was from **31-40**. This means that the respondents manifested a relatively young teaching population, as the age group of 31 to 40 years old accounts for the largest frequency of instructors. This means further that it is significant because it implies that many educators can be digitally literate, given that younger people frequently have a higher level of comfort and familiarity with information and communication technology. It was also supported by the study of Lucas et al., (2021), younger instructors are more proficient in using digital technology than their older counterparts.

On the other hand, the table shows the **Lowest Frequency of 3 (1.30%)** was age **61 years old and above**. This means that only a few of the teachers were old in the service and this age uses digital technology less than younger generations. This implies that cognitive decline or disinterest may make older persons less likely to use digital technologies, which needs closer investigation. Moreover, studies have indicated that senior citizens are quite capable of learning new skills, even technical ones if they have the right kind of assistance and learning opportunities. It is evident from personal experience and knowledge that elderly individuals are less capable of learning or using new technology. In reality, a great deal of elderly people exhibit extraordinary adaptability and endurance when it comes to using new techniques and innovations. Still, they can encounter certain difficulties and obstacles in the process.

According to Rosell (2021), one of the biggest challenges older persons face is a lack of access to or experience with technology. Older people might not have had the same opportunity to learn about and experience using computers, cellphones, or the internet as younger generations who have grown up in a digital world. They could thus feel overpowered or scared by the idea of picking up new technology.

Table 2. Distribution of Respondents' Sex

Sex	Frequency	Percentage
Male	30	12.70
Female	206	87.30
Total	**236**	**100%**

Table 2 shows the respondents' profile in terms of **sex**. It revealed that the **Highest Frequency of 206 (87.30%)** was **Female**. This means that there are more female teachers in the district where the study was conducted. This further means that they were considerably over-represented in the teaching profession. Moreover, it also implies that long-standing gender imbalance in the education sector is shown in the significant number of women in teaching positions, both in elementary and secondary school. The commitment and experience of female educators should be recognized and celebrated, but this also presents significant issues about gender equity and representation in the profession of education. This means that the result has provided strong evidence for the global perspective that there are more women teachers than men in the Tagoloan District. This is also supported by the study by Grey (2020) that the majority gender of teachers in the Philippines are female, with about 89.58% of teachers in public elementary and 77.06% in public secondary schools being female.

Furthermore, according to Brains' (2021) research, women began to view teaching as a respectable professional option starting in the middle of the 1800s. Women were sought after for their self-discipline, personal responsibility, and what was perceived as a natural nurturing skill needed for young children to be sent out of the house and into the classroom when public schools were founded across the nation. However, when all of those who made up these numbers were reminded of the many women who heeded the call to become teachers, many of them were driven by a strong sense of purpose and dedication to their learners. More than simply a job, teaching gave many of these women a route to financial independence, a feeling of purpose in molding young minds, and a reason to be proud of their professional achievements. It's critical to acknowledge the variety of experiences, goals, and backgrounds held by the women who make up the district's educators.

On the other hand, the **lowest frequency of 30 (12.70%)** were **Male** teachers. This means that few males have an interest in this profession. It is attributed to gender differences in occupational preferences and social roles. This further means that the opportunity cost of becoming a teacher relative to choosing another profession is high for men. Men give up a higher potential salary by choosing teaching over a non-teaching career. Efforts to raise the share of male teachers are likely to have limited success until the underlying structural economic incentives are addressed. That is, the higher wages in non-teaching jobs, tend to pull men away from teaching (Adetunji, 2019). To close the gender gap in teaching, institutional and economic factors that affect men's career choices in this field must be addressed. Programs that increase the financial incentives for teaching, such as competitive pay and benefits packages, as well as those that challenge cultural prejudices and promote more gender diversity in the teaching profession, may fall under this category.

In conclusion, the high proportion of female teachers in the district is a testament to the dedication, perseverance, and passion that women have for teaching, not just the result of figures. By acknowledging their contributions and advancing their viewpoints, we can create a more human-centered educational strategy that is advantageous to both teachers and students.

Competency and Barriers in Using ICT among Public School Teachers in Tagoloan District

Creating an equal and equitable teaching profession requires a holistic approach that considers the institutional barriers as well as the personal elements influencing men's involvement in the classroom.

Table 3. Distribution of Respondents' Teaching Experience

Years of Teaching Experience	Frequency	Percentage
21 years and above	48	20.30
16 – 20 years	15	6.40
11 – 15 years	44	18.60
6 – 10 years	85	36.00
5 years and below	44	18.60
Total	**236**	**100%**

Table 3 shows the respondents' profile in terms of **teaching experience**. Results show that the **highest frequency of 85 (36%)** are teaching from **6-10 years**. This means that many of the respondents have been teaching for 6 to 10 years already, and these years of service have enough experience in using ICT in teaching. Moreover, as a researcher, this outcome supports the notion that effective ICT integration into education requires expertise. This further means that educators who have been teaching for a while are likely to have acquired valuable skills, knowledge, and strategies that enable them to use technology to enhance their lesson plans and engage students more effectively especially the new generation teachers who were technologically inclined. It also highlights how crucial it is to improve digital literacy and use technology-driven teaching strategies since educational technology and ICT-based resources have been improved. Additionally, the required technological facilities and ICT-based tools for instruction and learning have been upgraded in recognition of the idea that improving ICT in schools would have significant pedagogical and educational advantages for educators and students alike (Wang & Zhao, 2022).

Moreover, the findings of Kalra (2018) found that new instructors had a more positive outlook on using ICT in the classroom than their more experienced peers, which is very evident in the district. It shows in the result that most of the teachers were new but had enough teaching experience and were using ICT in giving their lessons to the learners. Many respondents have enough years of teaching experience, which is advantageous for the efficient use of ICT in education as it is associated with better educational results and increased competence in technology integration.

On the other hand, the **lowest frequency of 15 (6.40)** was **16-20 years and in the service**. This means that respondents with this number of years in the service still need to adopt ICT in their profession to be competent teachers in today's digital age. Longer-tenured teachers may feel more at ease using traditional methods of teaching and may perceive less need for adjusting their established practices. This indicates that teachers are already established enough in their teaching careers to employ the traditional method of teaching. Based on the researchers' view, learners now rely a lot on technology in their everyday lives. Teachers with longer years of experience may feel less motivated to learn new technologies if they are nearing retirement.

On the other hand, some experienced teachers might have a negative attitude towards ICT, viewing it as a distraction rather than an enhancement to teaching. So, teachers should learn how to use technology to keep up with the changes in society. One of the reasons why teachers should be equipped with the use of ICT is to enhance the students' learning for them to learn more effectively and efficiently (Kumar et al. 2022).

Furthermore, in education, teachers who have reached a higher level of maturity will find it more difficult to receive training on how to use technology in the classroom effectively (Training Older Teachers in Using Digital Tools, 2019). In summary, even though instructors with different levels of experience may find it difficult to incorporate ICT into their lessons, doing so is an essential task that will help students succeed in the digital era. School leaders should actively promote and model the use of ICT to develop quality learning and improve teachers' attitudes towards its use. Developing clear policies that mandate and support the use of ICT in teaching practices will enhance teachers' skills and attitudes. Teachers with 16 to 20 years of experience must embrace it to guarantee that all instructors are capable in the current digital era. A multidisciplinary approach that combines targeted training, fair resource allocation, motivational enhancement, and supporting institutional policies is needed to address the barriers to its adoption. Schools can assist experienced teachers in overcoming these barriers and improving their professional abilities by cultivating a culture that appreciates and encourages ICT integration.

Table 4. Distribution of Respondents' Attitude towards ICT

Indicators	Mean	SD	Description
As a teacher, I…			

can effectively use ICT to enhance student engagement in the learning process.	3.25	0.92	Positive
feel adequately prepared, through training or professional development, to integrate ICT into my teaching practices.	3.08	0.83	Positive
find it challenging to balance traditional teaching methods with the integration of ICT tools.	2.87	0.86	Positive
believe that the resources and support provided are sufficient for me to use ICT effectively in the classroom.	3.03	0.84	Positive
actively seek opportunities for continuous professional development related to ICT integration.	3.19	0.88	Positive
handle challenges or technical issues that arise during ICT use effectively.	2.94	0.80	Positive
involve students in decision-making processes regarding the use of ICT in the classroom.	2.98	0.82	Positive
open to embracing new ICT tools and technologies in your teaching practice.	3.24	0.87	Positive
act as a barrier to the effective use of ICT in teaching.	2.41	0.92	Slightly Negative
assure the availability of adequate ICT resources in school impacts your willingness to use them in teaching.	2.99	0.81	Positive
Overall	**3.00**	**0.85**	**Positive**

Legend: 3.50-4.00 (Strongly Agree/Very Positive, 1.50-2.49 (Disagree/Slighty Negative)
2.50-3.49 (Agree/Positive 1.00-1.49 (Strongly Disagree/Very Negative)

Table 4 shows the respondents' profile in terms of **Attitude towards ICT**. With an overall mean of 3.00 (SD=0.85), described as **Agree** and interpreted as **Positive**. This means that the respondents have a favorable attitude toward integrating ICT into their lesson plans and are aware of the benefits and limitations of using technology in the classroom. This further means that the desire to implement new ICT technologies and engage in ongoing professional development is strengthened by the idea that resources and support systems are sufficient. Nevertheless, teachers continue to actively address problems like combining ICT with traditional methods and resolving technological problems. This means further that most of the teachers' respondents manifested positive attitudes towards working well in using the different ICT paraphernalia, understanding and effectively using the internet and network applications and resources, and having enough knowledge and skills in information and data management.

Based on the researcher's understanding, the teachers can operate the various ICT tools when they have enough knowledge, especially in today's modern technology. According to Mannila et al. (2018), educators who possessed ICT expertise showed eagerness to include ICT in their teaching methods. A pattern identified among both male and female educators led to hypothesize a relationship between a teacher's age group and their attitude toward ICT integration in the classroom.

Moreover, the result revealed that the indicator **As a teacher, I am confident that I can effectively use ICT to enhance student engagement in the learning process** obtained the highest mean rating of 3.25 (SD=0.92) with the description of **Agree** and interpreted as **Positive**. This means that it suggests a favorable mindset toward the ability of ICT to raise student involvement and engagement levels in the classroom. This further means that they believed that using technology in teaching makes learning more interesting and more interactive for the students. As observed by the researcher, educators who had training and professional development opportunities tend to feel more confident in using ICT effectively in their lessons. Knowing the rapid pace of technological advancements, teachers need opportunities for continual learning to stay updated with the latest tools and trends in ICT. In the study of Baytar, et. al., 2023, they said that in the current digital age, the integration of information and communication technologies (ICT) into teaching practices has become a determining factor in learning quality.

On the other hand, the indicator **As a teacher, I act as a barrier to the effective use of ICT in teaching** got the lowest mean rating of 2.41 (SD=0.92), described as **Disagree** and interpreted as **Slightly Negative** result. This means that the majority of respondents don't think that using ICT in the classroom effectively is hindered by personal concerns. This implies that there is hope for overcoming both individual struggles and barriers to using technology for learning. Moreover, they see how important ICT integration is in their lessons. They understood that ICT can enhance learning experiences and prepare students for the digital age. Based on the researcher's insight, teachers' information and communication technology (ICT) skills are an important factor in incorporating such resources into the teaching-learning process. ICT tools can make learning more interactive and engaging for students, especially in the lower grades. According to the study of Hu et. al (2021), the use of ICT in teaching practice can provide a variety of teaching or learning environments (e.g., multimedia-based learning, virtual reality, game-based learning) to meet learners' personalized needs.

Problem 2. What is the respondents' level of competency in using ICT in terms of technology operations and concepts, social and ethical, and pedagogical and professional?

Table 5 shows the summary of respondents' **level of competency using ICT** with an overall mean of 3.52 (SD=1.14), interpreted as **Competent.** It means the relationship between the level of competency in using ICT among public school teachers and their performance. This implies that knowing ICT is very important to all teachers in the district. This further means that teachers had better be monitored and assessed from time to time to improve their ICT competence and to fully integrate ICT in the classroom for effective teaching and learning.

Moreover, it appears that respondents' skill levels vary to some extent, as indicated by the 1.14 standard deviation. There exist variations in competency levels within standards, signifying both strengths and opportunities for development, even if the mean competency level suggests a reasonable degree of ability overall. Hennessy et al. (2022) said that it demonstrates how technology can revolutionize and improve teacher professional development by utilizing its distinctive qualities, expanding accessibility, and encouraging educators to continuously improve their abilities to remain effective in the always-changing educational environment.

The variable **Social and Ethical** obtained the highest overall mean rating of 3.74 (SD=1.10), interpreted as **Competent**. This means that the teachers understood, observed legal practices, and identified and practiced ethical use of information communication and technology. Based on the researcher's discernment, because of different ICT training or webinars, they were able to acknowledge the proper use of ICT in their daily work, recognize the owner of the sources, make use of technology in making their lesson interactive, and develop their ICT literacy. Technology adoption throughout educational systems might have a positive impact on TPD (Hennessy et al., 2022).

In addition, Kumar et al. (2022) mentioned that learners now rely a lot on technology in their everyday lives. So, teachers should learn how to use technology to keep up with the changes in society. Being a competent teacher in using ICT is essential in today's digital age.

The variable **Professional** got the lowest mean rating of 3.10 (SD=1.22), interpreted as **Somewhat Competent**. This means there were teacher-respondents who were not technologically inclined, especially older-aged teachers as manifested by the result of the study. As observed, there is a need for teachers to engage in online training for professional development especially the older ones. In the study of Briones (2018), she mentioned that training on the use of ICT to create applications and software that can be used in the teaching and learning process, such as creating web-based quizzes to assess their understanding online, providing them with web-based activities that enable the learners to explore the web and let the students create their web-based materials on certain topics. Workshop on developing ICT-based instructional materials, exhibit, try-out, and sharing of the ICT-based instructional materials enables the teacher to create an ICT-based instructional material.

Table 5. Summary Distribution of Respondents' Level of Competency using ICT

Variables	Mean	SD	Interpretation
Technology Operations and Concepts	**3.67**	**1.15**	**Competent**
Standard 1	3.82	1.10	Competent
Standard 2	3.80	1.15	Competent
Standard 3	3.62	1.14	Competent
Standard 4	3.45	1.19	Somewhat Competent
Social and Ethical	**3.74**	**1.10**	**Competent**
Standard 1	3.59	1.20	Competent
Standard 2	3.77	1.07	Competent
Standard 3	3.80	1.06	Competent
Standard 4	3.81	1.07	Competent
Pedagogical	**3.56**	**1.10**	**Competent**

Standard 1	3.41	1.14	Somewhat Competent
Standard 2	3.67	1.13	Competent
Standard 3	3.71	1.09	Competent
Standard 4	3.53	1.11	Competent
Standard 5	3.77	1.00	Competent
Standard 6	3.26	1.15	Somewhat Competent
Professional	**3.10**	**1.22**	**Somewhat Competent**
Standard 1	3.47	1.08	Somewhat Competent
Standard 2	2.95	1.23	Somewhat Competent
Standard 3	2.89	1.35	Somewhat Competent
Overall	**3.52**	**1.14**	**Competent**

Legend: 4.50-5.00 (Aways/Highly Competent), 1.50-2.49 (Rarely/Slightly Competent)
3.50-4.49 (Often/Competent) 1:00-1.49 (Never/Incompetent)
2.50-3.49 (Sometimes/Somewhat Competent)

However, when ethical and social standards are taken into consideration, there is no significant relationship between the performance of public school teachers in Tagoloan District and their degree of ICT expertise. It suggests that the way technology is integrated to enhance the nation's educational system is unaffected by social or ethical standards. In the study by Bilbao et al. (2019) and Oco (2022), it mentioned that learners still need guidance on how to use and regulate technology use. The learners of the 21st Century are even more advanced than some of the teachers. As there are positive and negative effects of technology use, learners had better know the difference.

Problem 3. What is the level of barriers based on manpower; policy, and facility?

Table 6. Summary of the Respondents' Level of Barriers Using ICT

Variables	Mean	SD	Interpretation
Manpower	2.66	1.17	Performed
Policy	2.86	1.04	Performed
Facility	2.68	1.07	Performed
Overall	**2.73**	**1.09**	**Performed**

***Legend**:* 4.50-5.00 (Always/Very well-performed), 1.50-2.49 (Rarely/Fairly Performed)
3.50-4.49 (Often/Well-performed), 1:00-1.49 (Never/Less performed)
2.50-3.49 (Sometimes/Performed)

Table 6 shows the level of **barriers to using ICT** with an overall mean of 2.73 (SD=1.09), interpreted as **Performed**. It means that all schools in the two districts have computer units, most of the teachers use ICT in delivering their lessons, and maintenance facilities, and they follow policy in using technology. Furthermore, the Department of Education (DepEd) has developed specific criteria for the adoption and use of ICT equipment and connection to Internet services in educational settings and administrative duties, as detailed in DepEd Order No. 28, series 2009. Public schools have gotten a variety of ICT equipment and devices over the years. To supplement and broaden the scope of the DepEd Computerization Program, it is critical to prioritize the acquisition and use of ICT equipment and internet connectivity, ensuring that schools are well-equipped to capitalize on the benefits of technology in education. This prioritization is consistent with the larger objective of improving educational quality and equipping students for the 21st century.

The variable **Policy** obtained the highest overall mean rating of 2.86 (SD=1.04), interpreted as **Performed**. This means that the majority of teachers may abide by the rules regarding the use of technology. This implies that complete obedience to policies in all circumstances could be hampered by difficulties or obstacles. As observed by the researcher, some of the teachers encounter various barriers when using ICT in their educational practices. These obstacles may consist of problems with technology, a lack of money, insufficient training, or resistance to change. To successfully address these challenges, it is important to create specific solutions that take into consideration the unique problems that educators encounter. Following ICT policies is essential for maintaining a secure, ethical, and efficient technology environment within an organization. It helps protect sensitive information and ensures compliance with laws and regulations.

Additionally, challenges with policy compliance can be caused by a lot of things, such as inadequate knowledge or comprehension of the policies, conflicting priorities, resource limitations, and technological obstacles. To effectively address these issues, teachers need constant assistance, training, and communication in addition to the tools, resources, and incentives they need to adhere to regulations.

Bilbao et al. (2019) said that the way to enhance and regulate ICT use is to formulate and implement policies to guide appropriate decisions. The learners of the 21st Century are even more advanced than some of the teachers. However, learners still need guidance on how to use and regulate technology use. As there are positive and negative effects of technology use, learners had better know the difference. They must know how they can be protected from the hazards that technology brings to their lives.

However, the variable **Manpower** got the lowest overall mean rating of 2.66 (SD=1.17), interpreted as **Performed**. This means that teachers do not have enough abilities and knowledge to successfully use modern technology. This implies that few of the teachers have access to ICT policy, attended training about the use of modern technology, and are eager to develop themselves in this challenging education era. This indicates that although some teachers could have continuous access to ICT policies and training opportunities, others would not because of their familiarity with traditional approaches or their fear of the unknown. Some teachers may be reluctant to embrace new technology. A lack of confidence or a sense that one's workload has increased might be the cause of resistance.

In the researcher's observation, as technology continues to evolve, having ICT skills allows teachers to adapt to new tools and methodologies. This adaptability is crucial in preparing students for the rapidly changing workforce and technological landscape. This was supported by the study of Ode et al., (2021), that educational institutions must fund programs that promote teachers' professional development to address manpower-related issues. This might entail making training programs more widely available, encouraging creativity and lifelong learning, and rewarding teachers who succeed at integrating technology into the classroom.

Additionally, the results emphasize how crucial it is to give educators enough assistance and training to help them deal with the difficulties involved in integrating ICT. Programs for professional development should be created with teachers' unique needs and concerns in mind, giving them the tools, resources, and information, they need to integrate ICT into their teaching. Providing teachers with chances for collaboration and information exchange will help them get beyond obstacles when it comes to utilizing ICT. Teachers may work together to solve shared problems and enhance ICT integration across educational settings by creating a supportive environment where they can share ideas, best practices, and advice from one another.

In furtherance, the Department of Education is making technology and communication stronger by following a rule called DepEd Order No. 1, s. 2007. This regulation aims to improve the use of technology and communication in education. DepEd has begun and completed technological programs and projects in Basic Education, Management, and how the department works over the years.

Hence, academics and stakeholders in education face possibilities as well as problems due to the high degree of perceived obstacles to ICT use among teachers. Through an awareness of the particular characteristics of these barriers and the utilization of educators' adaptability and resilience, focused interventions may be created to assist teachers in successfully incorporating ICT into their lesson plans and realizing the full potential of this technology to improve student learning. Technology today can improve education, but only with proper utilization. Students may not fully benefit from new technology tools if teachers lack the appropriate abilities, which might influence their learning outcomes and preparation for a tech-driven society.

Problem 4. Is there a significant relationship between the levels of competency and barriers considering the respondents' profiles?

Table 7. Relationship between Levels of Competency and Barriers Using ICT Considering the Profile of the Respondents

Competency in Using ICT Variables	**Barriers to Using ICT**			**OVERALL**
	Manpower *r-value* *p-value*	**Policy** *r-value* *p-value*	**Facility** *r-value* *p-value*	*r-value* *p-value*
Technology Operations and Concepts	**0.189 (WPR)**	**0.186 (WPR)**	**0.150 (WPR)**	**0.151 (WPR)**

	0.047* **S**	**0.016*** **S**	**0.021*** **S**	**0.043** **S**
Social and Ethical	0.003 (NLR) 0.963 NS	**0.156 (WPR) 0.016* S**	**0.154 (WPR) 0.018* S**	**0.114 (WPR) 0.039* S**
Pedagogical	0.001 (NLR) 0.996 NS	**0.154 (WPR) 0.018* S**	**0.165 (WPR) 0.011* S**	**0.119 (WPR) 0.027* S**
Professional	0.003 (NLR) 0.963 NS	**0.128 (WPR) 0.050* S**	**0.195 (WPR) 0.003* S**	**0.122 (WPR) 0.032* S**

Legend: *significant at p<0.05 alpha level S – significant NS – not significant

r-Values	***Description***	***r- Values***	***Description***
0.00 – 0.09	No Linear Relationship (NLR)	0.10 – 0.49	Weak Positive Relationship (WPR)
0.50 – 0.69	Moderately Positive Relationship (MPR)	0.70 – 0.99	Strong Positive Relationship (SPR)
1.00	Perfect Linear Relationship (PLR)		

Table 7 shows the relationship between the levels of competency and barriers to **using ICT considering the profile of the respondents**. All of the four competencies in using ICT demonstrated a **Significant** result in the study as indicated by a positive relationship between the correlation r-value and probability value less than 0.5 alpha level which led to the rejection of the null hypothesis. This means that the study has a significant relationship between competency in using ICT and the barriers to using ICT. This further means that a positive correlation between barriers to ICT adoption and competency levels, indicating that barriers to ICT adoption decrease as individual competency levels increase. This demonstrates how competency and barriers to ICT integration are related. As a researcher, it was critical to address skill gaps to successfully reduce barriers by prioritizing professional development, promoting ethical ICT use, and enhancing pedagogical strategies, educators can leverage technology to enrich tepaching and learning experiences for students.

Age, sex, position, teaching experience, and availability of technology do not affect teachers 21st century skills in the classroom observation tool for the first and second periods when grouped according to their profile. This means that most teachers lack access, opportunities, and resources to develop 21st-century skills. If technology is readily available to all teachers, regardless of their positions or experience, it lessens the impact of technology access on the development of 21st-century skills (Cabahug et al., 2024).

According to the study of Okoye et al. (2022), it is essential to create conditions that enable universities to have access to educational technologies and funds to help develop educational tools/models that are specially tailored to the region's realities and technological requirements. For instance, the deployment of adequate infrastructures, networks, and internet connection that enable those digital technologies to function. Besides, the digital infrastructures are essential for the teachers and learners to thrive in this new digital-savvy or unprecedented changes in the way learning takes place. Furthermore, educational institutions may empower teachers to effectively use technology to enhance teaching and learning experiences for all students by placing a high priority on training, support, and the incorporation of technology into teacher education programs.

Additionally, teachers who lack a solid grasp of these fundamental concepts may encounter challenges when utilizing ICT for both instruction and learning. Aside from that, technical assistance and resources are frequently offered by schools to handle problems about technology concepts and operations. This covers help desks, online courses, workshops, and other types of support targeted at resolving the technological issues and demands of educators. Institutions may better assist instructors in removing obstacles to ICT usage by concentrating on enhancing competency in these fundamental areas. As teachers' competency in using ICT increases, the barriers to adopting and integrating these technologies decrease. This relationship underscores the importance of building ICT skills among educators to overcome challenges and maximize the benefits of technology in education.

Baylan (2020) as well as Oco and Comahig (2023) mentioned that there is a need for school administrators to send teachers with relevant training/seminars not only in in-school training but also at the regional or national level to ensure that they keep themselves abreast with the latest teaching methodologies. They should keep their positive performance in terms of their productivity, commitment to duty, punctuality, teaching strategies used inside the classroom, and in making their instructional materials. Encouraging them to go further in education since well-informed and updated teachers inspire students to learn and do more with their studies, thereby affecting student achievement and boosting their teaching and work performance.

Moreover, to comprehend the state of technology integration in educational settings, one must be knowledgeable about Information and Communication Technology and the obstacles that prevent public school instructors from using it. To create professional development programs that are specifically tailored to teachers' needs and help them overcome obstacles to using ICT as a useful teaching tool, it is essential to have a thorough understanding of these variables (Garbin, 2019).

In conclusion, efforts to remove obstacles should be a crucial component of initiatives aimed at enhancing ICT competency among educators, even though the association between levels of proficiency in ICT and barriers to its application may be low but still statistically significant. Education institutions may more effectively promote the integration of ICT into teaching and learning activities by comprehending the unique obstacles encountered by various groups of educators and putting targeted interventions into place. Overall, the relationship between the levels of competency in terms of technology operations and concepts and barriers to using ICT considering the profile of the respondents was weak and significant as indicated by the correlation r-value and probability value less than 0.05 alpha level which led to the rejection of the null hypothesis. This implies that levels of competency in terms of technology operations and concepts and barriers to using ICT considering the profile of the respondents are related to each other.

IV. CONCLUSIONS

Based on the results of the respondents' profile, it shows that Tagoloan District manifested a relatively young teaching population, as evidenced by the fact that the age group of 31 to 40 years old accounts for the largest frequency of teachers. It revealed that there were more female teachers in the district than males. Most of the teachers in the district have been teaching for 6 to 10 years already, and these years of service have enough experience in using ICT in teaching. The data interpretation shows that teachers have a favorable attitude toward integrating ICT into their lesson plans and are aware of the benefits and limitations of using technology in the classroom.

Additionally, the result showed that **social and ethical** got the highest mean wherein teachers from the two districts were competent and understood, observed legal practices, and identified and practiced ethical use of information communication and technology. Teachers who are favorable about technology and who are reasonably young and experienced are also competent at utilizing it appropriately and efficiently. It shows that they are better able to integrate technology into their teaching because of their previous experience and attitude. The positive attitude that the young, experienced teachers have towards technology enables them to use it appropriately, increasing the effectiveness and engagement of their teaching.

On the other hand, **teachers' positive attitudes and experience** enhance their excellent competency in the moral and legal use of technology. This competency is essential for encouraging responsible ICT use that improves student engagement and effectiveness in learning. However, the result shows that barriers concern with implementation of policy. There are institutional problems that might make it difficult to use ICT effectively. Teachers have specific obstacles that make it challenging for them to completely adhere to ICT regulations, even with their high level of expertise. These difficulties imply that, to guarantee continuous policy adherence, institutional support and resources are just as vital as individual teaching qualities such as a positive attitude and experience.

Lastly, **teachers' age, teaching experience, and positive attitude toward ICT** have an impact on how competent teachers are in using ICT in teaching. However, these characteristics also have an impact on the difficulties they encounter, indicating a complicated relationship in which teachers with greater training and a positive attitude are more competent at utilizing ICT but continue to come across barriers that need to be addressed. This emphasizes how crucial it is to provide expertise and good attitudes, but also to make sure there is enough assistance and funding available to overcome structural barriers to ICT use.

The study reveals that teachers are competent as well as ethical and efficient use of technology is significantly influenced by their characteristics, including their attitude towards ICT, teaching experience, and age group. Further, it was also revealed that teachers face barriers in implementing ICT policies which includes limited resources, reluctance to change, technological issues, and inadequate training. Factors like age, experience, and attitude influence these barriers. Overcoming these requires focused assistance.

V. RECOMMENDATIONS

Based on the findings and conclusions generated from this study, the researcher has formulated the following Recommendations:

1. School ICT coordinators can boost older teachers' adoption of technology by providing specialized training, coaching, and mentorship, thereby enhancing their confidence and preparedness for ICT use.
2. Encourage teachers to take ICT training, LAC sessions, and pedagogical skills with an emphasis on areas where they are weak and training upskilling on ICT integration into teaching to improve their skills in teaching.
3. Schools should train proficient teachers as ICT experts to assist in incorporating technology into classroom teaching, providing ongoing support and training through mentoring programs.
4. Teachers with limited technology experience are encouraged to improve their ICT integration skills, ensuring they can adapt to current trends and provide advanced educational experiences in the 21st century.

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Population Perception of Drinking Water Sources in Buea Municipality, Southwest Region, Cameroon

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ABSTRACT: Drinking water sources have always contributed to water quality positively or negatively. This study assessed the perception of drinking water sources and quality on the health of residents in Buea municipality. It employed the use of questionnaires and water quality tests in six selected communities to understand residents' perceptions and potential health risks associated with drinking water quality. The study included 340 participants selected through convenience sampling across 8 communities. The findings revealed that consumer perception of public water supply quality in the study area focused on aesthetic features such as taste, color, trust in the water utility provider, and safety. Dissatisfaction with the physical appearance of water sources was reported by 32.3% of population, while 56.2% expressed satisfaction. Odor, taste, and color significantly affected satisfaction levels. A significant proportion (40.6% and 42.4%) indicated a lack of trust or partial trust in water utility providers due to limited information received. Additionally, 68.8% of participants perceived their water as unsafe primarily due to frequently experienced waterborne diseases, with health effects identified as a key indicator of water quality deterioration by 65.2% of respondents. Water samples collected from public supplies generally met WHO recommendations for physicochemical parameters, except for turbidity, which exceeded the recommended 5 NTU in all samples. Microbial contamination, indicated by the presence of total coliforms, was detected in four water samples. The health survey data revealed a high incidence (68.53%) of water-related diseases among respondents, including typhoid, diarrhea, dysentery, cholera, and stomachaches. These research outcomes enhance understanding of the relationship between residents' perception of drinking water sources, water quality, and health outcomes in Buea municipality. The findings offer valuable insights for policymakers, water management authorities, and public health officials to develop strategies that improve water quality, address residents' concerns, and safeguard public health.

KEYWORDS: Drinking Water, Water Sources, Perception, Buea Municipality, Microbial Contamination

1. INTRODUCTION

The perception of water quality by residents can play a significant role in their health outcomes, as it may influence their water consumption habits and hygiene practices. Several studies have explored the relationship between water quality, perception, and health outcomes. A study conducted in rural Bangladesh found that perceived water quality was a significant predictor of diarrhea prevalence among children under the age of five (Khan et al., 2017). Public participation in governance issues regarding water resources has been emphasized when addressing the risks posed by declining water quality and water pollution to promote better water management practices across the globe, in the last two decades. As such, local people's perceptions of water quality are an important aspect of the management of water resources as they inform the dialogue between government officials and water service providers, environmental agencies, and community leaders.

The perceptions also highlight the public's thought processes and responses to the perceived risks of drinking water (Ochoo et al., 2017). A better understanding of the processes that influence public perception can contribute to improvements in water management, consumer services, acceptability of water reuse and risk communication. Brouwer et al., (2020) in a study applying both a traditional and modern segmentation approach based on four types of perspectives ("aware and committed", "down to earth and confident", "egalitarian and solidary", and "quality and health concerned"), that people's trust in tap water is high, certain groups are more concerned about water quality and health effects than others. 90% of the respondents perceived tap water in the Netherlands as safe, and only one in a hundred respondents reported to regard their tap water as unsafe. Most of the consumers believed that the quality and safety of tap water was sufficiently controlled (78% versus 5% that do not believe water is controlled sufficiently), that tap water is sufficiently purified (76% versus 6%) and that there is sufficient knowledge available at drinking water companies (72% versus 5%). Customers who think they receive tap water from surface water instead of groundwater are more often concerned about the quality and safety of tap water.

Water quality is an important aspect of water provision services to ensure the water does not possess any possible threat to its consumers. Currently, water quality is a serious issue, especially for drinking water source areas in Cameroon. Provision of safe drinking water by water utilities is challenged by disturbances to water quality that have become increasingly frequent due to global changes and anthropogenic impacts (Grupper et al., 2021). The assessment of water quality is a critical activity due to current decline in freshwater quantity and deteriorating water quality of the remaining available water resources across the globe. Water quality is threatened by continuous population increase, economic developments, industrial and agricultural activities, and climate change. These activities and increased water pollution have significantly threatened the hydrological cycle (Anne et al., 2020). The source(s) of drinking water for any community is very essential. Three sources of water have been identified to include: rainwater, groundwater (wells, boreholes, and springs) and surface water (rivers, lakes, streams, and oceans). Amongst these sources, surface waters are the most exposed and consequently require careful monitoring and treatment. Rainwater essentially supplements the other sources. According to the African Ministers' Council on Water (AMCOW 2015), water supply in the whole country concerns four major sectors: rural water supply, urban water supply, rural sanitation and hygiene and urban sanitation and hygiene. This inter-ministerial council also estimated the total water supply at 102 USD million/year, while the total sanitation need is estimated at 16 USD million/year. This is a great challenge for the whole population, since Cameroon is classified among low-income countries (WHO 2013, Amrita et al., 2010). Furthermore, WHO (2004) estimated that 1.8 million people in developing countries die every year from diarrhea and cholera, and out of these, 90% are children under the age of five years. Arguably, 88% of diarrheal diseases are attributed to unsafe water supply, inadequate sanitation, and hygiene.

Water quality problems are among the top issues facing developing countries. People living in poor communities in Cameroon, where access to safe drinking water is lacking, face a lot of challenges. Several studies have revealed that there has been little examination of the role of risk perception in relation to advancing more sustainable practices in the water management of centralized and decentralized systems with multiple sources in the water sector. There is the existence of boreholes, tap water, bottled water etc. in major cities in Cameroon, with which based on their quality, costs of acquiring and perceived health risks, enables consumers to make satisfiable choices. Water supplied to the public is normally treated to ensure it meets the drinking water quality standard, thus having little or no risks to consumers. However, consumers may not always be satisfied with the water due to reasons such as the process used for water treatment, the physical state of the water or the effect that the water presents after consumption. Consumers, therefore, become doubtful about the water, subsequently affecting the usage of it.

Water quality concerns are frequently the most important component of drinking water as evaluated by physical, chemical, and bacteriological factors, as well as consumer satisfaction (WHO, 2004). Drinking water quality standards should be met and pathogens that could be harmful to people's health should not exist in any quantity. Furthermore, poor perception of water quality can prevent people from pre-treating their water prior to drinking, which may strike serious health implications. For instance, poverty, negative perception, and insecurity of drinking water cause consumers to divert to expensive sugary beverages and bottled water, which can exacerbate diseases such as obesity and diabetes in communities (Jaravani et al., 2016). Currently, water quality is a serious issue, especially for drinking water source areas in Cameroon. Provision of safe drinking water by water utilities is challenged by disturbances to water quality that have become increasingly frequent due to global changes and anthropogenic impacts (Grupper et al., 2021. Understanding the elements that affect public perceptions is essential for managing and improving water resources, ensuring that water recycling and risk communication are acceptable, and monitoring the quality of drinking water. The evaluation of the attitudes regarding water quality in Buea served as the foundation for this study.

Many concerns, including health problems (aesthetic and gastrointestinal diseases), negative impacts on plant growth, and others have been linked to low water quality in studies. The bad taste and odor, as well as the scaling of kitchenware and faucets, are examples of aesthetic issues. These variables affect how risk and quality are perceived (Jaravani et al., 2016). Bacterial pathogens that are spread through water include *Vibrio, Campylobacter, E. coli, Salmonella, and Shigella*. Most of these microorganisms are to blame for the digestive disorders that result from ingesting contaminated water. According to the WHO (2017), the presence of these microorganisms is a symptom of pollution. For instance, toxic *Vibrio cholera* in water may cause diarrhea. The fatality rate rises when it is not treated (WHO, 2017). The Buea Municipality faces multiple challenges related to water sources and water quality, leading to concerns about their impact on public health. This study seeks to investigate the perception of drinking water sources and water quality among residents and examine the potential health implications.

2. MATERIALS AND METHODS

This study used the mixed method research approach, combining quantitative and qualitative data collection methods to gather data on the research objectives. The perceptions and health experiences of the participants were qualitatively determined through questionnaires.

2.1 Study Area

This study was carried out in Buea, found in the Southwest Region of Cameroon. Buea is a town located just at the foot of mount Fako, made up of many small villages- small Soppo, Great Soppo, Wokoko, Molyko, Muea, Tole, Bova, Bonakanda, Bwintingi, Bokova, Mile 16, Liongo, Bokwaongo, Buea town and Bwasa and Likombe. Buea is the capital or the head quarter of the Southwest Region of Cameroon and where the governor's office is located. Buea Municipality is bounded to the north by tropical forest on the slope of mount Cameroon (4100m above sea level). The mountain range extends to the beautiful sandy beaches of Atlantic Ocean. The town also share boundary with other major towns like the City of Limbe to the Southwest, Tiko municipality to the Southeast, Muyuka municipality to the East and Idenau district to the West. With an equatorial climate, temperatures are moderate with a slight seasonal variation (rainy and dry season). Buea has moderate economy with agricultural, administrative, business, tourism and the financial sector taking the central stage of the town.

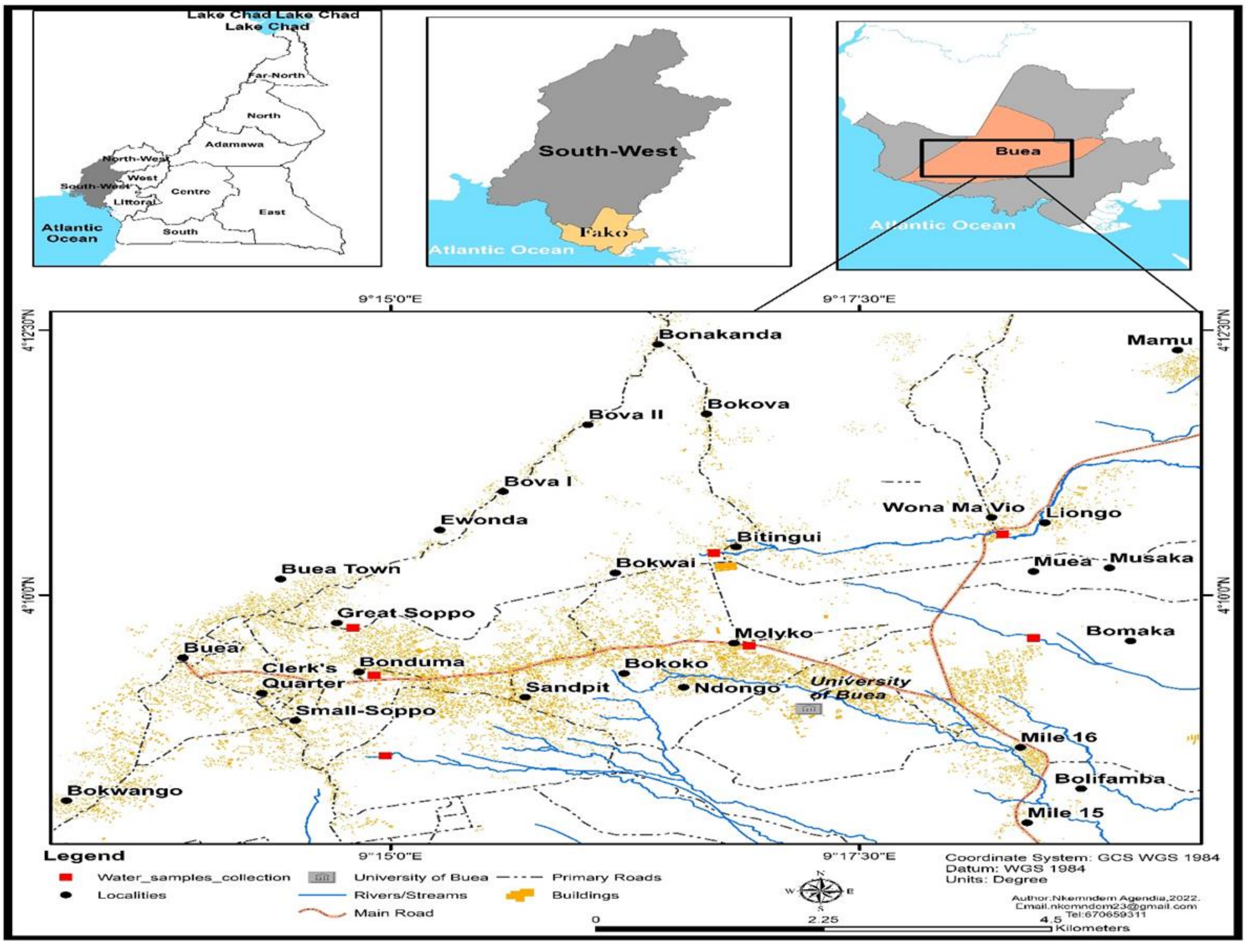

Figure 1: Map of Buea Municipality showing sample areas

2.2 Data Collection

The study was carried out in two stages namely**: the First Stage** involved administering questionnaires along having interview sessions across different communities in the Buea municipality, with major focus on areas with public drinking water supply sources (Great suppo, Bonduma, Bwintingi, Molyko, Muea, Bomaka and Mile 18(Wonya Maveo), Bolifamba). Questions focused on the user's demographic data (gender, age, highest level of education, employment status, length of stay in Buea, drinking water source), their perceptions and health implications of water quality. **The second stage** involved the collection of seven (07) water samples from selected public water supply systems of the six (06) communities: Molyko, Suppo (Great and Small suppo), Wonya mavio, Bomaka, Bwitingi and Bonduma for water quality analyses.

2.3 Sample Population

Participants were sampled using the convenience sampling method, based on their availability during the study period. Purposive, or judgement sampling, a type of non-probability sampling, was used in determining sample units of the study. The purposive sampling was used because the researcher decided the informants to serve based on consumption of public drinking water supply systems. A total of seven (07) water sample units from six (06) communities (Molyko, Suppo, Wonya mavio, Bomaka, Bwitingi and Bonduma) were collected, and a sample size of at least 35 participants per community were considered as enough to discover and interpret core themes.

Table 1: Sample population and Size

Community	Questionnaires distributed	Response rate (%)
Bomaka	45	13.2
Wonya maveo (Mile 18)	40	11.8
Molyko	70	20.6
Bwitingi	35	10.3
Bonduma	45	13.2
Muea	35	10.3
Bolifamba (Mile 16)	40	11.8
Great suppo	30	8.8

2.4 Data collection tools

This study reviewed related literature on the perception and water quality of drinking water sources and a general topographic mapping system was employed for delimitation of the study area. This involved consultation of a base map of the area, to further delineate the sample areas.

A pre-field survey was conducted in the month of April 2023. This survey introduced the research study, its relevance and time frame to Heads of community water supplies as well as inhabitants of the selected communities, followed by a verbal approval, which further granted authority and assistance whenever and wherever needed. Visits were made to the local communities, and the authorities to get quality information on the status quo. This study was conducted in the month of April to July for comparative analysis and involved water sample collection and administering of questionnaires to the inhabitants to obtain valuable information on the perceptions of their drinking water quality and health experiences.

Questionnaire forms were tailored to achieve resourceful information with regards to the objectives of the study. A total of 340 questionnaires were administered. Sample size of 340 was used because it could provide a reasonable level of accuracy for the survey. The questionnaires were administered across various communities in the Buea Municipality, with major focus on the eight (08) selected communities (Molyko, Bonduma, Wonya mavio, Bwitingi, Bomaka, Suppo, Muea, Bolifamba). Questionnaires (predominately closed ended with few open-ended questions) following likert scale measrements were administered to an individual of each household to determine consumers' perceptions regarding their water quality and their health experiences due to the water quality. The closed-ended questions enabled respondents to choose from a list of answers, whereas open-ended questions required respondents to express their opinion independent of any influence from part of the researcher. All respondents were issued the questionnaires to fill in the presence of a research assistant or researcher/data collector, trained prior to data collection. The questionnaire consisted of section A and B.

A) Section A of the questionnaire aimed at obtaining socio-demographic information: participants' age, employment status, gender, highest level of educational, source of drinking water, toilet facility and length of stay in Buea.

B) Section B of the questionnaire consisted of questions aimed at assessing residents' interaction with drinking water, asking about their concerns, behaviors, and attitudes towards the quality of their water sources. The perception was based on trust in water utility provider, safety, satisfaction with the physical appearance, aesthetic properties (color, taste, and odor) of drinking water sources. Health effects experienced by the participants was included in the questionnaire.

2.5 Data analysis

R8esults from the physical, chemical, and microbiological water analysis were compared to the World Health Organization Drinking Water Quality Standards. Data derived from questionnaires and interviews were analyzed using the IBM SPSS Statistics version 26. The closed-ended questions were analyzed using descriptive statistics such as simple frequency and percentage. The open-ended questions were analyzed using thematic analysis method. The responses were coded into short phrases and themes were generated. Each code described the expression of the participants. The information was presented in tables, graphs, and charts.

2.6 Ethical Considerations

The study sought consent from the heads of community water supplies and participants, after the researcher explained the objectives and benefits of the study. Participants in the study were not requested to disclose their names to adhere to the purpose of confidentiality. Participants were made to understand that participation in the study was voluntary, and they could withdraw any time from the study without any penalty. In the same vein, due to their vulnerability, the study excluded children under the age of eighteen (18).

3. RESULTS

3.1 Drinking water Sources

Participants were asked to identify their primary sources of drinking water (Figure 1). All participants in the communities responded they had access to piped (tap) water, of which 42.6% of the participants in Buea use it as their main source of drinking water. 12.4% participants reported that they had diverted to bottled water as their primary source of drinking water. They attributed the reasons for this diversion mainly due to the poor quality of the piped water, no access to tap water during power failure, health reasons, other factors such as excess rain which may influence the color, taste of tap water from boreholes or water catchments, and their general dissatisfaction with the water. The largest consumers of bottled water were predominantly the younger and employed people. This is attributed to the fact that they may be in a better financial position to buy bottled water. Many residents in the communities of Buea are financially challenged or earn little amount of money; therefore, diverting to bottled water may be costly to them, even if the consumers feel dissatisfied with their drinking water sources. 17.1% and 27.9% of the participants used spring/streams and boreholes respectively, as their main source of drinking water.

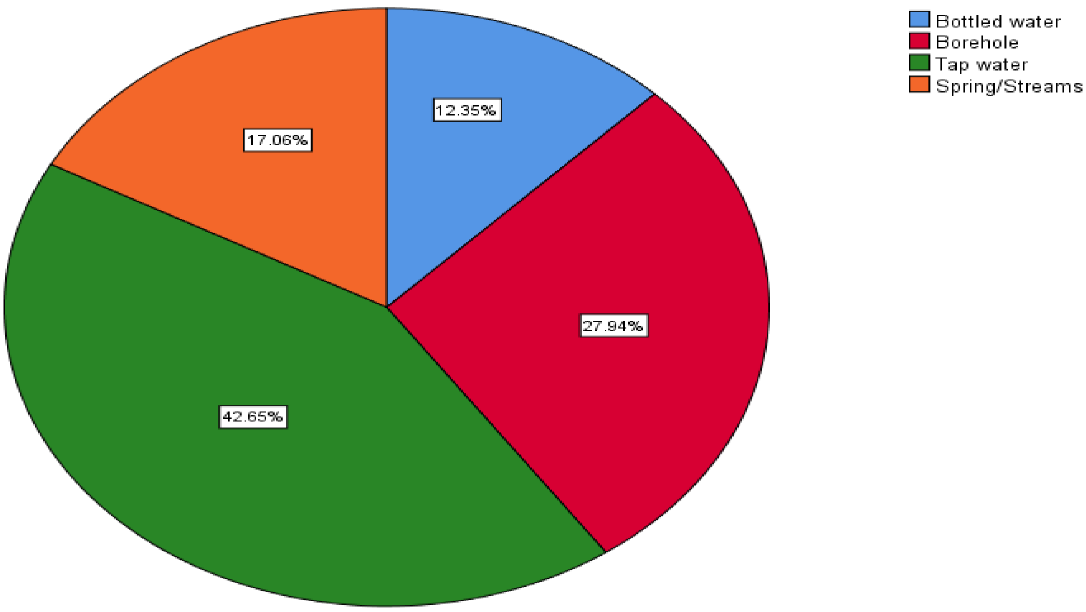

Figure 2: Drinking water sources of respondents in Buea

The study also found that the participants who have lived in the study area for 5-10 years and less than 5 years are predominantly the ones who have reverted to bottled water. This may be attributed to the negative health experiences they must have gotten from poor water quality. It was equally noticed that participants who have lived in the area for more than 10 years generally indicated they have gotten used to the quality of the water, by frequently treating it at home, despite their dissatisfaction with it. This indicates that many residents have adapted to the water they perceive as unpleasant and/or unsafe for human consumption.

3.2 Perception of residents towards the quality of drinking water sources

This segment of the questionnaire intended to discover the perception of the participants towards their drinking water quality. Participants were asked to express their thoughts regarding: satisfaction, aesthetic properties (odor, taste, color), trust in drinking water provider and safety of drinking water. It consisted of Likert scale questions addressing individual opinions, behavior, and attitudes towards water quality in Buea.

3.2.1 Perception based on Safety

The respondent's perception of safety of their drinking water sources were examined based on if they treat their main source of drinking water and methods used for treatment of their drinking water source.

Table 2: Perception of water quality of respondents based on safety

Do you agree that your drinking water is safe for drinking?						
		Bottled water	Borehole	Tap water	Spring/Streams	**Total**
Highly unsafe	**Count**	0	52	71	25	152
	% Total	0%	15.3%	20.9%	7.4%	44.7%
Unsafe	**Count**	0	29	40	12	82
	% Total	0%	8.8%	11.8%	3.5%	24.1%
Undecided	**Count**	2	4	6	2	14
	% Total	0.6%	1.2%	1.8%	0.6%	4.1%
Safe	**Count**	15	7	24	13	55
	% Total	4.4%	2.1%	7.1%	3.8%	16.2%
Highly safe	**Count**	23	4	4	6	37
	% Total	6.8%	1.2%	1.2%	1.8%	10.9%
Total	**Count**	42	95	145	58	340
	% Total	12.1%	28.2%	42.6%	17.1%	100.0%

Most of the population (68.8%) agreed that their water source was highly unsafe, with 16.2% and 10.9% of population describing their drinking water source as safe and highly safe respectively (Table 3). A sum of 32.7% of the population agreed that tap water as their main source of drinking water was unsafe for drinking, followed by 24.1% responses to borehole being unsafe for drinking. None of the participants considered bottled water to be unsafe for drinking. Fourteen of the respondents (4.1%) were unsure of the safety of their drinking water supply. This question also gave room for the participants to elaborate on their answer. In the communities, a common theme expressed by the participants who felt that their water is unsafe and/or highly unsafe is that the water gives gastrointestinal illnesses, with symptoms such as diarrhea, stomach aches, typhoid. Many (234) of the respondents indicated that the water in the area is not good but they drink it because they do not have an alternative. Many (92) participants responded that the water has not made them sick in a long time now, and that they think it has improved, indicating that the water previously made them sick.

The participants responses on safety of their drinking water source were equally examined by asking if they treated their water before drinking. As seen in figure 7, a greater percentage (61.16%) of the respondents agreed that they employed several home-based treatment methods to improve on the quality of their drinking water. This result simply justifies their complains about safety of their drinking water.

3.2.2 Public Satisfaction with drinking water quality

Participants satisfaction of water quality was examined based on overall physical appearance with the drinking water sources.

Table 3: Public Satisfaction with drinking water quality

How satisfied are you with the physical appearance of your drinking water source?						
		Bottled water	Borehole	Tap water	Spring/Streams	**Total**
Strongly dissatisfied	**Count**	0	32	24	10	66
	% Total	0%	9.4%	7.1%	2.9%	19.4%
Dissatisfied	**Count**	0	14	21	9	44
	% Total	0.0%	4.1%	6.2%	2.6%	12.9%
Undecided	**Count**	3	14	16	6	39
	% Total	0.9%	14.1%	4.7%	1.8%	11.5%
Satisfied	**Count**	17	26	62	20	125

	% Total	5.0%	7.6%	18.2%	5.9%	36.8%
Strongly satisfied	**Count**	21	10	22	13	66
	% Total	6.2%	2.9%	6.5%	3.8%	19.4%
Total	**Count**	42	95	145	58	340
	% Total	12.1%	28.2	42.6%	17.1%	100.0%

Many factors, mostly organoleptic factors (taste, color, and smell), availability of water, its safety have mainly been found to be associated with the public perception of drinking water quality in the study area. Responses from the questionnaire regarding satisfaction with the physical appearance of various drinking water sources are presented in Table 4. 32.3% of the respondents were dissatisfied with the overall physical appearance of their drinking water source, most of the population (56.2%) were satisfied and 11.5% were unsure (undecided) about how they generally felt towards their water. The main reasons why respondents were dissatisfied with their water was due to sensory properties such as the color, water source environment, as few persons complained that sometimes their water gets dirty after heavy rainfall infiltrates water source (water catchments especially). Also, majority of the residents (who collectively consumed tap water as their main source of drinking water, for example Bwitingi (Koke-water), Wonya maveo and Small suppo) who agreed that they were satisfied with the physical appearance of their water indicated that the water supplies were frequently checked, cleaned, and chlorinated by community members in charge of water utilities. Results of participants' length of stay in the study area and level of public satisfaction showed that people who lived in the area longer (more than 10 years) were more satisfied with their water. This can be attributed to the fact that the longer one is exposed to the look and taste of the water, the more one gets used to it and may feel less bothered by the water. People who lived in the area for a shorter period (less than 5 years and between 5-10 years) were more dissatisfied with the water, as they have not adapted to the water.

Another common response among the participants was that they were used to the water, which means that even though some of the residents (32.3%) are dissatisfied with their water, they do not have alternatives for example, the high cost of purchasing bottled water, as such, they have gotten 'used' to the effects of the water.

3.2.3 Perception based on Trust in water utility provider

Trust in water utility provider of the respondents were examined based on 'how often they received information from their water utility provider' and 'how reliable is the quality of the water source (s) from the water utility provider?'

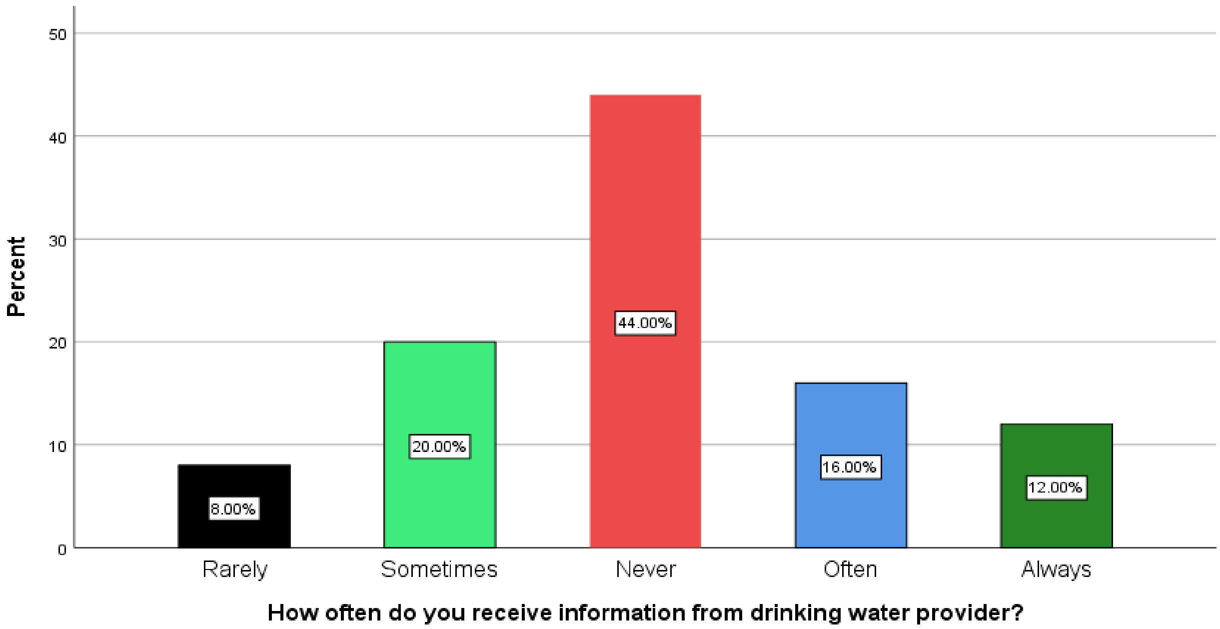

Figure 3: Information about water quality from water utility provider

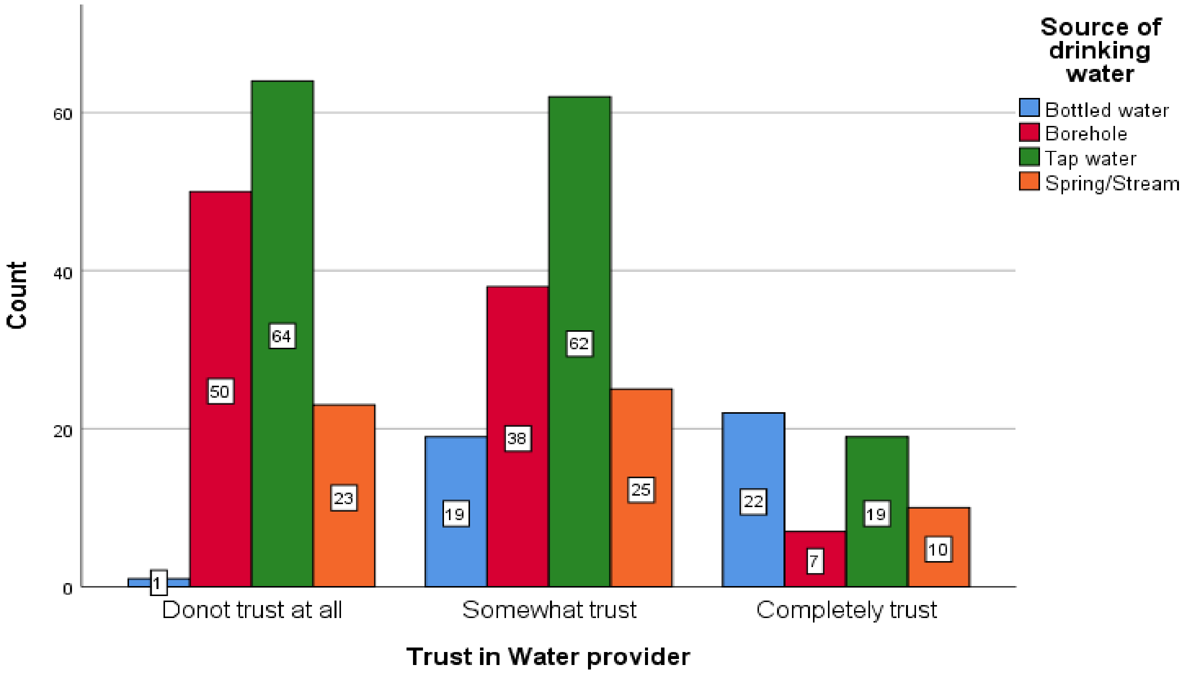

Figure 4: Trust in water utility provider

As seen from Table 5, 40.6% of the respondents indicated that they ''don't trust at all'', 42.4% indicated they ''somewhat trust'', while 17.1% of the respondents ''completely trust'' their water provider in provider good drinking water. Results from figure 9 illustrates that residents who primarily utilize bottled water as their drinking source display higher levels of trust in their water utility than those who utilize other sources or bottled water only. A greater number of respondents (64) who utilize tap water and borehole (50 respondents) indicated that they do not trust their water utility provider in providing potable drinking water with reasons being that they experience health problems and proper hygiene with the water. Also, it was noticed that only one of the participants who consumed bottled water as their main source of drinking water indicated 'do not trust at all'. This can be explained by the presence of taste, color or smell of the bottled water.

3.2.4 Perception based on Aesthetic properties of drinking water (taste, color, and odor)

Table 4: Perceived Taste of drinking water source

Taste of water		Bottled water	Borehole	Tap water	Spring/Streams	**Total**
Strongly disagree	**Count**	1	11	11	5	28
	% Total	0.3%	3.2%	3.2%	1.5%	8.2%
Disagree	**Count**	0	15	12	7	34
	% Total	0.0%	4.4%	3.5%	2.1%	10%
Undecided	**Count**	3	19	18	5	45
	% Total	0.9%	5.6%	5.3%	1.5%	13.2%
Agree	**Count**	15	35	72	29	151
	% Total	4.4%	10.3%	21.2%	8.5%	44.4%
Strongly agree	**Count**	23	15	32	12	82
	% Total	6.8%	4.4%	9.4%	3.5%	24.1%
Total	**Count**	42	95	145	58	340
	% Total	12.4%	27.9	42.6%	17.1%	100.0%

Table 4 shows participants responses about the taste of drinking water. A combined total of 68.5 % (233) of the respondents agreed that the taste of water is good, whereas 18.2% (62) disagreed that the taste of the water is good. 45 of the participants (13.2%)

however indicated that they were unsure/undecided about the taste of their water. The study found that most of the participants were satisfied with the taste of their water.

Table 5: Perceived Color of drinking water sources

Do you agree that the color of your drinking water is good?						
Perceived color of water		Bottled water	Borehole	Tap water	Spring/Streams	**Total**
Strongly disagree	**Count**	0	10	13	6	29
	% Total	0.0%	2.9%	3.8%	1.8%	8.5%
Disagree	**Count**	0	13	3	5	20
	% Total	0.0%	3.8%	0.9%	1.2%	5.9%
Undecided	**Count**	2	18	22	8	50
	% Total	0.6%	5.3%	6.5%	2.4%	14.7%
Agree	**Count**	19	45	65	31	160
	% Total	5.6%	13.2%	19.1%	9.1%	47.1%
Strongly agree	**Count**	21	9	42	9	81
	% Total	6.2%	2.6%	12.4%	2.6%	23.8%
Total	**Count**	42	95	145	58	340
	% Total	12.4%	27.9	42.6%	17.1%	100.0%

On the parameter of color (Table 5), a combined total of 70.9% of the respondents revealed they agree the color of their drinking water to be good. A combined total of 14.4% of the respondents disagreed that the color of their drinking water is good. Some of the participants described the water to appear unclear especially after heavy rainfall, hence, their selection of disagreed. 14.7% were undecided about the color of their water. The responses in Table7, indicate that color affects how the participants perceive the water.

Table 6: Perceived odor of drinking water sources

Perceived order of water		Bottled water	Borehole	Tap water	Spring/Streams	**Total**
Strongly disagree	**Count**	1	8	8	8	25
	% Total	0.3%	2.4%	2.4%	2.4%	7.4%
Disagree	**Count**	0	12	11	2	25
	% Total	0.0%	3.5%	3.2%	0.6%	7..4%
Undecided	**Count**	2	18	22	6	48
	% Total	0.6%	5.3%	6.5%	1.8%	14.1%
Agree	**Count**	22	50	69	30	171
	% Total	6.5%	14.7%	20.3%	8.8%	50.3%
Strongly agree	**Count**	17	7	35	12	71
	% Total	5.0%	2.1%	10.3%	3.5%	20.9%
Total	**Count**	42	95	145	58	340
	% Total	12.4%	27.9	42.6%	17.1%	100.0%

For odor, a combined total of 71.1% of the respondents agreed, 14.7% disagreed that the odor of their water was good while 14.1% were undecided (Table 6). In comparison to the other two parameters (taste and color), the respondents were more satisfied with the odor of the water. The findings revealed that most residents understood the quality of their water and can relate it to aspects such as taste, clarity, and smell.

4. DISCUSSIONS

In this study, different measures of perceptions related to water quality were examined using quantitative techniques that allowed the researcher to evaluate the combined effect of multiple factors that influence perception and to consider the potential for similarities in opinions within communities. This study included several different communities in the Buea municipality, where residents use a variety of tap water supplies, bottled water, streams and boreholes.

Potable Water Safety and Satisfaction

Analyzed data from the survey revealed that 68.8% of the population reported that they believed their water is not safe to drink, with 32.7% indicating that tap water as their main source of drinking water was unsafe because of the health problems experienced by respondents. This is like a study conducted by Njine et al. (2019) who investigated the perception of water quality and its impact on human health in communities across Cameroon. The study found that majority of the population perceived the water quality to be poor and unsafe for consumption. This perception was influenced by factors such as water source, availability of water treatment facilities, and knowledge of waterborne diseases. Another Case Study by Harris (2015), who conducted a study in rural Thailand (Thakhonyang, Nong Khon, and Don Man villages) to ascertain how the general populace view the quality of the drinking water. According to the survey, 50 percent of the participants in all three communities stated some amount of ambiguity about the safety of their main source during any given season, or they considered their main source as risky. The study also revealed that in both Thakhonyang and Nong Khon, 98% of homes with piped water connections do not drink from them. Only one household in Nong Khon said they drank water from their piped connection, but they first filtered it using a water filter and then strained it through a cloth before drinking it. Despite being piped water, this extra line of defense shows that consumers believe their drinking water to be unsafe because of its color, flavor, and odor. As such, safety of drinking water is frequently correlated with the experienced health effects, water treatment practices, aesthetic properties (color, taste, odor) and physical appearance according to studies on perceptions of water and water supplies.

This study also highlighted the need for improved communication and public education regarding water quality and safety. Equally, a greater proportion of the population (56.2%) were satisfied with the overall physical appearance of various drinking water sources. Compared to a recent study by Sonchieu & Tapaat (2020) which showed that 75% of respondents were not satisfied, while some are indifferent (undecided) and others declared to be satisfied (14% and 11%, respectively). Their satisfaction was emphasized by their appreciation of the physical appearance (color, presence of particles and/or living organisms), since 75% of the respondents think that the water, they fetch is impure.

Trust in water utility provider

Results of the study demonstrated that residents who primarily utilize tap water as their drinking source displayed comparatively low levels of trust in their water utility than those who utilized alternative sources or bottled water only. Groups that relied on bottled water had higher trust than the other waters sources. This result is unsimilar to the results of a previous study comparing tap water and bottled water groups which found that tap water drinkers have higher trust levels (Grupper et al., 2021). These results add to these previous findings by demonstrating how trust can increase with even partial reliance on bottled water. In that case, convenience is the most motivating factor. Similarly, Saylor et al. (2011) found that lack of convenience is a barrier to drinking tap water. Consequently, several additional factors, including convenience and marketing effort, may impact drinking water choices. Future research could explore how these additional factors interact with trust, risk beliefs, and salience to explain drinking water behavior.

Aesthetic properties (color, odor, and taste)

The aesthetic qualities of water can influence our perceptions of water quality (Doria et al., 2005; Doria, 2010), as well as water consumption pattern. In the present study, 25.3% of population indicated some aesthetic complaint (color, taste, and odor) about their tap water, be it unpleasant taste, odor, discoloration, or cloudiness. Majority of the respondents expressed satisfaction with the color, taste and odor of their drinking water sources. Previous studies have equally examined distinct aesthetic qualities (e.g., taste, color, and odor separately). 71.1% of the respondents were satisfied with the odor, 70.9% agreed to the color being good and 68.5% agreed to their drinking water source being of good taste. This result is like the results of more recent study by Shane & Hiroshi (2022), in the southern part of Yangon regarding the perception of quality of tap water, where odor and flavor satisfied 70 and 68% of the population, respectively. Color of tap water satisfied 56% of the respondents The frequency of aesthetic satisfaction was similar in borehole and tap water users. These results simply indicate that aesthetic properties influence perception of the quality of drinking water.

5. CONCLUSION AND RECOMMENDATIONS

The aim of this study was to determine the perception of consumers towards the water and assess the water quality and its health impact on Buea residents. Majority (68%) of the population regarded their water sources to be unsafe, with emphasis on tap water and boreholes based on frequent health experiences. Most of the respondents were satisfied with physical appearance and aesthetic properties. 40.6% and 42.4% of respondents indicated that they do not trust and somewhat trust their water utility provider to ensure potable water respectively. In all, health effects were seen by majority of the respondents to be the most important parameter of water quality deterioration. Aesthetic properties (color, odor, and taste), health effects of water quality, and reliably (trust in water utility provider) and appearance were noticed as influencing factors on the respondent's perception of their water quality.

Based on the findings, the study makes the following recommendations:

- The study recommends the strengthening of education and public awareness about drinking water safety, water quality and health effects, by the custodians of water provision in Buea, together with the local authorities, media houses and the communities. This can be done by publishing the water quality reports through different media platforms to prevent the misinformation regarding the portability of their water. This will equip consumers with information regarding the quality of their water.
- Water utility providers and households should treat the water more effectively to remove coliforms that mostly contribute to water related diseases and discomforts, thereby improving the quality of the water and improve acceptability by the community. To achieve this, disinfection by chlorination, or other low-cost homebased treatment techniques can be implemented. Regular sampling and testing of drinking water sources should be conducted to identify potential contaminants and assess compliance with quality standards. Routine checks and cleaning of surrounding environments of water supplies should be carried out both by the consumers, community, and water utility providers.
- The study recommends further studies which includes assessing consumer perception of water quality and actual water quality of drinking water sources, epidemiological studies on water borne and related diseases.

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Exercise Therapy for Knee Osteoarthritis to Reduce the Pain: A Systematic Review

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ABSTRACT: The purpose of this study was to assess the value of different models exercise therapy emphasizing exercise for the management of knee osteoarthritis. This analysis included data from four trials with a total of 1,317 individuals. The exercise therapy models included were exercise therapy, elastic band therapy, traditional wuqinx therapy, and tai chi. The trials included in this meta-analysis suggest that people with knee osteoarthritis may benefit greatly from exercise-based therapy in terms of pain reduction, improved function, and improved quality of life. These findings suggest that exercise-based therapy offers a nonpharmacological, low-risk, and cost-effective treatment option for knee osteoarthritis. Exercise-based therapy should be considered as a primary treatment option for patients with knee osteoarthritis by all health care practitioners. Future research should explore the potential benefits of combining exercise-based interventions with other treatment options and determine the optimal exercise program for different stages of knee osteoarthritis.

KEYWORDS: Exercise, Therapy, Knee osteoarthritis.

I. INTRODUCTION

Knee osteoarthritis is a degenerative joint disease of the articular cartilage that impacts the lives of millions of people throughout the world, especially affecting the elderly, causing disability (Ravalli et al., 2022). Although there is currently no cure for knee osteoarthritis, exercise therapy has become an increasingly popular alternative treatment option for this disease (Kumar et al., 2020). Knee osteoarthritis (KOA) is a chronic degenerative disease of the knee joint, and knee joint pain is the most common clinical manifestation (Emery et al., 2019).

The worldwide prevalence of radiographically confirmed symptomatic KOA is estimated to be 3.8%, and the prevalence of this disease has increased to more than 10% in people older than 60 years (Brophy & Fillingham, 2022). In China, the prevalence of KOA among older people is approximately 8.5% (Ren et al., 2020), and the incidence of KOA has increased signifcantly among younger people (Chen et al., 2021). KOA has a serious impact on the health status of patients and overall quality of life and can even cause a serious economic burden on society (Wojcieszek et al., 2022). Clinical guidelines recommend that relieving pain in the knee is a primary target of KOA treatment (Arden et al., 2021).

The aim of this systematic review is to analyze the data, by reviewing the results of previously conducted studies on knee osteoarthritis, whether exercise therapy is effective in treatment or not. This evaluation will consider various types of exercise therapy that have been used previously, including aerobic activities, stretching exercises, and strengthening treatments. In addition, the review will pay attention to the length of time the treatment is carried out and the level of intensity in its implementation. The findings of this study will provide important and in-depth information regarding the efficacy of exercise therapy in treating knee osteoarthritis. These results can also help in determining appropriate therapeutic recommendations in the future, especially to reduce pain in knee osteoarthritis.

The results of this systematic review can assist healthcare professionals in making judgments about the most effective and appropriate therapy for patients with knee osteoarthritis. This may also help in the development of exercise therapy guidelines and recommendations for the treatment of knee osteoarthritis, which could potentially have a significant impact on pain reduction, increased range of motion, and knee joint function or quality of life.

II. METHOD

In order to ensure that the systematic review is comprehensive and that the researcher has identified all relevant studies and using a combination of keywords and MeSH (Medical Subject Heading) terms, such as "AND," "OR," and "NOT" were also used to combine search terms. The researcher has searched the Scopus, PubMed, Cochrane Library, Google Scholar, and Medline databases using a pre-defined search strategy, from January 2019 to date, to ensure that he only included recent studies to conduct a comprehensive literature search. The search strategy was as follows: ("knee" AND "osteoarthritis" OR "knee osteoarthritis") AND ("therapy" AND "exercise").

These inclusion and exclusion criteria were established by the researchers to conduct a systematic review of the effectiveness of exercise therapy for the treatment of knee osteoarthritis.

Inclusion criteria	Exclusion criteria
Studies evaluating the effects of exercise therapy on knee osteoarthritis.	Studies that did not assess the efficacy of exercise therapy involving exercise for the treatment of knee osteoarthritis.
Observational studies, clinical trials, cohort, casecontrol studies, and RCTs.	Studies that are not peer-reviewed, such as conference proceedings and abstracts.
Research that has been published in Indosesian and English	Research that was published in a language other than Indonesian and English.
Studies published between January 2019 and the current date.	Studies published before January 2019.

The researchers conducted a two-stage screening process to select the studies included in this systematic review. In the first stage, the researchers screened the titles and abstracts of the identified articles to determine their relevance to the research question. In the second stage, to ensure that the selected articles met the inclusion criteria mentioned above, the researchers read each article in its entirety.

Researchers used a narrative synthesis approach to summarize the findings of the selected studies. Researchers provided a detailed description of each clinical trial, including its design, patients, treatment duration, interventions, and outcomes.

III. RESULT AND DISCUSSION

The literature search identified 1.320 articles. Then researchers conducted a two-stage screening process to select the studies included in this systematic review. In the first stage, the researchers screened the titles and abstracts of the identified articles to determine their relevance to the research question. In the second stage, to ensure that the selected articles met the inclusion criteria mentioned above, the researchers read each article in its entirety. The study analyzed findings from four additional studies with a total of 1.317 individuals, all of which provided substantial evidence supporting the use of exercise therapy in the treatment of knee osteoarthritis. The studies showed that exercise therapy treatment resulted in significant improvements in patients' pain levels, as well as improving their knee function and overall quality of life.

Study	Study Design	Participants	Intervention	Duration of treatment	Comparison	Outcome Measures	Results
Goh et al., 2019	Systematic review and meta-analysis	N = 15	Exercise therapy	8 weeks.	Control groups	Pain, function, quality of life, adverse events	Exercise therapy resulted in significant improvements
(LeónBallesteros et al., 2020)	RCT	N =32	Kinesiotape and quadriceps strengthening with elastic band	6 weeks	Control groups	WOMAC (pain, stiffness and functionality), VAS	Relief pain, improve functionality, and decrease stiffness

(Xiao & Li, 2021)	Prospective	N =284	Wuqinx	24-weeks	Control groups	Limits of stability tests, static posture stability tests, dynamic fall index tests, WOMAC, and SF-36	Reduce pain, improve balance function, and improve subjective quality of life
Hu et al., 2021	Systematic review and meta-analysis	16 studies (N =986)	Tai Chi	five weeks and 52weeks.	Control groups	WOMAC, 6-MWT, dynamic balance, and physiological and psychological health	Reduce pain, maintain mobility, enhance muscle strength, enhance range of joint motion, and ameliorate physical and mental health

The study was conducted by Goh et al., (2019) and was a systematic review and meta-analysis of 15 RCTs that looked at the effectiveness of exercise therapy for knee osteoarthritis. This study was conducted to determine whether physical activity could be beneficial in the management of knee osteoarthritis. The results of this study showed significant improvements in pain reduction, function, and quality of life were seen in the exercise treatment group compared to the control group, as indicated by the results of the meta-analysis. The findings of this study also revealed that exercise therapy was completely risk-free and did not come with any significant side effects.

On the other hand, treatment with exercise therapy was shown to produce substantial improvements in pain, function, and quality of life when compared to a control group in another study conducted by (Goh et al., (2019). The researchers can conclude from this study that any exercise therapy program has the potential to be beneficial in the treatment of knee osteoarthritis. The results of this study provide conclusive evidence that exercise-focused therapy is an effective treatment for knee osteoarthritis.

A study conducted by León-Ballesteros et al., (2020) aimed to determine the effectiveness of strengthening therapy using kinesiotaping in women with knee osteoarthritis to reduce pain. However, the results of the study showed that exercise using kinesiotaping with elastic bands did not significantly reduce pain better than strengthening exercise therapy on the quadriceps muscle in patients with knee osteoarthritis.

Wuqinxi is a traditional Chinese exercise that was designed by Hua Tuo at the end of the Eastern Han Dynasty. It can release muscle tone and increase blood flow, thereby relieving pain. Long-term Wuqinxi can significantly enhance the physical function of chronically ill patients, improving their strength, bone density, balance, joint flexibility, mental vitality, and psychological confidence (Zeng et al., 2021). A randomized controlled trial showed that from pretest to follow-up, KOA patients in the Wuqinxi group showed significantly improved, isokinetic knee flexion, and extension strength, timed up and go test, 6-min walk test, 30s chair stand test, and their pain was much relieved. This research showed that Wuqinxi promotes balance and pain relief in KOA patients more effectively than traditional physiotherapy exercises. In addition, Xiao et al. found that the stability test, the static postural stability test, and the dynamic fall index test results of elderly, female KOA patients improved after 24weeks of Wuqinxi (Xiao & Li, 2021). In short, Wuqinxi is a very suitable exercise for elderly people, which can enhance the balance of KOA patients, reduce pain, and increase muscle strength. However, there is not enough research on Wuqinxi. More profound and relevant studies are needed.

Tai Chi, a gentle aerobic exercise, is derived from ancient Chinese martial arts that can relax the body and mind. Compared with other conventional physical therapy, Tai Chi has a better treatment effect on reducing depression (Li et al., 2020). A clinical experiment showed that Tai Chi can change KOA patients' gait and plantar pressure load pattern during walking. Tai Chi can be an excellent physical training strategy for improving postural control and walking function in older individuals with KOA. Furthermore, Tai Chi has positive effects on muscular activities and proprioception of the leg and ankle, and it can improve balance on both rigid and foam surfaces in older patients with KOA. Hu found that Tai Chi can significantly reduce pain and dysfunction, improve KOA patients' physical and mental health, which can be an alternative to non-drug therapies in rehabilitation programs (Hu et al., 2021). In conclusion, Tai Chi is a popular mind-body exercise, which can relieve pain, reduce KOA dysfunction, and has significant effects on improving depression, training gait, and postural stability. However, the effect of Tai Chi is slow, it always takes more than 2 weeks to get the effect.

The findings of this study suggest overall that exercise-based therapy can be an effective treatment for knee osteoarthritis. It appears that exercise routines that involve all three forms of movement such as stretching, strengthening, and aerobics are most effective in terms of reducing pain, improving function, and enhancing quality of life. However, further research is needed to determine the most beneficial exercise programs for different stages of knee osteoarthritis, the optimal duration and intensity of exercise, and the benefits of exercise-based therapy treatment during treatment.

IV. CONCLUSIONS

In this study, researchers found that exercise-focused therapy was more successful than other treatments for knee osteoarthritis. The results of the four studies included in this meta-analysis suggest that exercise-based therapy can help people with knee osteoarthritis experience significant pain reduction, improved function, and improved quality of life.

The implications of these results are important not only for those with knee osteoarthritis but also for those working in the medical field and those who determine public policy. An alternative treatment option for knee osteoarthritis that does not require the use of drugs, has minimal risks, and is cost-effective is exercise-focused therapy. Individuals with knee osteoarthritis should be encouraged to engage in exercise therapy regularly as part of their treatment strategy. Exercise-based therapy should also be considered as a first-line treatment option for patients with knee osteoarthritis.

Furthermore, these data suggest the need for additional studies to determine the optimal exercise therapy routine for different phases of knee osteoarthritis, the most effective duration and intensity of exercise, and the long-term effects of exercise-based therapy. The potential benefits of integrating exercise-based therapy with other alternative or primary treatment options need to be investigated in future studies.

Overall, exercise-based therapy is a promising and beneficial treatment option for individuals with knee osteoarthritis. This systematic review provides strong evidence for the efficacy of exercise-based interventions and supports the incorporation of a routine exercise therapy program as part of the standard of care for knee osteoarthritis.

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Citizenship, Race and the Hidden Curriculum: A Review of David Gillborn's Article

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ABSTRACT: This article aims to analyze the reality of citizenship and how education can play a role in changing the corrupt status quo in the article entitled "Citizenship, 'Race' and the Hidden Curriculum" by David Gillborn. This article was published in the journal "International Studies in Sociology of Education" in 1992. The type of research used in this study is qualitative research and uses library research methods. Data collection techniques use document studies (books, journals, and proceedings) as well as the internet or information related to this study. Data collection is carried out through two documentation techniques.

This article explains about: First, by conducting a survey of library materials to collect relevant materials. Second, by conducting a literature study to study materials related to the research object. Hidden Curriculum and Citizenship: Through the hidden curriculum, schools have taught much about the realities of citizenship for Black people. Teaching Stereotypes and Empowerment: While the hidden curriculum often limits the rights of Black students, teachers also have the opportunity to challenge stereotypes and empower students by implementing anti-racist principles. The Importance of Acknowledging and Challenging Racism: This article highlights one of the urgent needs is to acknowledge and challenge the racism that operates in schools and society.

KEYWORDS: Hidden Curriculum, Anti-Racism, Schools

I. INTRODUCTION

The most reported human rights violation is racial discrimination and is an international social disease. Racial discrimination occurs everywhere, even in developed countries that are at the forefront of human rights. The outbreak of anti-racism protests such as Black Lives Matter, Papuan Lives Matter, and most recently Stop Asian Hate is an accumulation of anger against racial discrimination that violates people's rights since centuries. Equality and the elimination of racial discrimination remain goals to strive for (Amnesty International, 2021). Racial discrimination is not a new social issue and has existed on a large scale since ancient times, including the establishment of gas chambers and concentration camps for black people, as well as discrimination against black people in ghettos in South Africa and bans on interracial marriage.

These negative labels are based more on various facts that show similar patterns, thus often generalising a person based on their group. When prejudice and belief in negative labels are applied, discrimination occurs. The act of treating someone unfairly because they belong to a particular social group is known as discrimination. In order for them to be treated fairly for the disadvantages they face due to racial or ethnic discrimination, each resident or party must receive assistance and compensation from the government. To effectively protect citizens or parties who are victims of discrimination and to guarantee that the law will be effectively enforced against any discrimination that occurs, the government must ensure that these protections are enforced.

In addition, discussions on discrimination cases are growing, and laws alone are not enough. In resolving human rights violations, law enforcement is a very important tool, especially discrimination based on race or ethnicity, and must work together with other tools to be effective. To end racial and ethnic discrimination, enforcement of national and international laws is indispensable. Law enforcement is a very important tool in solving the problem of human rights violations and must work together with other tools to be effective. The author raises the issue of how to prevent the issue of Afro-Caribbean racism through hidden curriuculum in civic education.

Human rights are violated by discriminatory attitudes and actions (Ihromi, 2007). It is common knowledge that some discrimination often occurs, including: 1) Gender discrimination, which is mistreatment by treating people differently based on their gender. Examples are sexual harassment, sexual exploitation of women and pornography, physical violence committed by a husband against his wife, and so on. 2) Religious discrimination means demeaning a person or group based on their religion or treating them differently based on their beliefs. Discrimination against persons with disabilities, especially persons with mental or physical disabilities. 3) One of the social problems that is still being discussed in society is racial discrimination. This problem arises from a lack of recognition or acceptance of differences in physical appearance, such as body shape, hair colour, and skin colour. People's mindsets can differ depending on these factors within a particular group. This mental shift is the root of discord and even suppression of certain tastes or groups. As stated by Fulthoni (2009), discrimination is treating individuals or groups unfairly and unequally to distinguish them based on distinctive features, such as race, ethnicity, religion, or membership. The most common legal and human rights issue is discrimination based on race and ethnicity. Black and brown students often receive the same services as white students. People all over the world are disadvantaged simply because of the colour of their skin. This includes insults, generalisations about skin colour and actual appearance, segregation in schools, workplaces, and courts, and terror by security forces.

In the context of American history, black people were often treated as property and slaves, rather than as equal human beings. This was especially true during the period of slavery and after. Professor Cheryl I. Harris in her article 'Whiteness as Property' reveals how white identity developed into a recognised and protected form of property in American law. In America, black people are considered property, slaves and not seen as human beings (Harris, 1993). According to a 2007 UK citizenship survey, 69% of all respondents and 83% of white people said they had no friends of other races. Only 22% of white people mix with other racial groups. And based on Pettigrew & Tropp's (2006) research, humans simply know someone from a different background, and as casual friends, few provide greater tolerance based on 515 meta-analysis studies. Based on a 1998 general social survey in the United States, it shows that they do not have friends of different races, namely 74% of whites and less than half of African Americans.

In the United States and the United Kingdom, the persistence of negative racial stereotypes is a significant barrier to the integration of neighbourhoods and beliefs different from one's own. In general and according to stereotypes, white Americans view African Americans less favourably than themselves. In the 2008 American National Election Study, whites gave whites a 'feeling thermometer' score of 73 out of 100, while African Americans scored 63. They were more likely than whites to say that African Americans were stupid and lazy. In contrast, blacks have almost identical feeling thermometer scores to Asian Americans, Hispanics, Jews and Catholics. Except for Hispanic intelligence, more whites have negative stereotypes of blacks than any other group.

Europe is also rife with racial discrimination in the world. African farm workers in southern Italy experienced widespread violence in 2010. The incident resulted in around 70 injuries, with more than 300 local workers having to be evacuated by police. As fruit pickers, these workers are exploited, earn very little, and live in deplorable conditions. To overcome the problem of racism, real efforts and struggles are needed to overcome these various problems (Shah, 2010).

The integration of ethnic minorities into society can be seen in three main ways from a social point of view: health care, housing, and education Child development levels, suspensions, bullying, and achievement or learning scores especially for children from ethnic minorities such as Gypsies, nomads, Pakistanis, Bangladeshis, African Americans, and blacks are hot topics in the field of education, especially at the school level of America. This is because these ethnic groups have unique information regarding low school grades, low child development, high suspension rates, and severity of bullying risk. When compared to students from White, British, Indian and Chinese ethnic groups, who performed relatively better, they reported lower suspension and bullying rates, high achievement and high marks awarded for learning in school. The fundamental element that separates children's scholastic presentation is their level of English language ability. Whites and Chinese, on the other hand, are more likely to enrol in top Russell universities than Pakistanis, Bangladeshis, African Americans, and Caribbean Americans. Their upbringing in a homeschool setting, the support they receive from their families, and the accessibility of the information, input, and guidance (IAG) they receive are key influence factors. The UK government's efforts to coordinate ethnic minorities in field training include implementing the big society strategy, which establishes free and independent schools for all children regardless of background to provide high-quality teaching.

At the international level, there is the Universal Declaration of Human Rights (UDHR). Article 2 of the UDHR reads:

"Everyone is entitled to all the rights and freedoms set forth in this Declaration, without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status. Furthermore, no distinction shall be made on the basis of the political, jurisdictional or international status of the country or territory to which a person belongs, whether it be independent, trust, non-self-governing or under any other limitation of sovereignty".

A convention aimed at ending all forms of racial discrimination was signed on March 7, 1966 at the United Nations. On November 20, 1963, the member states of the United Nations issued the United Nations Declaration on the Elimination of All Forms of Racial Discrimination (United Nations Declaration on the Elimination of All Forms of Racial Discrimination) through

Resolution 1904 (XVIII). The declaration said that there would be no more racial discrimination, that governments and some people would stop practicing all kinds of racial discrimination, that there would be no more propaganda saying some races or skin colors are better than others, and that countries should do something to stop it.

However, since the declaration was merely a political proclamation, it was not legally restricted. The International Convention on the Elimination of All Forms of Racial Discrimination was drafted by the UN Human Rights Commission after this declaration. The UN General Assembly then presented this draft. On December 21, 1965, the International Convention on the Elimination of All Forms of Racial Discrimination (CERD) was ratified by the United Nations General Assembly. Member states that have signed the convention will be legally recognized if it is ratified. The manner of correspondence, fraternity, and hostility to discrimination is underlined in the preceding portrayal exhibit that, from the point of view of fundamental freedoms, any kind of segregation is a violation of common freedoms. The early theory of racial superiority as a justification for the domination of one race over another led to the development of racism. Charles Darwin's theory of natural selection served as the basis for this theory. This theory holds that a racist can take advantage of the perceived inferiority of another race to gain the additional advantages necessary for survival.

Under international law, states are obliged to protect the human rights of their citizens. Racial discrimination is defined as discrimination, exclusion, restriction, or preference with the intent to prevent or impair equal access to human rights and fundamental freedoms. is present in all aspects of people's lives, including political, economic, and cultural. The two international instruments of human rights law that direct it are the Universal Declaration of Human Rights and the International Covenant on Civil Law. Race and color are not considered when treating anyone. The Meeting of Nations promotes understanding, resistance, and friendship among people of different races or ethnicities, particularly in the areas of education, training, culture, and data, and quickly and effectively combats biases that lead to racial segregation. In addition, they promote the principles and standards of this show, the Public Declaration on Fundamental Freedoms, and the United Nations Contract.

Despite human rights declarations promising to protect them, human rights violations continue. These violations often occur between groups. The lack of recognition of the Rohingya as one of Myanmar's ethnicities by the government is one example. The Rohingya could not obtain citizenship in Myanmar, had limited freedoms, and their nationality was not recognized until the genocide. Young black and Arab immigrants, for example, are 20 times more likely to be accused of being criminals and have their streets searched by French police because of the color of their skin, according to data from the French National Ombudsman. These investigations dehumanize and often result in terror and barbarism. The conflicts in Bosnia, Italy under Benito Mussolini, Germany under Adolf Hitler, and the Palestinian-Israeli conflict that claimed many victims, are some examples of violations of fundamental freedoms. For example, blackface dates back to the 1830s in the United States, when white performers wore rags and took turns blackening their faces with shoe polish to resemble African Americans. People of color are portrayed as slow, cunning, incompetent, eccentric, informal, hypersexual and criminal in performances.

There are different groups of people in one's life, each with different characteristics. Ethnicity, race, customs, culture, religion, politics, and so on are examples of diversity. These are the foundations on which the life of a multicultural society is built. Tilaar (2004) outlines three guiding principles of multicultural education as follows.

a. A multicultural education pedagogy is based on human equality.
b. Multicultural teaching is directed at recognizing wise Indonesian human beings and creating well-informed Indonesian human beings.
c. The nation should not be afraid of the idea of globalization because of the direction it brings and the good and bad values it brings.

Multiculturalism cannot be separated from the influx of large numbers of immigrants to the UK and their subsequent integration into the country. Immigrants make up 20% of the 56.1 million people living in England and Wales, according to the 2011 UK population census. South Asian ethnic minorities (Indian, Pakistani and Bangladeshi) make up 14% of this group, followed by black ethnic minorities (African and Caribbean) with 3.3%, mixed ethnicities with 2.2%, and other ethnicities with 1%. The large number of immigrants who have settled in the UK cannot be separated from the history of the UK's relationship with the countries from which the immigrants came. In the UK there is still a lot of racial discrimination in political institutions, education, courts and health. Moreover, Caribbean people as a whole would be skeptical because of the dull, deceitful ethnicity, inseparable from brutality. Nevertheless, sentiment towards the tribe is also positive, especially considering their athletic prowess.

II. METHODS

The type of research used in this study is qualitative research and uses library research methods. Data collection techniques use document studies (books, journals, and proceedings) as well as the internet or information related to this study. Data collection is carried out through two documentation techniques. First, by conducting a survey of library materials to collect relevant materials. Second, by conducting a literature study to study materials related to the research object.

III. RESULTS OF RESEARCH AND DISCUSSION

Based on the article Citizenship, Race and the Hidden Curriculum by David Gillborn, there are differences in the treatment of Afro-Caribbean students. Ethnicity is about a sense of who they are, but every time Afro Caribbean students show their identity, they get different treatment from white teachers. Not only that, the legal and education systems are perceived to favor whites so that blacks tend to receive negative and more punitive treatment. In one case a white teacher claimed to have been attacked and thrown by an Afro Caribbean student and felt he had been hit by a black child. This shows that there is generalization to all black children. This is a threat to Caribbean students, some individuals expect problems and mistakes to come from black students. The school tries to provide solutions and ignore differences and view all students as equal, but what happens is that Afro Caribbean students are seen as the source of problems, overly criticized and denied their voice. This indicates clear racist treatment.

Afro-Caribbean students face a number of challenges in the education system. Here are some of them: (1). School Exclusion: Although there has been an improvement in the statistics of Afro-Caribbean students' exclusion from school, they are still overrepresented. Only 15% of permanently excluded students make it back to mainstream schools. This affects their transition to adulthood, employment and independence (Wright, et al, 2005). (2). Limited Capacity: Education systems in affected countries often face capacity issues, including school overcrowding, limited resources and language barriers. (3). Educational Outcomes: Several studies show that Caribbean students often experience poor educational outcomes, including low academic achievement and high dropout rates.

Teachers play an important role in shifting common negative perspectives towards positive or reality-aligned ones. The perspective of Afro-Caribbean students must be impartial. All levels of society, especially teachers who are at the forefront of education, have an obligation to eradicate this social ill. This racist treatment has a long history.

The biggest stigma towards the exploitation of Africans is also influenced by the caste system and stratification between whites and blacks. The marginalization of black Africans and the privileges afforded to Africans and white Europeans have been the basis for the practice of slavery. This view assumes that the white race inherently has a higher position and rights than the black race, so that whites are regarded as masters and blacks as slaves. This stigma has persisted for a long time, but eventually became one of the moments of resistance in African society and at the same time the momentum for the integration of African regionalism in the early 20th century. During World War II, issues became very Africa-centered and the focus was on opposition to all forms of colonialism and white domination. The integration of regionalism in the African region was also supported by the many African countries that gained independence after breaking away from the shackles of colonialism.

In the field of education, what Tomlinson calls “educational nationalism” emerged in the 1980s, an ideology that argues that the presence of ethnic minorities with “alien” cultures is a threat to a single white culture and heritage (Tomlinson, 1990). This perspective is central to the work of the New Right, which has had a significant impact on current education policy in the UK. The official guidance on citizenship education in England and Wales should be read in this context; the National Curriculum Council's Curriculum Guide 8: Citizenship Training (NCC, 1990).

According to Carr (1991), despite the fact that the NCC has “clearly made strenuous efforts to depoliticize the concept of citizenship, any suggestion that it is a politically neutral document should not be taken too seriously. The document presents the UK according to a pluralist model that assumes equal access to decision-making processes and equality before the law: Racial prejudice and other forms of discrimination reflect tension and conflict - groups that perceive each other as socially, racially, ethnically or culturally different (NCC, 1990). On the other hand, fairness and fair play are the norm. Therefore, difference is used to define prejudice and discrimination. Racism does not exist as a feature that constantly reflects and recreates the unequal distribution of power in society.

The NCC document ignores the important daily message that schools send about the citizenship of their students, namely the extent to which students actually incorporate and can expect full participation and equal access in society, despite the fact that citizenship is essentially a political concept. Citizenship is not an abstract concept but rather concrete rights such as ownership, access, and participation.The extent to which Black students receive these rights in school indicates the kind of citizenship they can anticipate in society as a whole.

The school's own records provide additional evidence of greater control and analysis of Afro-Caribbean students. For example, the majority of Afro-Caribbean students in the age group (68%) received at least one after-school detention under the supervision of a senior teacher during the two years of fieldwork: While only 39% of white students were detained, this pattern was specific to the Afro-Caribbean group and applied to both genders. Similar to this, the majority of these students were Afro-Caribbean, and they received at least four of these detentions later in life. a pattern that was also exclusive to Afro-Caribbeans. Naturally, this kind of data could be interpreted as evidence that Afro-Caribbeans are more likely to break school rules than their peers. However, based on my observations and interviews, I concluded that this was not the case. On the other hand, the data suggests that teachers' responses to Afro-Caribbean students are different. This viewpoint is supported by a more in-depth examination of the records.

The stereotype that all Asians are Paki or crazy Muslims and the way South Asian countries are often portrayed as dogmatic and anti-modern are additional examples of racism. The destruction of mosques, assaults on Asians, and racial harassment in formal educational institutions are not uncommon. Instead of focusing on the British state, which is a bright mecca of a pluralistic nation, the researchers in this study focused on the process of black people learning to become citizens. Forest teachers aim to eliminate negative stereotypes in the city's color-blind road policy by fostering respectful and harmonious relationships with the local black community. With the implementation of the hidden curriculum, schools are already teaching the reality of citizenship for black people, teachers have the opportunity to challenge stereotypes and empower students with anti-racist attitudes.

IV. CONCLUSIONS

In the article “Citizenship, ‘Race’ and the Hidden Curriculum” written by David Gillborn, a British education researcher, there are several important points: (1). The Hidden Curriculum. It should come as no surprise that many black people are suspicious of talk of citizenship. In education, what Tomlinson calls educational nationalism emerged in the 1980s, an ideology that argues that the presence of ethnic minorities with alien cultures is a threat to the one white culture and heritage. This perspective is central to the work of the New Right, which has had a significant impact on current education policy in the UK. (2). Schools implicitly teach black people a great deal about citizenship through the hidden curriculum. Many students are undoubtedly aware of the rights of their second-class community. (3). Racism in Education: The education system, like the justice system, often treats Black people more harshly than their white counterparts. Ethnicity is about a sense of who they are, but every time Afro Caribbean students showed their identity, they were treated differently by white teachers. In one case a white teacher claimed to have been attacked and thrown by an Afro Caribbean student and felt he had been hit by a black child. The school tried to come up with a solution and ignore the differences and see all students as equal, but what happened was that the Afro Caribbean students were seen as the source of the problem, criticized excessively and denied their voice. This indicates clear racist treatment. (4). Empowerment: Teachers have the opportunity to challenge stereotypes and empower students by applying anti-racist principles. Teachers play an important role in shifting common negative perspectives towards positive ones or those that are in line with reality. All of society, especially teachers who are at the forefront of education, have an obligation to eradicate this social disease. The discussion on citizenship is anything but academic, witnessing the deliberate and systematic removal of black people's right to enter the UK. Black immigration to Britain was severely restricted from the early 1960s The racist practices of white officials who questioned and humiliated potential migrants extended these formal restrictions further. (5). Challenges and Possibilities: This article highlights the powerful lessons taught through teachers' daily interactions with students. One of the pressing needs is to acknowledge and challenge the racism that operates in schools and society.

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Application of Analytical Hierarchy Process (AHP) As a Predictor of Repeat Patronage of Betting Brands among Youths in Southwest Nigeria

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ABSTRACT: The study evaluates how Analytical Hierarchy Process (AHP) can be used in predicting and ranking factors influencing repeat patronage of betting brands among youths in Southwest, Nigeria. In an attempt to achieve this, a descriptive survey design was chosen for this study through the administration of questionnaire in collecting data from the sampled population of the study. The study population is non deterministic, since it involves all youths participating in betting across Southwest, Nigeria and no official record of such participation exists anywhere in the country. The study made use of the ten most ranked physical betting platforms in Nigeria, viz: Betway, Parimatch, BetNaija, 1XBet, 22 Bet, Bet 365, Betwinner, Melbet, Wazobet and Nairabet as the study sample frame as well as youths of the six major cities across Southwest States in Nigeria. T he study population is 3,620 youths, in the proportion of 665, 852, 347, 508, 645 and 603 across the six cities chosen. The total population was considered as sample. Hence, an adoption of census sampling technique. The study found that, unemployment comes first, followed by love for sports, hope of winning in future, peer influence, promised bonus and technological advancement in that order.

KEYWORDS: Betting Brands, Unemployment, Lotto, Sports, Bonuses and Youths

1.1 INTRODUCTION

Gambling, otherwise referred to as betting, has become a widely recognised acceptable form of recreation, sporting activities and source of income for a teeming population of the modern society in the 21st century (Stucki & Rihs-Middel, 2007). Majority take betting as an enjoyable and harmless activity, while others view it as an alternative means of making additional income with little or no stress. Meanwhile, betting has over time become more of an addictive and problematic activity that comes with severe negative consequences. Most especially for the unemployed members of the society who now take solace in various betting centres as a place to resume duty everyday (Griffiths, Meyer & Hayer, 2009).

The betting industry has grown and evolved substantially in terms of market penetration and revenue generation. Betting exists in many forms, which vary in popularity among different groups and classes of people; broadly, it may take various forms including lotteries, casinos, gaming and pool betting. From time immemorial, the Nigerian betting industry has witnessed steady improvement, but from the year 2000, the industry has experienced rapid increase in activities with various new modes and facilities being introduced. By extension, as at 2014, there were estimated to be over 100 betting outlets in Nigeria, with close to 52 percent being located in Southwest Nigeria alone (Ayandele, Popoola & Obosi, 2020). Proliferation of betting has seen the industry diversify from the early betting modes like casino gambling and national lotteries to new modes like sports betting and online betting among various other forms. Specifically, sports betting have grown in popularity over the years and are currently the number one gambling activity in the country. As of 2015, thirty two (32) promoters had licenses for sports betting and/or slot machines; one promoter was licensed to conduct the national lottery. (Nigeria Ministry of Finance and Economic Development, 2015).

Gambling or pool betting is generally recognised as an avenue by which an individual stakes monetary value in anticipation of a predictive outcome of an event and in any occurrence whereby the predicted outcome comes true, the *staker* is usually entitled to an amount in excess of the value staked. However, if per chance, the outcome comes negative, the *staker* loses the value staked. Ordinarily, the risk attached to the possible outcome is a factor that should prevent repeat patronage, most especially, for anyone who loses. The fact that some people after losing in several attempts, would still continue to participate in same betting or even any other brand for whatsoever, is an issue that requires an in-depth analysis.

Contrary to the olden days, when sport betting or pool betting is associated with the aged, the act has crept and permeated the entire strata of livelihood, to the extent that, able bodied men freely participates in betting, without any recourse to the societal perception about the act of pool betting. In todays' world, what we tend to have is a generation of youths that are exposed to an environment that is occupied with ubiquitous knowledge on the how, where, when and what to gamble/bet on. In this case, betting, which is the answer to the "what" is being projected in a way that makes it look like an integral aspect of social life?

Looking at the study from the angle of currency and adequacy of literature, previous systematic reviews are considered as either not conducted in Nigeria and/or as those that do, do not capture the betting outlets targeted in this study. Thus, there is a need to also conduct a more systematic review of the concept for the purpose of synthesizing the disordered gambling trends and to equally analyse the comparative prevalence of factors influencing continuous patronage of betting activities in Nigeria. The prevalence of betting dominance amongst youths is also to be considered. Most especially when betting is being assumed to having higher population of the customers amongst youths in Nigeria. Consequently, the aim of this study is to also present an update of recent research work for factors responsible for pathological betting prevalence rates among youths across major cities in Southwest, Nigeria. One other major interest of this study is to see how Analytical Hierarchy Process (AHP) predicts extent to which youths patronise betting brands repeatedly in Southwest Nigeria.

2.1 REVIEW OF LITERATURE

Prediction and wager on the outcome of games/matches are known as sports betting. Positive attitudes toward sports betting may, in the long run, predict sports betting behaviour and gambling-related problems. This study, therefore, examined the influence of gender, age, sports betting knowledge and peer-based gambling on attitudes toward sports betting among young adults in Nigeria. Sports betting knowledge and peer-based gambling stood out as significant predictors of attitudes toward sports betting. The social circles of young adults may be the starting points for initiatives to develop healthy attitudes toward sports betting and preventing gambling-related problems. (Ayandele, Popoola & Obosi, 2020) A quantitative observational study was undertaken to examine the relationship between individual factors and level of gambling involvement, in particular problem gambling (PG). The specific factors under study were personality, perceived luck, and attitudes towards gambling (Calado, Alexandre & Griffiths, 2016).

Some people say that in betting, the person placing a stake has a better idea of what might happen than in gambling. In other words, gambling relies on pure luck while betting can benefit from research. With gambling, on the other hand, you have no idea what the outcome will be. In a casino, for example, I don't know what number will come up next on the roulette table. (Appiah, Anin-Agyei & Manu, 2016). However, the two words are often used interchangeably. Therefore, although technically their meanings might be different on paper, in real life they are virtually the same. Over the last decade, sports betting or gambling have gradually become a dominant part of the African sports culture, with many sports betting outlets having come into existence (Akanle & Fageyinbo, 2019).

A customer refers to a person who buys goods and services for personal consumption or use (Gainsbury, 2019). Patronage behaviour is the process of identifying factors customers look for in selecting a product or service. Furthermore, customer patronage precedes loyalty. Patronage comes from the desire to be committed to a good/service either based on its service quality or customer perception (Gainsbury, 2019). Consumer patronage behaviour is an important area for study, both in its own right and as prior to and affecting brand choice. The past decade has given rise to a more gameful world—a diffusion of game-like structures in everyday life (Gainsbury, Hing, Delfabbro & King, 2014; King & Delfabbro, 2020). The lives of today's young people are directly playing out within this digital sphere, where they are gambling online, playing gambling-style games through social networking sites and in video games, making in-game purchases, and betting on the outcomes of video games (Wardle, 2019).

In recent times, youths are becoming more addicted towards gambling. Incidentally, majority of these youths have knowledge of previous gambling activities. As such, they cannot be mistaken for a first timer (Ayandele, Oguntayo & Olapegba, 2021). The outcome of a study conducted among 3,879 youths in Africa revealed that "majority of the sampled youths, (54%) had indulged in gambling at some points (GeoPoll, 2017), while another poll indicated that 41% of 1,000 randomly selected youths in Nigeria had engaged in some form of betting" (NOIPolls, 2019). Similarly, report has it that, "more than half (57%) of high school students in Nigeria had previously gambled (Aguocha, *et al.*, 2019). "Youths of older age (over 24 years) are linked to positive attitudes towards gambling" (Ayandele & Aramide, 2020).

Arising from the various concepts reviewed in the course of this study, vis-à-vis the theoretical underpinnings therein, the subsisting relationship between the available variables of study as well as the concepts are as depicted in Figure 2.1 hereunder:

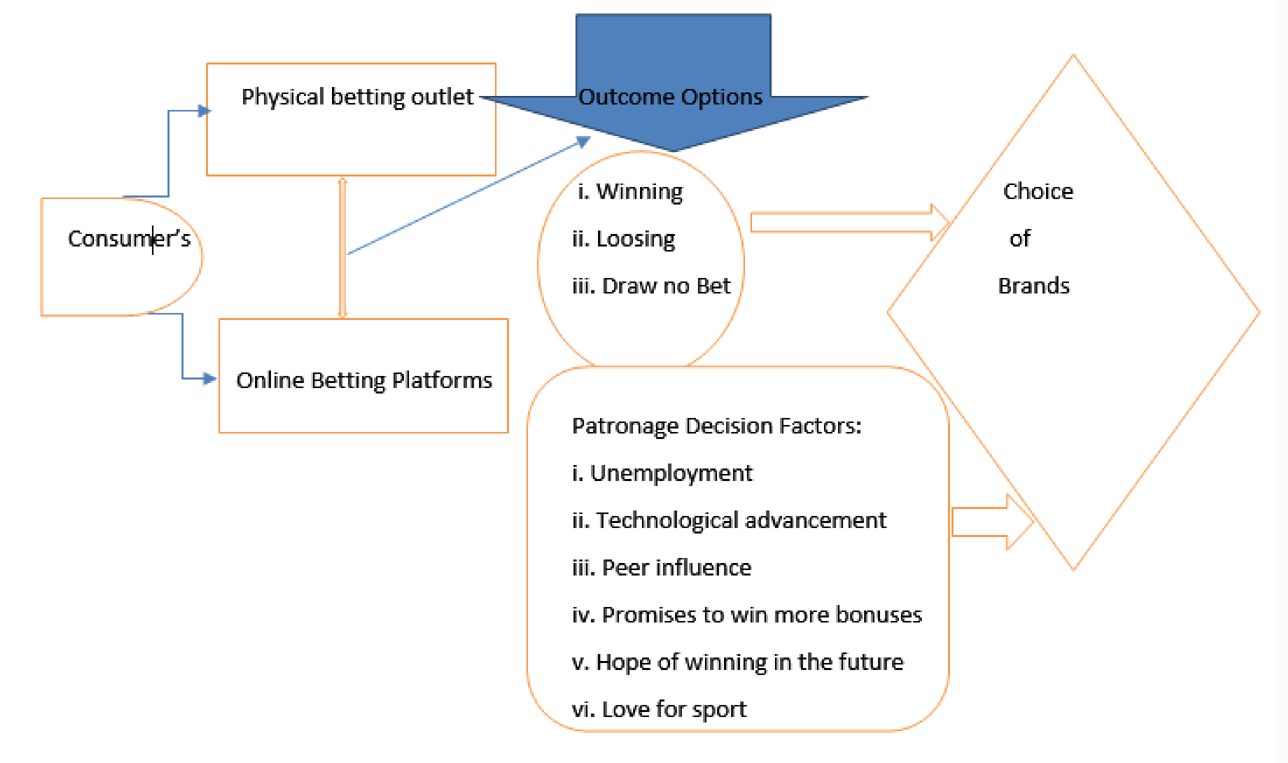

Figure 2.3: Conceptualised Framework for the Study
Source: Author's Compilation (2023)

Figure 2.1 depicts a simple decision making criteria for a betting exercise. In the first instance, consumers exist for the purposes of adventure and comparative of options to determine the best alternative option that maximizes expected benefits. To this end, two major options are available to any prospective customer whose interest is to make a decision concerning patronage of betting brands. These options are online and physical betting platforms. The next stage is to consider available winning options which range from winning to loosing and draw no bets. However, in taking patronage decision, a good number of factors are to be considered and they include, but not limited to: Unemployment, technological advancement, peer influence or wining by peers, promises to win more bonuses and the hope of winning in the future. It is expected that these factors in different propensity to influence are to determine the choice of betting brands and outlets to patronise by every rational customer.

3.0 METHODOLOGY

3.1 RESEARCH DESIGN

This study made use of a descriptive survey design in its methodology. The researcher chose the descriptive research survey because it is the most suitable for quantitative data collection through the administration of research questionnaire in collecting data from the sampled population of the study and the findings can be generalized. This study adopted the operations research model Analytical Hierarchy Process (AHP) to identify the most important criteria influencing the patronage decision of betting brands based on consumer's preferences and the most preferred betting outlets. The final outcome is a ranking of the decision alternatives, using the relationships of the criteria, alternatives, objectives and overall priority.

The approach was used to elicit responses to specific questions on betting brands (BB) and patronage decision (PD) amongst youths in the study area. The parameters used in measuring the independent variable were: Unemployment (U), Technological Advancement (TA), Promised Bonuses (PB), Peer Influence (PE), Hope of Future Winning (HfW) and Love for Sports (LS). Major brands of betting that are prevalent in the study area were included to adequately determine the patronage decision of the respondents. These outlets include:

i. Baba Ijebu Betting
ii. Pool Betting (Lotto)

iii. Betway
iv. Parimatch
v. Bet9ja
vi. 1XBet
vii. 22 Bet
viii. Bet 365
ix. Betwinner
x. Melbet,
xi. Wazobet and
xii. Nairabet

3.2 SOURCES AND TYPES OF DATA

The study evolves data from secondary source though an adaptation of a 6 points structured questionnaire to be divided into four (4) sections. Section A contains the demographic characteristics of the respondents; section B consists of question on the factor(s) for repeat patronage of betting; section C focuses on the sub-criteria of choosing betting platforms. Section D focuses on construct of patronage decision that contained questions suitable for AHP analysis. It includes information on the variants of patronage decision; which was measured using; Unemployment (measured by skillfulness and Literacy), Technological Advancement (measured by physical and virtual betting platforms) Promised Bonuses (measured by ordinary participation, bonus on credits and winning), Peer Influence (measured by relatives, friends and colleagues), Hope of Future Winning (measured by previous winning by friends, self-winning and winning by others) and Love for Sports (measured by supporters, recreation and hobby). The study adopted the constructs of Marakanon and Panjakajornsak (2017) like reliability and reward claimants to measure perceived quality of service delivery.

For suitable evaluation and analysis of the structured questionnaire in section D, the relative pair-wise comparisons were done by using the 1-9 scale recommended by Saaty 1= Equally important 3 = Moderately important 5 = Strongly important 7 = Very strong and proven important 9 = Extremely Important 2, 4, & 6 and 8 are reserved for the intermediate value between two adjacent judgments. Thus, 1 represent no difference between the two factors and 9 representing overpowering dominance of the factor under consideration (row factor in the matrix) over the comparison component (column factor in the matrix).

3.3 POPULATION, SAMPLE AND SAMPLING TECHNIQUE

The study population is non deterministic, since it involves all youths participating in betting activities across Southwest, Nigeria and no official record of such participation exist anywhere in the country. Howbeit, the study frame and observed average patronage per day over a period of one week and during different games and events were of useful advantage in estimating the study population. To this end, the following betting (physical) platforms were considered for this study: Betway, Parimatch, BetNaija, 1XBet, 22 Bet, Bet 365, Betwinner, Melbet, Wazobet and Nairabet. These betting platforms were arrived at as the commonly patronised amongst youths in Southwest Nigeria and amongst the twelve most ranked betting platforms by Nigeria Lotto in the year 2021.

The choice of betting centres were purposively selected on the convenience and possibility of survey, accessibility and influx of youths whose majority are students. To this end, Ikeja (Lagos State), Agbowo (Ibadan, Oyo State), Adebayo (Ado-Ekiti, Ekiti State), Oba Adesida Road (Akure, Ondo State), Lageere (Ile-Ife, Osun State) and Ojeere (Abeokuta, Ogun State) are identified betting spots across the selected States for this study. Therefore, from pilot survey conducted by the researcher, the average daily patronage at the selected betting centres for the study constitutes the estimated population of 3,720 made up of 650; 870; 450; 540; 580; and 630 across the selected betting centres and locations for the six States of Lagos, Oyo, Ekiti, Ondo, Osun and Ogun respectively.

However, considering the nature of the study and anticipatory degree of non-response rate, the total population was considered as study sample. Hence, adoption of census sampling technique. As a result, the reason for such anticipatory expectation of a high non-response rate is predicated on the fact that, losers on any day of survey might not be positively disposed to completing research instrument set out for the study. Hence, the study sample is estimated at 3,720**.**

The questionnaire were administered through personal distribution to the youths in the identified centres within the six (6) States across the Southwest Region of Nigeria, using purposive sampling technique. However, the researcher engaged the help of research assistants for the distribution where the researcher was not able to navigate easily due to proximity and for effective time management. The questionnaire was used to elicit responses from the respondents. Previous studies like Ramly, Ahmad and

Ahmadin (2004), Al-Jeraisy, Ariffin & Aziz (2012) used Six point Likert scales, as such, this study adapted the instruments' scaling method by modification of constructs in order to suit the purpose of the current study.

3.4 THE ANALYTICAL HIERARCHY PROCESS MODEL:

The general structure of the Analytical Hierarchy process model for this study entails three major hierarchical levels according to Saaty (2006) namely: Objective Identification (Goal); Criteria; Sub-criteria and The Alternatives to be decided Upon. In decision making, the smaller the difference is, the more consistent the judgment of the decision-maker would be (Adekoya & Oyatoye, 2011). In the AHP, the quotient of this difference over *n*-1 is defined as the Consistency Index (C.I.), which is the criterion for the consistency of judgments across all pair-wise comparisons" (Lootsma, 1991). The test of consistency is done by using the following formulas: CI = (λmax – n)/(n-1) .Where: $\lambda max = \sum_i w_i c_i$ (Maximum eigenvalue of the matrix) After acquiring Consistency Index (CI), the next step is calculating Consistency Ratio (CR) by using formula: $CR = \frac{CI}{RI}$

Where:

n = Number of items compared

W_i = Weight

C_i = Sum along column

CR = Consistency Ratio

CI = Consistency Index

RI = Random Consistency Index

The Random Consistency Index (RI) can be observed in Table 3.3.

Table 3.1: Table of Random Index

N	1	2	3	4	5	6	7	8	9	10	11	12	13
R.I	0	0	0.58	0.90	1.12	1.25	1.32	1.41	1.45	1.49	1.54	1.48	1.56

Source: Adapted from Saaty (2006)

If CR ≥ 10%, the data acquired is inconsistent, but, If CR < 10%, the data acquired is consistent

4.1 RESULTS AND DISCUSSIONS

Table 4.1: Summary of Socio-Economic Characteristics of the Respondents

Variable	Valid label	Respondents (%)	Total (%)
Gender	Male	584 (89.6)	652 (100)
	Female	68 (10.4)	
Age	17-20	97 (14.9)	652 (100)
	21-25	244 (37.4)	
	26-30	176 (27.0)	
	31 and above	135 (20.7)	
Marital status	Single	156 (23.9)	652 (100)
	Married	453 (69.5)	
	Separated	43 (6.6)	
State of Origin	Lagos	57 (8.7)	652 (100)
	Ogun	92 (14.1)	
	Oyo	89 (13.7)	
	Ekiti	101 (15.5)	
	Ondo	111 (17.0)	
	Osun	142 (21.8)	
	Others	60 (9.2)	
State of Residence	Lagos	120 (18.4)	652 (100)
	Ogun	108 (16.6)	
	Oyo	152 (23.3)	
	Ekiti	62 (9.5)	

	Ondo Osun	95 (14.6) 115 (17.6)	
City of Residence	Ikeja Ibadan Ile Ife Ado Ekiti Abeokuta Akure	120 (18.4) 108 (16.6) 152 (23.3) 62 (9.5) 95 (14.6) 115 (17.6)	652 (100)

Source: Field Survey, 2023

From the output of data analysis, it was found that, there are more male respondents than females, as 89.6% of the respondents were male while the female made up the remaining 10.4%. Significantly numbers of respondents were between 21-25 years and 26-30 years as 244 and 176 with 37.4% and 27.0% were between the ages of 21-30 years and 31 – 40 years, which were the age brackets within which the youth fall, while the remaining 14.9% and 20.7% were between 17 – 20 years and 31 years and above. Thus, just less than 15% and 21% of the total respondents were below 20 years old and above 31 years. This reflects the true characteristics of the environment in which the study was conducted

On marital status, majority of the respondents were married, due to the fact that many of the youth are within marriage brackets. One hundred and fifty-six (156) respondents (38.3%) are single, 163 (61.3%) were married, while 1 (0.4%) respondent out of the 266 is widowed. One hundred and fifty- six (156) respondents (23.9%) are single, 453 (69.5%) were married, while 43 (6.6%) respondents out of the 652 is widowed. The mix of single and married is very good for the study from the perspective of people who would have different needs and reason to patronise betting brand. It therefore shows that the result of this study will present a proper picture of the youth's evaluations of the Nigerian betting brand industry.

Table 4.2: Summary of Betting Behaviour

Variable	Valid label	Respondents (%)	Total (%)
Frequently patronised brands of betting outlets	Baba Ijebu Betting Pool Betting (Lotto) Betway Parimatch Bet9ja 1XBet 22 Bet Bet 365 Betwinner Melbet Wazobet Nairabet	43 (6.6) 43 (6.6) 25 (3.8) 26 (4.0) 50 (7.7) 51 (7.8) 68 (10.4) 68 (10.4) 67 (10.3) 76 (11.7) 76 (11.7) 59 (9.0)	652 (100)
Searching for information about a brand of betting outlet before choosing it	Always Never Sometimes Rarely	179 (27.5) 332 (50.9) 115 (17.6) 6 (4.0)	652 (100)
Patronise a particular betting brand	Yes No	562 (86.2) 90 (13.8)	652 (100)
Single most important factor for patronage decision	Unemployment Technological Advancement Peer Influence Love for Sport Promised Bonuses Anticipatory future winning	114 (17.5) 115 (17.6) 115 (17.6) 115 (17.6) 103 (15.8) 90 (13.8)	652 (100)

Frequency of betting brands patronage	Always Weekly 2 – 4 times a week 2 – 4 times a month	78 (12.0) 327 (50.1) 182 (27.9) 65 (10.0)	652 (100)

Source: Field Survey, 2023

From Table 4.2, the frequency analysis of the frequently patronised brands of betting reveals that Melbet and Wazobet with a total number of 76 (11.7%) each are the most frequently patronised brands of betting outlets by the respondents, while 68 (10.4%) patronised 22 Bet and Bet 365, 67 (10.3%) patronized Betwinner, 59 (9.0) patronised Nairabet, 51 (7.8%) patronised 1XBet, 50 (7.7&) patronised Bet9ja, and 43 (6.6%) each patronized Baba Ijebu Betting and Pool Betting (Lotto) respectively. 51 (7.8%) of the respondents patronized other brands of betting outlets like Betway and Parimatch respectively. Furthermore, while 332 (50.9%) of the respondents indicated that they never search for information about a brand of betting outlet before choosing it, 179 (27.5%) and 115 (17.6%) indicated that they always and sometimes search for information about a brand of betting outlet before choosing it. The rest 4.0% (6) of the respondents rarely search for information about a brand of betting outlet before choosing it.

In terms of patronising a particular betting brand, 562 (86.2%) of the respondents indicated that they normally patronise a particular betting brand, while only 90 (13.8%) do not normally patronise a particular betting brand. On the single most important factor for patronage decision, technological advancement, peer influence and love for sport with a total number of 115 (17.6%) each are the single most important factor that the respondents identified for patronising betting brands. This is followed by unemployment (17.5%), promised bonuses (15.8%) and anticipatory future winning is the least single most important factor that induced youths in the Southwest of Nigeria to patronise betting brands. The analysis of the responses to the frequency of betting brands patronised also revealed that while 327 (50.1%) of the respondents patronise betting brands weekly, 182 (27.9%) and 78 (12.0%) of the respondents patronise betting brands 2-4 times a week and always respectively. Only 65 (10.0%) of the respondents patronise betting brands 2-4 times a month. Thus, it shows that the respondents would be able to present a proper view of the betting behaviour of youths in the Southwest of Nigeria.

4.3 Examining How Analytical Hierarchy Process assist in analysing factors that influence repeat patronage of betting among youths in Southwest Nigeria

i. Comparison Matrices

The information on the comparison matrix constructed from the respondents' returned questionnaires is presented in this section. 13,040 comparisons matrices were obtained from the 652 responses. This includes each level of the hierarchy and the reversed judgment matrices where CR ≤ 10%.

ii. Reduced Matrices

For AHP approach analysis, the comparison matrixes for each respondent were reduced to 1 for each level of the hierarchy. Hence, the 13,040 matrices were reduced to twenty (20) comparison matrices (see Table 4.3) using 1/652 ratio based on the assumption that betting brand customers (youths in Southwest Nigeria) are equally knowledgeable about the factors that enhances the decision to repeat patronage of betting brands. The values obtained in the last column of Table 4.3 denoted by weight, also known as eigenvector, have a direct meaning in AHP. They determine the participation or weight of those criteria to the total results of the goal. Considering the criteria stated for the goal purchase decision of factors that enhances the repeat patronage decision of betting brands by youths in the Southwest of Nigeria, unemployment has a weight of 44.17% relative to the total goal, which states the repeat patronage of betting brand by youths in the Southwest, Nigeria. A positive evaluation on this factor contributes almost twice more than a positive evaluation on the hope of winning in future (28.34%).

Table 4.3: Reduced matrixes for the Repeat Patronage of Betting Brands Decision Goal

Decision Criteria	Unemployment	Technological Advancement	Promised Bonuses	Peer Influence	Love for Sport	Hope of Winning in Future	Weight
Unemployment	1.0000	6.5537	4.1876	7.2117	2.9897	4.3650	0.4417
Technological Advancement	0.1526	1.0000	0.2000	1.4197	0.5000	0.1140	0.0383

Promised Bonuses	0.2388	0.5000	1.0000	4.3878	1.5362	0.2500	0.1160
Peer Influence	0.1387	0.7044	0.2779	1.0000	0.2500	0.2000	0.0344
Love for Sport	0.3345	2.0000	0.5520	4.0000	1.0000	0.1667	0.0863
Hope of Winning in Future	0.2291	8.7741	4.0000	5.0000	6.0000	1.0000	0.2834
						Total	1.0000
λ_{max} = 6.5519	CI=0.1104	CR= 0.0883					

Source: Field Survey, 2023

Following the procedure of AHP there is the need to check for data inconsistencies. The main objective is to capture enough information to determine whether the youths in the Southwest of Nigeria who are customers of betting brands have been consistent in their choices. The inconsistency index (CI) is based on maximum lambda, which is calculated by summing the product of each element in the eigenvector (weight), by the respective column total of the original comparison matrix. Table 4.4 demonstrates the calculation of the maximum eigenvalue (also called maximum lambda (λ_{max})).

Table 4.4: The calculation of the maximum eigenvalue of the six criteria with respect to goal which states the patronage decision of consumers' of betting outlets

Decision Criteria	Unemployment	Technological Advancement	Promised Bonuses	Peer Influence	Love for Sport	Hope of Winning in Future
Eigenvector/priority weight	0.4417	0.0383	0.1160	0.0844	0.0863	0.2834
Column sum	Column sum	2.0937	19.5322	10.2175	23.0192	12.2759
Maximum eigenvalue (λ_{max})	λ_{max}= (0.4417*2.0937)+(0.0385*19.5322)+(0.1160*10.2175)+(0.0844*23.0192) +(0.2834*6.0957)= 6.5519					

Source: Field Survey, 2023

The test for consistency of youths of Southwest Nigeria decision to repeat patronage of betting brand criteria was carried out using the formula below:

$$CI = \frac{(\lambda Max - n)}{(n-1)}$$

$$CI = \frac{(6.5519 - 6)}{(6-1)}$$

$$= \frac{0.5519}{5} = 0.1104$$

In order to verify that the CI is adequate, Saaty (2006) suggests that what is called the Consistency Ratio (CR) is determined by the ratio between the CI and Random Consistency Index (RI). The judgment of the respondents is considered consistent if the result of the CR is less than 10%. The RI value is fixed and is based on the number of evaluated criteria as shown in the table below:

Table 4.5 Random Index Table

N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
R. I	0	0	0.58	0.90	1.12	1.25	1.32	1.41	1.45	1.49	1.54	1.48	1.56	1.57	1.59

Adapted from Saaty (2006)

If CR ≥ 10%, the data acquired is inconsistent

If CR < 10%, the data acquired is consistent.

$$CR = \frac{CI}{RI}$$

$$CR = \frac{0.1104}{1.25}$$

$$= 0.0883 < 9\%$$

Since CR value is less than 10%, the judgment is considered to be consistent.

Therefore, considering the eigenvector values/priority weight of purchase decision criteria, it is evident that the unemployment criteria have contributed 44.17% to the goal, whereas hope of winning in future contributes 28.34% to the goal.

Table 4.6 Reduced Matrix for Unemployment Criterion

Unemployment criterion	Level of Education	Acquired Skill	Weight
Level of Education	1.0000	6.9663	0.8745
Acquired Skill	0.1435	1.0000	0.1255
		Total	1.0000
λ_{max} = 2.0001	CI = 0.0001	CR=0.0000	

Source: Field Survey, 2023

In considering the sub-criteria of unemployment criteria, the eigenvector priority weight was computed (see Table 4.6). This shows the contribution of each sub criteria in relation to unemployment. Based on the sub-criteria of unemployment, level of education has a weight of 87.45% relative to unemployment criteria. A positive evaluation on this factor contributes approximately 7 (seven) times more than a positive evaluation on acquired skill (12.55%). Following the procedure of AHP there is needed to check for data inconsistencies. The main objective is to capture enough information to determine whether the youths of Southwest Nigeria who patronises betting brands have been consistent in their choices. The inconsistency index (CI) is based on maximum lambda, which is calculated by summing the product of each element in the eigenvector (weight), by the respective column total of the original comparison matrix. Table 4.7 demonstrates the calculation of the maximum eigenvalue (also called maximum lambda (λ_{max})).

Table 4.7: The Calculation of The maximum Eigenvalue for Unemployment Criterion

Unemployment criterion	Level of Education	Acquired Skill
Eigenvector/priority weight	0.8745	0.1255
Column sum	1.1435	7.9663
Maximum eigenvalue (λ_{max})	λ_{max} = (0.8745*1.1435)+(0.1255*7.9663) = 2.0001	

Source: Field Survey, 2023

The test of consistency was done using the formula below:

$$CI = \frac{(\lambda_{Max} - \mathrm{n})}{(n-1)}$$

$$CI = \frac{(2.0001 - 2)}{(2-1)}$$

$$= \frac{0.0001}{1} = 0.0001$$

In order to verify that the CI is adequate, as suggested by Saaty (2006), the CR is computed by calculating the ratio of CI and RI. The judgment of the respondents is considered consistent if the result of the CR is less than 10%. The RI value is fixed and is based on the number of evaluated criteria as shown in the Random Index table above.

$$CR = \frac{\mathrm{CI}}{RI}$$

$$CR = \frac{0.0001}{0}$$

$$= 0.0000 < 1\%$$

Since CR value is less than 10%, the judgment is considered to be consistent.

Therefore, looking at the eigenvector values/priority weight of sub-criteria of unemployment, it is evident that level of education has contributed 87.45% to the unemployment criteria, while acquired skill sub-criterion has contributed 12.55% to unemployment criteria in enhancing the youth in Southwest Nigeria decision to repeat patronage of betting brands.

4.4 CONCLUSION

From the AHP approach analysis, the study found that for the goal repeat purchase decision and factors that enhance repeat patronage decision of betting brands by youths in the Southwest of Nigeria, unemployment has the highest weight, which is almost twice more than a positive evaluation on the hope of winning in future; being the last factor. However, this study laid credence to the findings of Ssewanyana and Bitanihirwe (2018), addiction was said to be responsible for repeat patronage other than winning in the future sticks.

From the priorities of the criteria with respect to the main goal which is to understand factors that enhances repeat patronage of betting brands by youths in Southwest Nigeria, unemployment is ranked highest with priority 0.4417, next is hope of winning in future with priority 0.2834 followed by promised bonuses with priority 0.1160, love for sport with priority 0.0863, peer influence with priority 0.0844, while the least ranked factor is the technological advancement with priority 0.0383. The implication of this is that, whilst not having job could lead to repeat patronage, Technological advancement was seen as being minimally important in the scheme of repeat patronage of betting brands in Southwest Nigeria and specifically amongst the youths. This has no doubt altered the listing and ranking of these factors by Delfabbro and Thrupp, (2003). It is also understandable that this is no doubt the reason of the choice of sample frames (the youths).

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Causal Explanations and Risk-Taking Associated with Voluntary Skin Depigmentation in Cameroon

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ABSTRACT: For individuals, conforming to beauty standards sometimes requires body transformations such as voluntary skin depigmentation. Voluntary skin depigmentation is a growing phenomenon in society. The reasons given in the literature vary from country to country. The health, economic and social consequences have been reported in the literature. Although the harmfulness of this practice is well known, people continue to use it, even though they are sometimes well informed and aware of it, despite the fact that it is a behaviour that is considered risky for their health. To understand this risky behaviour, individuals put forward reasons that may explain it, thus providing a means of analysis. This study uses the semi-directive interview method. It is made up of men and women aged between 18 and 50 from the town of Foumbot, recruited using purposive sampling. The study shows that the reasons given for this practice are either internal or external to the individual. The results show that most of the respondents have a good knowledge of voluntary skin depigmentation and the meaning they give to it. This study shows that voluntary skin depigmentation is not only practised by women, even men use lightening products. Individuals would therefore do well to accept themselves as they are (self-acceptance), as this practice has health, economic and social consequences.

KEYWORDS : beauty criteria, voluntary skin depigmentation, risk behaviour, Foumbot, lightening products.

INTRODUCTION

Nowadays, one of the practices used to enhance beauty is voluntary skin depigmentation (VD). This has become increasingly widespread worldwide. Meeting beauty standards that value fair skin leads individuals to adopt the risky behaviours associated with the use of lightening products, despite the short, medium and long term health consequences. The use of depigmenting cosmetic products has become a health problem, particularly in many sub-Saharan African countries, as indicated by certain studies (Del Guidice et al., 2003). This study examines the psychosocial determinants that may provide an insight into individual motivations and the behavioural dynamics underlying this choice of behaviour, through the respondents' discourse. According to the French Health Products Safety Agency (AFSAAP, 2011), the extent of this phenomenon in today's society began in the 1960s and 1970s. Skin lightening was first seen as a physical practice, then a medical dimension was added.

The dangerousness of these products was recognised very early on, as early as the 16th century, but it was not until two centuries later that medical discourse made itself heard, leading to a ban on the use of certain whitening products (Lanoë, 2008). Because of hydroquinone's mutagenic potential in animals, Europe has banned the use of this lightening agent in cosmetic products (Mahé, 2010). We often think that only dark-skinned people use lightening products to whiten their skin. However, many articles mention Asians, Indians and Mexicans (Nakano, 2008) as also using this practice. Lightening products are sold in the form of soap, milk, cream, lotion or as an acne serum (Emeriau, 2009). Depigmenting agents come from both natural and chemical sources. The most commonly used active depigmenting agents are dermocorticoids and hydroquinone, used alone or, more often, in combination (Del Guidice and Pinier, 2002; Mahé et al., 1993; Pitche et al., 1998). Mercurial derivatives are also used in the form of soap (Kass, 2009).

Moreover, this practice has a significant economic impact, since large and small companies manipulate individuals to persuade them to buy their products through the media, which have a great influence on the public (Nakano, 2008). It should be noted that both men and women use depigmenting cosmetics (Didillon and Bounsama, 1986). In fact, although the harmfulness of this practice is known, individuals, even though they are sometimes well informed and aware of it, continue to use it despite the fact that it is a behaviour considered risky for their health. However, in the Cameroonian context, very few studies have attempted to explore the causes (external and internal) that lead to the propensity of this phenomenon, which is associated with risk-taking with health consequences (illnesses, skin infections, etc.), on the basis of what respondents have said. However, this information could provide a better understanding of the phenomenon of skin VD. Thus, it seems interesting to us to know: what are the causal explanations of VD provided from the discourse of the respondents in the Cameroonian context?

MATERIALS AND METHODS

The research design is based on a qualitative approach. This is based on the comprehensive paradigm and involves the use of individual semi-directive interviews. This method enables the researcher to give meaning to the data. The research took place in Cameroon, in the town of Foumbot. The study involved men and women aged between 18 and 50. Our choice was made in a reasoned manner to select the respondents who were to take part in the individual interview. Finally, we had a sample size of n = 08, including 04 women and 04 men. The sample size was delimited and determined by the criterion of empirical saturation of information, given that from the 9th informant onwards we no longer received any new information. In order to preserve the representativeness of the sample, we took two main criteria into account:

Inclusion criteria:

The inclusion criteria for participating in this study were as follows:

- To be a person living in the town of Foumbot;
- To have used or not used depigmenting products;
- To be aged 18-50 years;
- Be male or female;
- Agree to the interview

Exclusion criteria:

The exclusion criteria for not participating in this study were as follows:

- Being under 18 years of age
- Refusing to take part in the interview;
- Not living in the town of Foumbot.

Once we had made contact with the respondents, we agreed on an appointment (place and time). In most cases, the meeting took place at the respondent's home. The average length of each interview was 40 minutes. With the respondents' permission, the interviews were recorded, and we then transcribed the speeches. The transcriptions were made in order to carry out a good thematic content analysis, which made it possible to analyse the data from the field in order to extract the meaning that the respondents gave to the phenomenon of VD by paying attention to the participants' knowledge of the practice of VD; the internal and external causes; its consequences and the means of fighting against VD. In order to identify the respondents to the individual interviews in the text, we used the following codes: F= female; H= male with F#1 corresponding to interview #1, F#2 corresponding to interview #2, F#3 corresponding to interview #3, F#4 corresponding to interview #4, H#5 corresponding to interview #5, H#6 corresponding to interview #6, H#7 corresponding to interview #7, H#8 corresponding to interview #8.

RESULTS

The results indicate a number of reasons why VD is practised. The results also give an account of the participants' knowledge of VD and the harmfulness of this practice, as well as avenues of prevention to fight this phenomenon.

1. Respondents' general knowledge of voluntary skin depigmentation

Knowledge about the practice of skin VD concerns the information that respondents have about this practice. This knowledge mainly concerns the aesthetic aspects. One participant (F#1) felt that VD "is the fact that black skin turns into a light complexion through the use of lightening products". Another stressed that "stripping is the fact of adding 'the cube' to the beauty milk to make yourself more presentable so that, even if you're wearing a worthless loincloth, you shine more than the one with the rich basin in any case, I'm not joking about going to docta" F#3. This extract shows that lightening products for some in this locality are likened to "cube", which is a product used to season food to enhance its taste. "The use of lightening products is to remove stains such as pimples after shaving" H#8; so VD has a therapeutic purpose.

For H#7 " VD is when you voluntarily change the colour of your skin to have a fair complexion that corresponds to today's ideal of beauty". H#6 believes that "the use of lightening products is to cleanse the skin and become fresher or more beautiful". This suggests that the skin is dirty and to make it clean, you have to use stripping products to purify it. We had expected all the respondents to give a definition to the concept of VD, but this was not the case: "I know that when a woman is fair-skinned, she is naturally fair-skinned. I don't know the difference between a woman who is naturally brown and one who is not natural" (F#4). This participant's comments show that, unlike the others, she does not have a good knowledge of the practice of VD.

In the light of these statements, we can say that the participants have a fairly good definition of VD because this harmful phenomenon is not sufficiently publicised, which does not attract their attention. It is important to inform and educate people about this practice.

2. Causal explanations put forward to justify skin VD

The explanations put forward to understand the use of VD are cognitive activities that enable individuals to look for the causes of events. Heider (1958, p.82) says that "the result of an action is seen to depend on two sets of conditions, namely factors inherent in the individual and factors inherent in the environment". These causes may be internal or external to the individual.

2.1. External causes linked to VD

External causes relate to situations or the context of the environment. The best known are: imitation through conformism or following, the influence of close relations, advertising, the desire to seduce, social pressure, a bad climate, colonial heritage, self-medication, aesthetic concerns, family or religious events, and social recognition.

Imitation, family influence and advertising

This phenomenon can be explained by the various influences of family and friends, fashion, models and advertising, since people who change their skin colour do so by asking friends and family, salespeople or through advertising. One respondent said that "when I was walking with my girlfriend, she attracted more attention because she has fair skin, so she recommended her cosmetics to me to clean my skin" (F#2). The audiovisual media feature advertisements for skin-lightening products. They show images of fair-skinned people praising these products. Influenced by these advertising, many people use these products to look like the models. This is reflected in the comments made by respondents: "It's when a product is advertised in the media that I also buy it to try it out because the women in the advertising have a luminous complexion" (F#2). "It's through the stars who lighten their skin that we watch on TV and in magazines that some people strip to identify with them" (H#8). One respondent also said that: "People do the djansan (VD in Cameroonian jargon) because most of the stars and models featured in the media and especially on television are those with fair skin" (H#5).

Women do it out of competition and rivalry. The respondents' comments reveal that "my mother is in a polygamous household. In this climate of rivalry, women and children have to compete in terms of beauty and dress. The co-wives try to hold the husband's attention, while the children try to hold the attention of potential suitors who want to leave the house. So make-up is used to catch the husband's eye" (F#2). Moreover, the arrival of a potential rival encourages them to take care of their bodies, since: "when the husband wants to take another wife, you have to prepare yourself accordingly so that the new arrival doesn't turn you off" (F#3).

Beauty and seduction

For some people, having fair skin is a sign of beauty and cleanliness. In fact, a fair complexion is a seductive asset and a woman who practices VD is more attractive and therefore more courted. Here's what some respondents had to say: "What's astonishing is that even fair-skinned people do the djansan to be seen. This desire to become like white people will send them to the grave" (H#7); "Many people do it to become beautiful and fresh. I have to be like them too" (H#6); "Nowadays, people think that the lighter your skin, the more attractive you are considered to be" (F#4); "My husband often buys me lightening products to show my family and friends that he takes good care of me. I have to look after my complexion to always be beautiful" (F#3); "A friend told me that she lightens her skin to look fresh and pretty" (H#5); "I use lightening products to be more presentable, to please because a fair complexion is a beauty criterion nowadays. It's the complexion of the moment, the commercial complexion" (F#2). The commercial complexion means, in a way, the complexion that is expensive or the one that has more value in society.

Looking for a job

Many women are convinced that they will be more beautiful and attractive with fair skin and that this will guarantee them finding or keeping a job. Some employers have a preference for a fair complexion in their employees, as this respondent points out:

I applied for a job at a local business, but the boss told me he couldn't take me on because my skin isn't fair. So to get a job in a certain structure, you have to be fair-skinned naturally or not (F#1). This point of view emerges from the words of one of the interviewees who said: "When I was younger, I worked in a perfume shop and my boss asked me to clean my skin because a fair complexion would attract customers" (F#4). So, to attract customers, employees must be fair-skinned in certain structures.

Social pressure

Pressure from their partner pushes women to use lightening products, and sometimes it is their partner who pushes them to depigment. Saving the relationship then becomes reason enough to lighten the skin. This opinion emerged from the interview, one of whom remarked that:

Among us Bamouns (one cameroonian tribe), a fair-skinned woman has a better chance of getting married than a black woman, in my opinion. It's the men who encourage their wives to wear make-up; when a woman doesn't lighten her skin, the man looks at the lighter woman outside and even gives her money to buy the products. The woman has to save money to buy good cleansing milk, otherwise the man will look for another woman who will meet his expectations. Men encourage women to lighten their skin because they think that light-skinned women are the best (F#3).

The data also show that "mockery and derogatory remarks linked to a dark complexion through certain expressions such as being as black as one's heart; black as night; having a dirty complexion drive people to use lightening products" (F#3). An interviewee said: "My cousin had a complex because she was black and her sisters were fair-skinned, so she decided to scratch her skin" (H#8).

The bad climate

According to the people interviewed, the bad climate pushes people to use lightening products. Let's listen to what the respondents have to say: "I'm a motorbike taxis driver and you know that the sun spoils the skin. To keep a bit of freshness for outings with friends or my wife, I have to use products that cleanse the skin" (H#6). Another said, "The West has a bad climate because of the cold. To maintain my complexion, I always have to ask docta what I can use so I don't fall over. I get good advice" (F#3). "The climate in the west doesn't help people's skin, it actually damages it. To look presentable, I had to use serums and essential oils" (F#3).

Colonial heritage

The lightening phenomenon "is the consequence of prejudices which believe that a fair or white complexion is valued in society" (H#5). This opinion is in line with that of a respondent who stated that:

This practice can be seen as a consequence of colonisation because the colonists made the colonised people believe that white people were superior to black people in every way. The blacks, believing themselves to be inferior, put this into their heads. If we arrive somewhere these days with a white person, he will be served first or will get everyone's attention. So we have to change this mentality where everything is based on white people. Some people will say: "I do like a white person; I live like a white person; I eat like a white person". Slavery also diminished black people (H#7). So the superiority of the colour white during colonisation to subjugate black people has left its mark in such a way that everything they do is to get closer to white.

Self-medication

Other people resort to self-medication to get rid of pimples, as this respondent attests: "I have pimples on my body. I use lotion to get rid of them even though it makes me lighter, the main thing is to have smooth skin" (F#2). Another added that "some people use djansan to get rid of spots" (H#8). So for some, the practice of VD is therapeutic.

Family or religious events

The practice of VD is sometimes linked to family or religious events, as one respondent pointed out: "When I went on the pilgrimage to Mecca, I used lightening products to make myself more beautiful. I continued to use them in Mecca, and when I came back I looked like a 12-year-old girl (laughs). My skin was well cleansed" (F#3). That's why, "When a girl is preparing for her wedding, she has to use these products to look beautiful. As the climate damages the skin, my sister had to go to Douala for a fortnight to use the products, and when she came back a few days before the wedding everyone admired her complexion (F#2).

Social recognition

Skin VD is linked to social appearance. Discussions with respondents reveal this point of view in the following terms:

When you light your skin and it works, you go everywhere and people see you. Some people say that you have money and they respect you because it's not who wants it but who can. You have to put in a lot of money if you want to make a success of your "Nyanga" (F#2). Sheet metal work or djansan is a way of showing that one's social status has changed, like getting married, finding a job or earning a lot of money. Through the colour of their skin, these people want to be seen as having more value (F#1). Some men, to show that they can afford it, buy their wives or girlfriends paint strippers. Appearing with a fair-skinned woman in public shows that you're a capable man (H#7).

Looking for a partner

It is important to note that some women who are looking for a partner use lightening products, as this respondent said: I'm interested in everything you can do to make yourself beautiful and attract attention, like putting on nails, false eyelashes and why not use lightening products to clean your skin, especially when you want to find a partner (F#2).

2.2 Internal causes

Internal causes concern the individual's internal dispositions. They include low self-esteem, feelings of inferiority and feelings of invulnerability.

Low self-esteem

Because of a negative attitude towards themselves, some people lighten their skin in order to feel good about themselves. One respondent said: "Body disaffection drives people to turn to this practice" (H#8). The words of one respondent support this view. "I cleaned my skin because my complexion wasn't shiny and I didn't like it at all" (F#3).

Feeling of inferiority

In addition, "The feeling of inferiority compared to white people has something to do with it. Black people think that the colour black is synonymous with a curse and inferiority. So you have to change that skin. If you're light-skinned, they call you 'white', and if you're dark-skinned, they call you 'waxed black'" (F#4).

Feeling of invulnerability

People who lighten their skin feel that they have mastered the practice and are capable of doing so. One respondent argued that "you have to be capable when you start using lightening products" (F#3). Some people overestimate their state of health even after using lightening products, as the interviewees stated: "I can't have health problems because docta gives me the good products. What's more, I use expensive products" (F#3); "when you're in good health, you're not afraid to use lightening products. As far as I'm concerned, I don't have any health problems when I use these products. If I find that a product doesn't lighten my skin properly, I change" (F#2). "It's because people use lightening products incorrectly that it affects their health. I mix the products myself. So I can't worry about the consequences because I control the dosage" (F#2). These comments are in line with those of a respondent (F#1) who said that: " When it comes to make-up, people think it can't affect their health. My sister, for example, thinks that health problems that happen to other people can't happen to her because she uses the good products".

Others think: "Djansan is less dangerous than hepatitis. If you use these products in moderation, you risk nothing" (F#3). Those who use djansan think that the negative effects only happen to others. They don't take precautions" (F#4). Because "Everything that happens is God's will. Even those who don't use lightening products die or get sick. I believe in God, I'm not afraid of anything. I don't care what people say or think about me" (F#3). One respondent pointed out that:

When you decide to do your own thing, you mustn't be ashamed of other people's opinions. I don't like it when people talk about me. I wear my trousers and they're what they're for! To each his own choices and his own life. There's an adage that says "nothing ventured, nothing gained". I'm not worried about falling ill, I don't exaggerate when I use lightening products. So nothing can happen to me. If it does, I'll deal with it (laughs) (F#6). People who wear make-up feel that nothing serious can happen to them if they strip because if a person is aware of the health problems that make-up causes, they will stop using lightening products. The feeling of invulnerability can lead individuals not to take precautions when using lightening products. Individuals who feel invulnerable are under the illusion that they are in control of the situation when they use lightening products, which leads them to adopt risky behaviours that mean they are taking a health risk.

3. Knowledge of the consequences of voluntary skin depigmentation

The consequences of skin lightening are physical, social and economic.

3.1 Physical consequences

The physical consequences include skin fragility, the appearance of stretch marks, skin diseases, uneven skin tone, facial hyperpilosity and so on. These consequences are expressed in the words of respondents: "The 'djansan' destroys the skin's cellular structure, which encourages thinning, leading to skin diseases (H#7). The complexion becomes uneven, like face fanta, foot coca as they say. Generally, these lightening products cause nauseating body odour, especially when it's hot (F#1). "I have large stretch marks on my arms" (F#3). Another argues that "I've read about the diseases that djansan causes: diabetes, pimples, blood and skin cancer" (F#4). Practising VD thins the skin. One respondent said: "Recently my aunt died after a surgical operation because her fragile skin couldn't take the stitches. The wounds don't heal quickly" (H#7). "My neighbour has a beard like a man, it's not a pretty sight" (H#5). "Some lightening products give you pimples on your face and sometimes all over your body" (F#3).

3.2 Social consequences

The social consequences are linked to mockery and stigmatisation of skin lightening practitioners. The extracts from the speeches underline them in these terms: "sometimes when a woman has done the djansan, in passing, people shout sheet metal, it's called sheet metal when the make-up fails and the person forces and ends up looking like a toy...the skin colour becomes weird" (H#7). Another argues that: "People who take off their make-up become yellow like a taxi, like rotten papaya" (F#1). "People with multi-coloured skin make fun of them by saying 'face fanta- foot coca' because their complexion isn't uniform. It's often said that these people have dual nationality because of their multicoloured complexion" (H#5).

3.3 Economic consequences

The economic consequence relates to the cost of VD. The respondents emphasised this in the following terms: To avoid darkening. You have to apply these products every day all over your body. These products are getting more and more expensive. Sometimes you ration the woman instead of giving priority to nutrition, she prefers to go to the market and save money to buy lightening products (H#7). The products are getting more and more expensive, but you make do. Hmmm, I prefer to go without eating and buy my products because if there's a shortage, my complexion will fade and it will be difficult to get it back (F#3). The products my older sister uses are expensive. She can spend around 25,000 CFA francs a month on serums, complexion correctors, lightening essential oils and lotions (F#1).

In addition to these consequences, there is a psychological consequence related to dependence on lightening products. One respondent stated that: It's difficult to stop buying lightening products because you have to look after your skin so that it doesn't go downhill and get darker. I want to have clearer, more even skin. That's why I often change lightening products to find one that works, even if it's not good for my health, as people say (F#3). Another argues that: "To maintain your complexion, you have to apply lightening products repeatedly every day. Wet is wet". (F#2).

4. Knowledge of prevention of voluntary skin depigmentation

In their speeches, the respondents advocated preventive measures to fight against VD. We have selected individual and collective prevention.

4.1. Individual prevention

This prevention involves encouraging the use of non-lightening cosmetic products and the preservation of the skin's natural colour. We have selected a number of statements made by respondents on this subject: women should keep their natural skin colour. VD is a bad practice that has short, medium and long term health consequences. Beauty is internal, not external as some people think. To remain natural, use non-lightening soaps (H#5). Some women claim to use these products to treat pimples on their face, but that's no reason to strip themselves. I had pimples on my face and I didn't strip. To remove them, I rubbed my face with the aloe vera serve, which removed the pimples. Natural products are very effective in treating skin diseases and don't put our health at risk (F#4).

4.2. Collective prevention

This refers to collective action. Education from an early age is important in that: If we start teaching the importance of keeping one's natural skin colour from nursery school onwards, there is a good chance that, knowing the harmful effects of stripping, the new generation will refrain from practising it (H#7). One respondent made this point clear in her speech: for example, we need to include a lesson in the science curriculum at primary and secondary school that talks about the consequences of skin lightening, emphasising the importance of keeping the skin natural (F#4).

In the light of these data, it is important, as the interviewees attest, to think about education in schools, which is the place by excellence for changing risky behaviour in favour of healthy behaviour.

Advertising on television, radio, social networks and in magazines seems to encourage the use of these products. However, they can also be effective means of raising public awareness of the harmfulness of lightening products. This opinion emerges from the comments made by the interviewees, one of whom stated that: "even if it's in the media that we discover stripping products, we must use these same media to raise public awareness of the dangers of this practice" (F#1).

It also appears from the comments of the interviewees that raising awareness at local level would be best. Some women do stripping because they don't know that it has serious consequences. I say to myself that if we inform them by raising awareness in markets, neighbourhoods, schools, mosques and churches about these consequences, the majority will give up and those who wanted to start will give up (H#7). What's more: "Some people don't watch TV or listen to the radio (...) Others can't read or write. So being close to the public to inform them is a good thing" (F#4). It would therefore be wise to run national information campaigns on the dangers of using these products, encouraging information in mother tongues so that even illiterate people can be informed about this practice. It is important to raise awareness in religious circles: even in churches and mosques, men of God need to raise awareness about make-up, stressing the need to keep skin natural. When you take off your clothes, it's as if God had created you ugly and others beautiful, but God doesn't discriminate between his children. Each child has his or her own assets. You have to keep your natural complexion (F#4).

Respondents also mentioned that: "The Ministry of Public Health should share leaflets showing the harmful effects of skin lightening to discourage women and men from this practice" (H#5). In addition, "institute a national or even international day to fight against VD" (H#4). Another respondent suggested that: "the Ministry for the Promotion of Women and the Family and the Ministry of Social Affairs should set up awareness-raising caravans" (F#1). In addition, "Awareness-raising must start in families" (H#7). The data also indicate interventions such as: banning or regulating the import of cosmetic products, seizing and destroying dangerous and illegal cosmetic products. Respondents believe that: "the government must regulate the entry of cosmetic products into Cameroon" (F#4). We urgently need to ban advertising for lightening products. Individuals who put people's lives at risk in order to make money from the products they themselves prepare should be sent to prison (F#1). Ask the people in charge of TV channels to stop showing adverts for skin-lightening products. If they persist, they will pay the fines set by the government for non-compliance. Only advertisements that promote women with natural skin and that enhance the value of the African woman should be retained (H#5). Sometimes counterfeit medicines are burnt. The government should do the same for cosmetic products that enter the country any old how (F#5).

DISCUSSION

The aim of this study was to identify the causes (external and internal) that individuals put forward to explain their recourse to VD, based on what the respondents had to say.

The results show that most of the respondents have a good knowledge of VD and the meaning they give to it refers to the definition given by Petit (2005) since the aim of VD is to reduce or eliminate melanin from the skin in order to obtain fair skin. One respondent was unable to define the concept of VD, hence the need to inform the population about this phenomenon (Douzima, 2009; Mahe et al., 1994). This study indicates that VD is not only a female practice, even men use lightening products. This finding corroborates those of some researchers (Kouotou et al., 2019; Nyiragasigwa, 2021). With regard to the causes of VD use, our result can be interpreted with reference to the theory of causal attributions (Heider, 1958). The latter postulates that individuals have a strong need to predict and control their environment and more particularly the behaviour of others. "In common-sense psychology (as in scientific psychology), the result of an action is seen as dependent on two sets of conditions, namely factors inherent in the individual and factors inherent in the environment" (Heider, 1958). Thus, the causes of a phenomenon may be external or internal to the individual. This explains the external and internal causes of the use of VD mentioned in the study.

The causes that drive individuals to resort to the practice of VD are many and varied based on multiple social interactions (Mayoughouo, 2014; Mayoughouo and Wamba, 2017). Our results show that individuals who lighten their skin do so because of various influences from those around them, through advertising, following fashion or imitation, since in this city, having a fair complexion has become something of a social norm of beauty. This reflects the influence of those around her, which emerges in the words of one respondent who said "when I was walking with my girlfriend, she attracted more attention because she has fair skin, so she recommended her cosmetics to me to clean my skin" (F#2). Petit (2006) also mentions "[...] imitation or advice from a friend or cousins, a request from a romantic partner, the desire to seduce, preparation for a big party (christening, wedding, etc.)". The media and advertising, as well as popular and fashion personalities, also have a strong influence on the desire to lighten he skin (Emeriau, 2009). Our results also reveal these motives. We also note in this study that for some people VD is practised for therapeutic purposes. These results are in line with those of Asumah et al. (2022).

Spousal pressure encourages the use of VD. In other words, some men like fair-skinned women and for this reason they buy the lightening products for their wives themselves. The results also show that social appearance plays a role in the practice of VD, since having a fair complexion attracts attention in society. Vigarello (2008) states that having beautiful fair skin means 'shining in society', possessing the 'prestige of luminous beauty'. The seduction of men appears in this study to be one of the reasons for resorting to VD. This desire to seduce men is sometimes synonymous with looking for a husband. This finding is echoed in the study by Raynaud (2001), who estimates that the age of women who practice VD is generally during adolescence and adulthood, because women express a desire to marry. This finding suggests that, in the locality where we conducted our study, the notion of marriage is paramount, since it is not appropriate for a woman to remain with her parents without getting married at a certain age. This would push women to resort to VD in order to be desired by men. In a study carried out in Dakar, 7% of women who used depigmenting products said that their husbands encouraged them to use them or that they did so to prepare for marriage (M'rabet Hanen, 2016). Some of the women interviewed practised depigmentation because they were in a polygamous household where there was rivalry (Mahe et al., 1994), with co-wives competing to be the husband's favourite. M'rabet Hanen (2016) goes in the same direction, pointing out that many black women initiate or radicalise the practice when their husband marries a second or even third wife.

The results of this study show that some men resort to this practice in order to be presentable and to please. These results are in line with those of M'bemba-Ndoumba (2004), who reveals that: "I depigment to be more beautiful and therefore less black"; "to seduce, because a fair complexion is a criterion of beauty for us Congolese". We note from this study that some people depigment their skin because of body disaffection in order to "get rid of what causes shame, the loss of self-esteem leading to self-hatred" (Kouassi, 2016). The respondents stressed that this practice can be seen as one of the consequences of colonisation, since the colonists had led the colonised peoples to believe that whites were superior to blacks in every way. For this reason, many blacks sought a fair complexion. Beauty is associated with whiteness, so having fair skin is a kind of ideal beauty. Thus, white superiority leads to black inferiority (Fanon, 1952).

Furthermore, Mahé et al. (1993) consider that "cosmetic depigmentation [is not] the expression of a complex linked to a devaluing perception of black skin in reference to a Western racial typology", since some studies show that the main motivation of the actors is aesthetic (Mahé et al., 1993; Ly et al., 2007). The results of this study indicate that despite the harmfulness of this practice, many people continue to resort to it because of the feeling of invulnerability that leads individuals not to adopt self-protection behaviours by using lightening products. In addition, the individual feels invulnerable and has the illusion of being in control of the situation when using lightening products. Mbaye and Kouabenan (2013) point out that when people feel invulnerable to risks, they are not motivated to take precautions to protect themselves.

With regard to the consequences of VD and the means of fighting it, we can say that the respondents in this study have a fairly good knowledge of the subject. Analysis of the data shows that the side effects mentioned in the data are skin brittleness (AFSAAP, 2011), non-uniform skin colour, stretch marks (Morand et al., 2007), skin cancer (Petit, 2006) and the fact that the skin gives off a bad smell (Mihamle, 2010). However, general consequences such as diabetes, arterial hypertension, adrenal insufficiency and intoxication of the newborn during breastfeeding, and low birth weight of the baby (AFSAAP, 2011) have not been mentioned, hence the need to raise awareness of the harmfulness of this practice to limit or even discourage those who aspire to take up the practice. The results also point to the need for preventive measures such as banning or regulating the import of cosmetic products and destroying dangerous and illegal cosmetic products.

CONCLUSION

The aim of this study was to evaluate, on the basis of the respondents' speeches, the elements that might make it possible to identify the causes that individuals put forward to explain their recourse to VD. From the content analysis, we were able to identify the respondents' level of knowledge about VD in order to ascertain whether or not it was a phenomenon that was unknown to them; to determine the causes that the respondents put forward to justify their recourse to VD; to determine the consequences of VD and to identify the strategies for preventing VD from the respondents' discourse.

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The Influence of School Culture, Flagship Programs, and School Management on Quality of Education at Citra Bangsa Mandiri Christian Junior High School in Kupang

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ABSTRACT: This study aims to analyse the influence of school culture, flagship programmes, and school management on the quality of education at Citra Bangsa Mandiri Christian Junior High School in Kupang. The research employs a quantitative methodology, providing a causal analysis design to examine the influence of independent variables on the dependent variable. The sample consists of teachers and staff at Citra Bangsa Mandiri Christian Junior High School in Kupang. The sample is a saturated one, comprising 57 individuals, with data collected through a closed questionnaire using a Likert scale and analysed using SPSS software. The results indicate a significant influence of school culture, flagship programmes, and school management on the quality of education, both simultaneously and partially. Furthermore, the findings also reveal that flagship programmes have a dominant influence in improving educational quality.

KEYWORDS: School Culture, Flagship Programs, School Management, Quality of Education, Educational Management.

I. INTRODUCTION

Education is a conscious effort aimed at assisting individuals in the learning process. Through learning, one can acquire new knowledge, maximise their potential, and enhance positive traits. This aligns with Fuad's (2005) definition, which describes education as a human endeavour to improve personal aspects through the development of spiritual potential such as thinking, creativity, emotions, creation, and conscience. As emphasised by Damanhuri (2014), education is crucial for improving human resource quality to ensure competency and competitiveness on a global scale. According to Hasbullah (2005), factors such as motivation, self-directed learning, facilities, teacher quality, and parental roles influence the quality of education in Indonesia. It is vital for teachers to meet competency standards and enhance educational quality in line with educational development goals.

School culture is also an important component. It refers to the collection of values, norms, beliefs, habits, and practices present within the school environment. It encompasses how the school operates and how individuals within the school community interact with one another. As stated by Zamroni in Oktaviani's (2015) research, school culture refers to the set of values, principles, traditions, and habits that form over time within a school, accepted and practised by the entire school community, and influencing their attitudes and behaviours. Zamroni emphasises that culture is crucial in the context of a school as an organisation. According to his view, schools need not only to survive, grow, and adapt to their environment but also to build internal integration that enables them to produce high-quality individuals or groups. Therefore, a set of basic assumptions should be shared by all members of the organisation, including the school.

Schools with flagship programmes can enhance their overall reputation and attract new students. These programmes aim to provide a competitive edge, improve educational quality, and create a positive identity for the school in various fields such as academics, arts, sports, character, and special skills. School leaders need to consider internal potentials such as teacher quality, staff qualifications, and physical facilities when designing strategies to improve the school's quality, in line with trends and community preferences as outlined by Navy (2013).

Good school management is essential for overseeing all aspects of education. Schools can achieve their goals by directing and optimising the use of resources such as teachers, students, and facilities. Mulyasa (2014) states that school management is a conscious, organised effort to plan, direct, organise, and control school activities to achieve educational objectives. Bush and

Glover (2014) describe school management as the art and science of organising primary and secondary education through planning, organising, directing, and controlling organisational aspects. This is crucial for improving educational quality.

Human resource management, particularly in the context of schools, focuses on managing teachers and educational staff. Schools achieve this by recruiting, developing, and retaining competent personnel to support student development within the learning environment. Financial management is also important for wisely managing the budget, seeking additional funding sources, and prioritising the use of funds to enhance teaching quality. With these extensive responsibilities, school management plays a crucial role in improving educational quality at all levels.

Citra Bangsa Mandiri Christian Junior High School in Kupang is one of the private schools in the city that implements modern educational concepts. Their goal is to develop students with Christian character and to prevent various forms of criminality prevalent today, as well as to ensure their graduates have the competencies to compete in the real world. To achieve these goals, they continuously strive to enhance overall educational quality, including lesson quality, the number of students they can accept, and updating facilities with the latest technology. The school has received recognition for its achievements in various city, provincial, and national competitions. Therefore, this study will focus on analysing the influence of school culture, flagship programmes, and school management on the quality of education at this school.

II. METHODS

This study employs a saturated sampling technique due to the population size of 57 individuals, comprising teachers and staff within Citra Bangsa Mandiri Christian Junior High School in Kupang. The research also utilises two types of data. Firstly, primary data obtained from distributing questionnaires to respondents to gather accurate field data using a Likert scale within a closed questionnaire. Secondly, secondary data acquired from school documentation as supplementary material for the study. This research uses a causal research design aimed at analysing the interactions or influence of independent variables on the dependent variable. Additionally, to examine the variables, indicators, and items, classical assumption testing using SPSS and multiple regression analysis will be conducted to obtain accurate results on the research variables.

III. RESULTS

A. Respondent Characteristics

The number of respondent used in this study is 57, based on age, gender, and educational level. The description is shown in the table below:

Table 1. Respondent Characteristics

Respondent Characteristics		Frequency	Percentage
Age	20 – 30 Years	21	37
	31 – 40 Years	32	56
	41 – 60 Years	4	7
Gender	Male	36	63
	Female	21	37
Education Level	Bachelor’s Degree (S1)	51	89
	Master’s Degree (S2)	6	11

Table 1 shows that the majority of respondents are aged between 31 and 40 years, comprising 32 individuals, or 56% of the total. Those aged 20 to 30 years consist of 21 individuals, or 37%, while those aged 41 to 60 years make up 4 individuals, or 7% of the total respondents. Furthermore, most respondents are male, numbering 36 individuals, or approximately 63%. Female respondents total 21, or around 37% of the overall respondents. Additionally, the majority of respondents hold a Bachelor’s degree (S1), amounting to 51 individuals or about 89%, while 6 individuals, or approximately 11%, hold a Master’s degree (S2).

B. Validity and Reabilty

Validity and reliability tests are used in this study to achieve accurate and trustworthy results. The results from these tests show that each indicator used is valid and reliable, as they produce results smaller than the significance value of 0.005. Therefore, the data is considered valid and suitable for analysis.

C. Hypothesis Testing

Hypothesis testing in this study was conducted to evaluate the influence of school culture, flagship programmes, and school management at Citra Bangsa Mandiri Christian Junior High School in Kupang. Testing was performed using F-tests and t-tests to analyse the influence of these variables. The results of the F-test indicate that the calculated F value is 6.228 with a probability of less than 0.05 (0.000 < 0.05), indicating that the three variables significantly influence the quality of education, thus the null hypothesis (H0) is rejected and the alternative hypothesis (H1) is accepted.

In the partial t-test, the variables of school culture, flagship programmes, and school management all showed calculated t values exceeding the t-table value (1.675) and significance values below 0.05, indicating a significant influence on the quality of education. Among these three variables, school culture has the dominant influence with the highest coefficient of 0.189, compared to flagship programmes (0.168) and school management (0.186). This suggests that school culture is the dominant variable with a significant influence on the quality of education at the school.

IV. DISCUSSION

In this study, three variables were used to evaluate efforts to improve the quality of education at Citra Bangsa Mandiri Christian Junior High School in Kupang. The variables are school culture, flagship programmes, and school management. The following are the results of the research conducted at Citra Bangsa Mandiri Christian Junior High School in Kupang:

1) The Simultaneous Influence of Variables (X) on Variable (Y)

The analysis results show that the variables School Culture (X1), Flagship Programmes (X2), and School Management (X3) have a simultaneous influence on the quality of education at Citra Bangsa Mandiri Christian Junior High School in Kupang. Hypothesis testing reveals a significance value of 0.000, which is equivalent to 0.005. The coefficient of determination (R Square) is 0.760, indicating that the combined influence of School Culture (X1), Flagship Programmes (X2), and School Management (X3) accounts for 76.0% of the variation in Educational Quality (Y). The remaining 24% is influenced by other variables not included in this study.

2) The Influence of School Culture (X1) on Educational Quality (Y)

The variable of school culture (X1) significantly influences the quality of education at Citra Bangsa Mandiri Christian Junior High School in Kupang, with a significance value of 0.024. This finding is supported by research conducted by Zubaidah (2015) in the study "The Influence of School Culture and Teacher Work Motivation on the Quality of Education at SMKN 1 Pabelan." The study explains a correlation of 0.676 between school culture and educational quality, categorised as a moderate relationship. Mayer and Rowen, as cited in Jamaluddin (2008), emphasise that school culture guides educational activities and is a key element of an educational institution's success. A strong school culture not only creates a productive learning environment but also contributes to overall effectiveness improvement. Therefore, the more positive the school culture, the better the quality of education.

3) The Influence of Flagship Programmes (X2) on Educational Quality (Y)

The variable of flagship programmes (X2) has a significant influence on the quality of education at Citra Bangsa Mandiri Christian Junior High School in Kupang, with a significance value of 0.030 < 0.05. This finding is also supported by a study conducted by Hayudiyani (2020), which shows that the implementation of headmaster strategies to improve educational quality through flagship programmes has a significant positive influence on educational quality. According to Darling-Hammond (2010), schools that implement innovative programmes, both academic and non-academic, tend to have higher educational quality. Quality flagship programmes can enhance students' potential and prepare them to face real-world challenges, thus the quality of education produced aligns with the quality of the implemented flagship programmes. In other words, the better the flagship programmes, the better the educational quality produced.

4) The Influence of School Management (X3) on Educational Quality (Y)

With a significance value of 0.017, the variable of School Management (X3) has a crucial direct influence on the quality of education at Citra Bangsa Mandiri Christian Junior High School in Kupang. This finding is supported by research conducted by Fenia & Monika (2022) on the influence of school management on the quality of education in primary schools, which shows that school management positively contributes to educational quality, with a reliability test level of 0.864, exceeding the expected value of 0.497. Robbins (2010) supports this concept by stating that effective school management is a crucial element in improving educational quality. Management effectiveness includes human resource management, intelligent decision-making, and creating a conducive learning environment. Thus, the quality of school management is positively related to the achieved educational quality.

5) Dominant Variable

The results of the multiple regression analysis show that School Culture (X1) with a coefficient of 0.189, Flagship Programmes (X2) with a coefficient of 0.168, and School Management (X3) with a coefficient of 0.86. Figure 5 displays the complete results of the multiple regression analysis. Overall, the findings of the analysis and theoretical support confirm that School Culture (X1) is the primary factor influencing the quality of education in this study.

V. CONCLUSIONS

Based on the results of the research and discussions conducted, it can be concluded that the quality of education at Citra Bangsa Mandiri Christian Junior High School in Kupang is influenced by school culture, flagship programmes, and school management. The research shows that school culture has a dominant influence on the quality of education, creating a conducive learning environment and shaping students' characters in line with the school's vision and mission. Balanced flagship programmes addressing both academic and non-academic needs also play an important role in supporting the improvement of educational quality. Additionally, effective school management significantly contributes to creating a better teaching and learning process. Overall, the improvement of educational quality can be achieved through strengthening school culture, implementing holistic flagship programmes, and ensuring good school management.

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Enhancing University Students' Interest in Learning and Creativity Through A Project-Based Learning Model with Instagram Reels Media

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ABSTRACT: Generation Z students urgently need innovative learning because they have a low interest in learning and creativity. This study aims to increase students' interest in learning and creativity through a project-based learning model. This mixed research consists of qualitative and quantitative data from a population of 48 students. The results showed an increase in student interest in learning and creativity after the Instagram reels project-based learning model was implemented, with the percentage of interest in learning reaching 85% and the average value of creativity reaching a score of 92, where both were in the outstanding category. These results are supported by observations and interviews that show students' enthusiasm in working on the Instagram reels video project to the maximum. Based on the results of the study, it is recommended that in the future, there is a need for analysis of innovative learning models that provide space for students on campus to be able to selfactualize through the development of their generation.

KEYWORDS: Project-based learning, learning interest, creativity

I. INTRODUCTION

Education is a primary global priority. Consequently, education consistently undergoes modifications, advancements, and enhancements in alignment with progress in all domains of life. Indonesia prioritizes the attainment of sustainable development by focusing on providing fair and high-quality education, as well as expanding possibilities for lifelong learning for all individuals (Bappenas, 2022).

Currently, the progress of education should align with the requirements of Generation Z, also known as Gen Z (1995-2010). Generation Z is the inaugural cohort to be introduced to technology at a young age. The technology manifests itself through computers or other electronic devices, such as cell phones, internet networks, and even social media platforms. Subsequently, Generation Z emerged and matured alongside the social web, with a strong focus on digital and technology as integral components of their identity (Singh & Dangmei, 2016).

Based on figures provided by the Indonesian Internet Service Providers Association (APJII), the internet has been accessed by 78.19 percent of the population in Indonesia as of 2023, which amounts to 215,626,156 individuals out of a total population of 275,773,901. According to APJII's report in 2023, the age group of 13-18 years shows the most preference for browsing the internet, followed closely by the age group of 19-34 years. According to this evidence, the majority of internet users belong to the Gen Z demographic.

The project-based learning method is perceived as having the ability to address these challenges. In their study, Salam and Wahyuni (2021) examined the effectiveness of employing a model project-based learning approach centered around infographics in the Pancasila course. The evidence indicates that this strategy enhances pupils' abilities in creative and critical thinking. The data reveals that the capacity for innovative thinking has risen to 91.1 percent, whilst the capacity for analytical thinking has risen to 80.4 percent. In addition, Gunawan et al. (2017) found that the utilization of virtual media in project-based learning has a substantial impact on enhancing students' creativity in the field of physics. Project-based learning has been empirically demonstrated to be efficacious in enhancing student engagement and fostering creativity.

Project-based learning is an instructional approach that imparts to students the skills and knowledge necessary to effectively tackle and overcome diverse obstacles (Thomas, 2000). Subject-based learning facilitates collaborative study among students, enabling them to acquire fresh perspectives and effectively address a problem using their previous knowledge (Bell, 2010).

Gen Z students seek the knowledge they need by themselves on youtube or websites and prefer learning visually, namely through video rather than through text (reading books) or listening to educators' lectures in class. They are used to being dependent on cell phones, so it is easy to access and make the internet the main reference source for finding information. These young people tend to believe in information from social media, such as Facebook, Twitter, and Instagram (Firamadhina & Krisnani, 2021). The facts and characters of this generation are a trigger that innovative learning models can be applied in the learning process (Susilawati & Al Ayubi, 2022).

In preparing the nation's generation to have several skills needed in life in the 21st century, educators are required to be able to provide learning that is by the times so that students have creative thinking skills (creative thinking), critical thinking, and problem-solving (critical thinking and problem-solving), communicate (communication), and collaborate (collaboration) or what is commonly referred to as 4C (Khoiri et al., 2021). It is necessary to optimize learning and have a learning model that is per the needs of the 21st century by utilizing internet information and communication technology tools to increase students' interest and creativity in learning.

This research will be carried out on Biology Education students from the Faculty of Mathematics and Natural Sciences Class of 2022, Yogyakarta State University, who incidentally are students who have lived in the technological era from an early age so that it can be ascertained that the use of social media Instagram, one of which is the feature reels is a familiar thing to use every day. Based on observations, the classroom situation during lectures tends to be less conducive because students are very dependent on the use of mobile phones and appear to have a reasonably low interest in learning. When the lecturer carried out the question-and-answer session, only one student asked, and when the lecturer asked, only one student answered.

In further observations, interviews were carried out with several student representatives who argued that the student's learning interest was low because the learning content in Pancasila lectures was less attractive because it was only based on theory, plus the lecture conditions were quite complex with assignments from various other subjects. Students' creativity in the biology education class of 2022 is also quite low, which can be seen when they produce works, both in making presentations in class and the form of video assignments carried out in previous courses. Because it is due to less meaningful learning, students do not do it.

According to Slameto (2015), interest refers to a proclivity and a heightened state of enthusiasm or a strong longing for something. Interest plays a crucial part in learning processes. According to Djamarah (2001), interest may be defined as a personal choice and a feeling of connection to something or an activity, without the need for external instructions. According to Linvill (2014), students who have a particular interest in certain subjects are more likely to concentrate and invest more effort in the process of learning. Put simply, the concept of interest in learning encompasses factors such as attentiveness, like, and a student's personal investment in the learning process. This may be shown by their excitement, active involvement, and engagement in the learning activities (Nurtjahjanti et al., 2021).

The project-based learning paradigm is recognized as effective in tackling these difficulties. The study conducted by M. Salam and Anny Wahyuni (2021) examines the efficacy of employing a model project-based learning approach focused on infographics in the Pancasila course. The results suggest that this method improves students' proficiency in both creative and critical thinking. The result is that the ability for innovative thinking has increased to 91.1 percent, while analytical thinking has grown to 80.4 percent. Furthermore, Gunawan et al. (2017) conducted a study which shown that the use of virtual media in project-based learning significantly improved students' creativity in the domain of physics. Project-based learning has been proven to effectively increase students' engagement and cultivate their creativity.

Project-based learning is an educational method that teaches students how to efficiently tackle and solve various challenges (Thomas, 2000). Subject-based learning allows students to work together to conduct research on a particular topic, helping them gain new insights and successfully tackle a problem utilizing their current knowledge (Bell, 2010). Through this project-based learning model, learning will be more varied by being student-centered and establishing educators as motivators and facilitators, where students can work autonomously to construct their learning (Badar, 2014). By utilizing an appropriate model, students will experience enhanced ease in comprehending and assimilating the subject, so fostering a beneficial influence on their enthusiasm for learning and their capacity for creative thinking. Students exhibiting diminished learning motivation will be granted the opportunity to actively participate in the educational process, hence fostering enhanced student ingenuity. Therefore, it is imperative to implement cutting-edge educational approaches that foster the acquisition of skills that align with the requirements of Generation Z. The diverse motivations and circumstances mentioned serve as catalysts for doing research on enhancing student engagement and creativity in the Pancasila course using project-based learning models utilizing Instagram Reels.

II. METHOD

This study employs a combination of qualitative and quantitative research approaches. Specifically, researchers integrate qualitative and quantitative research methods (Creswell, 2017). Both qualitative and quantitative research approaches are employed in conjunction to acquire a more comprehensive set of data (Sugiyono, 2020). Data collecting procedures encompass observation, interviews, questionnaire completion, and documentation. By employing this approach, researchers can derive more precise conclusions and formulate policy recommendations that are both comprehensive and efficacious. This study involved 48 Biology Education Class C students from 2022 Yogyakarta State University with low learning and creativity interests. This study focuses on examining students' engagement in learning and their ability to think creatively through project-based learning approaches, using Instagram reels as a media platform.

III. RESULT AND DISCUSSION

A. Application of Project-Based Learning Models with Media Instagram Reels

As contextual learning based on available activity, a project-based learning model with media Instagram reels in this study, students were asked to work in groups. They were required to observe, read, and research (Aqib, 2013) so that the process emphasized collaboration within a specific time limit.

The implementation of project-based learning follows a set of steps outlined by The George Lucas Educational Foundation (2007). These steps involve: (1) initiating the process with fundamental questions; (2) creating and organizing project activities to address these questions; (3) establishing a timeline; (4) overseeing the progress of both students and the project; (5) evaluating the outcomes; and (6) reflecting on the overall experience.

Table 1. Application of the Project-Based Learning Model with Media Instagram Reels

Steps	Results of Application of Learning
Essential question	Students succeeded in answering fundamental questions about what are the problems that often occur today.
Steps	**Results of Application of Learning**
Project design	Students choose a project design *Instagram Reels* from two other options: citizenship projects and infographics.
Project Schedule	Students in groups meet to set a project implementation schedule from May 4 to May 19
Monitoring	Researchers carried out monitoring on May 11 and May 18
Assessment	Assessment of student creativity results is carried out by researchers based on aspects and assessment indicators.
Evaluation	Students express learning experiences by presenting them in class

Based on the results of applying the learning model, it was found that students could be actively involved and given broad opportunities to determine the form of learning they wanted. In the essential question step, students can answer actual problems and keep abreast of current developments. Next, in project design, it was found that students were able to independently determine the desired project design by choosing a project Instagram reel. After that, students are also given the flexibility to determine the project schedule to fit the desired timeline. Monitoring and assessment are carried out by researchers to measure achievement based on predetermined indicators. The application ends with an evaluation, providing opportunities for students to describe their experience in the projectbased learning process.

B. Analysis of Student Learning Interest after Applying the learning model

After applying the project-based learning model, measurements of student learning interest were carried out through questionnaires collected through Google Forms. In carrying out the analysis using a Likert scale in the range of scores 1 to 4, with a choice of disagree to agree strongly. Measurement of the level of interest in learning is divided into five categories, namely, not good to very good, according to Table 2.

Table 2. Level of Interest in Learning

Percentage	Study Interest Category
0% - 19,9%	Not good
20% - 39,9%	Not good
40% - 59,9%	Moderate/Enough
60% - 79,9%	Good
80% - 100%	Very good

The results of interest in learning according to the questionnaire collected through Google form were analyzed by dividing into three dimensions: students' feelings of pleasure, which includes two indicators, student involvement, which includes two indicators; and student attendance, which includes three. The questionnaire results are processed through simple percentage calculations according to predetermined indicators, as shown in Table 3.

Table 3. Results of Study Interest Questionnaire

Dimensions	Indicator	Percentage
Student Happy Feelings	Student views on learning Pancasila courses	89%
	The feelings of students while participating in learning Pancasila courses	84%
Student Engagement	Activeness during learning Pancasila	83%
	Interest in developing understanding	86%
Student Attention	Response to the assigned task	85%
	Curiosity about Pancasila courses	85%
	The concentration of students on learning	84%
TOTAL		**85%**

The data in Table 3 were obtained from 48 Biology Class C Class 2022 students who had filled *out google form*. There are 20 statement items which are divided into three dimensions which are described in seven indicators.
The statements in questionnaire contain thirteen positive statements interspersed with seven negative statements to obtain valid data.

Based on the data obtained, it can be analyzed that the dimensions of students' feelings of pleasure, which include indicators of students' views on learning the Pancasila course, the feelings of students while participating in the learning of the Pancasila course managed to reach the outstanding category with percentages of 89% and 84%. On the dimension of student involvement with indicators of activeness during learning, Pancasila reaches 83%, and interest in developing understanding reaches 86%, both of which fall into the outstanding category. In the last dimension, namely the dimension of student attention with indicators of response to assigned tasks reaching 85%, indicators of curiosity towards Pancasila courses reaching 85%, and indicators of student concentration in learning reaching 84%, all of which fall into the outstanding category. It can be concluded that it reaches the excellent category based on the total percentage of the results of the interest in learning questionnaires.

The results of observations also supported the questionnaire data that reached the outstanding category made that there was increased enthusiasm from students in producing works which were also supported by the results of interviews with several students who stated that they were more interested in carrying out learning if the learning model was more friendly to them.

C. Analysis of Student Creativity after applying the learning model

Analyzing creativity is crucial as it pertains to students' capacity to discover and employ novel ideas that may be unorthodox, peculiar, or even bizarre, yet remain logical within the context of learning. According to Marisa (2007), a major obstacle in fostering creativity is the requirement for instructors to assess student inventiveness while they are learning.

It becomes very urgent to measure student creativity in the learning process; this begins with determining how the indicators of creative thinking will be used as a reference in this study. Indicators of creative thinking can be measured based on observations of the behavior displayed by students when in class when implementing projectbased learning models with media Instagram reels, according to Table 4.

Table 4. Indicators of Creative Thinking

Indicator	**Behavior**
Think smoothly*(fluency)*	Sparked many ideas, answers, and suggestions for solving problems
	Work faster and do more than others
flexible thinking (*flexibility)*	Can see problems from different points of view
	Can apply concepts, properties, or rules in problem-solving examples
	Generate a variety of ideas.
Original thinking *(originality)*	Sparking problems, ideas, or things that no one else has thought of
	Creating different ideas or works and trying to think of new ways
Think detail *(elaboration)*	Develop or enrich the ideas of others.
	Looking for a deeper meaning to the answer or problem solving by doing detailed steps

After observing students according to the indicators of thinking, measurements are carried out according to the results of creativity Instagram reels uploaded by students via their class Instagram account. In carrying out the analysis using collaborative assessments between researchers with a value range of 0 to 100. Measurements of creativity results are divided into five categories, namely, not good to very good, according to Table 5.

Table 5. Categories of Assessment of Creativity Results

Mark	**Creativity Category**
0 - 19	Not good
20 – 39	Not good
40 - 59	Moderate/Enough
60 - 79	Good
80 - 100	Very good

There are several descriptions of the results of project-based learning creativity Instagram reels can be seen in Figure 1. The results of this learning creativity are in the form of videos worked on by seven groups with the theme of social, political, and democratic problems that occur today.

Figure 1. Results of Project-Based Learning Creativity *Instagram Reels*

After monitoring and evaluating the results of student learning creativity, an analysis is carried out by dividing it into four aspects of the assessment: the planning aspect, which includes two indicators, and the video format aspect, which includes two indicators. The quality aspect includes three videos, and the content aspect includes three indicators. The questionnaire results are processed by taking the average value according to the indicators that have been determined and can be seen in Table 6.

Table 6. Project Creativity Assessment Results *Instagram Reels*

Assessment Aspects	Indicator	Mark
Planning	Selection of project themes and procedures	92
	Activeness in data collection	93
Format Video	Suitability of the work with the theme	94
	Originality of work	94
Video Quality	Audio and visual quality	91
	Video presentation layout	92
	The beauty of video presentation	93
Video Content	Message delivery	91
	Can attract attention	93
	Easy to understand	91
TOTAL		**92**

The data in Table 6 comes from evaluating video results from Instagram reels that have been done and uploaded by seven groups. Based on the data obtained, it can be analyzed that the planning aspect with indicators selection of themes and project procedures and activeness in data collection scored 92 and 93. In the aspect of video format, which includes indicators of conformity of the work with the theme and originality of the work, both scored 94. As for the aspect of video quality with audio and visual quality indicators, the presentation layout video and the beauty of the video presentation scored 91, 92, and 93. Furthermore, on the last aspect, namely, video content which includes indicators of message delivery with a value of 91, can attract attention with a value of 93 and is easy to understand and achieve a value of 91. It can be concluded, based on the total assessment of the results of the assessment of project-based learning creativity, Instagram reels reach the excellent category.

It can be analyzed based on the results of observations which are elaborated with the results of interviews, and the results of the assessment of creativity produce that student creativity after applying the project-based learning model with media Instagram reels has increased to very good. It can be seen from the results of observations of student involvement in designing project designs until the evaluation succeeded in clearly explaining the results of their work, as well as based on learning interviews with projects like this encouraging student to work on it optimally because they can express their ideas and ideas.

IV. CONCLUSION

Based on the research results, applying project-based learning models with media Instagram reels increased student interest in learning and creativity. It is proven with the percentage of interest in learning reaching 85% and the average value of creativity reaching a score of 92, both of which fall into the very good category. These results are supported by observations and interviews, which show students' enthusiasm for working on video projects on Instagram reels maximally. Thus project-based learning becomes very innovative if it uses media following the lifestyle of Gen Z, namely Instagram Reels. Based on the research results, it is recommended that in the future, it is necessary to analyze innovative learning models that provide space for students on campus to actualize themselves following their generation's development.

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Commodities of Work Positions become Monopoly Behavior

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ABSTRACT: The article aims to systematize buying and selling labor power under the condition of money as a measure, showing that job positions are just commodities bought, resold, and traded like any other commodity, making monopoly behavior popular. The article's content is approached from human and social philosophy to achieve the above purpose while simultaneously combining qualitative methods and synthetic analysis. The result is to clarify that all human attributes have the survival value of species; they become different commodities in production and business, measured by standards and money. Throughout the article, the natural world is diverse, with many species, and each species has unique survival characteristics. While animals live mainly in nature, humans create and live on the products of labor. The division of labor has created a complex society with many different occupations and social positions. Money, a tool of exchange, gradually becomes a measure of the value of everything, from labor and products to people. When money becomes the goal of life, people can lose higher spiritual values. This raises questions about the nature of happiness and the meaning of life in a society where money plays a significant role.

KEYWORDS: goods, job position, people, standards, money

1. INTRODUCTION

In the current conditions of global exchange and integration, each country has different advantages, potentials, and resources for development. Human resources are considered the primary resource, the resource of all resources. However, human resources are understood very differently. Developing human resources means owning the personal life of society in all possible forms, which is considered the driving force for economic and social development. Exploiting and using individuals for development proves to be a form of oppression and mutual exploitation in life. The right to freely buy and sell goods and labor is regulated and recognized by law. However, purchasing and selling labor, occupations, and job positions is the right to buy, sell, and sell people freely. But human trafficking, that is, the trafficking of women and children for different purposes, is not regulated or recognized by law. The phenomenon of individuals buying and selling their own lives, that is, buying and selling exclusively for profit, has not been thoroughly studied. That is why we wrote this scientific article.

2. RESEARCH STATUS OF THE TOPIC

The problem of human beings as commodities has been studied from many different perspectives. Monopolistic behavior occurs when a business or a small group of companies holds too much power to control a market entirely. This allows them to freely decide the price of products or services without facing significant competition from competitors. However, society - a product of human cognition, creativity, and labor - is based on the diversity and abundance of products and services. When a monopoly entity dominates a specific field, this diversity is limited, leading to a decline in the quality of life and hindering the development of society. Being separated from nature through social life makes people more dependent on the products and services they consume. Therefore, maintaining a healthy competitive environment is essential to ensure sustainable social development. "People live by the products it creates. Universalized human products are social. Society is a product of human perception, creation, and production. Humans are separated from nature through social life. The diversity of social life is the richness of products" (Quoc, NA ., Y, NV ., & Giau, HV . (2024), P.873). They are reducing the supply of goods or services to drive up prices and making it difficult for other businesses to enter or compete.

Job-buying is the practice of exchanging money or other benefits for a job. This is illegal and unethical. When a large company or group of companies dominates an industry, they may abuse their monopoly position to require qualifications too high for the job or to hire people with connections—not publicizing job openings or creating barriers to other applicants and using money or other benefits to recruit people with connections or willingness to pay. People need connections or financial resources to find jobs. People with actual ability may be overlooked for those willing to pay. When hiring is based on money rather than ability, the quality of human resources in the business will suffer. This behavior violates competition, anti-corruption, and labor regulations. Creates inequality in employment opportunities. Reduces the efficiency of companies and the entire economy. Creates a hostile and unhealthy working environment.

Strict and strictly enforced legal regulations are needed to ensure a fair and transparent working environment. Strengthening inspection, examination, and rigorous handling of violations such as buying and selling jobs is extremely necessary. At the same time, each individual must raise awareness of their rights and be ready to report violations. Human life is diverse and rich, expressed through many different professions. However, to ensure the sustainable development of society, it is necessary to build an equal working environment where the value of each person is assessed based on their capacity and contribution. "Selling labor to buy money" is a regular economic activity, but "buying money to buy science" is an issue that needs to be carefully considered. Science is the common property of humanity and should not be overly commercialized. “Human life manifests itself in different professions as equal labor. Selling labor is buying money. Buying money is selling science" (Quoc, NA (2024), P.15). The above information is the basis for me to clarify the content of this scientific article.

3. RESEARCH METHOD

The article's content is approached from the humanistic philosophy and social philosophy methodology and uses qualitative methods, analysis, synthesis, comparison, and contrast, especially the inversion method. The inversion method has pointed out the opposite sides of the mutual conversion between the subject and the product, clarifying that labor, standards, and money are commodities bought and sold like any other commodity.

4. DISCUSSION AND RESULTS

4.1. Standard life is the instinct, the behavior of a species

The body is different between men and women. But usually, men and women are both human. Men and women have different abilities but have the same need to be human. The unity between men and women is the existence and maintenance of the species. The formation of the fetus in the body is unconscious, but taking care of children is instinct. The formation of the fetus is unconscious; caring for the offspring is instinct. The unconscious is inside the body, and the instinct is outside to maintain the species. Different feelings appear when the object of survival and maintenance of the species changes. Satisfying the senses in a hot environment makes the body more comfortable. The body needs energy to move, maintain temperature, grow, reproduce, and synthesize nutrients, so it constantly exchanges with the outside. Objects that satisfy the body's abilities and needs become objects of the organs and senses. The satisfaction of the body through different forms of energy will cause different behaviors. Sufficient or lacking energy is expressed in different abilities and needs. If the skills and needs are not satisfied, the process of training the senses or imagination will appear. Training is to fight against oneself in every possible way. Imagination is like a blind person liking colors and a deaf person liking music. Imagination is the body's need, but no object exists to satisfy it.

But as the species' instincts become more widespread, standards become redundant. Individuals who satisfy standards become the artistic satisfactions of life: the satisfactions of magic, circuses, dancing, and listening to music. In addition to the time spent on satisfying natural functions, the remaining time is spent on satisfying standards. Satisfying standards becomes interpersonal satisfaction. If standards do not bring life, they become meaningless. Standards are living things that can be exchanged, bought, and sold like other commodities. With the rapid development and inflation of standards, lies appear. Standards are the objects of lies. Standards cover up lies, so standards facilitate the development of lies. Standards act as a yardstick, creating differences in job status between parents, children, husbands and wives, grandparents, monks, officials, and business people. The standard is the joint ownership between individuals in the family, religion, state, company, and bank. The standard is determined by the conditions and circumstances of performing the natural function, which becomes the social division of labor. The natural function is the slave of necessity, which means that individuals are subject to regulating the social division of labor. The survival function does not satisfy the senses, the senses, and the organs and is expressed as hunger, thirst, pain, and discomfort. Individuals who do not meet the standard will be abandoned, lonely, unhappy, and have a guilty conscience.

4.2. Overcoming the instinct of the species is creativity

Creativity is the means, and the standard is the end; then, the individual will become a slave to the habits of a species. The difference is the nature of the perceived, the knowledge of survival. Individuals who satisfy knowledge will bring joy - individuals who satisfy knowledge through occupation and job position. Different standards represent the position of work.

Commodities of Work Positions become Monopoly Behavior

Another position is the social division of labor: the daily needs of individuals with their hands, brains, mouths, senses, and other organs. This cooperation is education. Education is life; it is mutual learning. Teaching becomes a profession that earns a living, and the relationship between individuals of different social positions becomes standard. In the race for survival, humans have turned survival into a profession. Career success is often measured in money, making money a standard measure of each person's worth. Even in the field of science, which is considered noble, money plays an increasingly important role. The fierce competition for funding has forced many scientists to direct their research to areas with high profits rather than fundamental problems. This not only reduces freedom in research but also raises questions about ethics in science. "Different occupations, but they are all the same people. However, when measured by money, money becomes a measure of people. An effective source of income is exploiting, promoting, and possessing living people. Science is human life that becomes money life" (Quoc, NA (2024), P.11). Scientific knowledge is private, but it becomes common property when it is widely disseminated. Living with the knowledge that it is publicly owned is similar in terms of standards. The same understanding makes each person the exact essence of a species. Teachers are one of the exclusive agents in the dissemination of standards. Individuals with the same standards are biological robots. Life needs each other; an individual's ability is precisely what different needs require. Individuals are objects for mutual enjoyment and education. An individual is a creative and helpful subject, becoming a normative value; conversely, those standards pull any backward individual out of that backwardness.

The solidarity between individuals, such as grandparents, parents, children, husbands and wives, monks, officials, and business people, is a cooperation for survival. When individuals, especially those with high social status, such as patriarchs, religious leaders, or political leaders, are viewed as "commodities" to be traded and bought, human worth is generalized into a common commodity. This results in everyone being evaluated and compared through a shared value system, regardless of whether they are grandparents, parents, children, or any other member of society. Money, power, or other social standards then become the measure of an individual's worth, leading to the polarization of rich and poor and high and low in society. "People are the measure; everyone is equal. When standards and money are used to measure people, society discriminates between noble and lowly, rich and poor" (Quoc, NA ., Y, NV ., & Giau, HV . (2024), P.874). Free, voluntary, and equitable relationships are when satisfaction is the goal and standards are the means. Norms distort social functions, where hope and promise, help and reward, and distribution and reward work together.

Monopolistic individuals appear when species are the means and individuals are the ends. Monopolistic individuals are patriarchs, religious leaders, leaders, and directors. The function of monopolistic individuals is to create intelligence with the reality of life or to create life with intelligence. When species assign functions and tasks to individuals, monopolistic behavior appears. A basic monopolistic behavior is setting standards and issuing money in various forms. Monopolistic behavior makes connections and exchanges coercive. When monopolistic behavior becomes noble and wealthy, many social behaviors are distorted, and conditional standards must be adjusted to suit the species. The prevalence of monopolistic behavior has created a society full of illusions and injustice. When power is concentrated in a few people, hostile behaviors such as lying, cheating, and corruption become common and are covered up under the guise of social norms. Losing trust in political systems and leaders has led many people, especially the young, to seek alternatives such as artificial intelligence. This shows monopolistic behavior harms the economy and erodes people's trust in society. Therefore, "also tired of ongoing worries about corruption and stale political leadership. More young people believe in artificial intelligence systems than they do in human leaders" (Enaifoghe, A., Maramura, T., Durokifa, A., Maduku, H., Ekanade, IK, & Chiwarawara, K. (2024), P.22).

When monopoly is the goal of survival, high living standards and income become commodities, the private sector emerges, and the property system facilitates the private sector's becoming rich. The property system appears, and norms define ownership between individuals and species. Norms such as loyalty and filial piety mean that family members own each other. Observance of commandments and precepts implies that priests own each other in religion—officials in the state own law enforcement agencies. The exchange and purchase of money means business people own each other in companies and banks. The progression from family, religion, state, and company to the bank is the common inheritance of occupation and position ownership. Joint ownership between individuals is position ownership. This relationship ensures the survival and maintenance of the species and brings joy and excitement through various jobs according to a rich standard. Work brings variety and variety to life, while standards bring peace, safety, and order and are managed and organized. Individuals know and will choose suitable work and occupations. Individuals do not have a choice; they are not responsible. The individual performs a natural act that is necessary or required according to the rules of the standards, and those standards and demands are responsible. The responsible individual punishes himself with regret, which may come one way or another, or with a guilty, tormented conscience to ensure that he does not do it again next time, or the individual has been punished - the price to pay for failure. Irresponsible individuals do not punish themselves but enjoy the rewards of the rules of the species, and the responsibility lies in the rules. It is natural for grandparents, parents, husbands, wives, and children to protect each other, but it may be wrong compared to the standards of religion, the state, and the company. Individuals who follow standards are not guilty, but guilt lies in traditions, customs, commandments, precepts, laws, and money. Those who follow social norms are irresponsible.

Each individual has a different family, religion, government, company, and bank, and individuals are often under pressure from different work positions every day. Society creates pressure that distorts individuals, causing behavior to become distorted, deviant, inconsistent, and erratic. The phenomenon of saying and doing things that do not match, saying one thing and doing another, cheating, stealing, looting, corruption, smuggling, and tax evasion are all forms of inconsistency and are different mental illnesses. As mental illness becomes more common, people may be infected with mental illness.

Individuals cannot maintain their basic needs; priests cannot maintain their precepts, and officials cannot enforce the law but run after money, distorting the family, religion, and state. Business people do not keep their money; instead, they run after priests and officials, distorting corporations. The changing phenomena of life, such as crime, greed, deception, injustice, discrimination between families, races, religions, nations, occupations, the arms race, aggressive wars, and environmental destruction, are all caused by various forms of mental illness. The war between species fights for territory, feeding grounds, and property rights. Large-scale war will be a competition between nations, religions, countries, and companies for individuals, although individuals do not always comply with the standards. All wars are fierce because individuals and psychopaths wage them, and individuals become victims of wars for jobs and occupations. However, the motivation to live cannot be created without exchanging and purchasing employment and occupations.

4.3. Monopolistic business behavior turns monopolistic individuals into creative subjects

In addition to satisfying needs, the remaining time is spent on satisfying abilities. When the population is large, the means of living are scarce, so the satisfaction of abilities becomes a labor demand. Modern society has transitioned from a community based on family and village relationships to a society where relationships are built economically. Purchasing and selling labor, power, and goods have become daily activities, reshaping how we interact. While the division of labor creates many new opportunities, it also poses new challenges to social solidarity and cooperation. "Cooperation, solidarity, tolerance, and openness in communication between individuals are the civilized lifestyle of modern society. In today's conditions, society has developed into a business, buying and selling labor, power, goods, and money" (Y, NV ., Quoc, NA ., & Giau, HV . (2024), P.5122). Cooperation and division of labor are the requirements of life, that is, free labor. Labor is creative; labor is instinctive when labor is a commodity measured according to standards.

Each individual satisfies their needs according to their capacity for labor; occupation becomes creative. Occupation and work reveal the health of the body, as well as the knowledge and will of each individual. Communication between individuals becomes an exchange of knowledge and will for survival. That is freedom. However, labor, an occupation that does not correspond to one's abilities or needs, is forced and compulsory labor. It is an instinct alien to one's species; it is suffering. According to a species' standards, an occupation is an instinct. Different standards represent an occupation, and achieving those standards becomes a profession, a job, or a job position. The standard is a job. To sell a job is to buy labor power. To sell labor power is to buy a job. Buying and selling labor and work is buying and selling people. Human life is determined by money. Freedom to buy and sell labor is freedom in the life of money.

Different standards are different species. Labor is necessary, but evolution has had to compete fiercely with species with specific historical natures. Individuals bring labor to nature by gathering, hunting, cultivating, and raising animals and integrating with nature by choosing suitable habitats, such as avoiding rain, wind, heat, floods, and droughts. Without harsh climatic conditions, workers produce clothes to cover their bodies, build houses to avoid heat, rain, wind, and cold, dig canals to carry water and build dams and dikes to prevent floods and droughts. Human labor does not stop at exploiting nature but also includes the process of domestication and control. We have domesticated plants, animals, and even our kind to serve our needs. This process does not stop at providing food but also extends to regulating the reproductive processes of other species. For example, increasing milk production in dairy cows or increasing the number of offspring in different livestock species are clear examples of human intervention in nature. This raises questions about the boundary between using natural resources and their abuse. Therefore, “not only were nonhuman bodies and lives depended on for our human survival, but the very reproduction of these nonhuman animals was regulated and controlled, and mice mothers, rat mothers, rabbit mothers were asked do more birth work and care work; more “essential labor” as a result” (Dare, A. ., & Fletcher, V. (2023), P.2). Each individual can connect his body with horses, cattle and dogs to move faster, have more robust traction, distinguish better smells, have better load-bearing parts and have perfect senses and knowledge. They produce telescopes, microscopes, machines, cars, airplanes, computers, and robots to support the defective parts of the body. At the same time, it produces body parts and organs to cure physical disabilities such as hunger, thirst, pain, illness, and death and continuously increases intelligence. The individual has the form of free labor as his duty and responsibility.

Commodities of Work Positions become Monopoly Behavior

Free labor is the diversification into different occupations, depending on ability and need. Free labor is the general equivalent of exchange and purchase, and the standards and employment positions are commodities. Freedom may need to improve in terms of money and appropriate standards, but it can adapt to different forms of labor. All occupations are equal, so there is no discrimination between individuals. Freedom does not depend on species, money, or wealth; it depends on the freedom to earn a living in different occupations. Mutual aid is not related to job position, standards, or the issuance of money. Mutual aid is not an illusion of love, anxiety, hope, or promise; it is living and helping each other according to each individual's ability and need. When the diversification of occupations becomes common, there is no longer any comparison or deep calculation to distinguish occupations. The individual phenomena of species reflect the rich evolutionary process of history. The richness and diversity of life originate from the cell, while the richness and diversity of species, families, religions, states, companies, and banks originate from the human body. In evolution, there is competition between species as an instinct for survival. The difference lies in taking the species' standard as the social measure. The standard of any species that has value and prestige is the standard of high value. When the law is respected, the state is admired, or if the standard of the clergy is prestigious, religion is respected. Let's take the family as the standard of equivalent exchange. The values of religion, the state, and the company are inversely proportional, depending on the specific historical conditions. Each species takes the standard as a measure, so there is a distinction between species in terms of standards and differences in body, race, skin color, hairstyle, and eye color. Social norms have profoundly shaped human lifestyles and behaviors, from tradition, religion, and law to occupational prejudices.

Discrimination based on these norms causes social injustice and hinders the development of individuals and communities. In globalization, conservative notions of "traditional ways of life" are often used to resist social change and progress. "The "customs and traditions," and the populist discourses which increasingly represent "the traditional way of life" as the last bastion against the evils of globalization, are condemned unambiguously in the novel, from the very title" (PetkoviÄ‡, D., & LjubinkoviÄ‡, D. (2022), P.92). It is discrimination because work becomes discrimination in terms of social status. Labor becomes a standard deviation in the distribution of products and levels of enjoyment. Species provide standards that make the means of production artificially scarce. When the means of production are scarce, differences between species appear, causing diversity in behavior and lifestyle. The rational choice of occupations suitable to intelligence and circumstances as a means of livelihood is freedom. Individuals are slaves to norms, and so are slaves to food. Each individual's existence depends on mutual assistance from others. To ensure survival, humans have diversified the forms of labor, creating a social division of labor. Thanks to that, the needs of each individual are met effectively. This view emphasizes the importance of cooperation and association between community members. “Women may not passively accept societal expectations but rather employ strategic tactics to navigate these norms while maintaining legitimacy through alternative avenues” (Blaique, L. (2024), P.16). The practice of norms, job positions, and occupations has been reflected in various monetary lives throughout history. When the monopoly of issuing money emerged, money became a measure of society. Cash and external assets owned by individuals were recognized and rationalized by society.

Freedom of labor satisfies each other in the process of diversifying different industries. Diversifying industries means diversifying into many products. All products exchanged and bought and sold in the market are considered commodities. The market is where participants freely exchange goods, services, and money. This freedom is the foundation for the development of a market economy. To achieve business goals, businesses must build a clear development strategy, including defining objectives, performance indicators, and budgets for marketing activities. Each marketing channel will have specific activities to achieve the common goal. “The development strategy is built once the goals, key performance indicators, and marketing strategy budget are defined. Here are all the activities that need to be performed for each marketing channel" (Hadzhi, K. M., Vali, G. X., Viladdin, M. A., Cemil, K. I., Ali, Y. S., Fizuli, H. Z., & Tahir, P. A. (2024), P.15). The free market is a place for exchanging and buying and selling money, wealth, labor, standards, creativity, individuals, people, behavior, monopoly behavior, individuals and bodies; all are commodities. However, the body is equivalent to exchange and sale, so all other commodities are inversely proportional. The body is a universal need, but the body can only meet the needs of each customer. The human body, a unique work of art, carries within it the highest value - that is, life. Therefore, all activities that maintain and develop life have a valuable meaning. In existence, people exchange material and spiritual values such as knowledge, skills, and emotions. Creativity, a noble expression of human nature, is the most valuable "currency" that each person possesses. It helps individuals express themselves and creates value for the community. "The type of money produced and stored in each person is the highest form of existence of money. It likes to express itself through creativity and does not like to impoverish itself by its instinctive state. Wanting to make oneself poor is an individual case, but getting rich through creativity is a personality trait in society" (Y, NV ., Quoc, NA ., & Giau, HV . (2024), P.5123). All are different commodities. Each historical period takes a commodity as an equal standard for exchange; the scarcity of that commodity is emphasized more. The scarce commodity serves as an equivalent standard for exchange and trade, while the remaining commodities are inversely proportional to each other depending on the capacity and needs of society. The historical development trend depends on the commodity used as an equivalent standard in exchange and trade.

Commodities of Work Positions become Monopoly Behavior

Spiritual phenomena result from the exchange and trade of life to satisfy capacity and needs. Society is divided, causing individuals to appear in different spiritual forms. But without spiritual phenomena, the evolutionary drive will not appear. Any commodity with a reasonable price is produced in competition between species. The body is a monopoly commodity, equivalent to the standard, personality, creativity, freedom, labor, monopoly personality, and monopoly behavior. Respecting each other's bodies is life, preferring to stand on the side of freedom or standards, money or personality, wealth or behavior according to the ability and need to fill the time gap. The body is a monopoly commodity, so it is produced like any other commodity. Living with your body, you can be a child, parent, spouse, grandparent, priest, official, business person, patriarch, leader, director, parishioner, citizen, employee, teacher, doctor, engineer, or scientist. The difference between rich and poor, free and enslaved person, rich and poor, good and bad, good and bad, truth and lies, justice, equality and injustice depends on social needs. The nature of all bodies is the same; The rest is the body's choice of behavior, character, creativity, standards, freedom, labor, exclusive character, exclusive behavior, various wealth, and money to live as desired. Life always puts everything on the body as a necessity, and fate is imaginary due to not understanding the ever-changing needs of society. Freedom is inevitable when traditions, old habits, commandments, precepts, laws, and money become personal.

5. CONCLUSION

Through the discussion of the above content, I can draw the following conclusions:

First, species in nature are different because of different objects and herd characteristics. Species in the natural world are each other's survival objects; they are each other's means and purposes in the evolutionary process.

Second, humans are different from animals in that animals live in the natural world outside, and humans live in their products. The division of labor separates verbal labor from manual labor. Humans have different products of labor and other differences. The richness of families, religions, states, companies, and banks is the richness of occupations and job positions.

Third, job positions and occupations are measured by different standards. Standards correspond to the amount of money, making labor, standards, and money commodities, making humans commodities.

Fourth, goods become popular, and social life is based on money. Money is the object of survival, and the way to earn money becomes the instinct to earn money. When working in suffering, receiving money is joy. Life has the instinct of money; then, having money is having freedom; life is only accessible when having money.

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Coastal Ecosystem Changes: Analysis of Snail Population after Mangrove Planting in the First Year

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ABSTRACT: One of the main indicators for assessing the effectiveness of mangrove planting in coastal ecosystem rehabilitation is monitoring the population of fauna that depend on their habitat, one of which is snails. This study analyzes the changes in snail population in coastal areas after mangrove planting in the first year. Specifically, this study will compare the snail population in areas where mangroves were planted with areas where mangroves were not planted as an effort to understand the initial impact of mangrove planting on the snail community.

Using a comparative approach, this study was conducted on the beach of Tongo Village, Bone Pantai District, Bone Bolango Regency, Gorontalo Province. The research results show a significant difference in the presence of snail populations in areas where mangroves were planted compared to areas without mangroves. Additionally, the areas with mangroves also showed the presence of crabs as another species besides snails. This emphasizes the importance of mangroves as a supporting ecosystem for biodiversity in coastal areas.

KEYWORDS: Mangrove, Snail, Coastal Area, Ecosystem, Conservation

INTRODUCTION

Based on the Indonesian National Mangrove Map (PNM) released by the Ministry of Environment and Forestry (KLHK) in 2021, Indonesia's total mangrove ecosystem covers an area of 3,364,076 hectares, or 20.37% of the world's total mangrove area. Out of the total mangrove area in Indonesia, which is 3,364,076 hectares, it is divided into three classes: dense mangrove, medium mangrove, and sparse mangrove. In Indonesia, dense mangrove covers 3,121,239 hectares (92.78%), medium mangrove covers 188,363 hectares (5.60%), and sparse mangrove covers 54,474 hectares (1.62%).

The dense mangrove class is a type of forest (a typical vegetation community) that grows in tidal areas (primarily in sheltered coasts, lagoons, and river estuaries) that are inundated at high tide and free from inundation at low tide, with a vegetation community that is salt-tolerant and a canopy cover percentage of >70%. On the other hand, the medium mangrove class is a type of forest (a typical vegetation community) that grows in tidal areas (primarily in sheltered coasts, lagoons, and river estuaries) that are inundated at high tide and free from inundation at low tide, with a vegetation community that is salt-tolerant and a canopy cover percentage of 30–70%. The sparse mangrove class is a type of forest (a typical vegetation community) that grows in tidal areas (primarily in sheltered coasts, lagoons, and river estuaries) that are inundated at high tide and free from inundation at low tide, with a vegetation community that is salt-tolerant and a canopy cover percentage of <30%. The government's focus in mangrove rehabilitation is on areas with sparse canopy cover. The division of roles in rehabilitating sparse mangrove areas is carried out according to the duties, main tasks, and functions of the relevant ministries and agencies.

Mangroves are a unique ecosystem capable of thriving in high-salinity environments and areas frequently inundated by seawater. Additionally, mangroves are important vegetation that protects coastlines from erosion and provides habitat for various organisms. This ecosystem functions as a natural barrier against shoreline erosion, strong winds, and large waves. Mangrove planting has been recognized as an effective method for rehabilitating degraded coastal areas. Furthermore, mangroves play a crucial role in soil nutrient cycles and provide habitat for various types of flora and fauna. One group of fauna commonly found in mangrove habitats is snails. The planting of mangrove seedlings as an environmental rehabilitation effort can influence the presence of snails through various ecological mechanisms.

Coastal Ecosystem Changes: Analysis of Snail Population after Mangrove Planting in the First Year

Snails are benthic organisms sensitive to environmental changes and play an important role in the food chain of coastal ecosystems. Additionally, one of the key indicators for assessing the effectiveness of mangrove planting in coastal ecosystem rehabilitation is monitoring the populations of fauna dependent on habitats such as snails.

This study aims to determine changes in snail populations in coastal areas following mangrove planting in the first year. Specifically, this research will compare snail populations in mangrove-planted areas with those in areas without mangrove planting in an effort to understand the initial impact of mangrove planting on snail communities.

SUBJECTS AND METHODS

The research was conducted at the beach of Tongo Village, Bone Pantai Subdistrict, Bone Bolango Regency, Gorontalo Province. This location was chosen due to an ongoing mangrove seedling planting program that has been active for one year. The primary subject of the study is the population of snails found in the intertidal zone of the Tongo Village coastline. The observed snails will include various species commonly found in mangrove habitats, such as *Cerithidea obtusa*, *Terebralia palustris*, and *Telescopium telescopium*.

This study uses a comparative research design with two main locations: a coastline where mangrove seedlings were planted one year prior, and a similar coastal area where no mangrove seedlings were planted. This is done to compare the condition of snails at the two locations.

The research area is divided into several plots measuring 5x5 meters. These plots are randomly selected within both the mangrove-planted area and the non-mangrove-planted area. In each plot, the number and species of snails are counted using line transect and quadrat methods. A line transect is drawn along the plot at 1-meter intervals, and at each interval point, a 1x1-meter quadrat is used to identify the presence of snail species.

RESULTS

Tongo Village Beach is located in Bone Pantai Subdistrict, Bone Bolango Regency, Gorontalo Province, Indonesia. The area has a tropical climate with two main seasons: the rainy season and the dry season. The average annual temperature ranges from 25°C to 30°C, with high humidity levels.

The water quality around Tongo Village Beach is generally good, although the impact of human activities such as fishing can affect water fertility and clarity. Additionally, the beach has a muddy and sandy substrate rich in organic material, providing ideal conditions for mangrove and invertebrate life, such as snails.

According to research, the snails found at Tongo Village Beach, Bone Pantai Subdistrict, include *Terebralia palustris*:

Picture 1. Snails-Telebralia palustris

Kingdom	Animalia
Phylum	Mollusca
Class	Gastropoda
Subclass	Caenogastropoda
Order	Littorinimorpha
Family	Potamididae
Genus	Terebralia
Species	Terebralia palustris

Coastal Ecosystem Changes: Analysis of Snail Population after Mangrove Planting in the First Year

Terebralia palustris is one of the snail species commonly found in mangrove ecosystems. They have a robust, spiral shell with a surface that is often textured and rough. These snails typically live in the intertidal zone, frequently found on mangrove roots and in muddy substrates. This is as stated by Annandale in Sewell, It occurs usually in association with mangrove swamps. Some aspects of its biology have been studied by a number of workers (Sewell 1924, Annandale 1924, RAO 1938). In addition, the mud dwelling gastropod *Terebralia palustris* is widely distributed in the Indo-Pacific region from East Africa to India, Malaysia, Indonesia, the Philippines, and North Australia (BENTHEM JUTTING 1956).
These snails play an important ecological role in their habitat, helping to recycle organic matter and being part of the food chain. They feed on detritus and other organic material found in the mangrove environment, and they themselves become prey for various predators such as crabs and shorebirds.

Picture 2. Snail found around mangroves

- **Snails**

THE MANGROVE-PLANTED AREA	THE NON-MANGROVE-PLANTED AREA
The research shows that there is a fairly dense population of snails	In the area without mangrove planting, the number of snails tends to be low.

In the mangrove-planted area, a snail population was found. This may be due to the increased habitat complexity provided by the growing and developing mangrove roots. On the other hand, in the area without mangrove planting, snails were found, but not as many as in the mangrove-planted area. The further from the planted area, the fewer snails were encountered along the coastline. This may indicate that without mangrove planting, the habitat does not undergo significant improvement and may continue to degrade.

Species Composition

THE MANGROVE-PLANTED AREA	THE NON-MANGROVE-PLANTED AREA
In addition to snails, there is a population of crabs	There are some snails, but no crabs were found

Picture 3. Several crab burrows around the mangroves

This study also shows that mangrove seedling planting can increase the population and diversity of fauna, in addition to snails, along the coastline. Mangroves provide a complex and stable habitat that supports crab populations. The growing mangrove roots create effective shelters from predators and strong water currents, as well as provide an abundant food source from the detritus produced by the mangroves.

CONCLUSIONS

This study aims to understand the changes in the snail population in the coastal area of Tongo Village after mangrove planting in the first year. Based on the research conducted in two areas, one with mangroves and one without, the conclusions are as follows:

1. There is a significant difference in the presence of snail populations in the mangrove-planted area compared to the non-mangrove area. The area that has been planted with mangroves for one year provides a good habitat and additional food sources contributing to the growth of the snail population. This indicates that mangrove planting has a positive impact on faunal forms, particularly snails.
2. Areas with mangroves also show the presence of crabs as another species besides snails. This highlights the importance of mangroves as an ecosystem supporting biodiversity in coastal areas.

Overall, the results of this study indicate that mangrove planting has a significant impact on the rehabilitation of coastal ecosystems. In addition to increasing snail populations, mangroves also support the presence of other species such as crabs, which are an important part of the food chain in coastal ecosystems. Mangroves not only function as coastal protection but also as a support for coastal biodiversity. These findings provide a strong empirical basis to support mangrove rehabilitation initiatives in efforts to restore degraded coastal ecosystems.

SUGGESTIONS

Based on the results, here are some suggestions for future research:

1. A long-term study to monitor changes in snail and crab populations over several years after mangrove planting. This will provide a more comprehensive understanding of the dynamics of coastal ecosystem populations as mangrove forests develop.
2. Further research is needed to explore the interactions between snails and crabs in the mangrove ecosystem. Understanding the relationship between these two species, whether as competitors, predators, or in terms of habitat resource use.
3. Besides mangroves, other environmental factors such as water quality, substrate type, and temperature may also affect snail and crab populations. Further studies examining the impact of these factors will help identify optimal conditions for population growth and sustainability in coastal ecosystems

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Anti-Corruption Activism on Social Media: Public Voices against the Weakening of the Corruption Eradication Committee (KPK) in the Joko Widodo Era

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ABSTRACT: Joko Widodo's commitment in terms of eradicating corruption in Indonesia is very low, this is shown through the neglect of public voices on social media in the discourse of weakening the KPK. This study aims to explain the widespread public rejection of all efforts to weaken the KPK and analyze the factors that cause the government to choose to be ambiguous and lead to neglect. This research uses observation methods, documentation, literature studies and big data analysis. The study presents a different perspective from research that has discussed social media activism towards the weakening of anti-corruption institutions in Indonesia. The results of this study found that anti-corruption activism on social media was effective, such as the use of hashtags, coherent logic and credible actors, contributing to the rejection of the revision of the KPK Law and the dismissal of KPK employees through the National Insight Test. However, the massive anti-corruption movement on social media has no impact on the Joko Widodo administration's policymaking in the field of eradicating corruption, this paper also reveals the strong dominance of the political elite in policy making. The conclusion of this article is that the effectiveness of movements on social media to cause public unrest does not necessarily have an impact on decision-making made by state organizers.

KEYWORDS: KPK Weakening, Social Media Activism, Revision of the KPK Law, National Insight Test

I. INTRODUCTION

The weakening of the KPK occurred due to the inconsistent attitude of the Joko Widodo government. The government's series of neglect and inconsistency towards the community movement protesting the weakening of the KPK indicates the narrowing of space for civil society in the state arena. Large demonstrations rejecting the idea of changing Law No. 30 of 2002 concerning the KPK did not receive a positive response from the government, and the revision of the law was still passed by parliament. The latest case is related to the wave of public protests that hit social media when 75 KPK employees were "eliminated" through the controversial National Insight Test, with the government giving the impression of neglect. Data shows that the weakening of the KPK has had an impact on reducing the eradication of corruption in Indonesia, this is reflected in the global Corruption Perception Index released by the Transparency International organization in 2020, Indonesia's position has fallen to 102nd out of 180 countries, even though in 2019 Indonesia was ranked 85th (Transparency International, 2018). The weakening of the KPK is real, but civil society's work to remind the government always ends in disappointment.

The literature on social media activism shows three things. First, studies show that the success of using social media in disseminating information, mobilizing support, and pressuring policy-making elites is determined by the ability of social media activists to consolidate distant virtual and offline movements (Dumitrica & Felt, 2020; Gukurume, 2017; Kurniawan et al., 2021; Sinpeng, 2021). Second, studies that describe public pressure on social media often reach a dead end due to the state's ability to control digital public spaces through strict supervision in certain cases (Kruse et al., 2018; Newnham & Bell, 2012). Third, studies examining the problem lie in the lack of synchronization between the resistance movement on social media and reporting in mainstream mass media (Bailo & Vromen, 2017). In the context of the anti-corruption movement in Indonesia on social media, of the three trends in the study, no research sees the failure of online activism as caused by the strong scenario of the political elite to pass the idea of weakening the independence of anti-corruption institutions which is carried out in a structured, systematic and seems legit.

This article also aims to complement the shortcomings of previous studies which ignored the commitment of national leadership to eradicating corruption in post-reform Indonesia. In particular, this article seeks to map various forms of public voices on social media opposing efforts to weaken the KPK and to analyze the factors that have led to widespread public support for the KPK. The answer to the problem above allows this study to provide an understanding of the changing pattern of attacks against the KPK which is becoming increasingly sophisticated so that no matter how big the public movement on social media is, it requires stronger efforts and appropriate strategies to pressure the government.

This article is based on the argument that government policymaking in terms of strengthening the eradication of corruption by the KPK is not only based on the will of the public which is voiced on various digital platforms. But it is also caused by a conflict of interest between political elites and law enforcers who consider that the corruption eradication work carried out by the KPK has "disrupted" the access and privileges they have had. Political party elites play an important role in changing the law by inserting new articles that reduce the authority of the KPK, both in terms of investigating, developing, or prosecuting cases. The weakening of the KPK, as has occurred so far, also sometimes comes from other law enforcement institutions, such as the police. The elite of this institution were caught several times by the KPK's silent operations which uncovered allegations of criminal acts of corruption. Thus, public movements on social media require effective collaboration between elements of anti-corruption society to sensitize the wider public from the hegemony and dominance of elites in the discourse on eradicating corruption.

II. LITERATURE REVIEW

A. Post-Soeharto Corruption Eradication

After the fall of Soeharto, the demand to create a clean, transparent, and accountable government became one of the agendas that had to be completed. A core component of this effort is the establishment of a strong anti-corruption institution, namely the Corruption Eradication Commission (KPK) (Umam & Head, 2020). Based on Law No. 30 of 2002, the KPK was officially established in 2003. Many parties are optimistic about the future of eradicating corruption in Indonesia. The KPK was designed with a structure and standards that are different from the existing public agency model in Indonesia, separate from the executive structure. This aims to ensure that the KPK can eradicate corruption professionally, intensively, and sustainably. In carrying out its duties and authority, the KPK is independent, free from all forms of power intervention (Rahutomo et al., 2020). Initially, the KPK's responsibility and authority went beyond the police and prosecutor's office, including carrying out inquiries, investigations, and prosecutions; coordination and supervision with other law enforcers; prevention; supervision of state administrators and implementation of government programs. Apart from that, the KPK also has the authority to conduct wiretapping and confiscation of assets without court permission, requires banks and other institutions to provide confidential data on financial transactions and other matters, and has the right to investigate elite state officials without the president's approval; and synergize with the police and prosecutor's office in handling neglected corruption cases (Butt, 2011; Ganie-Rochman & Achwan, 2016; Umam et al., 2020).

Under the KPK, the war against corruption entered a new phase. The hunt for corruptors became more intense and systematic in all sectors, from the private sector and government to law enforcement agencies (Isra et al., 2017). The KPK has successfully investigated and prosecuted a wide range of officials, from mid-level prosecutors, top police officials, and senior civil servants to regional heads and even members of the national parliament (Butt, 2009). The success of the KPK in bringing corrupt officials who were previously untouchable and throwing them in prison, then returning the stolen assets, has increased public trust and support much higher than other law enforcement agencies (Schütte, 2012).

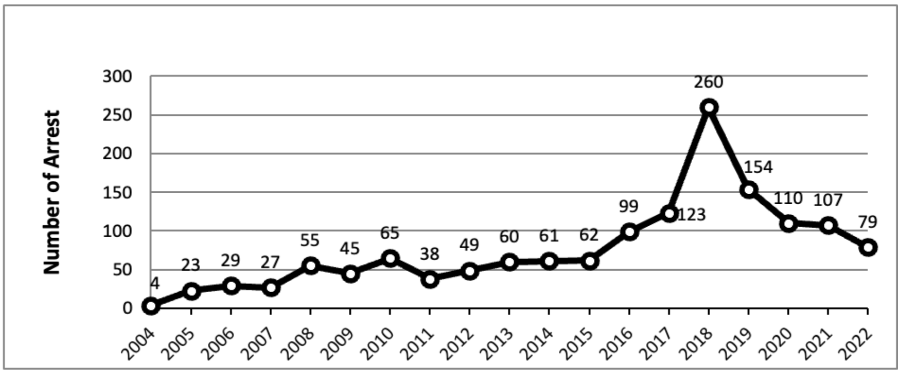

Figure 1.1. Data Graph of Corruption Crime 2004-2020

Source: Processed from Indonesian KPK data

In handling corruption cases, the KPK works indiscriminately. Until 2020 alone, the KPK succeeded in arresting 1,264 perpetrators of corruption crimes from various agencies, professions, domestic regions, and even abroad (KPK RI, 2020). Since 2004, the KPK has arrested 280 DPR/DPRD members; 32 heads of institutions/ministries (central bank and cabinet ministers); 150 regional government heads (governors, regents, and mayors); 34 law enforcement officers (prosecutors; police; judges) and also actors from other professions. The crimes investigated by the KPK also vary, ranging from the procurement of goods and services, licensing, bribery, extortion, budget misuse, money laundering, and obstructing the legal process. For case handling area coverage, the KPK managed to penetrate as far as Singapore, Malaysia, and even Colombia. Of the total cases handled and prosecuted by the KPK in court since 2004, 811 cases of criminal acts of corruption have been declared inkracht by the court (having permanent legal force) (Laporan Penindakan KPK, 2020).

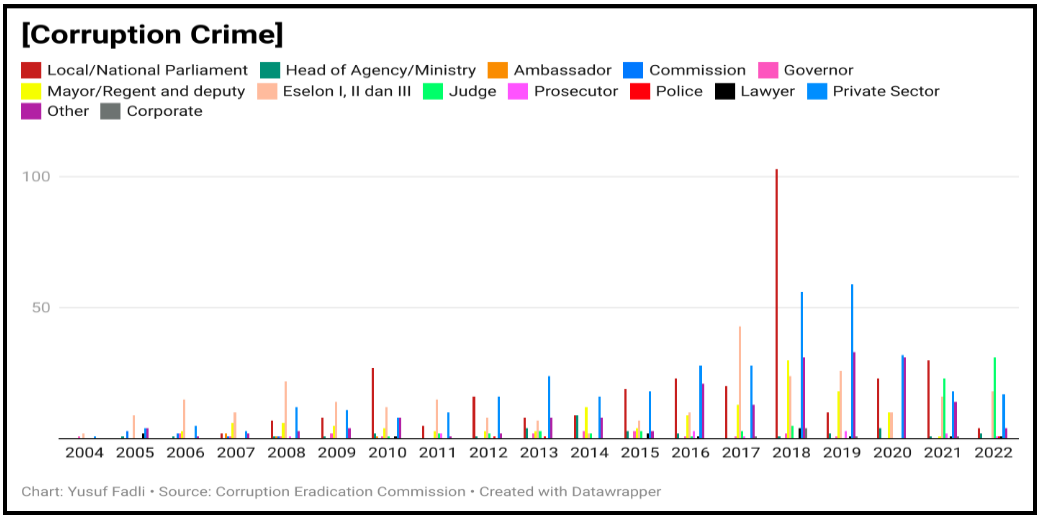

Figure 1.2. Graph of Corruption Case based on Profession/Position

Source: Processed from Indonesian KPK data

During the 17 years of the KPK's presence in Indonesia, there have been several corruption cases that have attracted public attention. Under the leadership of Antasari Azhar, in March 2003, the KPK carried out a sting operation against Prosecutor Urip Tri Gunawan for allegedly receiving a bribe of USD 660,000 in connection with the case of misappropriation of Bank Indonesia Liquidity Assistance funds involving conglomerate Sjamsul Nursalim. In November 2008, the KPK detained Aulia Pohan, a former official at the Central Bank, on suspicion of misusing funds from the Yayasan Pengembangan Perbankan Indonesia (YPPI) amounting to 100 billion rupiah. Pohan was the in-law of Susilo Bambang Yudhoyono, President of the Republic of Indonesia at that time (Widojoko, 2017). In mid-2009, the KPK managed to reveal evidence of recorded conversations between Police General Susno Duadji and a troubled businessman involved in the Century Bank fund disbursement case. (Tirto.id, 2019).

In December 2012, the public was also shocked by the detention of Police General Djoko Susilo by the KPK for allegedly committing corruption in the procurement of driving license simulator equipment for the traffic police (Isra et al., 2017). The general chairman of the Prosperous Justice Party, Luthfi Hasan Ishak, was detained by the KPK in January 2013 on suspicion of accepting bribes in beef import cases (Umam et al., 2020). In October 2013, the KPK directly arrested the chairman of the Constitutional Court, Akil Mochtar, who was suspected of accepting bribes in several regional head election dispute cases. At the beginning of 2014, the KPK also detained Anas Urbaningrum and several Democratic Party elites who were named as suspects in corruption in funds for athletes' homes and sports complexes in West Java (Ganie-Rochman & Achwan, 2016).

Police officials were again involved in cases of bribery and gratification. In January 2015, Police General Budi Gunawan was named a suspect by the KPK, even though he was the sole candidate for Chief of the Indonesian National Police that President Joko Widodo proposed to the DPR (Muttaqin & Susanto, 2018). KPU Commissioner Wahyu Setiawan, was caught in a sting operation in the bribery case of Harun Masiku, a PDIP politician who asked to be smoothed out as a member of the DPR-RI through an interim replacement scheme. Edhy Prabowo, Minister of Maritime Affairs and Fisheries in Jokowi's cabinet, was arrested by the KPK in November 2020 because he was involved in a corruption case in the process of determining prospective lobster seed exporters. In early December 2020, Minister of Social Affairs and PDIP politician Juliari Batubara was arrested by the KPK for allegedly accepting bribes in the Covid-19 social assistance procurement project for the Jabodetabek area.

B. Sosial Media Activism

Activism comes from the word activist, defined as an individual or group of individuals who actively move together to influence the public by pressing for authority holders through training, negotiation, persuasion, advocacy, resistance, and protest. Their movements promote social, political, economic, environmental, cultural, or other changes, and the scale of the movement can be local, national, or global (Yavuz Görkem, 2017). Meanwhile, digital activists can be defined as people who support, oppose, or reject change as part of collective action based on digital technology, such as social media platforms. Over the last two decades, the use of these new technologies has encouraged the involvement of more citizens to mobilize, activate, and manage movements, especially in the social and political fields (Seelig et al., 2019).

The current Earth population is reported to be 7.85 billion, and 4.3 billion people (55.1%) using social media platforms worldwide (April Global Statshot Report, 2021). Social media platforms enable individuals to easily share their thoughts at a minimal cost, empowering them to actively engage with their communities and drive change through collective action (Leong et al., 2019). In line with this, Lim (2013) shows that social media provides a space for individuals, especially young people, to participate egalitarianly in the process of production, consumption, and distribution of ideas, knowledge, and culture. This participatory culture can function as infrastructure that can be easily borrowed and used for socio-political activities. In plain language, digital activism occurs when someone utilizes digital technology as an alternative to political activism to reclaim narrowed political voices and space.

Social media is about social interactions and social networks so that networks created on social media resemble existing offline networks (Lim, 2013; Velasquez & LaRose, 2015). Social media activism plays a crucial role in the wave of world change, such as lifting political oppression, informing about election violations, distributing messages from the opposition, corrupting oligarchs, inspiring people to speak out, and organizing people for direct collective action (Chitanana, 2020). Likewise, in Africa and the Arab region several decades ago, social media provided a discursive space for ordinary citizens to demand clean government, handling the economic crisis, unemployment, human rights violations, and endemic corruption (Gukurume, 2017). In the case of eradicating corruption in Indonesia, anti-corruption campaigns carried out on social media have a high level of effectiveness (Kurniawan et al., 2021).

However, several studies found a pessimistic attitude toward using digital technology in social and political activism. Lobera & Portos (2020) stated that digital technology does not substantially change patterns of political engagement but instead strengthens pre-existing structures and inequalities. Another opinion also states that social media platforms can attract millions of digitally connected users, but this is not a sign of the return of the public space proposed by Habermas (Kruse et al., 2018). In other words, the interactions and discourse fought for in the digital public space are only pseudo. The ineffectiveness of social media is caused by the loose attachment of social media activism in mobilizing grassroots movements to win a socio-political issue (Sinpeng, 2021). The democratic values expected to spread and grow in social media are only "pseudo-democracy" and have become a pathology for democracy itself (Hasfi et al., 2017).

Indonesia is one of the world's largest social media user bases (Winarnita et al., 2022). In the joint report "We Are Social" and "Hootsuite" released in early 2021, out of a total of 274.9 million Indonesians, 170 million residents (or around 61.8 percent) are social media users. Most Indonesians actively use social media platforms such as YouTube (93.8%), WhatsApp (87.7%), Instagram (86.6%), Facebook (85.5%) and Twitter (63.6%) (Indonesian Digital Data, 2021). Currently, Twitter users in Indonesia are around 14 million people (Statista.com, 2021). The use of social media for socio-political purposes began in 2009 when millions of Facebook users raised donations entitled "Coins for Prita" who were found legally guilty by the Tangerang High Court and ordered to pay damages of 22,000 USD for bringing glory to the good name of Omni International Hospital. Public solidarity with the injustice experienced by Prita Mulyasari spread throughout Indonesia, and the collection of funds reached 90,000 USD, exceeding the specified fine amount (Molaei, 2015).

Another phenomenal case that occurred in mid-2009 was when there was a conflict between the KPK and the Republic of Indonesia Police, popularly called "Cicak VS Buaya" Volume I, where the Cicak refers to the KPK and the Buaya was the personification of the police. The KPK was investigating a corruption case and had wiretap evidence from a conversation between Police General Susno Duadji and a person suspected of corruption. Not long after that, two KPK leaders, Bibit Samad Riyanto and Chandra M Hamzah, were arrested by the police on charges of extortion. The public reacted by saying this was a counterattack by corruptors against the KPK on Facebook, echoing support for the KPK by creating a page of 1,000,000 Facebookers supporting Candra Hamzah and Bibit Samad Riyanto. Massive public attention to this case caused the police to drop the charges against the two KPK leaders.

III. METHOD

This article raises the issue of anti-corruption activism on Twitter or online media, especially regarding the KPK Law revision and the dismissal of KPK employees through the National Insight Test, which occurred during the second period of Joko Widodo's administration. This research uses descriptive qualitative research by utilizing big data, such as documents or data available on the official KPK institutional website, such as documents regarding KPK Law No. 30 of 2002; KPK Law No. 19 of 2019; Government Regulation No. 41 of 2020; KPK Regulation No. 1 of 2021; and Decree No. 652 of 2021. Apart from that, this research also takes information spread in online media such as kompas.com, tirto.id, tempo.co, straitstime.com, scmp.com, indonesiaatmelbourne.unimelb.edu.au, thejakartapost.com, and so forth. This article also quotes a map of conversations on Twitter social media.

Several applications are used in analysis methods, such as Nvivo 12+ and Datawrapper, to help analyze documents or data based on big data. This research was carried out by collecting official government and KPK documents, Capturing conversations on social media (Twitter), and online media reports. The official documents obtained are mapped manually in table/matrix form to facilitate the analysis process. Meanwhile, for data from Twitter and online media, the first step is to enter keywords that match the research topic and then capture them via the Nvivo 12+ application. The capture results are then analyzed using the "sentiment analysis" feature to measure public sentiment towards the keywords entered. The results of these measurements are then input into the Datawrapper application to get data visualization that is easier to understand and read. As for the method used to analyze the information contained in online media, the researcher created a table to map several opinions and events that accompanied the polemic that occurred in tabular form. The results are then arranged chronologically for more in-depth analysis.

IV. RESULT AND DISCUSSION

A. The Weakening of KPK

The path to eradicating corruption in many countries is never easy, as it is intertwined with political power dynamics, culture, and the behavior of entities that have long held influence over the previous system. (Transparansi Indonesia, 2018). The biggest challenge faced by the Independent Commission Against Corruption (ICAC) Hong Kong in fighting corruption was when they started to touch on corruption crimes committed by the police, an incident triggered a siege of the ICAC office by thousands of police officers. In Afghanistan, two Anti-Corruption Criminal Justice Center (ACJC) officials were killed because of their persistence in eradicating corruption. The eradication of corruption reached a dead end when the Kenya Ethics and Anti-Corruption Commission (KEACC) investigative powers were revoked by politicians in the Kenyan Parliament. In Romania, Prime Minister Dacila's policy proposed a new law that subordinated the National Anti-corruption Directorate (DNA) to the government.

The Indonesian KPK also encounters various weakening scenarios carried out by parties who feel disturbed by the actions of the KPK. The weakening pattern used is almost the same; if the KPK investigates or uncovers major cases involving big names in the political world, law enforcement institutions (police and prosecutors), or conglomerates, it will be accompanied by a counterattack against the KPK (corruptor fight back). This counterattack could take the form of criminalization, terror, intimidation, persecution, or proposing changes to regulations to reduce the authority of the KPK. However, every time there is a counterattack by corruptors against the KPK, various elements of society are always present to support the KPK. In the past, there have been several attempts to weaken the KPK, which received widespread attention from the public.

Table 1.1. The KPK Weakening Forms

No	Category	Year	Weakening Form
1	Criminalization	2009	Bibit Samad Riyanto and Chandra M Hamzah were arrested on charges of extortion
		2012	Elite police troops surrounded the KPK building to arrest KPK investigator Novel Baswedan
		2015	KPK chairman Bambang Widjayanto and Abraham Samad were arrested
2	Terror/violence	2016	Novel Baswedan was intentionally hit by a car by an unknown person
		2017	Theft of a KPK investigator's laptop
			Throwing acid on investigator Novel Baswedan's face

		2019	Throwing Molotov cocktails at the house of the KPK chairman
3	Negative Stigma		Accusing that there is a radical/taliban group within the KPK
4	Pruning of Authority		Revision of the KPK Law
5	Removal of Employees	2021	Implementation of the National Insight Test as a condition for transferring KPK employee status to ASN

Source: Processed from online media

This article will highlight the last two cases that occurred during the second term of Joko Widodo's administration in 2019-2021, namely the revision of the KPK law and the elimination of 75 KPK employees through a national insight test. These two cases caused several things in the campaign against corruption in Indonesia. They trigger a large wave of rejection, such as mass demonstrations and hashtag wars on social media. Additionally, several community groups believe that the recent weakening of the KPK has entered the final episode of eradicating corruption.

B. Public Voice on the Revision of the KPK Law

Initiative to amend KPK Law no. 30 of 2002 came from DPR members from five political parties supporting the government, namely Riska Mariska (PDIP); Achmad Baidowi (PPP); Ibn Multazam (PKB); Saiful Bahri Ruray (Golkar); and Teuku Taufiqulhadi (Nasdem) (Tirto.id., 2019). This plan received the blessing of President Joko Widodo, who argued that the KPK Law Number 30 of 2002 was almost 17 years old, so limited improvements were needed. The President's statement was opposed by the majority of civil society and public figures who said that the main aim of the revision of the KPK Law was to weaken the eradication of corruption in Indonesia. The existence of several new articles in the draft revision of the Law further strengthens this suspicion, the articles which have been an effective weapon for KPK employees to catch corruptors have been eliminated or made difficult by complicated conditions.

The data below shows that the idea of changing the KPK Law is a form of weakening the KPK which then triggers a reaction of rejection from the public, various groups ranging from ordinary people, academics, religious figures, NGOs, and students to social media activists. Most of the public's voices questioned independence, transparency, bureaucratization, cuts to authority, the executive's ambivalent attitude, and the DPR's lack of program priorities and knowledge of the juridical, philosophical, and sociological aspects in discussing laws. All the indicators displayed point to a situation that will slowly kill the KPK, and the eradication of corruption will be at its lowest point.

Ahmad Syafii Maarif, a respected public figure in Indonesia, said that ratifying the revision of the KPK law violates procedures. The DPR should involve the public and related state institutions (such as the KPK and The Ministry of Law and Human Rights) in discussing each article. In line with this opinion, Azyumardi Azra, a well-known academician on campus, said that changes to the law carried out by parliament would lead the KPK to a crisis of integrity and demoralization. By making KPK employees into employees under the executive branch, the independence of KPK employees will fall. Cultural figure Sujiwo Tedjo even called on the public not to vote for presidential candidates or political parties that support weakening the KPK in the 2024 general elections.

Representatives from the NGO Indonesia Corruption Watch assess that the revision of the KPK law is a systematic effort by a handful of people who have evil intentions regarding the management of public money, so one way to facilitate its implementation is to paralyze corruption eradication activities. Constitutional law expert Zainal Arifin Mochtar highlighted the issue of reducing the KPK's authority in resolving corruption cases, such as the bureaucratization of the wiretapping process, the dominant existence of supervisory boards, and the importance of establishing the KPK at the regional level. Allisa Wahid, who is the daughter of former President Abdurrahman Wahid (Gusdur), strongly criticized President Joko Widodo's ambivalent attitude, stating that Jokowi would be remembered as the first president who contributed to weakening the KPK.

Religious leaders have taken a strong stance against the KPK Law revision. The Nahdhalatul Ulama group stated that Muslims reject any attempts to weaken KPK masked in a revision of the Law. Figures representing church circles also stated that Christians in Indonesia reject the revision of the KPK Law which aims to weaken the KPK. Representatives from the Hindu religion said they supported a stronger KPK and refused the revision of the KPK Law. Muhammadiyah figure Busyro Muqodas expressed the same thing, according to him, there are four schemes to weaken the Corruption Eradication Commission, namely by forming a

Supervisory Board, wiretapping authority, not being allowed to recruit independent investigators except elements of the police, prosecutors, and ASN, and finally the KPK is permitted to issue a letter to stop investigating cases.

In addition to the rejection above, college students also held large demonstrations in various regions and almost paralyzed big cities in Indonesia. In Jakarta, hundreds of thousands of people gathered at the DPR and on protocol roads to pressure the DPR and the President to cancel the discussion of the draft revision of the KPK Law. In Yogyakarta, tens of thousands of people from various elements of the movement gathered to express their rejection and demands. On the island of Sumatra: Riau, Lampung, Palembang, Jambi, and Aceh, thousands of students took to the streets to protest the discussion of changes to the law in Parliament. In Sulawesi, Makassar, Palopo, Manado, Gorontalo, and Kendari students surrounded parliament and government centers at the regional level to express their rejection and urge Joko Widodo to take responsibility for this incident. In Magelang, Malang, Surabaya, Cirebon, and Bandung, students held long marches to reject the revision of the KPK Law.

The world of social media is currently in upheaval, with discussions about the revision of the KPK Law highlighted through hashtags that accompany the ongoing activities. Public pressure on social media was raised by using the hashtags #GejayanCalling, #StudentMovement, #SaveKPK, and #ReformInCorruption.These hashtags have become trending topics and the main discussions on Twitter. The social media team supporting the government is powerless to face netizens' negative actions and comments regarding the discussion of the KPK Law. The extent of public support for rejecting the revision of the KPK Law on social media is reflected in netizen sentiment towards the KPK Law.

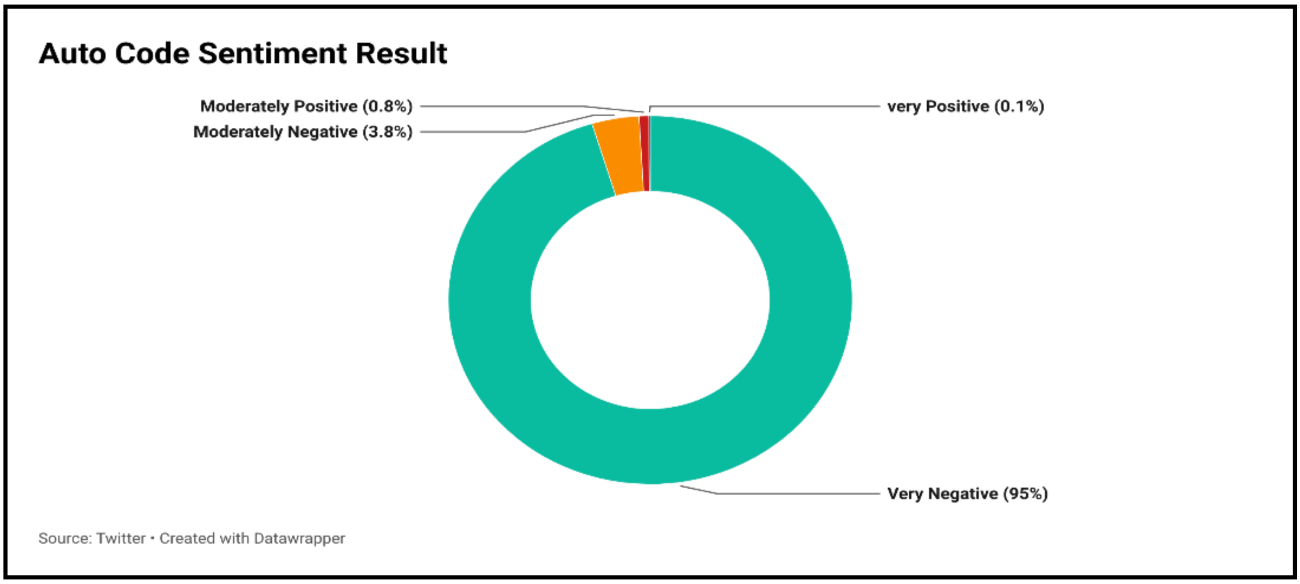

Figure 1.3. Public Sentiment on Twitter with the keywords KPK Law

Source: Twitter data processed by Datawrapper

The search results for the keyword "KPK Law" on Twitter, which was captured and the data was processed via the Nvivo 12+ application, found that 95% of Twitter users viewed the KPK Law as 'Very Negative' This negative sentiment confirms and correlates with public opinion, which considers the KPK Law to be a form of weakening the KPK. The public presumes that the revision of the KPK Law in many aspects has many problems, including the lack of public involvement in its drafting, the haste of parliament in discussing it, the inclusion of articles that have the potential to reduce the authority of investigators in resolving a case, and the existence of a supervisory board which is allegedly a way for the executive to subdue the KPK.

Not satisfied with just revising KPK Law, the DPR, and the government through the hands of the selection committee for KPK leadership candidates, are planning to nominate a police officer (Firli Bahuri) to be one of the candidates to lead the KPK for the 2019-2023 period. Despite concerns about his track record, Firli Bahuri was finally appointed by the DPR as Chairman of the KPK, this was a major blow to the fight against corruption in Indonesia. Before being elected as Chairman of the KPK, Firli was the KPK's director of enforcement. And while Firli was deputy for enforcement, there were several leaks in arrest operations in the field. Firli was also found guilty by the KPK Internal Supervisory Board for committing serious ethical violations when he met with the Governor of West Nusa Tenggara who was being investigated by the KPK in a gratification case. Firli's luxurious lifestyle was also highlighted by the public and was later found guilty by the Supervisory Board.

However, the success of the community movement in pushing the issue of weakening the KPK to become the dominant discourse in the public discourse arena, the government, and the DPR did not make it a consideration in decision-making. Two crucial things that will be the main entry point for weakening the KPK approved by the two institutions, the DPR and President Joko Widodo. First, the revision of the Corruption Eradication Commission Law is approved and passed into law by all factions in the DPR, including the factions that are in opposition to the government. The government then enacted Law No. 19 of 2019 as a replacement for Law No. 30 of 2002, which contributed directly to the elimination of KPK employees that occurred in 2021. Secondly, Inspector General of Police Firli Bahuri was selected by the DPR to occupy the top position as chairman of the KPK for the 2019-2023 period.

C. Public Voice on the National Insight Test

Unlike the previous KPK Law, the KPK Law no. 19 of 2019 states that KPK employees are State Civil Apparatus (ASN). The consequence of the implementation of this law is that KPK employees who do not yet have ASN status are required to be appointed as ASN immediately. In mid-2020, the government issued Government Regulation No. 41 of 2020 concerning the relocation of KPK employee status to ASN. The technical implementation of this status transfer is further regulated in KPK Regulation No. 1 of 2021 concerning Procedures for Transferring KPK Employees to State Civil Apparatus. In Article 5, all employees who wish to transfer their status are required to take the competency test and assessment of the National Insight Test (TWK) as stated in paragraph (4), the implementation of which will be carried out in collaboration with the State Civil Service Agency (BKN).

The test was taken by 1359 employees from various levels and positions. As a result, 75 people did not pass the National Insight Test. Through Decree No. 652 of 2021, the KPK chairman deactivated 75 employees from all tasks they were carrying out. This announcement sparked a polemic in an immense community because of many irregularities and technical implementations found in the process. Responding to this problem, President Joko Widodo stated that TWK should not be the only measurement to pass the test. After that, the KPK and BKN made some changes. According to their statement, 24 people were given the opportunity to be re-trained, but the other 51 were declared unable to be saved.

Tabel 1.2. National Insight Test Controversy

No	Stage	Irregularity
1	Preparation of KPK Regulation No. 1 of 2021	1. In the initial formulation meeting until the discussion of the initial draft there was no article regarding the TWK assessment (August 2020-5 January 2021). 2. The KPK Regulation harmonization meeting on January 26 was held outside the norm. 3. The date for the establishment and implementation of the KPK regulations was signed at the same time (27 January 2021) 4. In the Perkom socialization (17 February 2021) the legal consequences were not explained if employees were unable to fulfill the TWK 5. Manipulation of the KPK-BKN MOU, because the signing of the cooperation and contract for implementing the TWK test between BKN and KPK was made backdated.
2	Implementation of the National Insight Test	1. BKN is not competent in carrying out the TWK assessment. 2. The test involves the National Counterterrorism Agency (BNPT), State Intelligence Agency (BIN), Strategic Intelligence Agency (BAIS), Army (AD). 3. The test questions in the interview session are gender biased, violate human rights, are discriminatory and are not related to eradicating corruption

3	After determining the results of the TWK assessment	1. The chairman of the KPK should not issue Decree Number 652 of 2021 which deactivates 75 employees who do not meet the requirements. 2. Shifting responsibility between BKN and KPK in terms of originating the TWK idea. 3. BKN and KPK inconsistencies when test participants request access to TWK results.

Source: Processed from PKPK Draft, Ombudsman RI, and online media

The National Insight Test, which resulted in the "dismissal" of KPK employees, drew criticism from many parties. A coalition of professors across universities throughout Indonesia sent a letter to President Joko Widodo to cancel the National Insight Test for KPK employees. The professors concluded that the implementation of TWK was not based on law and potentially violated public ethics. Furthermore, in the first point, it is explained that in the KPK Law no. 19 of 2019 and Government Regulation no. 41 of 2020 concerning the Transfer of KPK Employees to ASN, there is no obligation for KPK employees to take TWK. In the second conclusion, the questions asked in TWK indicated elements of racism and privacy violation and are discriminatory against certain groups. As stated by Tata Khairiyah, the interviewer asked, What do you do when you are dating? Are all Chinese the same? Choose the Koran or Pancasila? Are you willing to take off the hijab or not? The questions that arise are a form of carelessness on the part of the exam organizers because they are unrelated to the duties and functions of the KPK as an institution for eradicating corruption.

It is strongly suspected that the implementation of the TWK was designed to eliminate a group of highly dedicated KPK employees who were the backbone of eradication efforts in Indonesia. The creators of this elimination scenario expressed opinions about the Taliban and radicals controlling the KPK, making it dangerous for Pancasila, the Republic of Indonesia, and the constitution. This cruel accusation can be easily refuted because those who were dismissed from the KPK were not only from the Moslem but also Christians, Buddhists, Hindus, and Confucians. The dismissal of KPK employees was based more on past grudges and concerns about uncovering large-scale corruption cases that were being investigated by these people.

A group of journalists who are members of Indonesia Leaks carried out a clustering of dozens of KPK employees dismissed on the grounds of Not Qualified (TMS). The first cluster is KPK employees who revealed two ethical violations committed by Firli Bahuri. In Firli's first ethical violation when he was Deputy for the KPK, he met the Governor of West Nusa Tenggara, Muhammad Zainul Majdi, who was currently in court at the KPK. Second, Firli was investigated for allegedly violating the code of ethics by living a luxurious lifestyle by renting a helicopter for personal use. The KPK investigators and investigators involved in the ethics case were declared not to have passed the TWK. The second cluster is KPK investigators who once investigated the alleged ownership of the fat accounts of Police General Budi Gunawan, who now serves as chairman of the State Intelligence Agency. The third cluster is investigators and investigators who are handling major corruption cases. These include corruption involving political parties, the police, and businessmen, corruption in social assistance, export of lobster seeds, bribery of Harun Masiku, and extortion carried out by KPK investigators from the police. The fourth cluster is the administrators of the KPK employee forum who mobilized support to reject the revision of the KPK law. The fifth cluster is employees considered vocal and brave enough to criticize the KPK leadership.

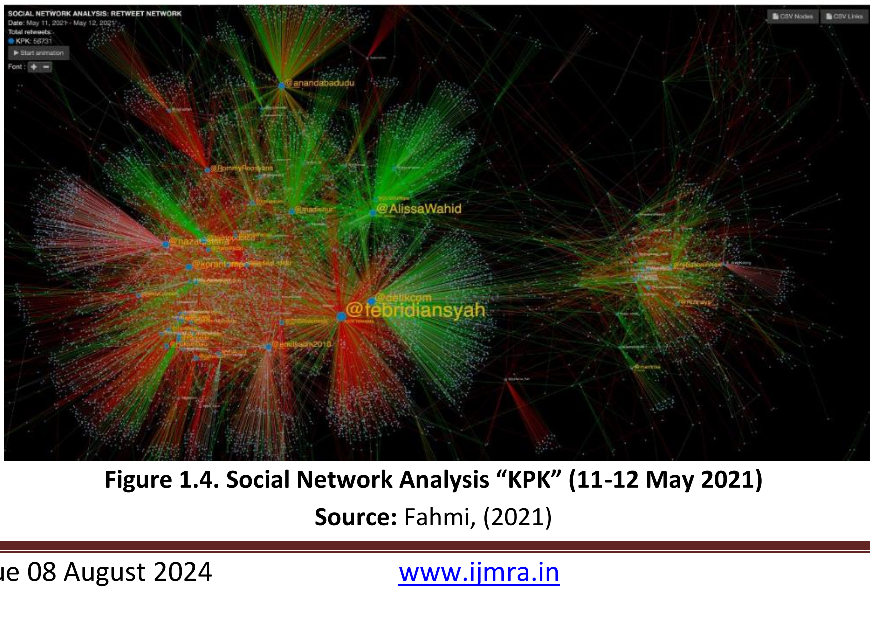

Figure 1.4. Social Network Analysis “KPK” (11-12 May 2021)

Source: Fahmi, (2021)

Related to the escalation of tensions that occurred at the KPK after the announcement that 75 employees were declared Ineligible, discussions about the KPK on Twitter also experienced a drastic increase. Various hashtags represent the public's feelings regarding ways to weaken the KPK, which is increasingly meeting its targets. On Twitter, #Berani JujurPecat #SaveKPK #MosiTidakPercaya #KPKEndGame dominates conversation traffic. Based on the public vote map seen in the social network analysis regarding KPK, the community group that rejected the "elimination" of 75 KPK employees through the National Insight Test was dominant compared to the cluster that supported the KPK's decision regarding the 75 employees. The resistance group comes from civil society, and their composition is very plural. They are concerned about public issues such as corruption, humanity, human rights, gender, the environment, and artists. The concerns of civil society figures were echoed by Twitter users, indicating that the TWK received a negative response from the wider community. Meanwhile, the camp that supports the implementation of TWK comes from accounts known as loyalists to Joko Widodo's government. However, their narrative was unable to match the negative opinions of the TWK rejection group.

Table 1.3. Tweets Sample about TWK

No	Account	Content	Time	Retweets	Like
Group opposing the deactivation of 75 KPK employees through TWK					
1	@febridiansyah (Anti-corruption activist and former spokesperson for KPK)	My condolences. The desire to get rid of 75 KPK employees was proven. They are still forced to be inactive even though there is no strong legal basis. Moreover, the Constitutional Court's decision emphasized that the transition to ASN status must not be disadvantageous to KPK	11 May 2021 5.16 PM	4.851	10.100
2	@anandabadudu (Social activist and artist)	Past method for weakening the KPK was very brutal. Investigators were terrorized, hit on the road, leaders criminalized. Now the weakening is structured and systematic. Executive, legislative joinforces, Law Revision. The National Police became leader. Intelligence operations raised the issue of the Taliban. Finally, the Constitutional Court rejected the formal test. The operation is	11 May 2021 11.33 PM	3.600	7.195
3	@AlissaWahid (Humanitarian activist and daughter of former President Gus Dur)	Confirmed for me, TWK @KPK_RI is not clear. Ms. @tatakhoiriyah, KPK Public Relations staff, was declared ineligible. She was my personal assistant, from Kyai's family, cites Qunut every morning prayer, she has been active in NU since she was young, helped pioneer & grow the @gusdurian network, it is impossible not to have national	11 May 2021 7.43 PM	1.486	3.394

4	@emilsalim2010 (Environmental figure and former minister of the New Order era)	"Light of the moon, bright in the river. The crocodile appears, thought to be dead. Don't believe the official mouth of the KPK. They'd fired their own child because they are afraid of dying."	12 May 2021 5.23 AM	1.311	4.600
5	@nazaqistsha (Novel Baswedan was included in the dismissed employees)	The National Insight Test (TWK) is not a competency test or test for employee entry selection. In Law 19/2019 and the Constitutional Court Decision, it is explained that KPK employees becoming ASN are only transitional and must not harm KPK employees. But it was used to get rid of 75 employees, some of whom were handling large	11 May 2021 10.02 PM	2.869	7.203
		Isn't it weird that the anti-corruption struggle, treated like an enemy in our own country, but actually respected internationally?	12 May 2021 1.31 AM	4.037	12.600
6	@madisnur (Human Rights Activist)	Why do 75 KPK employees "need to be removed" by corrupt agents? Let's check what impact this will have on the corruption cases being handled	11 May 2021 9.31 PM	3.525	7.629
Group supporting the deactivation of 75 KPK employees through TWK					
7	@AliNgabalinNew (Jokowi loyalists)	The Old Man's statement is very PREJUDICE regarding the 75 KPK employees who are TMS as ASN employees. His assumption and the news circulating that 75 KPK employees have been dismissed is a LIE. Because the dismissal was taken after coordination between the KPK and BKN & KemenPAN-RB to be processed in accordance with the provisions of the existing law.	12 May 2021 5.05 PM	449	1.635
8	@mantriss (Politician)	They said TWK was a consequence of changing status. If the test is not credible, let's ask together. I just reject the notion that the KPK can be paralyzed if 1-2 people are not in it. That's unreasonable and very dangerous. Sorry about this,	11 May 2021 9.41 PM	53	217

Source: Data from Twitter

The high level of public attention to the KPK issue shows that the public really believes that what the KPK is carrying out in eradicating corruption is on track. However, its existence is very unpopular with political elites, government bureaucracy, and economic oligarchic forces, who all had access to capital resources. It is trivial for us to understand why the large amount of public support for the KPK is not supported equally by partiality and a firm stance by the ruling elite to issue policies that reject all efforts to weaken the KPK. There is a common thread in all events and which party has the significant motive to weaken the KPK.

Parliamentary politicians, regional heads, law enforcers, executive officials, and businessmen are under duress by the KPK's arrest operations. At this point, the effectiveness of the KPK's methods is considered an obstacle and threat to the ruling regime's instant developmentalism.

The peak of the "annoyance" of corruptors gained momentum in the era of Joko Widodo. Their first step was to dismantle the various authorities that have been the strength of the KPK so far. As the second step, Jokowi transports the majority of political power in a jumbo coalition either in parliament or in the government cabinet. So that the operation to weaken the KPK can take place without significant obstacles from existing political forces.

From the two events highlighted in this article, the revision of the KPK Law and the dismissal of dedicated KPK employees, it can be analyzed which parties played a massive role in weakening the KPK. First, politicians (both in parliament and political party administrators) chose to remain silent or support them. Based on the data above, caught politicians were in the highest category. In parliament, they maneuver to formulate legal products, and then the KPK is classified in the executive group; employees must come from ASN, establish a Supervisory Board, and cut various authorities of KPK investigators. Aim to make it easier to control the KPK's enforcement work in the field. Apart from that, Firli Bahuri, an active police officer and former Deputy for Enforcement at the KPK, who had many problems, was proposed and approved by parliament to become chairman of the KPK for the 2019-2023 period. This strategic position facilitates policy-making from within.

In playing his role, Firli was not alone. He involved the State Intelligence Agency (BIN) with reason because of the strong current of radicalism within the KPK. As is known, BIN is chaired by Budi Gunawan, a former aide to Megawati Soekarnoputri when she was the fifth President of the Republic of Indonesia. During the Joko Widodo (BG) era, he failed to become Chief of the Republic of Indonesia Police because he was named a suspect for allegedly owning a fat account by the KPK. At that time, Budi Gunawan was the sole candidate proposed by Joko Widodo to occupy the position of National Police Chief. President Joko Widodo actually has the opportunity to stop the rapid weakening of the KPK, namely by issuing a Government Regulation in Lieu of Law (PERPPU) for the KPK. This means that the new KPK Law and all its derivatives are declared invalid, including the dismissal of KPK employees who meet the TWK requirements.

In the two cases highlighted (revision of the KPK Law and deactivation of KPK employees), the President initially spoke out, but his stance was indecisive. However, when parliament passed the KPK Law, Joko Widodo chose to remain silent until the Law was declared effective. In the case of the National Insight Test, Jokowi also issued a statement, but when the KPK leadership insisted on "deactivating" its employees, the President did not take significant action. This is where all interests reach a meeting point. The operation to weaken the KPK can be carried out by hiding behind the legality of the laws and mechanisms in force, even though all of this is contrary to conscience and the majority of the public votes.

V. CONCLUSION

The war against corruption in Indonesia has entered the darkest chapter in the reform history. The weakening of the anti-corruption institution KPK has become even more massive and systemic in the era of Joko Widodo's leadership. The strong voice of rejection carried out by anti-corruption activism in the digital public space and the numerous achievements made by the KPK are only considered a passing incident; Jokowi is taking more into account the stability of support from the power of the political elite and economic oligarchy. The course of anti-corruption activism in the digital world is inseparable from social movements and civil society in democracy. This research provides a comprehensive evaluation of the form and causes of a movement that developed and failed to influence state policy. The limitation of this research is that it does not carry out an in-depth analysis of the elite network surrounding power so that they are able to tame policy-makers.

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Validity of the Certificate of Inheritance Rights Made by a Notary

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ABSTRACT: This scientific paper reviews the position of a Notary in helping to resolve inheritance cases through the preparation of an inheritance statement that reflects the official duties as a factual instrument used to protect the perfection of the inheritance and the use of materials that explain who the heirs are and how much each heir's share is. One of the factual instruments that reports a person as a recipient of inheritance is the Inheritance Deed. An inheritance deed is needed by the recipient of the inheritance in managing the transfer of rights to the inheritance to distribute the inheritance. Inheritance deeds for Indonesian citizens of Chinese (European) descent are made by a Notary, so that the form of the deed can be made in the form of a Partial Deed and an Ambteliijke Deed because both forms of the deed are together forms of authentic deeds that can be made by a Notary and the regulations binding on the making of the deed do not clearly explain the form of an authentic deed that is prioritized for making an Inheritance Deed. Both forms of the Deed also have full checking authority. The inheritance deed corrects the Notary's legal opinion based on the actual legal reality. Although there are no provisions regarding the presence of all recipients of the inheritance, a notary cannot harm the rights and benefits of recipients of the inheritance who do not appear in the deed making process.

KEYWORDS: Deed Of Inheritance, Heirs, Notary.

I. INTRODUCTION

Background

When taking legal action against the inheritance of the testator, the heirs often want a certificate of inheritance. A certificate of inheritance is a letter that can be used as a basis by the heirs if they have the authority to take special legal action against the inheritance left by the testator that has not been divided. One of the legal actions that can be tried by the heirs is the method of registering the transfer of land rights tried by the heirs. Inheritance law itself is made so that citizens have legal clarity regarding who has the authority and who does not to allocate the inheritance of the testator. A Certificate of Inheritance Rights or what is commonly called a Deed of Inheritance ("SKW") is a letter containing information made by a Notary regarding the parties who are the heirs of a testator. The SKW itself is made so that the heirs can clearly identify whether there are assets in the form of inheritance, whether there is a mandate letter left by the testator, what is the last marital status of the testator, who are the parties who can receive the inheritance, the calculation of the amount of the inheritance portion and also the calculation of the portion that is always (legitimieme portie) for the heirs. Based on that, the Notary has a great responsibility to divide the inheritance of the heirs to be obtained and stated in the SKW. The Certificate of Inheritance is very important, especially when registering the transfer of land rights, because the certificate of inheritance is a genuine fact that someone is a legal heir. (Effendi Perangin, 2018, 84).

Notary as one of the parties who has the right to issue a Certificate of Inheritance is an ordinary official appointed by the government to assist citizens in making deeds that exist or arise in the community. The need to make this deed before a Notary is to ensure legal clarity and fulfill the law of strong evidence for the parties. Checking the authentic deed and statements from 2 supporting witnesses brought by the person who is directing. The authentic deed and the witness's statements will be the basis for making a Certificate of Inheritance Rights. The Notary must carefully check all the deeds and match them with what is presented by the supporting witnesses (people who are close to the testator's family; close blood relatives are not prohibited from being witnesses) (R. Subekti, 2005, 25). Negligence in the Certificate of Inheritance Rights can be caused by, among other things, the contents of the deed and/or the deed submitted by the person who is directing or the heir being incorrect or illegal, illegal statements from supporting witnesses and the Notary committing negligence in implementing the articles of inheritance law. In connection with this incident, the legal case in this research is the Validity of the Deed of Inheritance Rights made by a Notary.

II. METHOD

The type of research used in this research is a normative research type, where this type of research is tried to be based on law as a whole unit by studying the design, philosophy, and legal basis and recorded or unrecorded regulations that are related to this research. The normative research type is legal research that studies recorded law from various perspectives, namely historical, philosophical, metaphysical, analogous, form and layer, scope and module, stability, common description, and the like in addition to studying the view of its application, as a result it can be said that this type of normative research can also be said to be theoretical legal research. (Irwansyah, 2020, 21).

III. RESULTS AND DISCUSSION

a. Regulation of Notary's Authority in Making Certificate of Inheritance Rights

Notaries as public officials who are authorized by the state to make original deeds have a very significant role in making inheritance certificates. To analyze the authority of Notaries in making inheritance certificates for Indonesian Citizens, it needs to be analyzed based on the philosophy of authority with an analytical understanding method, namely interpreting laws and regulations by connecting them with other laws and regulations or with the totality of the legal system. (Sudikno Mertukusumo, 2014, 88). Based on the philosophy of authority, every action of the ruler and/or public officials must be based on legal authority. This authority is obtained through 2 sources, namely attribution and granting (Delegation and Mandate).

Remembering the presence of a certificate of inheritance is very important, so it needs to be made in a form that is legalized by law (authentic) in order to have perfect legal force. Therefore, based on the analytical understanding procedure, in this case a certificate of inheritance made in the form of an authentic deed meets the provisions of Article 1870 of the Civil Code which explains: "For the person concerned and his heirs or for the person who receives rights from them, an authentic deed provides perfect facts about what is stated therein". Through the relationship between all the regulations described in an analytical manner, the Notary's authority in making a certificate of inheritance in the form of an authentic deed is the authority of attribution, namely the granting of the latest authority to a position based on statutory regulations or legal provisions. Through the philosophy of this attribution authority, the Notary gets the basis of authority from Article 15 of the UUJN. This legal basis can be used as a basis for making a certificate of inheritance. As a result, based on this law, a notary can create a legal form of inheritance certificate or inheritance rights deed for all Indonesian citizens who need it without being based on Dutch law based on differences or groupings of society.

The authority of a Notary in making a certificate of inheritance for Indonesian citizens is based on the provisions of Article 15 of the UUJN, as a result, a certificate of inheritance for Indonesian citizens is made in the form of an authentic deed. To try whether the certificate of inheritance rights made by a Notary is an authentic deed, it needs to be reviewed from the Philosophy of Legal Clarity through an analytical approach. Clarity is a characteristic that cannot be separated from the law, especially for recorded legal norms. Law without clarity will lose its meaning because it can no longer be used as a principle of behavior for each person. Clarity itself is said to be one of the objectives of law.

b. Notary's Responsibilities in Making Certificates of Inheritance Rights

The responsibility borne by a Notary adheres to the basis of responsibility based on errors or negligence, in making an authentic deed, the Notary must be responsible if in the deed he made there is an error or intentional violation by the Notary. Conversely, if the error or violation factor is woven from the parties that appear, so as long as the Notary carries out his authority in accordance with legal provisions, the Notary concerned cannot be held responsible, because the Notary only writes what is informed by the parties to be stated in the deed. Illegal information informed by the parties is the responsibility of the parties. (Andi Mamminanga, 2008, 32). Based on the relationship between responsibility, role and reward for Hans Kelsen's philosophy with the authority, role and purity of the Notary's deed based on the UUJN, it can be explained that the Notary's legal responsibility in making the parties' deeds can be divided into 3 forms of responsibility, namely: administrative responsibility, civil responsibility, and criminal responsibility by the Notary. (Hans Kelsen, 2008, 140). The responsibility of a Notary in carrying out his/her duties also has limits. Applicants who have bad intentions often make efforts to deceive the Notary, for example, to make a Certificate of Inheritance Rights, the applicant brings an illegal Birth Certificate so that it seems as if the applicant is the heir of the testator and has the authority to accept the inheritance. The Notary who makes the Certificate of Inheritance Rights should instruct the applicant or heir to bring all deeds related to inheritance matters. The Notary then carries out an inspection to ensure that the contents of the documents are not contradictory. Applicants who have bad intentions must be responsible if later on there is a conflict due to the illegal Birth Certificate, the applicant will be charged with Article 263 of the Criminal Code concerning manipulation of deeds. The Notary who makes the Certificate of Inheritance Rights is not responsible jointly and severally because the Notary does not have a role in checking the validity of the deed brought by the applicant so that from the start he/she does not know that the applicant has manipulated his/her Birth Certificate. The Notary is also not responsible for the contents of the deed made in front of him/her. The notary is only responsible for the official form of the authentic deed in accordance with the provisions of Article 38 of the UUJN.

CONCLUSION

1. The regulation of the authority of a Notary in the Civil Code does not clearly regulate the authority of a Notary in making a Certificate of Inheritance, but is based on the authority of a Notary regulated in the UUJN which is so large in making deeds regarding all actions, that it can be used as a basic principle for a Notary to make a Certificate of Inheritance not only those that have so far been based on customary law. A Notary has a certain form of authority to make an authentic deed where in terms of the weight of evidence, an authentic deed has a form of evidence that can be said to be perfect. A Notary who is an ordinary official also helps in providing legal clarity to an individual or group in making a contract because a Notary is given the authority to make a deed that has strong legal force, namely an authentic deed.
2. The responsibility of the Notary in making a certificate of inheritance can be linked to the manipulation of the letter attempted by the parties in making a Notarial deed for the Notary's Position Law is when the Notary in carrying out his position is proven to have committed a violation, so the Notary is responsible in accordance with the actions he has done, both responsibility from the field of State Administrative Law, Civil Law, but in the UUJN and the UUJN Amendment Law does not regulate the existence of criminal sanctions. Violation of the sanctions is then qualified as a criminal act committed by the Notary. The aspects above are closely related to the Notary's actions in violating the authority of a Notary, if the Notary does not carry out his authority until it will cause the formation of manipulation or manipulation of the deed as a result it can cause losses for the parties concerned.

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Determinants of the Use of QRIS Application-Based Non-Cash Transactions for Consumers in Mataram City: An Application of the UTAUT 2 Model

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ABSTRACT: Technological developments bring enormous changes to the transformation in digital finance, one of which is the change in the payment system, from cash to noncash. This change has an impact on the pattern of behavioral changes in both interactions between economic actors, as consumers and production factors. This change in consumer behavior needs to be studied to be able to find out the factors that influence the use of noncash transactions based on the QRIS application for consumers in Mataram City: An Application of the UTAUT 2 Model (Unified Theory of Acceptance And Use of Technology) so that policy makers can make interventions that can ultimately improve development performance. The type of research used is explanatory research with the data collection method used is the sample survey method and data collection techniques through the stages of literature study, observation and direct interviews. Based on the results of the study, it is known that variable performance expectations, social influence, and habits affect the use of QRIS, while variable business expectations, facilitating conditions, hedonic motivation, and price value have no effect on the u se of QRIS transactions. It is recommended that Bank Indonesia together with Bank financial institutions must continuously ensure through monitoring and evaluation that the use of QRIS as a non-cash payment instrument can accelerate transactions made by co nsumers in addition to the need for continuous dissemination carried out by Bank Indonesia to be able to change consumer behavior related to the use of non-cash transactions through the QRIS application.

KEYWORDS: Consumer; Payment System; Cashless, QRIS, UTAUT 2

INTRODUCTION

Technological developments bring enormous changes to digital transformation in the form of financial technology (Fintech), one of which is digital payment. Digital payment is a combination of network infrastructure (online) and payment methods as a means of exchanging monetary value through internet services (Rahadi, 2021). Digital payment refers to chip-based electronic money payment channels that are shared delivery channels such as: ATM machines, EDC machines, and CR codes. Meanwhile, payment channels on server-based electronic money are proprietary delivery channels such as: mobile banking and internet banking services (Rahadi, 2021).

According to (Fabris, 2019) technological developments have brought enormous changes to the payment system, this is indicated by the increasing use of non-cash payments. The enormous development of technology also has an impact on behavioral change patterns, both interactions between economic actors, as consumers and production factors (Bank Indonesia, 2019).

Two major categories can be used to classify payment systems, cash payment systems and non-cash payment systems. The instruments that are employed make a fundamental difference. Currency, including paper and metal money, is used in the cash payment system to make payments. However, payment instruments using cards (APMK), checks, bilyet giro, debit notes, or electronic money, or e-money (card based and server based), are utilized in noncash payment systems. In non-cash payments using chip-based electronic money, merchants must provide EDC machines for transactions while the use of server-based electronic money is done by installing payment applications on smartphones so that there are lots of digital wallets, for instance, OVO, Dana, LinkAja, Gopay, and so forth, requiring merchants to offer a variety of payment applications. Additionally, customers making non-cash payments must guarantee that the payment application they possess is accessible at the merchant.

To overcome the difficulties of so many applications that must be prepared by both merchants and consumers, Bank Indonesia in January 2020 implemented the national Quick Response Code Indonesian Standard or commonly abbreviated as

QRIS. QRIS is the unification of various QRs from various Payment System Service Providers (PJSP) using the QR Code. The payment system industry and Bank Indonesia collaborated to develop QRIS, a tool that makes using QR codes for transactions simpler, quicker, and safer. QRIS must be implemented by all Payment System Service Providers that plan to use QR codes, this if every entrepreneur or consumer can use QRIS transactions will be faster, easier and ultimately have an impact on increasing economic growth (Marginingsih, 2019)

Acceptance of a technology by consumers can be measured by a model, namely the Unified Theory of Acceptance and Use of Technology (UTAUT). The goal of the user acceptance research model UTAUT is to explain users' behavioral intentions to use a system and their use behavior after doing so. (Venkatesh et al., 2003). UTAUT has now evolved into UTAUT 2 with several additional variables so that it now has 7 variables, including performance expectations, effort expectations, social influences, facilitating conditions, hedonic motivation, price value, and habits. UTAUT evolved into UTAUT 2 because several variables in UTAUT have not been able to explain the factors that determine consumers' intention to use technology.

The focus of this research is to analyze the determinants of the use of non-cash transactions based on the QRIS application for consumers in Mataram City. This study is important to do considering that the use of QRIS only started in 2020 and studies on factors that influence the use of QRIS by consumers in non-cash payment transactions have not been carried out so much. In addition, the use of non-cash transactions with QRIS really needs to be supported because this application is very easy to use and has a good security system so it is very necessary to know the factors that cause consumers to use QRIS so that policy makers, especially Bank Indonesia, can set policies in accordance with consumer expectations.

This study uses the UTAUT 2 model with variables of performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habits. The object of research is people in Mataram City who use QRIS-based non-cash transactions.

LITERATURE REVIEW

Pohan (2011) defines a payment system as one that governs agreements, infrastructure, and technical systems used to send, receive, and validate payment instructions and to fulfill payment obligations obtained through the exchange of "value" between people, banks, and other organizations both nationally and internationally (cross border). A payment system is a collection of institutions, policies, and procedures that are used to transmit money in order to satisfy financial obligations that result from economic activity (Bank Indonesia, 2019). The idea of "money" as a medium of exchange (medium of change) or an intermediary in transactions involving commodities, services, and money was created concurrently with the development of the payment system.

QR Code Payment is a mechanism for transferring non-cash payments and only needs to scan the QR code of the merchant and transfer the payment. QR Code can be scanned or scanned from various directions, both horizontally and vertically, (Sagayarani, 2018). The QR Code Indonesia Standard, or QRIS, is a payment system designed to standardize QR Code-based transactions by using a common delivery route. The Indonesian Payment System Association (ASPI) and Bank Indonesia developed the system. QRIS was created by Bank Indonesia and the payment system industry to make using QR codes for transactions simpler, quicker, and safer(Bank Indonesia, 2019).

An explanation of users' intention to utilize a system and their subsequent usage behavior is the goal of the user acceptance research model UTAUT (Venkatesh et al., 2003). Venkatesh and a few other academics transformed the original UTAUT model into UTAUT 2 in 2013. UTAUT 2 is an extension of the first UTAUT model that adds three new constructs namely price value, hedonic motivation, and habit. It focuses on the context of individual customers.

Performance expectancy is the evel of belief that using the system will increase one's capacity to complete tasks. (Venkatesh et al., 2003). One can deduce that someone who already believes an information system can aid his job will tend to utilize it for a longer period of time since performance expectations are a major limitation on intention to use. Based on research conducted by (Christiono & Brahmana, 2018) and (Shafly, 2020) performance expectations affect behavioral intention. H1: Performance Expectancy affects Behavioral Intention

Social influence are the degree to which a person feels that other people think he ought to implement a new system (Venkatesh et al., 2003). Mandatory use of the system will have a greater effect on behavioral intention from social influence; however, this effect is only significant during the initial stages of a user's experience with the technology or system and eventually becomes negligible with continued use. According to research conducted by (Hammouri et al., 2023) and (Audina et al., 2021), shows that social influence affects behavioral intention.

H2: Social Influence affects Behavioral Intention

Effort expectancy is a measure of system users' ease of use. (Venkatesh et al., 2003). Information technology that is easy to use can provide the impression that the user finds the system comfortable and helpful. On the other hand, if the system is thought to be difficult to use, users won't feel comfortable using it, and their intention to use it will decline. Based on research conducted by (Hoque & Sorwar, 2017) and (Suntara et al., 2023) shows that effort expectancy affects behavioral intention.

H3: Effort Expectancy affects Behavioral Intention

The degree to which a person believes that the technological and organizational framework is in place to facilitate system use is known as the facilitating condition. (Venkatesh et al, 2003). Research conducted by (Mayanti, 2020) and (Sedana & Wijaya, 2009), shows that facilitating conditions affect behavioral intention.

H4: Facilitating Condition affects Behavioral Intention

Hedonic Motivation, or the pleasurable experience one has when utilizing technology, has been demonstrated to be a significant factor in influencing the adoption and use of that technology (Brown & Venkatesh, 2005). Hedonic motivation is a motivation for enjoyment brought on by utilizing a system or technological (Venkatesh et al., 2012). Research by (Van Der Heijden, 2004) and (Thong et al., 2006), among others, revealed that Hedonic Motivation has a direct impact on people's acceptance and usage of technology..

H5: Hedonic Motivation affects Behavioral Intention

Price value is the evaluation of the cost to an individual compared to the advantages of utilizing technology (Venkatesh et al., 2012). Price value is considered favorable if users see more benefits from utilizing technology than costs. The behavioral intention variable in technology use can be predicted by price value. (Venkatesh et al., 2012). Research conducted by (Shafly, 2020) and (Hammouri et al., 2023) shows that price value affects behavioral intention.

H6: Price Value affects Behavioral Intention

Habit explains how someone uses a system in their daily life (Harsono, 2014). According to (Limayem et al., 2007) in (Venkatesh et al., 2012), habit is defined as the extent to which a person tends to behave automatically due to prior learning. Previous research conducted by (Hidayat et al., 2020) and (Saragih & Rikumahu, 2022) showed that habit affects behavioral intention.

H7: Habit affects Behavioral Intention

The degree to which users intend to utilize the system consistently on the presumption that they have access to information is known as their behavioral intention (Laksito, 2012). If someone is interested in using new technology if he believes that using this technology will improve performance in his work, using this technology is easy, he gets influence from the surrounding environment and the facilities for this technology are fulfilled. According to research conducted by (Damayanti et al., 2022) and (Mayanti, 2020), shows that behavioral intention affects use behavior.

H8: Behavioral Intetion affects Use Behavior

The intensity with which users utilize new technology is known as use behavior (Laksito, 2012). So that a person's factors in using technology are motivated by a person's intention to use technology that is driven based on the perception that using this technology can improve performance, ease of operation, social and environmental factors that influence and conditions that facilitate the technology.

The framework of this research is describe as follows:

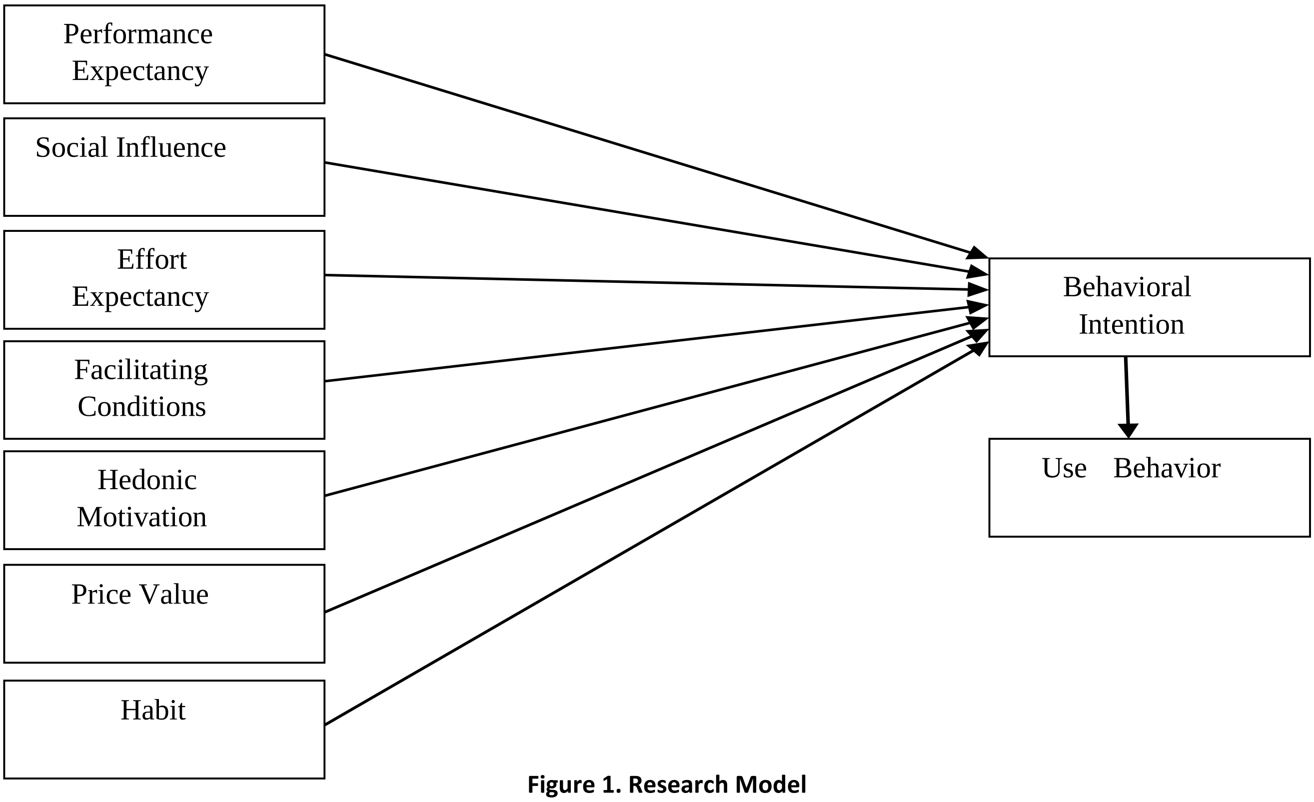

Figure 1. Research Model

METHOD

This quantitative research uses the UTAUT2 model to analyze consumer intentions in using QRISbased non-cash transactions by testing the variables of performance expectancy, social influence, effort expectancy, facilitating conditions, hedonic motivation, price value, and habit on the dependent variables, namely behavioral intention and use behavior. The location of this research is in Mataram City, with the sampling technique using probability random sampling. The population in this study were consumers in Mataram City who were spread across 6 sub-districts.

The sample survey approach was utilized in this study to obtain data, which entails selecting samples from a subset of the Mataram City area's QRIS users. Methods for gathering data include observation, literature review, and in-person interviews with respondents who are led by a set of questions or surveys that researchers have created. The research instruments used are shown in Table 1.

Table 1. Variable Indicators

Variable	Definition	Indicators
Performance Expectancy	Performance expectancy is the evel of belief that using the system will increase one's capacity to complete tasks. (Venkatesh et al., 2003).	Relative Advantage Perceived Usefulness Job Suitability
Social Influence	Social influence is the degree to which a person feels that other people think he ought to adopt a new system. (Venkatesh et al., 2003).	Status Social Factors Subjective Norms
Effort Expectancy	Effort Expectancy is the degree of system usability that one can expect. (Venkatesh et al., 2003).	Complexity Ease of Use Perceived Ease of Use
Facilitating Conditions	Facilitating Conditions is how much a person believes that the technological and organizational framework is in place to enable system use. (Venkatesh et al., 2003).	Perceived Behavioral Control Facilitating Conditions Compatibility

Hedonic Motivation	Hedonic Motivation is the enjoyment one gets from using technology and has been demonstrated to be a significant factor in determining people's adoption and usage of it. (Brown & Venkatesh, 2005).	Fun Entertain Interest
Price Value	Price value is the evaluation of the cost to an individual compared to the advantages of utilizing technology. (Venkatesh et al., 2012).	Quality Price Value
Habit	Habit explains how someone uses a system in their daily life. (Harsono, 2014).	Prior Use Addiction Behavior to be automatic
Behavioral Intetion	Behavioral intention refers to how much a user wants or intends to utilize the system consistently under the presumption that they have access to information. (Laksito, 2012).	Repurchase Intention Positive word of mouth communication Service quality
Use Behavior	User behavior is the intensity of users in using a new technology (Jati, 2012).	Usage Time Usage Frequency Use Variety

RESULTS AND DISCUSSION

Based on gender, it is known that the composition of male respondents amounted to 54 people (40.30%) and 80 women (59.70%). When viewed based on age, it is known that the age of respondents ranges from 15 years to 69 years. The age of respondents with the largest number is between 15-25 years old, namely 76 people. At that age a person is in the category of productive age, innovative, high work enthusiasm, accompanied by an interest in using digital technology relatively high so that it will affect the use of non-cash payment systems to increase. In addition, it is known that the level of education of respondents is quite high, 44.78% of respondents (60 people) have S1 education and only 1 person (0.75%) has elementary school education. Higher education is expected to respond more quickly to changes in economic digitalization so that non-cash payments will increase. In terms of occupation, it is known that 76 respondents who work, the largest number of 33 people (43.42%) are working as employees in photo copyan shops, drivers, tutors, chefs, receptionists, pharmacists and 5.26% as lecturers. While respondents who did not work amounted to 58 people, (43.28%) of the total respondents, 45 people (45.78%) who had activities as students / students and as many as 3 people (3.50%) as retirees while the rest were housewives and unemployed.

Table 2. Outer Loading Value

Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistic	P Values
Habit (Z) <- Habit (X7)	1.000	1.000	0.000		
Price Value (X6) <- Price Value (X6)	1.000	1.000	0.000		
X1.1 <- Performance Expectancy (X1)	0.830	0.826	0.037	22.663	0.000
X1.2 <- Performance Expectancy (X1)	0.775	0.763	0.071	10.944	0.000
X1.3 <- Performance Expectancy (X1)	0.880	0.876	0.029	30.780	0.000
X2.1 <- Social Influence (X2)	0.747	0.741	0.077	9.751	0.000
X2.2 <- Social Influence (X2)	0.793	0.784	0.056	14.184	0.000
X2.3 <- Social Influence (X2)	0.809	0.804	0.074	10.999	0.000
X3.1 <- Effort Expectancy (X3)	0.784	0.782	0.071	11.010	0.000
X3.2 <- Effort Expectancy (X3)	0.809	0.809	0.048	16.966	0.000
X3.3 <- Effort Expectancy (X3)	0.933	0.935	0.010	95.752	0.000
X4.1 <- Facilitating Conditions (X4)	0.915	0.914	0.026	35.711	0.000
X4.2 <- Facilitating Conditions (X4)	0.914	0.912	0.030	30.821	0.000
X5.1 <- Hedonic Motivation (X5)	0.914	0.913	0.026	34.896	0.000
X5.2 <- Hedonic Motivation (X5)	0.881	0.876	0.038	22.984	0.000
Y1.1 <- Behavioral Intention (Y1)	0.736	0.733	0.044	16.584	0.000

Y1.2 <- Behavioral Intention (Y1)	0.810	0.808	0.050	16.208	0.000
Y1.3 <- Behavioral Intention (Y1)	0.783	0.787	0.044	17.956	0.000
Y2.1 <- Use Behavior (Y2)	0.902	0.904	0.020	44.483	0.000
Y2.2 <- Use Behavior (Y2)	0.788	0.779	0.073	10.766	0.000

Source: primary data, processed

A correlation with a loading value larger than 0.5 is considered to satisfy convergent validity, according to (Chin, 1998). The result demonstrates that the loading factor offers a value greater than the suggested value of 0.5. in order for the study's indicators to meet the requirements of convergent validity.

Table 3. AVE (Average Variance Extracted)

Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Values
Performance Expectancy (X1)	0.688	0.680	0.048	14.221	0.000
Social Influence (X2)	0.613	0.608	0.042	14.579	0.000
Effort Expectancy (X3)	0.713	0.716	0.033	21.496	0.000
Facilitating Conditions (X4)	0.836	0.834	0.034	24.519	0.000
Hedonic Motivation (X5)	0.806	0.801	0.039	20.459	0.000
Price Value (X6)	1.000	1.000	0.000		
Habit (X7)	1.000	1.000	0.000		
Behavior Intention (Y1)	0.604	0.605	0.038	15.724	0.000
Use Behavior (Y2)	0.717	0.715	0.049	14.752	0.000

Source: Primary data processed

The table above demonstrates that every construct or variable has an AVE value greater than 0.5, with the Behavioral Intention construct having the lowest AVE value at 0.604 (Y1), while the highest AVE value is 0.836 in the facilitating conditions construct (X4).

Table 4. Cronbach's alpha Reliability Test Results

Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Values
Performance Expectancy (X1)	0.776	0.765	0.051	15.183	0.000
Social Influemce (X2)	0.686	0.681	0.055	12.397	0.000
Effort Expectancy (X3)	0.798	0.799	0.034	23.146	0.000
Facilitating Conditions (X4)	0.804	0.801	0.049	16.551	0.000
Hedonic Motivation (X5)	0.760	0.753	0.061	12.472	0.000
Price Value (X6)	1.000	1.000			
Habit (X7)	1.000	1.000			
Behavioral Intention (Y1)	0.671	0.669	0.053	12.591	0.000
Use Behavior (Y2)	0.615	0.610	0.088	7.021	0.000

Source: Primary data processed

As the following table shows, the latent variables investigated in this study have values more than 0.5 based on the Cronbach's Alpha value. This, it may be concluded that every hidden variable is trustworthy.

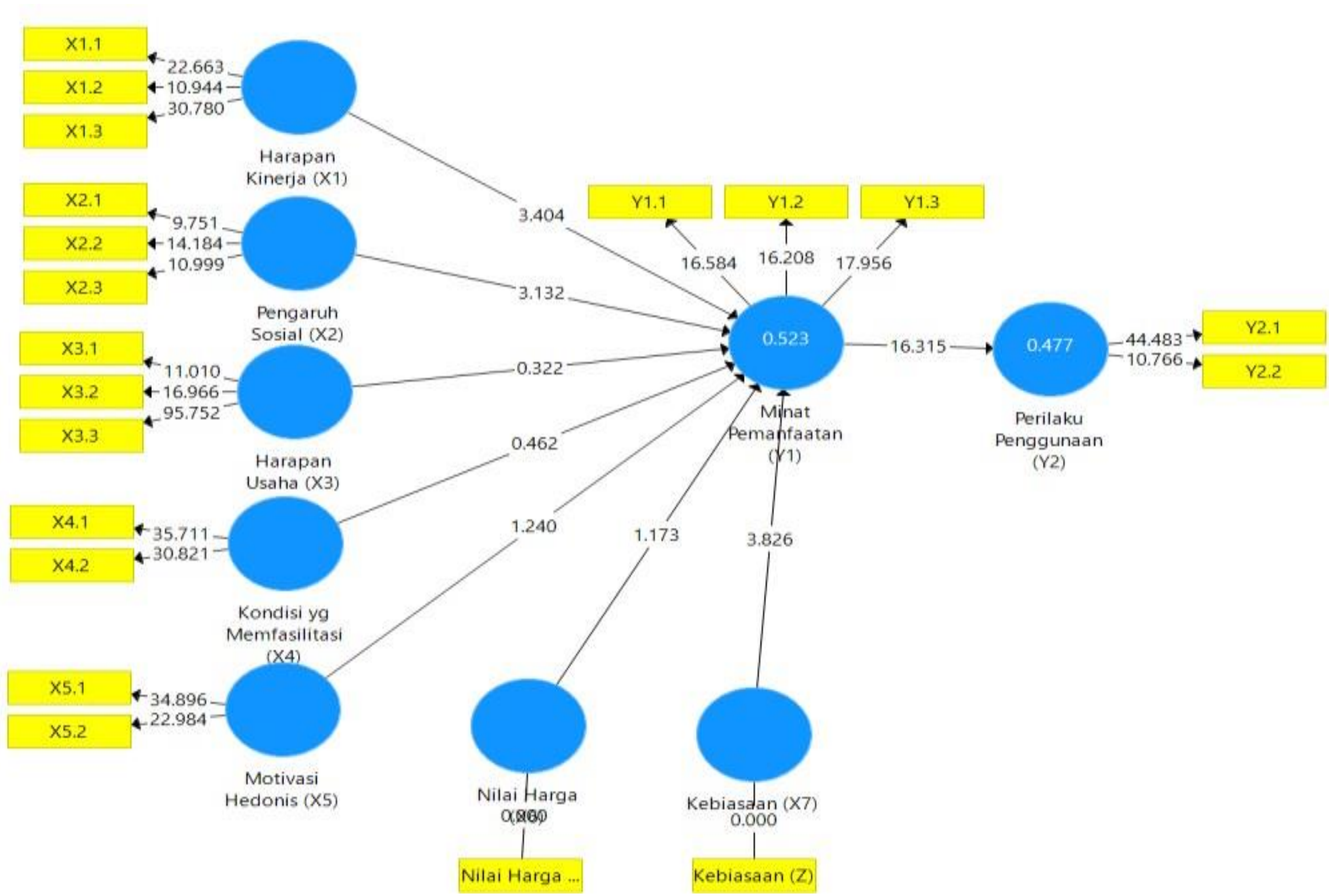

Figure 2. Structural Model

Finding out how one variable affects another—in this case, exogenous variables on endogenous variables—is the goal of the PLS model's significance test. Testing hypotheses by adhering to the guidelines based on the t-table value at a 95% confidence level (α of 5%). The following table displays the findings from evaluating the impact of exogenous variables on endogenous variables.

Table 5. Path Coefficient

Variable	**Original Sample (O)**	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistisc**	**P Values**
Performance Expectancy (X1) -> Behavioral Intention(Y1)	0.219	0.225	0.064	3.404	0.001
Social Influence (X2) -> Intention Behavioral (Y1)	0.211	0.223	0.067	3.132	0.002
Effort Expecancy (X3) ->Intention Behavioral (Y1)	0.029	0.033	0.089	0.322	0.747
Facilittaing Conditions Behavioral (X4) -> Intention (Y1)	-0.049	-0.056	0.106	0.462	0.644
Hedonic Motivation (X5) -> Behavioral Intention (Y1)	0.122	0.127	0.098	1.240	0.215
Price Value (X6) -> Behavioral Intention (Y1)	0.102	0.083	0.087	1.173	0.241
Habit (X7) -> Behavioral Intention (Y1)	0.381	0.386	0.099	3.826	0.000
Behavioral Intention (Y1) -> Use Behavior (Y2)	0.690	0.700	0.042	16.315	0.000

Source: Primary data processed

The importance of the calculated parameters provides important information about the relationship between the research variables.

Table 4.8 serves as the foundation for the understanding of each latent variable association, and the explanation is provided below.

Drawing from table 4.8, the statistical t-value for the performance expectation's impact on behavioral intention is 3.404. When this value is juxtaposed with the t-table at α 5 percent, it comes out to 1.96. This indicates that the t value exceeds the t-table value, indicating that the performance expectation variable either rejects H0 or accepts Ha. In other words, the behavioral intention QRIS is impacted by the performance expectation with three indicators.

The aforementioned table indicates that the t count for social effect on behavioral intention is 3.132. When the t value is compared to the t table at ± 5 percent, or 1.96, the t value is higher (3.132 < 1.96). It is determined that, with its signs, social influence has an impact on behavioral intention to utilize QRIS; that is, H0 is rejected and Ha is accepted.

The effort expectancy on the QRIS behavioral intention has a t-statistic value of 0.322 based on the same table. When the t-statistic value is compared to the t-table at α 5 percent, which is 1.96, the calculated t value is less than the t table value. In other words, the effort expectancy and associated signs have no bearing on the behavioral intention QRIS, and it may be concluded that either H0 is accepted and Ha is rejected.

The facilitating conditions on the behavioral intention QRIS have a t-statistic of 0.462 based on the table above. When this number is compared to the t-table at α 5 percent, which has a value of 1.96, the calculated t value is less than the t table value (0.462 < 1.96). Thus, it may be said that either H0 is accepted and Ha is rejected, indicating that the facilitating conditions and their indicators have no bearing on the QRIS for behavioral intention.

The hedonic motivation t-statistic on the behavioral intention QRIS, as indicated by the above table, is 1.240. When the t-statistic value is compared to the t-table at α 5 percent, which is 1.96, the computed t value is less than the t table value. It follows that either H0 is accepted or Ha is rejected, indicating that the behavioral intention QRIS is unaffected by the hedonic incentive and its indications.

The statistical t-value for the price value on the intention to use QRIS, as indicated by the preceding table, is 1.173. When this value is compared to the t-table at α 5 percent, which comes out to be 1.96, the computed t-value is less than the value in the t-table. The pricing value and associated indicators have no bearing on the behavioral intention of QRIS, therefore it may be stated that either H0 is accepted or Ha is rejected.

The habit variable on the behavioral intention variable has a t-statistic value of 3.826 based on the table above. The computed t value is greater than the t table value when the t-statistic value and the t-table are compared at α 5 percent, or 1.96. Thus, it can be said that the Habit variable and its indications have an impact on the behavioral intention QRIS, with H0 being rejected and Ha being accepted.

The t-value at α 5 percent, or 1.96, indicates that the calculated t-value is bigger than the t-table value. Based on the preceding table, the statistical t-value for the behavioral intention variable on the QRIS usage behavior variable is 16.315. The behavioral intention variable and its indicators have an impact on the use behavior QRIS, as evidenced by the rejection of H0 or acceptance of Ha.

Table 6. Coefficient of Determination (R^2)

Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistic (|O/STDEV|)	P Values
Behavioral Intention (Y1)	0.523	0.557	0.049	10.709	0.000
Use Behavior (Y2)	0.477	0.492	0.059	8.140	0.000

Source: Primary data processed

The QRIS usage behavior construct (Y2) is 0.477, as can be observed from the data testing results shown in Table 4.9 above. Based on these findings, the analysis is rated as moderate. Accordingly, performance expectations, social influence, effort expectancy, condition facilitation, and behavioral intention influence the QRIS use behavior construct by 47.70 percent. Other variables outside the model that influence the remaining 52.30 percent include business scale, business promotion, and innovation in business development.

CONCLUSIONS

Based on the analysis's findings, which were produced using the structural equation model of partial least squares (PLS-SEM), the results show that of the 7 variables, namely: performance expectations, social influence, business expectations, facilitating conditions, hedonic motivation, price value and habits used as determinants of QRIS behavioral intention variables for consumers in Mataram City, only 3 variables, namely: performance expectations, social influence and habit variables that affect QRIS behavioral intention while 4 variables, namely effort expectancy, facilitating conditions, hedonic motivation, price value have no effect on behavioral intention of QRIS transactions.

Test results for the behavioral intention variable on QRIS usage behavior are 16.315; if the calculated t value is more than the t table value, the t-statistic value is greater than the t-table value at α 5 percent, or 1.96. The behavioral intention variable and its signs are found to have an impact on the QRIS user's behavior, leading to the conclusion that either H0 is rejected or Ha is accepted. For the QRIS use behavior construct, the coefficient of determination (R2), which indicates the degree of variation in changes in the independent variable on the dependent variable, is 0.477. Based on these findings, the analysis is rated as moderate. This means that the QRIS use behavior construct is influenced by performance expectations, social influence, effort expectancy, facilitating conditions, and behavioral intention by 47.70 percent and the remaining 52.30 percent is influenced by other variables outside the model.

Bank Indonesia together with Bank financial institutions must continuously ensure through monitoring and evaluation that the use of QRIS as a non-cash payment instrument can accelerate transactions made by consumers and there needs to be continuous dissemination carried out by Bank Indonesia in order to influence customer behavior about the utilization of the QRIS application for non-cash transactions.

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Assessment of Students' Satisfaction with Vietnamese Subjects in Some Primary Schools in Binh Duong Province

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Thu Dau Mot University

ABSTRACT: The research addresses a notable gap in the literature, as previous studies have primarily focused on academic achievement rather than student satisfaction. The key research questions investigate the factors influencing student satisfaction, including the roles of teachers, students, and families. The research employed a quantitative method, utilizing SPSS software for data analysis. The data was collected through surveys administered to students in selected primary schools. The results highlighted several critical findings: teacher quality, teaching methods, and communication skills, significantly impacted student satisfaction. Student factors, such as interest and engagement in the subject, were also crucial. Additionally, family involvement and support played a pivotal role in shaping students' attitudes toward learning Vietnamese. In conclusion, the study emphasizes the importance of a supportive learning environment facilitated by skilled teachers and engaged families. The findings suggest that improving these factors could enhance students' satisfaction and overall experience with the Vietnamese language subject, ultimately contributing to better educational outcomes in Binh Duong province.

1. INTRODUCTION

Assessing student satisfaction with educational subjects is critical for understanding and improving the learning experience. This study focuses on the Vietnamese subject in primary schools in Binh Duong province, aiming to evaluate the level of satisfaction among students and identify key influencing factors. Understanding student satisfaction in this context is essential as it directly impacts learning outcomes and overall educational quality.

The importance of managing student expectations and satisfaction has been well-documented in educational research. Appleton-Knapp and Krentler (2006) emphasize that aligning educational services with student expectations is crucial for achieving high levels of satisfaction. This principle applies to primary education, where students' early experiences with subjects like Vietnamese can shape their future attitudes toward learning.

The Vietnamese education system has undergone significant reforms in recent years, as outlined by the Ministry of Education and Training (2018). The comprehensive general education program aims to enhance the quality of education across all subjects, including Vietnamese. Despite these efforts, there is limited research on how these reforms impact student satisfaction at the primary school level, particularly in specific provinces like Binh Duong. This study aims to fill this gap by providing empirical data on student satisfaction with the Vietnamese subject.

Previous studies have highlighted various factors that influence student satisfaction, including teacher quality, student engagement, and family support. For instance, Bui Duc Nhan (2020) found that the quality of learner support services significantly affects student satisfaction in higher education. While this study focuses on university students, similar factors may be relevant for primary school students. Additionally, Petruzzellis et al. (2006) emphasize the role of service quality in shaping student satisfaction in an international context, suggesting that educational quality is a universal concern.

The theoretical framework for this study draws on several educational psychology theories. Piaget's (2001) work on child development and language acquisition provides insights into how young learners perceive and engage with subjects like Vietnamese. Vygotsky's (1978) theory on the development of higher psychological processes highlights the importance of social interaction and teacher-student relationships in learning. These theories underscore the significance of a supportive and interactive learning environment for enhancing student satisfaction.

To address the research gap, this study poses several key questions: What is the current level of student satisfaction with the Vietnamese subject in primary schools in Binh Duong province? What factors influence this satisfaction? How do teacher quality, student engagement, and family support contribute to students' perceptions of their Vietnamese classes?

The research employs a quantitative methodology, using SPSS software for data analysis. Surveys are administered to primary school students to gather data on their satisfaction levels and the various factors influencing them. This approach allows for a comprehensive analysis of the relationships between different variables and provides robust empirical evidence.

In conclusion, understanding student satisfaction with the Vietnamese subject is crucial for improving educational practices and outcomes in primary schools. By identifying the key factors that influence satisfaction, this study aims to provide actionable insights for educators, policymakers, and families in Binh Duong province. The findings will contribute to the broader discourse on educational quality and student engagement in Vietnam, ultimately helping to create a more effective and supportive learning environment for young learners.

2. METHOD STUDIES

This study employs a quantitative research design to evaluate students' satisfaction with the Vietnamese subject in primary schools in Binh Duong province. Data were collected using a structured survey questionnaire administered to a sample of students across selected schools. The survey included items measuring various dimensions of satisfaction, such as teacher quality, student engagement, and family support. The collected data were analyzed using SPSS software. Descriptive statistics were used to summarize the general levels of satisfaction, While Conbach's Alpha statistics indicate the reliability of the Likert scale; frequency and satisfaction statistics help teachers, students, and families change the way they teach, learn, and support students in the learning process. This methodological approach provides a comprehensive understanding of the factors impacting student satisfaction, allowing for data-driven recommendations to improve the educational experience in primary schools.

3. RESEARCH CONTENTS

3.1. Theoretical basis

The theoretical basis for studying the current status of listening and speaking skills development in primary school students through the Vietnamese subject is based on educational theories, linguistics, developmental psychology, and teaching methods. Here are some important theoretical bases:

Jean Piaget's theory of language development. Jean Piaget (2001) believes that language development is part of general cognitive development. Children learn language through stages of cognitive development and practical experience. At primary school age, children are in the stage of beginning to understand abstract concepts and think logically. This has a direct impact on the way children develop listening and speaking skills. (Piaget, 2001)

Lev Vygotsky's social learning theory. Lev Vygotsky (1978) through social learning theory emphasizes the role of the social environment and interaction in language development. He believed that children learn language through social interaction, especially through the support of adults and peers. He argued that “every function in a child’s development occurs at two levels. First, the social level and then the personal level. This is true for self-awareness, logical memory, and the formation of concepts. All higher functions originate from real interpersonal relationships” (Vygotsky, 1978, p. 56). In this, Vygotsky (1978) was also interested in the “zone of proximal development”. In this concept, Vygotsky refers to the gap between what children can do alone and what they can do with the support of others. This support can help children develop listening and speaking skills more effectively. (Vygosky, 1978, p. 86).

Theory of effective communication skills: “Communication is the activity of establishing and operating relationships between people to satisfy certain needs” (Chu Van Duc (editor), 2005, p. 13). The principles of effective communication include clarity, brevity, coherence, accuracy, and appropriateness. Therefore, applying communication theory in education helps students develop communication skills and at the same time, through which they can evaluate and improve their communication skills in the future.

Erik Erikson's theory of developmental psychology. Erik Erikson believes that a person's life consists of 8 stages of psychological development. Which, the period from 6-12 years old is the period of "industry vs. Inferiority". During this period, children need to feel competent and confident in learning and social activities. Developing good listening and speaking skills helps children feel more confident in communication and learning and at the same time gain recognition from family, teachers, and friends, making them more confident in the future. (Truc Nguyen, 2022)

In addition, there is Abraham Maslow's motivation theory (Maslow Motivation Theory). According to Maslow, "the need for self-improvement -> the need for respect, recognition, social status -> social needs (feeling of intimacy, love, communication) -> safety needs (wanting to be protected, to be at peace...) -> physiological needs (hunger, thirst)" (Tuyet Nhi, 2019).

Therefore, for children of primary school age (6-12 years old), the need for respect and self-affirmation (esteem needs) is an important part of their development. When children feel confident in their listening and speaking skills, they will be more confident in their learning and social communication activities. Based on the above theory and method, we propose the following questionnaire to assess the level of student satisfaction with the Vietnamese subject in some primary schools in Binh Duong province.

3.2. Questionnaire content

The questionnaire includes 15 questions with 3 independent variables (student factors, teacher factors, and family factors).

Scale used: Likert scale (5 levels)

1. Very satisfied. 2. Satisfied. 3. Normal. 4. Dissatisfied. 5. Completely dissatisfied

Part A. General information **Gender:** 1. Male 2. Female **Grade:** 1. Grade 1 2. Grade 2 3. Grade 3 4. Grade 4 5. Grade 5 **School:** 1. Primary School Phu Hoa 1 Primary School, Tran Van On Street, Phu Hoa Ward, Thu Dau Mot City, Binh Duong Province 2. Primary School Hoa Phu Primary School, Zone 2, Hoa Phu Ward, Thu Dau Mot City, Binh Duong Province. 3. Primary School Tran Van On Primary School, Thoi Hoa Ward, Ben Cat City, Binh Duong Province	
Part B. Satisfaction assessment Likert scale with 5 levels: 1. Very satisfied. 2. Satisfied. 3. Normal. 4. Dissatisfied. 5. Completely dissatisfied	
I. Teacher factors	
1. The teacher uses lively teaching methods, helping students to be interested in class,	1 - 2 - 3 - 4 - 5
2. The teacher creates conditions for students to participate in group discussions and express their opinions.	1 - 2 - 3 - 4 - 5
3. The teacher encourages students to ask and answer questions during class.	1 - 2 - 3 - 4 - 5
4. The teacher provides timely and useful feedback to students.	1 - 2 - 3 - 4 - 5
5. The teacher uses many supporting teaching aids such as pictures, videos, and games.	1 - 2 - 3 - 4 - 5
II. Student factors	1 - 2 - 3 - 4 - 5
6. Students feel confident when speaking in front of the class.	1 - 2 - 3 - 4 - 5
7. Students actively participate in group activities.	1 - 2 - 3 - 4 - 5
8. Students have good listening skills when the teacher lectures.	1 - 2 - 3 - 4 - 5
9. Students can express their opinions clearly and coherently.	1 - 2 - 3 - 4 - 5
10. Students enjoy listening and speaking activities.	1 - 2 - 3 - 4 - 5
III. Family Factors	1 - 2 - 3 - 4 - 5
11. Families encourage and support students to practice listening and speaking skills	1 - 2 - 3 - 4 - 5
12. Families create conditions for students to participate in extracurricular activities to develop listening and speaking skills.	1 - 2 - 3 - 4 - 5
13. Families regularly talk and encourage students to share their thoughts.	1 - 2 - 3 - 4 - 5
14. Families support students in doing homework and practicing listening and speaking skills.	1 - 2 - 3 - 4 - 5
15. Families provide materials and tools to support students in developing listening and speaking skills.	1 - 2 - 3 - 4 - 5

Survey period: from February to April 2024 during the period of leading primary education students to practice teaching at the above schools.

Total number of survey forms:

- Distributed: 427 forms.
- Collected: 361 forms.

3.3. Analysis of satisfaction and factors affecting primary school students' satisfaction with the Vietnamese language subject in primary schools

3.3.1. Level of satisfaction with the teacher factor

The teacher factor group includes 5 observed variables: GV1. The teacher uses lively teaching methods to help students get excited during class. GV2. The teacher creates conditions for students to participate in group discussions and express their opinions. GV3. The teacher encourages students to ask and answer questions during class. GV4. The teacher provides timely and useful feedback to students. GV5. The teacher uses many supporting teaching aids such as pictures, videos, and games.

3.3.1.1. Reliability of Cronbach's Alpha scale

Table 1. Reliability results of the scale according to Cronbach's Alpha

Reliability Statistics

Cronbach's Alpha	N of Items
.860	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
GV1	14.64	10.176	.590	.854
GV2	15.24	10.252	.607	.849
GV3	15.30	10.129	.628	.844
GV4	14.70	9.137	.786	.803
GV5	14.70	9.137	.786	.803

Cronbach's Alpha: 0.860

Number of Items: 5

Interpretation:

Cronbach's Alpha of 0.860: This indicates a high level of internal consistency for the scale, which is above the commonly accepted threshold of 0.7. This suggests that the items are reliably measuring the same underlying construct.

Item-Total Statistics:

- Items GV4 and GV5 have the highest corrected item-total correlations (0.786) and would decrease Cronbach's Alpha the most if deleted (0.803). This indicates that these items are strong contributors to the scale's reliability.

- Items GV1, GV2, and GV3 also have relatively high corrected item-total correlations, with values ranging from 0.590 to 0.628. Removing any of these items would decrease the overall reliability, as indicated by the Cronbach's Alpha if item deleted values being lower than the current Cronbach's Alpha of 0.860.

3.3.1.2. Average statistics of research data

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
GV1	361	1	5	4.01	.966
GV2	361	1	5	3.40	.932
GV3	361	1	5	3.34	.936
GV4	361	1	5	3.94	.979
GV5	361	1	5	3.94	.979
Valid N (listwise)	361				

Observed Variables	Criteria	Average
GV1	The teacher uses lively teaching methods, helping students to be interested in class,	4.01
GV2	The teacher creates conditions for students to participate in group discussions and express their opinions.	3.40
GV3	The teacher encourages students to ask and answer questions during class.	3.34
GV4	The teacher provides timely and useful feedback to students.	3.94
GV5	The teacher uses many supporting teaching aids such as pictures, videos, and games.	3.94

Interpretation of Descriptive Statistics Mean

GV1 (4.01): Indicates that the average response for GV1 is slightly above 4, suggesting a generally positive response.

GV2 (3.40): The average response is closer to neutral but still positive.

GV3 (3.34): Similar to GV2, the average response is slightly positive but closer to neutral.

GV4 (3.94) and GV5 (3.94): Both items have the same mean, suggesting similar average responses which are quite positive.

Standard Deviation

GV1 (0.966): Indicates a moderate spread around the mean, suggesting some variability in responses.

GV2 (0.932): Similar to GV1, indicating a moderate spread in responses.

GV3 (0.936): Also shows moderate variability around the mean.

GV4 (0.979) and GV5 (0.979): Both items show similar variability, slightly higher than GV1, GV2, and GV3.

Summary

Variability: The standard deviations are all below 1, indicating relatively consistent responses across items. GV4 and GV5 have identical means and standard deviations, suggesting they are perceived very similarly by respondents.

Overall Positive Responses: The mean scores for all items are above 3, indicating generally positive responses.

Consistency: The relatively low standard deviations, particularly for GV4 and GV5, indicate consistent responses.

3.3.1.3. Frequency distribution table and satisfaction rate for Teacher Factor

Obs	Very satisfied		Satisfied		Normal		Dissatisfied		Completely dissatisfied		Evaluate
	No	%	No	%	No	%	No	%	No	%	
GV1	**136**	**7.53**	25	1.39	124	6.87	73	4.04	3	0.17	Very satisfied
GV2	10	0.55	46	2.55	**138**	**7.65**	130	7.20	37	2.05	Normal
GV3	6	0.33	**130**	**7.20**	64	3.55	126	6.98	35	1.94	Satisfied
GV4	5	0.28	31	1.72	**148**	**8.20**	60	3.32	117	6.48	Normal
GV5	5	0.28	31	1.72	**148**	**8.20**	60	3.32	117	6.48	Normal
Total	29	1.61	197	10.91	**688**	**38.12**	449	24.88	442	24.49	Normal

The above results show that: most students feel “Normal” about the Teacher Factor at three primary schools in Binh Duong province. In which, factor GV1 (Teachers use lively teaching methods, helping students to be interested in class) is highly appreciated as “Very satisfied”. Factor GV3 (Teachers encourage students to ask and answer questions during class) is appreciated as “Satisfied”. Other factors are GV2 (Teachers create conditions for students to participate in group discussions and express their opinions); GV4 (Teachers provide timely and useful feedback to students), and GV5 (Teachers use many supporting teaching aids such as pictures, videos, and games) are appreciated at the “Normal” level.

3.3.2. Satisfaction level with student factors

The student factor group includes 5 observed variables: HS1. Students feel confident when speaking in front of the class. HS2. Students actively participate in group activities. HS3. Students have good listening skills when the teacher lectures. HS4. Students can express their opinions clearly and coherently. HS5. Students enjoy listening and speaking practice activities.

3.3.2.1. Reliability of the Cronbach's Alpha scale

Reliability Statistics	
Cronbach's Alpha	N of Items
.853	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
HS1	12.51	9.562	.683	.820
HS2	11.86	9.716	.569	.848
HS3	12.48	9.322	.694	.816
HS4	13.32	8.791	.701	.814
HS5	13.35	9.021	.690	.817

Cronbach's Alpha: 0.853

Number of Items: 5

Interpretation:

Cronbach's Alpha (.853): This value is above the generally accepted threshold of .7, indicating good reliability.

Corrected Item-Total Correlation: Values range from .569 to .701, showing that all items have a moderate to strong correlation with the total score.

Cronbach's Alpha if Item Deleted: These values range from .814 to .848, all below the overall Cronbach's Alpha (.853). This indicates that removing any item would lower the overall reliability, confirming that each item contributes positively to the scale's reliability.

Overall, the scale demonstrates good internal consistency, with all items contributing positively to the overall reliability.

3.3.2.2. Average statistics of research data

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
HS1	361	1	5	3.37	.870
HS2	361	1	5	4.02	.950
HS3	361	1	5	3.40	.908
HS4	361	1	5	2.56	1.007
HS5	361	1	5	2.53	.972
Valid N (listwise)	361				

Observed Variables	Criteria	Average
HS1	Students feel confident when speaking in front of the class.	3.37
HS2	Students actively participate in group activities.	4.02
HS3	Students have good listening skills when the teacher lectures.	3.40
HS4	Students can express their opinions clearly and coherently.	2.56
HS5	Students enjoy listening and speaking activities.	2.53

Interpretation:

Mean Scores:

- The highest mean score is for HS2 (4.02), indicating that students actively participate in group activities.
- The lowest mean scores are for HS4 (2.56) and HS5 (2.53), suggesting that students find it more challenging to express opinions clearly and coherently, and have less enthusiasm for listening and speaking practice activities.

Standard Deviation: The standard deviations are relatively similar, with HS4 having the highest variability (1.007) and HS1 the lowest (0.870).

These statistics provide valuable insights into students' perceptions and behaviors regarding different aspects of their classroom activities.

3.3.2.3. Frequency distribution table and satisfaction rate for Student factor

Obs	**Very satisfied**		**Satisfied**		**Normal**		**Dissatisfied**		**Completely dissatisfied**		**Evaluate**
	No	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	
GV1	**136**	**7.53**	25	1.39	124	6.87	73	4.04	3	0.17	Very satisfied
GV2	10	0.55	46	2.55	**138**	**7.65**	130	7.20	37	2.05	Normal
GV3	6	0.33	**130**	**7.20**	64	3.55	126	6.98	35	1.94	Satisfied
GV4	5	0.28	31	1.72	**148**	**8.20**	60	3.32	117	6.48	Normal
GV5	5	0.28	31	1.72	**148**	**8.20**	60	3.32	117	6.48	Normal
Total	29	1.61	197	10.91	**688**	**38.12**	449	24.88	442	24.49	Normal

The above results show that: most students feel "Satisfied" with the Student Factor at three primary schools in Binh Duong province. Which, factor HS3 (Students can listen well when teachers lecture), HS4 (Students can express their opinions clearly and coherently), and HS5 (Students enjoy listening and speaking practice activities) are rated "Satisfied". The two factors HS1 (Students feel confident when speaking in front of the class) and HS2 (Students actively participate in group activities) are rated "Normal".

3.3.3. Satisfaction level with Family factors

The family factor group includes 5 observed variables: GĐ1. Families encourage and support students to practice listening and speaking skills. GĐ2. Families create conditions for students to participate in extracurricular activities to develop listening and speaking skills. GĐ3. Families regularly talk and encourage students to share their thoughts. GĐ4. Families support students in doing exercises and practicing listening and speaking skills. GĐ5. Families provide materials and tools to support students in developing listening and speaking skills.

3.3.3.1. Reliability of the Cronbach's Alpha scale

Reliability Statistics	
Cronbach's Alpha	N of Items
.789	5

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
GĐ1	14.60	7.940	.272	.826
GĐ2	14.33	6.104	.577	.747
GĐ3	14.83	5.924	.648	.722
GĐ4	14.78	6.003	.649	.722
GĐ5	14.83	5.819	.694	.706

Interpretation:

Cronbach's Alpha (.789): This value is close to .8, indicating a good level of reliability. It is acceptable but suggests there might be room for improvement.

Corrected Item-Total Correlation: Values range from .272 to .694, showing varying degrees of correlation with the total score. Notably, GĐ1 has a much lower correlation (.272), indicating it might not fit as well with the other items.

Cronbach's Alpha if Item Deleted: These values range from .706 to .826. The overall Cronbach's Alpha is .789, and removing **GĐ1** would increase it to .826, suggesting that removing this item could improve the overall reliability of the scale.

Conclusion

The scale shows good internal consistency overall, but **GĐ1** seems to be the weakest item.

Removing **GĐ1** could improve the scale's reliability from .789 to .826, indicating it might be beneficial to reconsider or revise this item.

This shows that families need to encourage or support students more in their studies, especially Vietnamese language in primary school.

3.3.3.2. Average statistics of research data

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
GĐ1	361	1	5	3.74	.677
GĐ2	361	1	5	4.02	.891
GĐ3	361	1	5	3.51	.873
GĐ4	361	1	5	3.56	.851
GĐ5	361	1	5	3.51	.860
Valid N (listwise)	361				

Observed Variables	**Criteria**	**Average**
GĐ1	Families encourage and support students to practice listening and speaking skills	3.74
GĐ2	Families create conditions for students to participate in extracurricular activities to develop listening and speaking skills.	4.02
GĐ3	Families regularly talk and encourage students to share their thoughts.	3.51
GĐ4	Families support students in doing homework and practicing listening and speaking skills.	3.56
GĐ5	Families provide materials and tools to support students in developing listening and speaking skills.	3.51

Interpretation:

Mean Scores:

GĐ2 has the highest mean score (4.02), indicating that families are most supportive in facilitating participation in extracurricular activities to develop listening and speaking skills.

GĐ3 and **GĐ5** have the lowest mean scores (both 3.51), suggesting a relatively lower level of support in frequently talking and encouraging students to share their thoughts, and providing materials and resources, respectively.

Standard Deviation:

The standard deviations are relatively similar, with **GĐ2** having the highest variability (0.891) and **GĐ1** the lowest (0.677).

Conclusion:

The data suggests that families are generally supportive in encouraging and facilitating the development of students' listening and speaking skills, with some variations in specific areas of support.

GĐ2 stands out as the most positively rated aspect, while **GĐ3** and **GĐ5** show room for improvement.

3.3.3.3. Frequency distribution table and satisfaction rate for Family factor

Obs	**Very satisfied**		**Satisfied**		**Normal**		**Dissatisfied**		**Completely dissatisfied**		**Evaluate**
	No	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	
GĐ1	1	0.06	13	0.72	**219**	**12.13**	96	5.32	32	1.77	Normal
GĐ2	3	0.17	59	3.27	**162**	**8.98**	116	6.43	21	1.16	Normal
GĐ3	6	0.33	30	1.66	**142**	**7.87**	139	7.70	44	2.44	Normal
GĐ4	6	0.33	30	1.66	**168**	**9.31**	119	6.59	38	2.11	Normal
GĐ5	7	0.39	29	1.61	**152**	**8.42**	135	7.48	38	2.11	Normal
Total	1	0.06	13	0.72	**219**	**12.13**	96	5.32	32	1.77	Normal

Interpretation:

Overall Trend:

The majority of responses across all items are in the "Neutral" (Bình thường) category.

There is a significant portion of "Dissatisfied" (Không hài lòng) and "Very dissatisfied" (Rất không hài lòng) responses, indicating areas where family support could be improved.

GĐ1: Most responses are "Neutral" (12.13%), with notable dissatisfaction (5.32% and 1.77%).

GĐ2: Again, most responses are "Neutral" (8.98%), but with considerable dissatisfaction (6.43% and 1.16%).

GĐ3: "Neutral" responses are high (7.87%), but dissatisfaction is also prominent (7.70% and 2.44%).

GĐ4: Highest "Neutral" responses (9.31%), with significant dissatisfaction (6.59% and 2.11%).

GĐ5: Similar to others, with a majority "Neutral" (8.42%) and notable dissatisfaction (7.48% and 2.11%).

Conclusion:

The predominant "Neutral" ratings across all items suggest that while family support is present, it might not be strong enough to evoke more positive responses.

The notable levels of dissatisfaction indicate that there are specific areas where family support can be improved to better help students develop their listening and speaking skills.

4. CONCLUSION

Through research and data processing, the research team found that the majority of students rated from “Normal” to “Very satisfied” with the factors: Teachers, students, and families. In addition, the study also found students’ dissatisfaction with some activities of teachers, families, and students themselves. Thereby, families need to participate more actively in the learning process of students with the Vietnamese subject because the dissatisfaction rate is also very high.

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Measures to Educate Skills to Identify and Prevent Dangers for Old Kindergarten Children at Kindergarten

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ABSTRACT: At preschool, equipping preschoolers with the skills to identify and prevent dangers is an essential task to ensure their safety and comprehensive development. For children at this age, the ability to perceive risks is limited, so safety education needs to be carried out regularly and effectively. Measures to improve children's skills include organizing visual educational activities, such as games that simulate dangerous situations, and specific instructions on how to identify dangerous elements in the surrounding environment. For example, through lessons and games, children can learn to distinguish dangerous objects such as knives and scissors, and safe behaviors when communicating with strangers. Improving skills to identify and prevent dangers for preschool children not only helps them protect themselves but also creates a safe and healthy learning environment. This not only protects the health and safety of children but also helps parents and teachers feel more secure during the care and teaching process. By researching and understanding reality, the authors boldly propose measures to contribute to improving awareness and danger prevention skills for preschool children at preschools.

KEYWORDS: Skills, identifying and avoiding dangers, older preschool children

1. INTRODUCTION

During this important stage of preschool children's development, equipping them with skills to identify and prevent dangers plays a key role in protecting their safety and health. Children of preschool age are often not competent enough. During the important developmental period of preschool children, equipping them with skills to identify and prevent dangers plays a key role in protecting their safety. Safety and health of the children. Children of preschool age are often not capable of recognizing and assessing dangerous situations accurately, so safety education must be focused early on. These skill-enhancing measures not only help children become more aware of potential dangers in the surrounding environment but also form the habit of protecting themselves voluntarily. By organizing educational activities and practical experiences, as well as providing simulation situations, preschools can create conditions for children to become familiar with and practice dangerous prevention measures. This is a solid foundation to help children develop comprehensively and ensure safety during the learning and playing process.

2. RESEARCH CONTENT

2.1. Theoretical basis

2.2.1. Some tool concepts

Skills: There are many definitions of skills, these definitions often originate from professional perspectives and personal concepts. Author N.D. Levitov believes that: "Skill is the effective execution of a certain movement or a more complex activity by choosing and applying the right methods, taking into account certain conditions" [Nguyen Quang Uan, 2010, p. 38] or according to Author Huynh Van Son, skill is the ability to effectively perform a certain action by applying existing knowledge and experience to act appropriately. under permissible conditions. Skills are not simply the technical aspect of action but also an expression of human capacity (Huynh Van Son, 2009, p. 47). According to Bui Hien, Nguyen Van Giao, Nguyen Huu Quynh, and Vu Van Tao, (2001) in the Dictionary of Education, skills are divided into two levels: low-level skills (level I) and high-level skills (level I). II): Low-level skills are the ability to perform the right actions, appropriate to specific goals and conditions. At this level, some skills are formed without practice, if you know how to take advantage of existing knowledge and similar skills to move on to new actions. High-level skills are the ability to perform actions and activities proficiently, flexibly, and creatively by goals in different conditions.

From research on the concept of skill, we can conclude that a subject's skill or ability is formed by repeating one or a series of actions based on understanding (knowledge or experience). experience) to create oriented expected results of the subject. (P. 55)

Prevent danger: According to Nguyen Kim Than, Ho Hai Thuy & Nguyen Duc Duong (2005) in the Vietnamese Dictionary defines "Prevent (predicate) pre-calculate temporary measures to prevent or deal with unexpected things." or could happen" (p. 1281). "Avoid (predicate) take care to take measures to avoid, prevent or prepare for something bad that may happen." (p. 1655). "Avoid (verb): Actively prevent yourself from having to come into contact with or be directly affected by something unpleasant or unpleasant" (p. 1655). Thus, it can be said that: Danger prevention is a series of actions taken by individuals to proactively avoid dangerous factors or avoid/eliminate unsafe risk factors that can cause harm. for yourself and others.

Identification: is the ability to apply personal knowledge and experience to handle situations in life. Be able to associate and remember things and phenomena that have been learned and experienced to apply them effectively to the problem that needs to be solved. (Nguyen Thanh Tu, 2021, p.63).

So the skill of identifying and preventing dangers is the process of purposeful, planned, and methodical impact of teachers on children to form in them the ability to cope with external influences based on the manipulation of children. Use the knowledge and experience children already have. Educating children to be aware of what to do and what not to do before doing things that can be dangerous, building healthy behaviors, and changing negative habitual actions so that children have awareness, knowledge, and attitude. The appropriate skill level of what children comprehend is a preparation for children to prepare for grade 1.

2.2.2. Characteristics of danger identification and prevention skills of older preschool children

2.2.2.1. About cognitive thinking

Right from birth, children have shown signs of self-protection in the form of unconditioned reflexes such as: Pulling hands away from hot objects, blinking when exposed to sunlight,... those reflexes are signs. represents the first human defense ability against environmental stimuli. At preschool age, especially for 5-6-year-old children, the perception and process of acquiring and accumulating experiences, symbols, and life capital is quite richer compared to previous ages. That helps children have a basic awareness of some unsafe objects, dangerous places, some difficult situations and have ways to cope and protect themselves. In other words, 5-6-year-old preschool children have increased background knowledge and skills to recognize and prevent danger in children. However, due to psychological characteristics, preschoolers of 5-6 years old often imitate the actions of adults. Children are easily distracted by new scenes or when objects in their hands fall to the ground or roll into dangerous places such as lakes, ponds, water tanks, hedges, bushes, etc. Children will find out how to chase without paying attention to the immediate dangers. (Mai Hien Le, 2010, p. 35).

At this age, children have a very high need to explore the world (Hoang Thi Phuong, 2014, p.104). Children always desire to explore and explore everything around them, regardless of whether they are safe or not. In particular, for everyday objects that are forbidden by adults, and not allowed to be touched or played with, when there is no adult supervision, children will show a desire to explore what they are like. Therefore, children cannot foresee the dangers they may encounter. These risks can come from: Slippery toys, toys with broken links, or playing dangerous games: climbing trees, and branches, throwing sand and dirt in each other's faces, and teasing other children. animals, touching hot motorbikes, etc. The thinking of 5-6-year-old preschool children is still intuitive, their observations and assessments are still deeply subjective, emotional, and very easy to convince (Hoang Thi Phuong, 2014, p.93). Bad people easily grasp children's psychological characteristics such as: liking to eat candy, watching cartoons, receiving rewards, and playing with toys... to take advantage of and seduce children. In situations, certain unusual phenomena occur such as getting lost, fire, earthquake, kidnapping, an accident or something suddenly collapsing on the child. Children often do not have enough composure to judge, decide how to act, and how to handle such situations. Furthermore, in situations where subjects have not had the opportunity to have direct contact or with familiar subjects, but in new situations, children are not good at detecting unsafe issues when interacting with those subjects, for example. Children are not able to recognize signs of illness in familiar animals and stay away from those animals because at that time they can be dangerous for them. Children in rural areas do not know the dangers of using stairs. machines, escalators,...

At this age, older preschoolers can remember and apply the safety rules they have learned in real-life situations. However, long-term retention and accurate application may also depend on the frequency of repetition and consolidation of knowledge. Children learn to follow basic safety rules such as waiting at crosswalks, not talking to strangers, and using toys properly. Children also need to practice emergencies to understand how to react, such as how to call for help or ask for assistance. At the same time, children can recognize potential dangers with familiar, close objects and situations that they have had the opportunity to experience in life; This age group has begun to develop the ability to identify basic dangers in the surrounding environment. They can understand simple concepts such as "danger" and "safety" and distinguish between objects or situations that could cause harm, such as knives, scissors, fire, or vehicles. As for the ability to identify dangerous situations, children can recognize and react to dangerous situations through educational activities and games. For example, children may understand that they should not run across the street or touch hot objects. In situations where the child has not had the opportunity to have direct contact with familiar objects, but in new situations, the child has not been able to detect unsafe issues when interacting with those objects.

2.2.2.2. About attitude and behavior

About attitude: Older preschoolers begin to understand and control their emotions in dangerous situations, such as panic or fear. This helps them react more calmly and rationally in emergencies. Children understand the meaning of their self-protection actions based on what they have experienced in life. Children do not yet have a sense of the purpose of self-protection in new situations and new objects even though they have knowledge and understanding of the dangers they will encounter and how to respond in those situations.

About behavior: Children can express concerns or ask for help when they feel unsafe. This shows the development of communication skills and a sense of self-protection. Children competently perform self-protection actions in familiar situations that have been directly experienced and practiced. Children can apply experience to take self-protective actions in similar circumstances and situations. What's special is that children often learn through observing and imitating the behavior of adults around them. Therefore, setting an example and creating simulation situations in safety education is very important.

In summary, older preschool children's danger identification and prevention skills are a combination of basic awareness, safety rule practice, and communication ability along with support and guidance from adults. Developing these skills effectively not only protects children but also helps build a foundation for future independence and confidence.

2.2.3. Educational content to identify and prevent dangers for older preschool children

In the Early Childhood Education Program issued according to Circular No. 01/VBHN-BGDDT dated April 13, 2021 of the Ministry of Education and Training (2021), the content of educating children on awareness and danger prevention skills includes: (1) Practice some good health habits; (2) Recognize some symptoms of illness, their causes and ways to prevent them; (3) Recognize and prevent dangerous actions, unsafe places, and life-threatening items; (4) Recognize and prevent some emergencies and call for help; (5) Get familiar with some symbols in life; Traffic signs, dangerous place signs.

The content of education on skills to recognize and prevent dangers is also reflected in the field of physical development - The set of development standards for 5-year-old children was issued according to Circular 23/2010 - BGDDT dated July 22, 2010 of the Government. Ministry of Education and Training (2010) specifically with the following indicators:

Standard 6: Children have knowledge and practice of personal safety including: (index 21: recognize and do not play with some objects that can be dangerous; index 22: know and do not do some things that can cause danger). dangerous; index 23: do not play in unsanitary, dangerous places; index 24: do not follow or accept fruit from strangers without permission from relatives; index 25: know how to call for help run away from dangerous places; index 26: know that smoking is harmful and do not approach people who are smoking)

Thus, the current preschool education program has paid attention to and seen the importance of educating children in skills to identify and prevent dangers in unsafe conditions. The educational content of skills to identify and prevent dangers in the preschool education program is quite rich and comprehensive, covering all aspects of both physical and mental health, with a focus on ensuring physical safety. physical aspect, preventing accidents and injuries for children. Each goal and content in the program is specified, with requirements and levels of achievement at each specific age that are easy to understand and implement.

2.2.4. Methods to improve skills in identifying and preventing dangers for older preschool children

Methods to improve children's identification and prevention skills that can be used by teachers include Visual methods, verbal methods, group discussion methods, situation creation methods; game methods, practice methods, and experiences. Teachers need to exploit and take full advantage of each of the above methods and forms in the process of educating children to identify and prevent dangers to achieve the desired effect.

Verbal method:

Purpose: Helps children understand the content of requirements that need to be fulfilled, helping teachers fully convey educational issues to children.

Method of use situation:

Purpose: To form children's skills to solve common situations in daily life, children have a connection between the content taught and real life and gradually realize the necessity of learning and training activities.

Methods of using the game:

Purpose: Children learn knowledge and skills naturally through games. This is also a game and an opportunity for children to experience and test their knowledge and skills. his abilities.

Practical and experiential methods:

Purpose: Help children apply their knowledge, skills, attitudes, and experiences into practice in a creative way, contributing to improving children's skills to recognize and prevent dangers

2.2.5. A form of improving skills to identify and prevent dangers for older preschool children

Danger identification and prevention skills for older preschool children in preschool are often carried out through many forms of activities such as learning activities, play activities, daily living regimes, themed activities, holidays, and festivals. However, it is necessary to apply innovation, creativity, and diversity to create an attractive and effective learning environment, helping children acquire knowledge and skills naturally and happily. Here are some effective forms of organization:

- Educational games

Simulation games: Using games that simulate dangerous situations such as "walking across the street safely" or "identifying dangerous objects" helps children practice recognition and reaction skills in situations like reality.

Interactive games: Group games or games with safe rules provide opportunities for children to learn from friends and teachers in a fun environment.

- Practical activities

Safe playgrounds: Designing safe playground areas with hypothetical situations, like "danger zones," helps children learn how to respond to different situations.

Practical exercises: Practical exercises such as "teaching children how to call for help" or "using safety equipment" help reinforce necessary skills.

- Interactive education

Imaginary stories and drama: Use interactive safety stories and scenarios to help children understand safety rules through relatable and relatable situations.

Educational videos: Show animated videos or short educational videos about dangerous situations and how to avoid them, helping children easily absorb and remember information.

- Creative activities

Drawing and crafts: Creating creative activities such as drawing safety signs or modeling dangerous situations helps children better understand hazards and how to avoid them.

Instructions from resources: Use textbooks and educational materials with safety images and models to help children easily identify dangerous factors.

- Outdoor education

Tours: Organize tours to places like museums, parks, or community centers where children can learn about safety in real-life situations.

Field guidance: Guide children in real-life situations such as walking around the school campus, showing them safety signs and proper behavior

- Workshops and exchanges

Safety workshops: Organize short workshops or classes with the participation of safety experts, providing specific information and skills for children.

Parent exchange: Organize exchange sessions with parents to share information on how to strengthen children's safety skills at home and create synchronous coordination between family and school.

- Review and feedback:

Continuous assessment: Conduct small tests or feedback activities to evaluate children's understanding and skills, thereby adjusting teaching methods accordingly.

These forms of organization not only help children learn and practice safety skills effectively but also create a positive and interesting learning environment, helping them absorb knowledge naturally. and have fun.

2.2.6. The role of education in improving skills to identify and prevent dangers for older preschool children

Improving danger recognition and prevention skills for older preschool children plays an important role in their comprehensive development and safety. These years are the period when children begin to explore the world around them with curiosity and a desire to learn. This is the time when children need to be equipped with basic knowledge and skills to protect themselves from dangers.

First, protect safety: Danger recognition skills help children recognize potentially harmful situations and objects, thereby staying away and protecting themselves from dangerous situations. For example, recognize and do not touch sharp or dangerous objects such as knives or scissors, or do not go near dangerous areas such as busy streets.

Second, develop a sense of self-protection: When children clearly understand potential risks and know how to respond, they will form safety habits and become proactive in protecting themselves. This helps children become more independent and capable of making safe decisions in different situations.

Third, enhance communication skills: Learning how to ask for help and communicate effectively when feeling unsafe is an important skill. Children will learn to express their concerns clearly and seek support when needed, enhancing communication and building confidence.

Fourth, create a safe learning environment: Skills to identify and prevent dangers also contribute to creating a safer learning and playing environment for children. Children can understand and follow safety rules in the classroom, playground, and outdoor activities, thereby reducing the risk of accidents and injuries.

Fifth, build a foundation for future development: Safety skills are not only valuable in the current period but also create a foundation for long-term development. Children who learn how to deal with dangerous situations will have an easier time developing problem-solving skills and responding to future challenges.

In summary, improving skills to identify and prevent dangers for 5-6-year-old children is extremely important, not only to protect their safety but also to build a solid foundation for their development. children's personal and social development.

2.2.7. Factors affecting the quality of improving skills to identify and prevent dangers for older preschool children

- To effectively improve danger identification and prevention skills for 5-6-year-old children, there are many important factors to consider. These factors directly affect the quality and effectiveness of the safe educational process for children. Specifically:
- Quality of educational programs: Safe educational programs must be designed to suit the age and needs of children. It should include engaging activities, lessons, and games, making it easy for children to understand and remember safety rules. Content must be simple, easy to absorb, and regularly reinforced.
- Teachers and staff: The skills and preparation of teachers and staff in preschool play a decisive role. Teachers need to be well-trained in safe teaching skills and be able to communicate information clearly and effectively. The teacher's dedication and patience are also important factors that help children learn better.
- Teaching methods: Interactive teaching methods, such as simulation games, group activities, and practice in real situations, help children easily identify and understand risks. The use of images, videos, and models also aids in explaining dangerous situations vividly and memorably.
- Learning environment: A safe and supportive learning environment will facilitate safe education. Schools and play areas need to be inspected and made sure there are no dangerous elements. Facilities and teaching aids also need to be safe and appropriate for the child's age.
- Parental involvement: Parents play an important role in reinforcing children's safety skills. Active parental involvement, through supporting homeschooling activities and discussing safety with children, helps children understand and apply safety rules more effectively.
- Resources and equipment: Using appropriate resources and equipment such as textbooks, educational toys and devices that simulate dangerous situations is essential. These tools help convey information in a vivid and easy-to-understand way.
- Evaluation and adjustment: A process of regular evaluation and adjustment of the safety education program is necessary to ensure quality. Collecting feedback from children, parents, and teachers helps to adjust content and teaching methods to better suit actual needs.
- In summary, the quality of improving children's skills to identify and prevent dangers, in addition to the children themselves being the decisive factor, also depends on a combination of many factors, including educational programs. education, teaching staff, teaching methods, learning environment, parent involvement, resources and equipment, and assessment processes. Promoting strengths and overcoming weaknesses as well as effectively combining these factors to ensure safe education for children achieves the best results

2.2. Measures to educate skills to identify and prevent dangers for older preschool children

2.2.1. Measure 1: Build an environment that helps children effectively experience the skills of identifying and preventing dangers

2.2.1.1. Purpose

The purpose of building an environment to help older preschool children experience the skills of identifying and avoiding danger is to create favorable conditions for them to develop the ability to protect themselves in a safe and supportive environment. By designing appropriate learning and play spaces, children practice safety rules through simulation activities and games, helping them easily identify risks and react promptly. This not only increases safety awareness but also helps children form habits of effective self-protection and become more confident in daily life.

2.2.1.2. How to proceed

To build a physical environment that helps children proactively comply with safety regulations based on the principles of voluntariness and mutual respect, it is necessary to pay attention to the design and organization of learning and play spaces in a smart way. reasonable and reasonable. Here are specific ways to do it:

Measures to Educate Skills to Identify and Prevent Dangers for Old Kindergarten Children at Kindergarten

Step 1. Design a safe and comfortable space

The first thing to do is identify safe areas: Divide areas in the classroom and playground, such as study, play, and rest areas. Make sure that hazardous areas such as areas with sharp objects or electricity are protected or securely separated. At the same time, arrange materials appropriately: Arrange learning materials and equipment scientifically, easily accessible but not obstructive or dangerous for children. Using shelves and storage boxes is safe and can help children easily find and use items.

Step 2. Use safe and specific educational materials

Toys and educational equipment should be age-appropriate and safe, without sharp edges or small parts that could be dangerous. Make sure these items are regularly maintained and replaced when necessary. Use models, images, and devices that simulate safety situations such as traffic signs or emergencies to help children identify safety rules.

Step 3. Create clear signs and regulations.

Clear and recognizable safety signs should be placed in learning and play areas. Use vivid and easy-to-understand images to effectively communicate safety messages. Display safety regulations using bulletin boards, pictures, or posters. Ensure that regulations are presented clearly and attractively.

Step 4. Create conditions for children to self-manage

Create areas where children can manage themselves, such as a toy cleanup corner or a personal work area. This helps children feel more responsible and proactive in complying with safety regulations. A positive evaluation and feedback system should be used to encourage children to maintain and implement safety rules. For example, charts or scorecards can be used to monitor and reward children.

Step 5. Ensure flexibility and timely adjustments

It is necessary to ensure that the space can flexibly change according to the children's needs and activities. For example, the arrangement of tables, chairs, or play areas can easily be changed to accommodate different activities. Regularly evaluate the physical environment and make adjustments to overcome problems that arise. Monitor feedback from children and teachers to continuously improve the space.

By focusing on these factors, you can create a safe, attractive physical environment and support children in proactively complying with safety regulations based on the principles of voluntariness and mutual respect. together.

2.2.1.3. Conditions for implementing measures

To effectively create an environment to help children experience the skills of identifying and avoiding dangers, it is necessary to pay attention to the following conditions:

- Create a safe and appropriate environment: Ensure that children's learning and playing environments are safe and age-appropriate. Equipment and toys must be inspected periodically to eliminate risks of injury. The space needs to be designed so that children can easily move around and observe potentially dangerous situations.

- Adequate education and training: Teachers and caregivers need to be trained to be able to effectively guide children in the skills to identify and prevent dangers. They also need to understand potentially dangerous situations and how to handle them.

- Thorough educational program: Develop and implement an educational program with clear goals, including lessons and activities related to identifying hazards, such as traffic situations, hazards from the surrounding environment, and how to behave in emergencies.

- Use active teaching methods: Apply interactive teaching methods, such as simulation games, situation simulations, and group activities, to help children learn through real-life experiences. These activities should be designed to stimulate children's participation and reinforce their skills in identifying and avoiding danger.

- Family involvement: Include families in their child's education by organizing workshops or providing educational materials to parents so they can support and reinforce what their child has learned at school.

- Evaluation and adjustment: Monitor and evaluate children's progress through tests and observations. Based on these assessments, adjust educational programs and activities to be more appropriate and effective.

- Create a free space and encourage exploration: Encourage children to freely explore and learn in a safe environment. Make sure children have the opportunity to practice and experience real-life situations naturally and without being forced.

- Integrate social skills: Provide opportunities for children to develop social and communication skills, as these skills are important in identifying and responding to dangerous situations.

By ensuring these conditions, you can create an effective environment for children to learn and develop skills to recognize and avoid dangers.

2.2.2. Measure 2: Build hypothetical situations to help older preschoolers recognize and avoid dangers

2.2.2.1. Purpose

Ensure safe conditions so that children have the opportunity to show initiative and actively respond to potentially dangerous situations with the preparation and control of adults. Help children have the opportunity to experience different emotions when taking action to respond to potentially dangerous situations. Provide children with "models" of potentially dangerous situations.

2.2.2.2. How to proceed:

To build hypothetical situations to help older preschoolers identify and avoid dangers, you can take the following steps:

Step 1. Make a detailed plan: Need to define goals, and identify common risks that children need to identify and prevent, such as traffic accidents, fires, or dangers from sharp objects Then choose hypothetical situations suitable for children's ages, ensuring they are simple, easy to understand and close to their daily lives.

Step 2. Design a hypothetical situation by using models, images, and simulation tools to recreate dangerous situations. For example, create a traffic "scene" with signs and road markings so children learn how to cross the road safely. Then Use imaginary drama to create short scenarios with the participation of teachers or classmates for children to practice safe behaviors in hypothetical situations.

Step 3. Organize practical activities: Organize role-playing games where children pretend to be characters in dangerous situations. For example, one child could play the role of a car driver while another child plays the role of a pedestrian learning how to cross the street safely. Then guide them through specific steps in a hypothetical situation and allow them to Practice many times to consolidate knowledge and skills.

Step 4. Practice assessment and response: Observe children as they perform hypothetical situations to assess their ability to recognize and respond. Provide positive feedback and specific instructions to help children understand and improve their skills. After each activity, discuss with the children what they learned and how to apply safety rules in practice. Encourage children to share their feelings and experiences.

Step 5. Adjust and improve: Collect feedback from children and teachers to improve hypothetical situations. Adjust the scenarios based on feedback to ensure that they are relevant and effective. Also, conduct periodic reviews of the effectiveness of the scenarios and update them to remain engaging and educationally effective.

By taking the steps above, you will help older preschoolers experience hypothetical situations effectively. From there, improve skills to identify and prevent dangers in a safe and positive learning environment.

2.2.2.3. Conditions for implementing measures

To effectively create hypothetical situations to help older preschoolers recognize and avoid dangers, pay attention to the following conditions:

- Understanding of dangerous situations: Teachers need to research and identify common dangerous situations that are appropriate for children's age. For example, danger from traffic, danger from household objects, or danger when meeting strangers. This helps create meaningful and realistic hypothetical situations for children.
- Design appropriate situations: Build hypothetical situations appropriate to the development of older preschool children. These scenarios should be simple, easy to understand, and easy to implement in a classroom setting or play area.
- Use interactive teaching methods: Apply interactive teaching methods such as simulation games, drama and group activities to help children practice and experience dangerous situations safely. This helps children visualize and better understand dangerous situations and how to respond.
- Use materials and props: Use materials and props to simulate the situation in a realistic and easy-to-understand way. For example, use traffic toys to simulate traffic situations, or house models to simulate hazards in the home environment.
- Clear instructions and explanations: Provide clear instructions and explanations to children about hypothetical situations, how to identify risks and how to avoid them. Use simple language and illustrations so children can easily understand and remember. At the same time, encourage children to actively participate in hypothetical situations and make decisions during the situation. This helps children develop their thinking and decision-making abilities when encountering real-life situations.
- Assess and provide feedback: After performing hypothetical scenarios, assess children's understanding and skills through questions, discussion, or hands-on activities. For preschoolers, hypothetical situations need to be done regularly and repeatedly to help children remember longer and react faster when encountering similar situations.

2.2.3. Measure 3: Integrate education on skills to identify and prevent dangers in daily activities at preschools

2.2.3.1. Purpose:

Help children have the opportunity to use their existing danger identification and prevention skills to cope with diverse and potentially dangerous situations in everyday life, from there, their skills will improve day by day. The more skilled and flexible children become, the more experience they accumulate in avoiding dangers.

2.2.3.2. How to proceed:

Step 1: Choose an appropriate form of activity to create favorable opportunities for children to experience the skills of identifying and avoiding dangers, including Determining the goal and content of the activity. subjects participating in the activity

Step 2: Organize activities to help children experience skills to identify and prevent dangers such as:

- Organize labor activities (Create children's mood for activities, assign tasks to children, conduct labor activities, end activities)

- Organize eating activities (Create a mood for children to come to the activity, share meals with children or ask children to choose their food, organize feeding for children, and end the meal)

Step 3: Share experiences and emotions after participating in activities to experience skills to recognize and prevent dangers.

2.2.3.3. Conditions for implementing measures

To effectively integrate education on skills to identify and prevent dangers into daily activities in preschools, the following conditions must be met:

- Develop a comprehensive educational plan: Teachers need to plan to integrate lessons about identifying and preventing dangers into daily activities such as playing, studying, and daily activities. At the same time, reasonable scheduling ensures that safety skills education activities do not disrupt children's learning and play activities but instead integrate harmoniously with the curriculum.

- Designing educational activities: Integrate safety lessons into daily activities, such as traffic lessons when playing with toy cars, or lessons about risks when doing crafts or taking owners Safety topics are included in weekly learning topics to create opportunities for children to become familiar with and practice safety skills in many different situations.

- Use active teaching methods: It is necessary to apply interactive learning methods such as games, drama, and group activities to convey safety knowledge in an attractive and easy-to-absorb way. At the same time, use real-life situations in daily life to teach. For example, during mealtimes, explain how to avoid the risk of food poisoning and how to maintain personal hygiene.

- Monitor and evaluate: Monitor and evaluate children's progress in identifying and avoiding dangers through observation and small tests. From there, based on feedback and evaluation, adjust activities and teaching methods accordingly

- Motivate and encourage: Teachers should encourage children to participate and perform safety skills by rewarding and motivating them as well as recognizing and praising children's efforts and achievements in applying Use skills to identify and avoid dangers.

By paying attention to these conditions, teachers can effectively and safely integrate education on danger identification and prevention skills into daily activities, helping children form good habits. and important skills early on.

2.2.4 Measure 4. Coordinate with parents to create opportunities for older preschool children to practice skills to identify and prevent dangers

2.2.4.1. Purpose:

Create opportunities for children to practice skills in identifying and preventing regular dangers at home, ensuring consistency between school and family in child education. Provide parents with the necessary knowledge about improving skills for older preschool children. Encourage parents to participate with children in activities at home and school.

2.2.4.2. How to proceed:

To coordinate with parents to help older preschoolers practice danger recognition and prevention skills, you can take the following steps:

Step one, Develop plans and goals: Identify the skills that need to be developed by providing specific skills such as recognizing basic hazards, responding properly in an emergency, etc., and then plan educational activities related to them. Identify and avoid hazards, including lessons, games, and practice exercises.

Step two, Organize workshops and parent training: Invite parents to participate in seminars or training courses to raise children's awareness of dangers and how to prevent them. Also distribute educational materials to parents, including information about common dangers and how to teach children to recognize and respond to them.

Step three, design learning activities at school: Integrate hazard recognition and prevention activities into your child's curriculum, such as role-playing games, safety lessons, and group exercises, and increase the use of learning resources such as books. , videos, and other learning tools to educate children about dangers and how to handle them.

Step four, encourage parents to practice at home: Give parents exercises and activities they can do with their children at home, such as practicing hypothetical dangerous situations. However, the school needs to monitor and evaluate by asking parents for feedback on the implementation process and children's progress so that educational methods can be adjusted if necessary.

Step five, organize exchange activities and share experiences: The school creates opportunities for parents and teachers to share experiences and learn from each other through exchange sessions or support groups and encourages parents and children to regularly discuss safety issues, not only in the school environment but also at home and in the community. Boldly present success stories and share effective methods in educating children about safety and vice versa.

Step six, assessment and improvement: Tests and assessments should be carried out to measure the effectiveness of educational activities and children's progress, based on feedback from parents and assessment results. price, adjust educational plans and methods to improve efficiency. In particular, schools need to maintain regular contact between parents and teachers to update information, discuss new issues that arise, and continue to reinforce children's safety knowledge.

By taking these steps, you can create an effective educational and supportive environment to help older preschoolers develop skills to recognize and avoid danger.

2.2.4.3. Conditions for implementing measures

To take measures to coordinate with parents to create opportunities for older preschool children to practice skills to identify and prevent dangers, it is necessary to pay attention to the following conditions:

- Develop a clear cooperation plan: It is necessary to develop a coordination plan between the school and the family to ensure that both parties have the same goals and methods for educating children on safety skills. Communicate the goals of safety education to parents so they understand and agree with the plan.

- Create effective communication channels: Regularly update and periodically provide information about children's safe educational activities at school through newsletters, emails, or parent meetings. As well as setting up direct communication channels (such as chat groups, and online meetings) to exchange information, discuss progress, and answer parents' questions.

- Provide instructions and documents: Provide parents with educational materials, such as books, flyers, or videos, on how to teach children to identify and avoid dangers at home. Offer activities and exercises that parents can do with their children at home, such as educational games or safety simulations.

- Organize community activities: School administrators organize seminars or training sessions for parents on skills to identify and prevent dangers, along with practical activities for parents to apply at home. As well as creating community events like safety days, where parents and children can participate in educational activities and practice safety skills together.

- Encourage active participation: Encourage parents to actively participate in safe educational activities and show interest in their children's learning. Listen to parent feedback and make necessary improvements to promote more effective collaboration. Build good relationships with parents based on trust and cooperation, so they feel comfortable sharing information and participating in educational activities. Schools need to consider cultural, and economic factors and each family's specific situation when designing educational activities and materials to ensure that they are appropriate and easy to implement.

By implementing these conditions, you can build an effective cooperation system with parents, helping older preschoolers comprehensively and effectively practice danger recognition and prevention skills.

2.3 The relationship of educational measures to identify and prevent dangers for older preschool children

Suggested measures to improve danger identification and prevention skills for older preschool children are often closely related and support each other in building a solid safety foundation for them. First, the safety education program needs to be designed to be age-appropriate, including hands-on activities and games that simulate dangerous situations so that children can easily absorb them. The teaching staff, with extensive training and effective teaching skills, will implement these educational methods in a lively and engaging way. A safe learning environment, free of dangerous elements, will facilitate the application of safety rules. Parents' active participation in reinforcing safety knowledge at home will help children understand better and practice more effectively what they have learned. Educational resources and equipment also play an important role in conveying information. Finally, evaluating and adjusting the program based on feedback will help optimize measures, ensuring effectiveness and suitability to children's actual needs. All of these elements combine to form a comprehensive safety education system, helping to effectively improve children's skills to identify and prevent dangers.

3. CONCLUSION

Improving skills to identify and prevent dangers for preschool children at preschool is an important and indispensable task in ensuring their safety. Safety education measures, from organizing visual activities to practicing in simulated situations, help children not only better understand potential hazards but also know how to respond effectively. These skills not only contribute to protecting children's safety in the learning environment but also form habits of self-discipline and vigilance in daily life. Investing in early safety education will create a solid foundation for children's comprehensive development, while also helping parents and teachers feel more secure in caring for and educating their children. Therefore, implementing these measures should be considered a top priority in preschool education programs.

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Dynamics in Crude Oil Prices: A Markov-Switching Autoregressive Approach Incorporating Sunspot Activity

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ABSTRACT: This paper deals with the dynamic relationship between world crude oil prices and the activities of sunspots in a two-state Markov-Switching Autoregressive (MS-AR) model. The data set used was from February 1994 to May 2023, with crude oil prices and sunspot numbers as an exogenous variable. The MS-AR framework allows for regime-dependent behavior in the intercept and autoregressive coefficients and in the impact of solar activity on oil prices. The result distinguishes two regimes characterized by different degrees of persistence and sensitivity to solar activity. State 1 is highly persistent in the movement of oil prices with a lag 1 coefficient and has a much weaker negative relationship with sunspot activity. On the other hand, State 2 shows lower persistence with a lag 1 coefficient but a stronger negative relationship with sunspots. The transition probabilities denote high stability in both regimes. Asymmetric switching behavior favors State1, which is the more persistent state.

Model diagnostics values indicate very good fits to the data. The out-of-sample performance of the model does appear quite robust, as only a slight increase in RMSE to out-of-sample occurs. These findings help add to the present understanding of the complex dynamics governing crude oil prices and provide new insights into the possible influence of solar activity on energy markets. This regime-switching behavior found in this study has a bearing on energy policy, risk management, and the interconnections between natural phenomena and economic systems. This research underlines the need for nonlinear model approaches in capturing nuanced relationships in global energy markets.

KEYWORDS: Crude oil prices, Sunspot activity, Markov-Switching model, Regime dynamics, Energy economics, UN SDG no. 7

I. INTRODUCTION

Protracted conflicts, particularly in the Middle East, raised fears of supply disruptions. The region contributes significantly to world oil trade, and any escalation may result in sharp price fluctuations. For instance, the price of Brent crude has just reached approximately $86, partly due to unexpected U.S. inflation data and hopes of interest rate cuts by the Federal Reserve, but mostly due to concerns about geopolitical instability (AGNOLUCCI & TEMAJ, 2024), (Crude Oil Prices Today, 2018). Offsetting this and helping price stability is how OPEC+, more recently, is very proactive in managing production levels. Further production reductions have kept sentiment bullish off recent announcements despite the high US output and flat Russian production that sets the backdrop. These influence dynamics have shoved prices up and down, with an average Brent crude price of $82 per barrel in June, sometimes higher than $88 as stocks are reassessed and the impact of output cuts factored in (U.S. Energy Information Administration, 2023). Consumptions are likely to hit new records, underpinned by solid Chinese demand. More recently, data showed that crude oil imports to China fell, which could hint at softening future demand, adding to price volatility. The uncertainty in economic performance, particularly in significant economies, makes the project process even more complex.

Many inherent uncertainties complicate forecasting crude oil prices. Geopolitical events are hard to predict, and their impacts on supply and demand are tremendously quick (Hamilton, 2009). A new conflict or sanctions lead to surges or nose-dives in prices, which the analyst needs help to factor into the forecast. Oil prices are driven by market perception and sentiment. News, economic indicators, and policy changes turn sentiment on a dime (Grover, 2023, October 9). Further, the volatility is compounded by speculative trading behaviors that may result in exaggerated price movements. The relationship between oil prices and global economic health introduces another level of complexity (Unpacking the Relationship, n.d.) Notably, the economic slowdowns in large markets like China reduce demand estimates, while surprise economic growth strains supply and drives prices higher. The actions of OPEC+ and other major producers drive the formation of market expectations. Significant price adjustments will confound efforts at predicting future prices, the function of changes to the production quota, or unexpected shift output (Quint

& Venditti, 2020). The volatility in crude oil prices results from a complex interplay of geopolitical tensions, supply management, and changing demand. The setup is challenging for any accurate process forecast, as unexpected developments can quickly change market dynamics (Jiao et al., 2023).

In that respect, there is no single robust model to effectively predict world crude oil prices, as a balance of different factors is at play within the market (Tian et al., 2023). Unpredictable events such as conflicts and sanctions cause sudden changes in supply and demand, which can result in sudden price spikes or plunges, hard to predict. Oil prices are significantly driven by market perceptions and sentiment, which quickly change upon news, economic indicators, and policy shifts (Mo et al., 2024). Speculative trading behaviors further enhance these volatile patterns. Another factor complicating the matter is that oil prices depend on global economic conditions. Economic slowdowns cut into demand forecasts, while unexpected growth pressures supply and drives prices higher (Lv & Wu, 2022). Then, the decisions of OPEC+ and other major oil producers. Production quota adjustments or surprise production shifts are known to cause abrupt price changes, making it all that more difficult to predict (Bollapragada et al., 2021).

Traditional econometric models, such as the Error Correction Model, Vector Error Correction Model, and Vector Auto-Regressive, all rely on linear regression based on demand and supply data (Lütkepohl, 2013). However, they need help to cope with the inherent complexity of crude oil prices. The time series model utilizes only the previous history of oil prices to predict future prices. However, these traditional models require data to be stationary and linear, which often differs from oil prices (Apergis et al., 2016). It was found that the hybrid models coupling data decomposition techniques like ensemble empirical model decomposition (Apergis et al., 2016) with the forecasting models ARIMA and FFNN have huge potential. There is still room for further improvement in the lines of enhancing the performance of the forecast and simplification of the model. The inability to have a credible forecasting model stems solely from the fact that crude oil prices are highly volatile and complex by many unpredictable variables. Through progressed hybrid models, astute prediction of oil prices remains a continuous uphill battle for researchers and analysts (Dar et al., 2022).

The reliability of sunspot activity as a good exogenous variable in predicting commodity prices, especially crude oil prices, still needs to be determined (Alexeyevich, 2020). A few studies indicate a weak negative relationship between sunspot activity and annual changes in grain prices and conclude that low and moderate sunspot activity is better for grain prices than high sunspot activity (Ljungqvist et al., 2022), (Does the Sunspot Cycle, n.d.). This confirms the hypothesis that grains are, in fact, less abundant under high sunspot conditions. The economist Irving Fisher even postulated that one of the effects of solar minimums (i.e., reduced sunspots) is blistery winters that disrupt farming and, thereby, food prices, not to mention the cascading effects on economies (Astrological market trend, 2024, January 25). This relation, though, remains highly speculative (Solar Cycle and Economic Cycles, n.d.). On some level, historical data exhibits the existence of a particular synchronization of Solar Cycle maximums/minimums with some market critical events like the Dotcom Bubble and the Lehman Brothers collapse. However, the exact causal mechanism is not precise (Astrological market, 2024, January 25).

Traditional economic models such as ECM, VECM, and VAR face further challenges in perfectly capturing the internal complexity of crude oil prices (Bollapragada et al., 2021). The very nature of time series models requires stationary and linear data, which for oil price, under most situations, goes against this very key attribute. Jevon’s claim that business cycles occur every 10.45 years, matching the sunspot cycle, might not be consistent with astronomical data (Kuester & Britton, n.d.). The actual sunspot cycle is approximately 11 years. Sunspot activity alone cannot predict changes in price due to changes in other factors, like wars, natural disasters, and geopolitical tensions, which it also cannot predict. These are unpredictable events but have dramatic effects on oil prices. Besides, the relationship between sunspots and commodity prices seems weak and may differ understudies and periods (Does the Sunspot, n.d.), (Kuester & Britton, n.d). Therefore, findings are not very reliable in short-term forecasting.

Primarily, this research aligns with the United Nations Sustainable Development Goal 7: “Affordable and Clean Energy.” Shedding more light into crude oil price dynamics and integrating an environmental factor like sunspots into this model offers a significant and salient contribution to understanding energy market behavior while transitioning towards a sustainable energy system. Crude oil is one of the prime global energy sources, and its price fluctuations have effects that echo throughout all aspects of energy affordability and the economic reach of its alternatives (Nazir & Rehman, 2021). The Markov-Switching model can capture regime changes and help render valuable insights into periods of price stability or volatility that help policy decisions to ensure energy security and affordability (Song & Woźniak, 2020). Moreover, analyzing the potential influence of solar activity on oil prices indirectly leads to the thesis of natural phenomena and their interlocking with energy markets relevant to the more global goals of developing resilient and sustainable energy sources, thus supporting decision-making in energy policy and investment strategies to safeguards and meet SDG 7’s targets for an increased share of renewable energy in the global mix.

The main goal of this study is to examine the dynamic behavior of crude oil prices, including the possible effect of solar activity as exhibited in the number of sunspots using the Markov-switching autoregressive model. This study attempts to detect and characterize regimes in the movements of oil prices within the environment provided by this model, allowing for sudden regime changes in the market dynamics that are difficult to capture in a linear model. It is original in introducing sunspots as an exogenous variable, which puts this research into the study of a plausible relationship between solar cycles and energy markets, an area of further discussion among several scientific communities. Specifically, the research deals with the complex and nonlinear nature of oil price changes by explaining, in the context of different regimes, the characteristics that might be observed and finally assessing the predictive strength of the model. Much has been contributed to understanding crude oil price dynamics, and these findings have substantial implications for energy policy, financial market strategies, and macroeconomic forecasting.

II. REVIEW OF LITERATURE

The relationship between sunspot activities and world crude oil prices aligns with the Efficient Market Hypothesis (EMH) (Sewell, 2011) and Adaptive Market Hypothesis (AMH) (Mandac et al., 2019). The EMH claims that the prices of assets reflect all the available information, and hence, sunspot activities should not affect crude oil prices. However, the AMH, incorporating behavioral finance principles, postulates that market players irrationally react to extinct factors, including sunspot activities, in ways that create transitory deviations from intrinsic values.

Sunspot activities refer to the number and size of dark spots on the sun's surface. Events occurring with the sun have been associated with changes on Earth related to climate and, more broadly, with economic cycles (Gorbanev, 2012). Sunspot activities indirectly impact crude oil prices, influencing world economic conditions (Dávila, 2003). For instance, an increase in sunspots brings about climatic variations that adversely affect agricultural production and change energy consumption patterns (Gil-Alana et al., 2014). The change then affects the supply-demand dynamics of crude oil, resulting in price changes (Montaño et al., 2019).

Further, there is a psychological dimension to sunspot activities regarding their impact on the participants in the market. In this context, one can see that investors would take a cue from sunspot activities as a signal for future economic conditions and change their trading strategy accordingly (Dowling & Lucey, 2008). This behavioral response leads to herd behavior and speculative bubbles, moving crude oil prices away from fundamental values (Skinner, 2009).

There is controversy regarding the relationship between sunspot activity and world crude oil prices (Daglis et al., 2023). Informed by the fact that these two variables often exhibit weak and spurious correlations, several theories were designed to explain possible linkages (Alexeyevich, 2020). One of the theories is that sunspot activity affects weather conditions (Stetson, 2013), and these weather conditions, in turn, affect agricultural output (Michler et al., 2020) with an ultimate impact on the energy demand, in this case, crude oil (Rokicki et al., 2021). If sunspot activity correlates negatively with the weather - indicating weather extremities like droughts or floods – a decrease in agricultural output will mean a rise in food prices, and this will result in a higher demand for energy to be used in agricultural output

Another viewpoint maintains that sunspot activity influences economic activity (Ho, 2015) and, consequently, oil demand. Other researchers postulate that the periods of high sunspot activity match the cycle of economic growth (Gorbanev, 2020), thereby raising oil consumption. In contrast, the time of low sunspot activity conveys weak economic activity and a low oil demand. However, it remains inconclusive just what empirical evidence will associate sunspot activity with economic growth and then with oil demand. Many previous studies still need to establish a robust and consistent relationship between these variables (Gorbanev, 2012).

Economic indicators are widely used in forecasting crude oil prices, but several factors significantly hamper their effectiveness (Yin & Yang, 2016). The significant limitations lie in the complex interplay of variables within the economic variables themselves and in the inherent volatility of the oil market (Guo et al., 2022). The economic indicators usually reflect aggregated data and are likely to cover the impact of specific regional or sectoral factors with overwhelming influence on oil prices (Salisu et al., 2022).

The relationship between economic indicators and oil prices is sometimes linear or contemporaneous. Lagged effects, feedback loops, and nonlinear dynamics complicate the predictive power of these indicators (Clements et al., 2004). In addition, exogenous shocks related to geopolitical events, natural disasters, and technological breakthroughs substantially disrupt the expected relationship of economic indicators with oil prices. They would reduce the effectiveness of the traditional econometric models (Economou & Agnolucci, 2016, September).

Another critical issue is the possibility of revisions in the data. Most economic indicators are subject to revision, affecting the accuracy of the forecast made from those data (Kishor & Koenig, 2012). Moreover, making all relevant economic indicators' real-time data available is quite a difficult task, and it also reduces the chances of making predictions on time (Billstam et al., 2017).

The oil market has unique features, such as the oligopolistic market structure, inventory level, and speculative activities (Fattouh, 2007). These introduce considerable noise into the relationship between economic indicators and oil prices, reducing econometric models' predictive power.

The Markov-switching autoregressive model is appropriate for examining the interaction of sunspot activity with crude oil prices as it allows for regime shifting in the underlying data-generating process (Ailliot & Monbet, 2012). Here, researchers add variables about sunspot activities as exogenous variables in the MS-AR mode so that changes in sunspot activities are reflected in the prices of crude oil under different economic regimes like high or low volatility.

The theoretical intersection of the EMH, the AMH, and the MS-AR model is employed to test the existence of a relationship between sunspot activities and world crude oil prices. Under the EMH, the prices should not respond to sunspot activity. However, considering the AMH and the potential for sunspots to affect world economic conditions, a basis is provided to include such variables in crude oil price dynamics models. In particular, it allows for a more detailed analysis of the relationship and capture of regime-dependent effects of sunspot activities on crude oil prices.

III. METHOD

This study adopts a two-state MS-AR model specification to examine the relationship between world crude oil prices and sunspot activity. An MS-AR framework implies changes in the model's parameters over regimes, supporting a nonlinearity (Xin, 2013, July) between the variables and structural alteration in the oil price dynamics. A two-state MS-AR (2) model specification considers sunspots an exogenous variable.

$$y_t = \mu(S_t) + \phi_1(S_t)y_{t-1} + \phi_2(S_t)y_{t-2} + \beta(S_t)x_t + \varepsilon_t$$

Where:

- y_t is the log-differenced crude oil price at time t
- $\mu(S_t)$ is the state-dependent intercept
- $\phi_1(S_t)$ and $\phi_2(S_t)$ are state-dependent autoregressive coefficients
- $\beta(S_t)$ is the state-dependent coefficient for the exogenous variable
- x_t represents the sunspot activity at time t
- $\varepsilon_t \sim N(0, \sigma^2(S_t))$ is the error term with state-dependent variance
- $S_t \in \{1, 2\}$ is the unobserved state variable following a first-order Markov chain

The transition probabilities between states are defined as:

$$P(S_t = j \mid S_{t-1} = i) = p_{ij}, \text{ for } i, j \in \{1, 2\}$$

The monthly data for world crude oil prices (IndexMundi) and the sunspot numbers (Solar Influences Data Analysis Center) for the following periods: February 1994 to May 2023. The price series were log-differenced to be stationary. The Expectation-Maximization algorithm iteratively calculated the likelihood function, updating the parameters until convergence with the following steps: parameters were initialized; for the E-step, the smoothed probabilities of each state were calculated; the M-step was the updating of the parameter estimates using maximum likelihood, which the previous two steps repeated until convergence (Aknouche, 2013).

The two-state MS-AR was compared for model selection with alternative specifications, including linear AR models and other MS-AR models with different lag structures, using information criteria measured by AIC and BIC and the likelihood ratio test (Tastan, & Yildirim, 2008). Further, the adequacy of the model was checked with the following diagnostics: Ljung Box test for residual autocorrelation, ARCH-LM test for heteroscedasticity, and Jacque-Bera test for normality of residuals (Urom et al., 2020).

The forecasting accuracy of the model was done with in-sample and out-of-sample Root Mean Square Error (RMSE) (Moitse, 2017). Later, considering the Robustness check of the model, the result was estimated through the rolling window to check its stability. The estimated regime-specific parameters were inspected, and transition probabilities followed to shed light on the difference between states and reflect on their interpretation of oil price dynamics. Smoothed probabilities were used to conclude the historical periods of each regime (Iacopini et al., 2023).

Several robustness checks were conducted to ensure that a sample selection bias did not drive the findings. The test involved checking the specification and stability of results concerning variations in the sample period, alternate measures of solar activity, and introducing other control variables not used in the benchmark model. This exhaustive method allowed this study to probe, under rigor, into the regime-dependent relationship between crude oil prices and sunspot activity, generating important insights into the complex dynamics of energy markets.

IV. RESULT AND DISCUSSIONS

Table 1 displays the ADF Test on Levels and First Difference on sunspot numbers and crude oil prices, conducted for the logarithms and their respective first differences. These tests are necessary for checking the stationarity of the time series, which, together with other assumptions, represents one of the core requirements of many econometric models, including the MS-AR specification. The log of sunspot tau-statistics is -08535, which is greater than the critical value at a 5% significance level of -1.94. The log crude with a tau-statistic of -1.15 is also more significant than the critical value. On both accounts, the null hypothesis of a unit root was not rejected, as the p-values are more than 0.1. Thus, both log-transformed series are nonstationary in levels.

Table 1. ADF test for Logarithmic of sunspot activities and crude oil prices

ADF Tests	Log_Sunspots	Log_Crude	Sunspots 1st diff.	Crude 1st diff.
tau-stat	-0.8535	-1.15	-12.75	-4.64
tau-crit	-1.94	-1.94	-1.94	-1.94
p-value	> .1	> .1	< .01	< .01

The tau-statistics of the first difference of sunspots is -12.75, significantly below the critical value. For comparison, the first difference in the series of crude oil prices has a tau-statistics equal to -4.64, which is below the critical level. Both p-values of the differenced series are less than 0.01. Hence, there is a strong rejection of the null hypothesis of a unit root. This indicates that both series are stationary after first differencing.

These results convey vital implications to the modeling approach. Non-stationarity in the log-transformed series points to using the first differences between sunspots and crude oil prices within the MS-AR modeling framework. This transformation is consistent with standard practice in time series econometrics and helps circumvent spurious regression concerns when modeling these variables' relationships.

Table 2 presents the parameter estimates for a two-state Markov-Switching Autoregressive (MS-AR) model, where crude oil prices are the dependent variable, and sunspots act as an exogenous variable. The model encompasses two autoregressive lags and allows regime-switching behavior in the intercept and all coefficients.

Table 2. MS-AR Model State Parameters

Metric	Value
State 1 Parameters	
Intercept	0.01
Lag 1 Coefficient	0.945
Lag 2 Coefficient	-0.22
Sunspots Coefficient	-0.001
State 2 Parameters	
Intercept	0.02
Lag 1 Coefficient	0.75
Lag 2 Coefficient	-0.15
Sunspots Coefficient	-0.002

State 1 parameters are the first regime; the intercept is estimated at 0.01, conveying a small positive baseline trend in crude oil prices when controlling for other factors. The lag 1 coefficient (0.945) implies strong positive autocorrelations, indicating that the previous period's prices strongly influence current prices. The lag coefficient (-0.22) displays a moderate negative effect from two periods prior, possibly capturing mean-reversion tendencies. The sun coefficient (-0.001) proposes a minor negative relationship between solar activity and oil prices in this state. The second regime (State 2 Parameters) exhibits distinct characteristics. The intercept (0.02) is slightly higher in State 1, presenting a strong positive trend and still showing positive autocorrelation, lag 1 coefficient (0.75) though weaker in State 1. With reduced magnitude, the lag 2 coefficient (-0.15) maintains a negative effect. Notably, this state's sunspot coefficient (-0.002) is more pronounced, denoting a stronger negative relationship between solar activity and oil prices.

These results propose that crude oil prices show regime-switching behavior, with varying persistence and sensitivity to exogenous factors across states. The differential impact of sunspots across regimes is interesting, possibly conveying that the influence of solar activity on oil prices is state-dependent.

Table 3 displays the estimated transition probabilities for the two-state Markov-Switching Autoregressive (MS-AR) model of crude oil prices with sunspots as an exogenous variable. The transition probabilities furnish vital information about the persistence and switching behavior between two regimes. The P (State1 to Sate 1) = 0.95 indicates a high probability that State 1 is highly persistent. Once the system enters State 1, it has a 95% chance of remaining in this state in the next period. This implies that the dynamics characterized by State 1 parameters tend to persist over time. Consequently, in P (State 2 to State 1), there is only a 5% probability of transitioning from State 1 to State 2 in any given period. This low transition probability further underlines the stability of State 1. Relatively, the probability of P (State 2 to State 1) = 0.10 transitioning from State 2 to State 1 is low at 10%. This claim is that once the system enters State 2, it is more likely to remain in it than to switch back to State 1. P (State 2 to State 2) = 0.90 conveys that State 2 also displays high persistence, with a 90% probability of remaining in this state from one period to the next.

Table 3. MS-AR Model Transition Probabilities

Transition Probabilities	Value
P(State 1 to State 1)	0.95
P(State 1 to State 2)	0.05
P(State 2 to State 1)	0.1
P(State 2 to State 2)	0.9

Several important characteristics of the transition probabilities of crude oil price dynamics exist. Both states reveal high probabilities of self-transition (0.95 and 0.90), inferring that the system tends to remain in each state for an extended period. The probability of transitioning from State 1 to State 2 (0.05) is lower than that of transitioning from State 2 to State 1 (0.10). The asymmetry expresses that the system may enter State 2 less frequently, but once it does, it has a slightly higher chance of reverting to State 1. Also, the expected duration of State 1, calculated as 1/(1-0.95), is approximately 20 periods. For State 2, the expected duration is 1/(1-0.9) = 10 periods. This implies that State 1 tends to persist longer than State 2. Presented with these transition probabilities, the long-run (ergodic) probabilities of being in each state can be computed, providing insights into the relative prevalence of each regime over extended periods.

These findings have vital implications for understanding and forecasting crude oil price dynamics. The high persistence in both states convinces that shocks to the system have long-lasting effects. Moreover, the symmetry in transition probabilities indicates different underlying economic or geopolitical conditions characterizing each state.

Table 4 depicts key model metrics for the Markov-Switching Autoregressive (MS-AR) model of crude oil prices, offering about the model's goodness of fit, complexity, and predictive performance. The log-likelihood value of 1123.45 indicates the logarithm of the probability of observing the data given the estimated model parameters. Generally, higher log-likelihood suggests a better model fit. The Akaike Information Criterion (AIC) balances model fits against complexity by penalizing the addition of parameters. The negative value of -2223.0 is notable since AIC is typically positive. This is attributed to the scale of data or specific model characteristics. Lower AIC values convey better model fit relative to complexity. A difference in AIC of more than 2 is often considerably meaningful when comparing models. Like AIC, the Bayesian Information Criterion (BIC) balances model fit and complexity with more substantial penalties for additional parameters. The negative BIC value (-2201.56), similar to AIC, is uncommon but not impossible. Generally, BIC is more conservative than AIC in model selection. The close values of AIC and BIC indicate that the model's complexity is appropriate given the data.

Table 4. MS-AR model Model Metrics

Model Metrics	Value
Log-Likelihood	1123.45
AIC	-2223.9
BIC	-2201.56
RMSE (in-sample)	1.957
RMSE (out-of-sample)	2.085

RMSE is a measure of the standard deviation of the residuals, that is, prediction errors. The lower the values, the better the fit. Thus, an in-sample RMSE equal to 1.957 points to a reasonably good fit to the training data. As expected, the out-of-sample RMSE of 2.085 is only a little higher since the model usually performs better on data it was trained on. The difference of 0.128 between the in-sample and out-of-sample RMSE is relatively low, which indicates low overfitting by the model, hence good generalizability. The high-log-likelihood and low RMSE values suggest that the MS-AR model fits the crude oil price data nicely. On the other hand, close values of AIC and BIC convey that the complexity of the model is appropriate for the data. Although negative, which is unusual, the values indicate that the model fit is very good relative to the number of parameters. The slight difference between in-sample and out-sample RMSE indicates good predictive performance and low overfitting. From this fact, it is inferred that this model is specifically suited to capturing the underlying crude oil price dynamics. Only by contrast with the metrics of competing models can a comprehensive evaluation of this model's performance be made as linear AR or different MS-AR specifications. While these metrics indicate good statistical performance, it is vital to frame the model's implications for crude oil price dynamics and the role of sunspots more precisely in economic theoretical and market behavior context.

Figure 1 contains an impulse response function. The function shows the immediate positive response of the impulse, depicting the effect rapidly increasing up to a peak of around 0.25 units at about the second period. This suggests the system experiences a quick and substantive positive reaction to the shock. After the peak, it makes an oscillatory response, declining drastically, crossing zero around the fifth period, and reaching a negative trough of about -0.15 units near the eighth period. This indicates that the system overcompensates for the initial shock with a change in the direction of the effect. Gradually, it decays to zero after the negative trough, although it stays in negative territory for the remaining observed periods (up to 25).

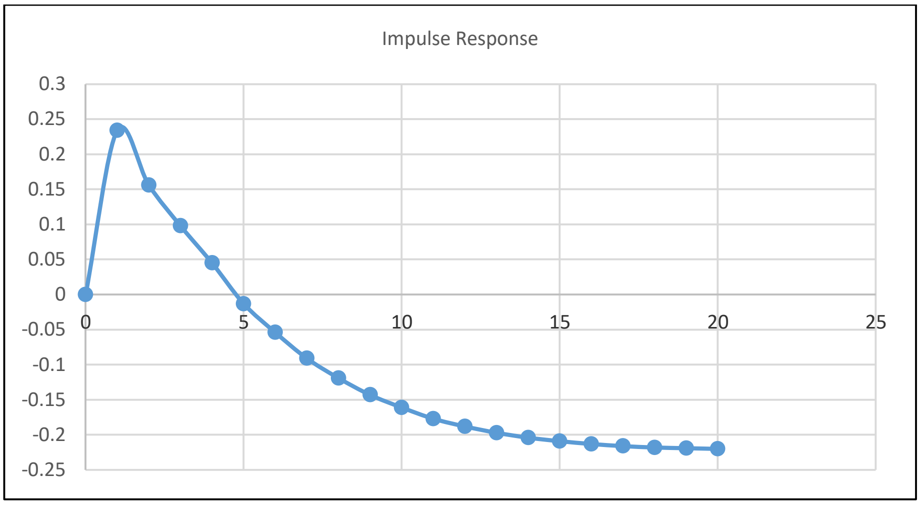

Figure 1. IRF values over time

The decay rate is slowing, which reflects how the system slowly converges toward its long-run equilibrium. The fact that the response does not return to zero within the 25 periods shown indicates great persistence in the system. The shock is persistent; the effects die slowly over time. The response reveals the asymmetry, with the positive peak more significant in magnitude than the subsequent negative trough. This asymmetry implies a system is more sensitive to positive than negative shocks or underlying nonlinearities in dynamic relationships. The pattern in the impulse response is typical for many economic and financial time series. Almost always, shocks have an immediate impact but are followed by oscillatory adjustment and slow convergence—for instance, the response of the crude oil prices to the sunspot activity. The strong negative response in the later periods indicates the presence of some overshooting mechanism or complex feedback loops in the system.

The result of the Markov-Switching Autoregressive (MS-AR) model about the relationship between crude oil prices and sunspot activities has vital implications in the context of existing research and theories. The first finding is the state-dependent negative relationship between sunspot activity and oil price, which corresponds to the theoretical framework put forward by Alexeyevich (2020). Also, it is seen that the negative coefficient is more substantial in Sate 2 (-0.002) compared to State 1 (-0.001), implying that the impact of solar activity on the price of oil within these regimes is comparatively stronger during some economic regimes. This result is suitable for existing literature postulating nonlinear dynamics in commodity markets, as Bastourre et al., (2010) claimed, which underlines regime-switching models capturing complex market behavior.

In particular, high persistence in both states captures the results of seminal work by Hamilton, complementing the transition probabilities. The result suggests that oil price regimes indeed have sticky properties, a factor important in both short-term price forecasting and long-term energy policy planning. This persistence reflects what Fouquet calls the theory of “path dependence” in energy systems, which explains the challenges of transitioning to alternative energy sources.

The weak but statistically significant relationship between sunspots and oil prices in the model details the claim that solar activity does not have a significant correlation with stock market returns. The findings suggest that, if subtle, such impact is indeed perceivable in commodity markets, particularly when regime-switching behavior is allowed (Chang et al., 2017).

The asymmetry in transition probabilities, with a higher likelihood of moving from State 2 to State 1 than vice versa, is consistent with the “volatility feedback” hypothesis (Safari & Davallou, 2018). This asymmetry suggests that markets respond more to events leading to the shift into the more stable State 1, reflecting perhaps some risk aversion by market agents. The result of the out-of-sample performance of this model, as indicated by the RMSE metrics, strengthens the argument on why nonlinear models are essential in oil price prediction (Zhang et al., 2023). However, the relatively small difference between in-sample and out-of-sample RMSE also serves to underline the argument of Hamilton, 2009, related to overfitting problems that often arise when developing complex models for oil prices.

Using sunspots as an exogenous variable contributes to a growing literature on the interactions between natural phenomena and economic systems (SHCHERBAKOV, 2018). The result shows that while solar activity's impact on oil prices is small, it is large enough to warrant inclusion in more complete specifications of global energy dynamics.

Table 5 contrasts the results of the three nonlinear time series models fitted to crude oil prices: STAR, SETA, and MS-AR. In detail, their goodness of fit, complexity, and predictive performance are contrasted through several metrics. Of the three competing models, MS-AR has the lowest AIC and BIC values of -2360.873 and -2345.511, respectively, against STAR and SETAR. The lower the AIC and BIC values, the better the model fits to complexity. The MS-AR performs better. Thus, it better balances fit and parsimony for the given data.

Table 5. Comparison of the AIC, BIC, Log-Likelihood, Ljung-Box Test, ARCH-LM Test, RMSE (in-sample and out-of-sample)

Metric	STAR	SETAR	MS-AR
AIC	-2340.54	-2330.69	-2360.87
BIC	-2325.18	-2315.33	-2345.51
Log-Likelihood	1172.271	1166.345	1181.437
Ljung-Box Test (p-value)	0.3012	0.3257	0.2954
ARCH-LM Test (p-value)	0.2253	0.2384	0.2126
RMSE (in-sample)	1.963	1.975	1.945
RMSE (out-of-sample)	2.098	2.112	2.087

Consistent with the AIC and BIC results, it is seen that among all the models, MS-AR has the highest log likelihood of 1181.437, followed by STAR with 1172.271 and SETAR with 1166.345. These results indicate that the MS-AR model better fits the observed data than the other two. All three models give a p-value greater than the usual significance level of 0.05: MS-AR is 0.2954, STAR is 0.3012, and finally, SETAR is 0.3257, indicating that none of the models have significant autocorrelation in the residuals and serial dependence in the data is captured.

All p-values for the ARCH-LM test are above 0.05, which implies no significant autoregressive conditional heteroscedasticity in residuals. Specifically, MS-AR is 0.2126, STAR is 0.2253, and SETAR is 0.2384. This means that all three models appropriately capture the volatility dynamics of the crude oil price series. The MS-AR model has the lowest in-sample RMSE, which is 1.945. It is closely followed by STAR and SETAR with an RMSE in-sample of 13963 and 13975, respectively, conveying that an MS-AR model best fits the training data. Out-of-sample RMSE, at 2.087, STAR is very close with a value of 2.098, and SETAR has a value of 2.112. Relatively small differences between in-sample and out-of-sample RMSE for all models indicate good generalization performance.

Comparative analysis indicates that the Markov-Switching Autoregressive performs better than the STAR and SETAR for all the metrics considered on the crude oil price data. MS-AR had the best AIC, BIC, and log-likelihood of the three models, indicating that the underlying dynamics of the crude oil prices were better explained than the other two. Keeping a good balance between model fit and complexity, the results postulate that regime-switching behavior modeled by MS-AR is more appropriate in catching nonlinearities of crude oil prices compared with smooth transitions of STAR or abrupt thresholds of SETAR.

All three models pass residual autocorrelation and heteroscedasticity diagnostic tests, indicating they very well capture serial dependence and volatility dynamics. It means that nonlinear specifications are appropriate for modeling the complex behavior manifested in the crude oil price series. Further, this is supported by the fact that the MS-AR fares better in both in-sample and out-of-sample RMSE. The slight difference in the values of the RMSE for the competing models suggest that all three provide reasonably good predictions.

V. CONCLUSION AND RECOMMENDATIONS

Based on the parameter estimates, transition probabilities, and model metrics, there are several conclusions about oil price dynamics and their relationship with sunspot activity. The two-state MS-AR model contains a regime for crude oil price behavior. Sate 1 is one of solid persistence, with a very strong positive autocorrelation at lag one and a more pronounced negative effect at lag 2. It conveys that there is a regime in which recent historical prices powerfully drive price movements. This indicates periods of relative stability or trending markets. By contrast, State 2 has less persistence, with smaller values of the autocorrelation coefficients, presenting a regime of volatility or mean revision.

The findings have several implications for understanding the markets for crude oils. It indicates that regime-switching behavior needs to be accounted for in oil price modeling since the dynamic seems to shift between periods with higher and lower persistence. The second regime-specific differential impact of sunspot activity suggests that the influence of solar cycles on energy markets is more complex than previously thought and is mediated by other factors of an economic or geopolitical nature that characterize each regime.

These results inform risk management strategies in energy markets by quantifying the likelihood of regime shifts and expected durations within each regime. Knowing these dynamics is helpful for policymakers in formulating more effective energy policies considering the possible influence of solar activity and regime-switching behavior. It is still bounded by the fact that its validation must come through future out-of-sample data. More studies must be carried out across different periods, comparing alternative modeling approaches and exploring the economic or physical mechanism by which the noted relationship between sunspots and oil prices is realized.

This paper finds evidence for regime-switching behavior in crude oil prices and some convoluted relationship with solar activity. These findings will add to the understanding of the dynamics of energy markets and open up new avenues for research into the interplay between astronomical phenomena and economic systems.

Given its strengths in capturing regime changes, policy framers need to factor them into energy security strategies and pricing policies to mitigate the impact of such abrupt shifts in oil markets. Joint efforts of economists, energy scientists, and astrophysicists are possible in order to disclose the possible relationship between solar activity and oil prices. A fruitful line of future research may involve time-varying transition probabilities – such models may be able to capture changes in regime stability over time.

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Exploring Digital Fluency: A Study of First-Year Students' ICT Proficiency

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ABSTRACT: Determining students' level of ICT proficiency is essential for efficient teaching and learning in the modern higher education setting. This study examines the Bachelor of Science in Information Technology first-year students' digital ability while taking into account the variety of experiences that have shaped their technology aptitude. A survey approach was used to collect data including observations, in order to fully investigate students' technology skills and learning preferences. The results shed light on the range of digital fluency among first-year students, taking into account individual interests, educational backgrounds, and socioeconomic background. Additionally, this study explores the digital learning materials that students prefer, offering insights into their attitudes and practices around the use of technology in the classroom. This study adds to the current conversation on promoting digital fluency in higher education by using qualitative data.

I. INTRODUCTION

The basic ICT knowledge and skills that an ICT literate person should have are constantly being improved. Due to the rapid development of information and computer technologies, we are more and more frequently faced with the term ICT literacy and the broader meaning of the concept of information literacy, which constitute the fundament for modern society development. ICT literacy becomes an important precondition for socialization and professional career. The progression of digital technologies has fundamentally altered the educational terrain, presenting a range of opportunities and difficulties for educators and students alike. The idea of digital fluency is becoming more and more important as technology is incorporated into educational settings and plays a bigger role in students' academic performance and future employment opportunities. The increasing demand for computer skills not only comes from many IT-producing jobs, such as computer hardware engineers and software programmers but also from the IT-using jobs, which encompass virtually every other job (Peng, 2017). Far from being digital natives, many students have considerable trouble using ICT beyond the ubiquitous Facebook. While some students are computer literate, a substantial proportion lack the skills to prosper under their own devices in an online tertiary education environment (Gray, 2013). The Bachelor of Science in Information Technology first-year university students of ISAT U Miagao Campus are a varied bunch with differing exposure and skill levels in digital technology. Although many students might be somewhat conversant with digital tools and platforms, there might be large differences in the students' levels of digital fluency. The differences in digital competency among first-year students can be attributed to various factors, including personal interests, educational experiences, and socioeconomic background.

Objectives

The aim of the study is to assess the ICT literacy skills among the Information Technology First year students at the Iloilo Science and Technology Miagao Campus.

Specifically, this study sought answers to the following questions:

1.) What is the level of ICT Competency of the BSIT students as a whole and in terms of age and gender?

2.) Is there a significant difference in the level of ICT Competency of the BSIT students when classified according to age and gender?

In addition to being able to use digital technologies, digital fluency includes the ability to critically assess information, work well in collaborative settings, and adjust to rapidly changing technology platforms.

Ethical Considerations

The ethical guidelines established by the Iloilo Science and Technology University - Miagao Campus were followed in the conduct of this study. The purpose of the research was explained to the participants. Their participation was entirely voluntary, and participants were free to withdraw at any time without consequence. Participants were treated with outmost respect and given their right of privacy and confidentiality of their information. The researchers obtained permission from ISAT U administration and collaborated with Research Department to conduct the study. The researchers adhered to legal and ethical obligations to safeguard participants' privacy and confidentiality.

II. METHODOLOGY

This study was conducted using a qualitative, survey-based methodology. We adopted a non-experimental design in which no variables are treated for application or alteration, but only for information gathering, observation, and selection required to address the research inquiries. To accomplish the goals of the study, we additionally carried out an inferential, descriptive data analysis. Respondents of the study are fully informed about the nature of the research.

The sample

Thirty (30) first year students were selected randomly from a population of Bachelor of Science in Information Technology of ISAT U Miagao Campus for academic year 2023-2024 in order to guarantee representation.

The Instrument

A structured questionnaire was developed to assess various aspects of ICT proficiency, including skills, competencies, usage patterns, and perceptions. The questionnaire was pre-tested with a small sample of participants to ensure clarity, validity, and reliability of the survey items.

The Method

The survey will be administered in a classroom setting to facilitate, monitor and observe the participants efficiently. Participants are provided with clear instructions on how to complete the survey and were given adequate time to respond. Using measures of central tendency and variability, survey data will be descriptively evaluated to provide a summary of participants' ICT competence levels and related characteristics. In order to investigate the correlations between demographic characteristics and ICT proficiency levels as well as other pertinent elements found in the study, inferential statistical tests (such as t-tests, and correlation analysis) will be performed.

Table 1. Likert Scale Weighted Mean Interpretation for the level of ICT competency of First Year Students

Scale	Mean Score	Interpretation
5	4.21 - 5.00	Expert/Outstanding
4	3.41 - 4.20	Proficient/Very Satisfactory
3	2.61 - 3.40	Demonstrating/Satisfactory
2	1.81 - 2.60	Basic/Poor
1	1.00 - 1.80	Low level/Needs Improvement

Data Collection and Analysis

The survey questionnaires were used to determine the (1) level of ICT Competency of the BSIT students as a whole in terms of age and gender and (2) if there is significant difference in the level of ICT Competency of the BSIT students when classified according to age and gender. The survey questionnaires were personally administered by the researchers in a classroom setting. None of participants received any kind of compensation for their participation in this study. The questionnaires consisted of 2 major sections, including (1) participants' profile which includes age, gender, (2) level of ICT knowledge which includes their knowledge about ICT basics, word processing, spreadsheet application, presentation software, internet and computer ethics.

The data were analyzed statistically in order to interpret the mean score of level of ICT Competency of the BSIT students in terms of age and gender, and the significant difference in the level of ICT Competency when classified according to age and gender. Table 1 is used for the analysis of items of each construct. The responses of the participants referred to five groups. The level construct that has a mean score from 4.21 - 5.00 fall into the Expert/ Outstanding level. The mean score from 3.41 to 4.20 is Proficient/Very Satisfactory level. The mean score between 2.61 - 3.40 is Demonstrating/Satisfactory level. Meanwhile, if the mean score is between 1.81 - 2.60, the level of competency is Basic/Poor. If the mean score reaches 1.00 - 1.80, the level of competency is Low level/Needs Improvement.

III. RESULTS AND DISCUSSION

Participant's Demographics

Table 2. Participants' Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ages 18 - 20	27	90.0	90.0	90.0
	ages 21 - 25	3	10.0	10.0	100.0
	Total	30	100.0	100.0	

Table 3. Participants' Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	17	56.7	56.7	56.7
	Female	13	43.3	43.3	100.0
	Total	30	100.0	100.0	

The result shows that 90% of the respondents are ages 18-20 years old and only 10% are ages 21-25 (Table 2.) This result also shows 56% are male and 13% are female (Table 3).

First year students' perception of their ICT competencies (55 items) will be presented According to the following competency areas: Understanding Basic ICT terms (10 items); Word processing (9 items); Spreadsheet Application (9 items); Presentation Software (11 items); Internet Literacy (9 items); Computer Ethics and Security (7 items). To avoid bias, participant responded on a Likert-type scale of 1 to 5, as stated above.

This part of the study presents the knowledge of BSIT students with the basics of Information Technology. It demonstrates the respondents' perceptions of their level of ICT knowledge as a whole.

Table 4. Level of ICT as a whole (Overall and different dimensions/areas)

Competencies	Mean	SD	Interpretation
Basic ICT	3.43	0.49	Proficient/Very Satisfactory
Word	3.82	0.72	Proficient/Very Satisfactory
Spreadsheet	3.23	0.76	Demonstrating/Satisfactory
Presentation	3.36	0.90	Proficient/Very Satisfactory
Internet	3.36	0.68	Proficient/Very Satisfactory
Ethics and Security	3.68	0.75	Proficient/Very Satisfactory
Overall	**3.48**	**0.59**	**Proficient/Very Satisfactory**

Legend: Expert/Outstanding (4.21-5.00); Proficient/Very Satisfactory (3.41-4.20); Demonstrating/Satisfactory (2.61-3.40); Basic/Poor (1.81-2.60); Low level/Needs Improvement (1.00-1.80)

Findings in table 4 showed that the participants' knowledge of basic ICT is Proficient/Very Satisfactory (x=3.43, sd=0.49). It shows that their knowledge Microsoft Word is also Proficient/Very Satisfactory (x = 3.82, sd =0.72). It's good to know that their competency about Spreadsheet application which is Microsoft Excel is Demonstrating/Satisfactory (x = 3.23, sd = 0.76). Their knowledge about presentation software like Microsoft PowerPoint (x=3.36, sd=0.90) and Internet (x= 3.36, sd=0.68) are Proficient/Very Satisfactory. Their understanding about ICT ethics and security (x=3.48, sd= 0.59) is also Proficient/Very Satisfactory. This shows that BSIT students are familiar with using MS word compared with MS Excel. Information Communication Technology (ICT) competency describes more than awareness or driving license level of using computing facilities and networking ser-vices to carry out different tasks. Undergraduates of a university will become knowledge workers in the society and they should acquire the knowledge, skills and attitudes using the modern ICT technology to carry out their job tasks effectively. If they fail to achieve this level of competency in ICT, it becomes a key factor for the under or unemployment of graduates irrespective of academic qualification. (Hewagamage and Hewagamage,2015)

Table 5. Level of ICT in terms of age (overall and different dimensions/areas)

Competencies	Age	Mean	SD	Interpretation
Basic ICT	18-20 Years old	3.40	0.47	Demonstrating/Satisfactory
Basic ICT	21 and above	3.70	0.75	Proficient/Very Satisfactory
Word	18-20 Years old	3.78	0.67	Proficient/Very Satisfactory
Word	21 and above	4.22	1.25	Expert/Outstanding
Spreadsheet	18-20 Years old	3.15	0.66	Demonstrating/Satisfactory
Spreadsheet	21 and above	4.0	1.36	Proficient/Very Satisfactory
Presentation	18-20 Years old	3.28	0.88	Demonstrating/Satisfactory
Presentation	21 and above	4.0	0.91	Proficient/Very Satisfactory
Internet	18-20 Years old	3.37	0.69	Proficient/Very Satisfactory
Internet	21 and above	3.29	0.74	Demonstrating/Satisfactory
Ethics and Security	18-20 Years old	3.70	0.77	Proficient/Very Satisfactory
Ethics and Security	21 and above	3.52	0.70	Proficient/Very Satisfactory
Overall	**18-20 Years old**	**3.45**	**0.56**	**Proficient/Very Satisfactory**
Overall	**21 and above**	**3.80**	**0.92**	**Proficient/Very Satisfactory**

Legend: Expert/Outstanding (4.21-5.00); Proficient/Very Satisfactory (3.41-4.20); Demonstrating/Satisfactory (2.61-3.40); Basic/Poor (1.81-2.60); Low level/Needs Improvement (1.00-1.80).

Table 5 shows the level of respondents' competency in terms of age. This result shows that the respondents who age 18-20 years old has higher competency in internet (x=3.37, sd=0.69) and ethics and security (x=3.70, sd=0.77) but they have lower competency in basic ICT (x=3.40, sd=0.74), word (x=3.78, sd=0.67), spreadsheet (x=3.15, sd=0.66) and presentation software (x=3.28, sd=0.88). On the other hand, those who age 21 and above has higher competency in basic ICT (x=-3.70, sd=0.75), word (x=4.22, sd=1.25), spreadsheet (x=4.0, sd=1.36), presentation (x=4.0, sd=0.91) but they have lower competency in internet (x=3.29, sd=0.74) and ethics and security (x=3.52, sd=0.70). The overall results shows that the level of competency of BSIT students who age 18-20 years old is the same with those who age 21 years old and above**.** Although it would not be appropriate to assume age-related differences as a basis for program planning, it would be important to recognize that such differences in access, related experience, and confidence do exist between and within age groups and to ensure that any teacher preparation program offers opportunities for access that will assist students to extend their experience of ICT and build their confidence with a wider range of applications. (Albion, P. R., Jamieson-Proctor, R., & Finger, G., 2011). This results confirms the study of Lim & Lee (2000) that found that students have some basic computing skills, adequate MS Word and Internet skills but their Excel and Access skills are not adequate for business students for qualification requirements or for their future employment (Zhao, 2002). It would seem that although the Millennial students have been brought up with technology, have access to computers and the latest operating systems, the students in this study have not been exposed to the application programs needed in the business environment (Sherry and Fielden, 2005).

Table 6. Level of ICT in terms of gender (overall and different dimensions/areas)

Competencies	Gender	Mean	SD	Interpretation
Basic ICT	Male	3.57	0.57	Proficient/Very Satisfactory
Basic ICT	Female	3.30	0.22	Demonstrating/Satisfactory
Word	Male	3.79	0.81	Proficient/Very Satisfactory
Word	Female	3.94	0.59	Proficient/Very Satisfactory
Spreadsheet	Male	3.52	0.85	Proficient/Very Satisfactory
Spreadsheet	Female	2.86	0.45	Demonstrating/Satisfactory
Presentation	Male	3.66	0.70	Proficient/Very Satisfactory
Presentation	Female	3.01	1.03	Demonstrating/Satisfactory
Internet	Male	3.57	0.71	Proficient/Very Satisfactory
Internet	Female	3.17	0.48	Demonstrating/Satisfactory
Ethics and Security	Male	3.83	0.73	Proficient/Very Satisfactory

Ethics and Security	Female	3.61	0.65	Proficient/Very Satisfactory
Overall	**Male**	**3.65**	**0.66**	**Proficient/Very Satisfactory**
Overall	**Female**	**3.21**	**0.33**	**Demonstrating/Satisfactory**

Legend: Expert/Outstanding (4.21-5.00); Proficient/Very Satisfactory (3.41-4.20); Demonstrating/Satisfactory (2.61-3.40); Basic/Poor (1.81-2.60); Low level/Needs Improvement (1.00-1.80)

Table 6 shows the level of respondents' competencies in terms of gender. This shows that BSIT male respondents has higher competency in basic ICT (x3.57, sd=0.57), spreadsheet (x=3.52, sd=0.85), presentation (x=3.66, sd=07.0), internet (x=3.57, sd=0.71) and ethics and security (x=3.61, sd=0.65) but has lower competency in word (x=3.79, sd=0.81). The BSIT female respondents only has high competency in word (x=3.94, sd=0.59) but has lower competency in all other areas. The overall results confirmed that male respondents have Proficient/Very Satisfactory level of competency (x=3.65, sd=0.66) and female respondents has Demonstrating/Satisfactory (x=3.21, sd=0.33). This proves that the BSIT male respondents have higher level of competency compared to BSIT female respondents. The gender difference in primary education is observed to be smaller than in secondary education. In secondary education, the computer attitude of girls seems to be less positive than that of boys. Girls and boys take on different tasks when working together on the computer and they tackle ICT tasks differently. The girl's behavior seems to a lesser degree positive towards computers than boys at secondary education (Volman et al., 2005). In another study, the authors argue that girls have an advantage in the more information-oriented dimensions that require sharing, evaluating, and reflecting processes. They also highlight the results where boys performed better when applying technical functionality (Punter et al., 2017).

Table 7. Difference in the Level of ICT when classified according to age (overall and different dimensions/areas)

Competencies	t	df	p
Basic ICT	-0.986	28	0.333
Word	-0.994	28	0.329
Spreadsheet	-1.899	28	0.068
Presentation	-1.422	28	0.166
Internet	0.184	28	0.855
Ethics and Security	0.383	28	0.704
Overall	**-0.967**	**28**	**0.342**

Brown-Forsythe test is significant (p < .05), suggesting a violation of the equal variance assumption.

Table 7 reveals no significant difference in the ICT competency level of BSIT students when classified according to age. This means that, regardless of age, they exhibited comparable level of competencies.

Table 8. Difference in the Level of ICT when classified according to gender (overall and different dimensions/areas) dimensions/areas)

Competencies	t	df	p
Basic ICT	1.504	27	0.144
Word	-0.551	27	0.586
Spreadsheet	2.446	27	0.021
Presentation	2.024	27	0.053
Internet	1.670	27	0.107
Ethics and Security	0.801	27	0.430
Overall	**1.610**	**27**	**0.119**

Table 8 shows no significant difference in the ICT competency level of BSIT students when classified according to gender. This means that both male and female BSIT students of ISAT U MC has the same overall level of competencies.

IV. CONCLUSION

This study's result emphasizes how crucial it is to take age and gender into account while evaluating and treating first-year students' ICT skills. Through the identification of age-related variations in the acquisition and application of skills, educators can create focused interventions aimed at improving students' ICT competency and equipping them for success in the digital era. Subsequent studies could investigate the underlying variables influencing age-related differences in ICT ability and look at long-term patterns in students' technical growth. Educators can adapt instructional strategies and support systems to match the various needs of students across age groups by detecting age-related patterns in ICT abilities. It is essential to address these differences in proficiency levels in order to promote inclusive and successful ICT education practices.

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Pantawid Pamilyang Pilipino Program Support and Its Implication to School Performance

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ABSTRACT: The Pantawid Pamilyang Pilipino Program (4Ps) is a crucial social assistance effort in the Philippines designed to alleviate poverty by providing specific financial aid to families in need. This study was conducted to determine the Pantawid Pamilyang Pilipino Program (4Ps) support and its implication to school performance in Opol West District, Division of Misamis Oriental during the School Year 2022-2023. Specifically, it sought to: 1.) assess the respondents' level of 4P's support in terms of education, health, and nutrition; 2.) find the program support implication to school performance during the School Year 2019 to 2022 considering the enrolment rate, dropout rate, and graduation rate; and 3.) determine the significant relationship between the level of 4Ps support and its implication to school performance. The respondents were the one hundred fifty (150) Pantawid Pamilyang Pilipino Program beneficiaries in Opol West District, Opol, Misamis Oriental. The study employed the descriptive correlation method of research, which was essentially a quantitative description of the overall features of a selected group. The questionnaires were modified to match the demands of the study and to get the intended outcome. Moreover, descriptive statistics such as frequency, percentage, mean and standard deviation were used to describe the variables in the study. A Pearson Product Moment Correlation Coefficient (r) was also used to determine a significant relationship between the level of 4Ps support and its implication for school performance. The findings revealed that the respondents' level of 4Ps support in terms of education, health, and nutrition is high. As to the program support implication to school performance, on average, the enrolment rate stands at 19.80 %, the dropout rate at 0.03%, and the graduation rate at 10.18%. There have been effective measures implemented in the 4Ps to better support students, resulting in improved educational programs. There is a significant relationship between the level of 4P support and its implications for school performance. Most of the respondents prioritize nutrition over education due to the immediate and tangible impact on their well-being, where basic needs are a daily struggle. It is recommended that school heads should encourage their subordinates to strive hard in their areas of responsibility for quality education. Efficient classroom management can bolster students' motivation to attend school regularly, therefore enhancing their academic performance. This study investigated the degree to which teachers' classroom management in terms of modeling behavior, assessment practices, and learning atmosphere. Furthermore, it investigated the relationship between teachers' ability to manage their classrooms and students' academic performance. This study employed a descriptive-correlational research methodology, which involved analyzing documents and administering a questionnaire designed by the researcher. The study was conducted with a sample size of 143 teachers from the East 2 District in the Cagayan de Oro City Division. The teachers were selected by the use of the Stratified Random Sampling approach, which involved the application of Slovin's Formula. The students' grades for the first and second quarters of the School Year 2023-2024 were also considered. Evidence suggests that teachers routinely apply classroom management techniques. The modeling behavior and learning atmosphere are extensively nurtured and given priority. Most students are at the level of Very Satisfactory in their academic performance. There exists a moderate positive correlation between the effectiveness of teachers' classroom management and the academic performance of students. Teachers can act as good role models for students in a supportive learning environment, which can help to cultivate students' motivation to attend school and improve their academic performance.

KEYWORDS: Pantawid Pamilyang Pilipino Program, School Performance

I. INTRODUCTION

The Pantawid Pamilyang Pilipino Program (4Ps) is one of the social welfare programs designed to address poverty and promote human development in marginalized communities. It has been a key initiative aimed at reducing poverty and improving the well-being of disadvantaged Filipino families. However, the 4Ps support encountered limited access to quality education, inadequate healthcare facilities, and insufficient nutritional support for eligible families. These problems have resulted in low enrollment rates, high drop-out rates, and low graduation rates among beneficiaries of the 4Ps in school. The study seeks to shed light on this critical support and its implications to improve the program's effectiveness in addressing the education, health, and nutritional needs of vulnerable families, ultimately fostering better outcomes for the beneficiaries.

RA 11310, also known as the Pantawid Pamilyang Pilipino Program (4Ps) Act, addresses three critical program issues: education, health, and nutrition. The legislation emphasizes the importance of providing support to beneficiaries in these key areas. Under the education component, the program aims to enhance access to and completion of quality education for children and youth. It promotes regular school attendance, monitors performance in school, and provides financial assistance to cover educational expenses. In terms of health, the program seeks to improve the overall well-being of beneficiaries by ensuring access to healthcare services, including immunization, regular check-ups, and nutrition support.

Several studies have explored the positive outcomes of the Pantawid Pamilyang Pilipino Program. For instance, a study by Acosta, De La Cruz, and Francisco (2018) found that the program has contributed to increased school enrollment and attendance rates among beneficiary children, leading to improved educational outcomes. Additionally, Alviola, Antonio, and Mapa (2017) observed a positive effect of the program on household consumption expenditure and food security, indicating improved economic well-being among beneficiary households.

In terms of health and nutrition, previous research has highlighted the positive effects of the program. Santos (2019) found that beneficiaries of the Pantawid Pamilyang Pilipino Program showed improved access to healthcare services, increased utilization of preventive care, and enhanced nutritional outcomes, such as higher rates of immunization and improved child growth indicators. These findings suggest that the program has been successful in addressing health and nutrition needs among beneficiary households.

In the realm of education, several studies have examined the impact of the program on school enrollment and attendance. Research by Balbin, Miguel, and Ramos (2018) and Diamante and Panganiban (2020) revealed that the Pantawid Pamilyang Pilipino Program has contributed to increased school participation rates, reduced drop-out rates, and improved educational outcomes, such as higher grade completion and academic performance among beneficiary children. These findings highlight the program's effectiveness in promoting access to education and enhancing educational opportunities for disadvantaged families.

As the Millennium Development Goals (MDGs) are exemplified through this program. Recipients are anticipated to utilize the support, particularly for educational and healthcare needs. The 4Ps serve as a strategy for alleviating poverty by offering grants to households facing extreme poverty, aiming to enhance their well-being in terms of health, nutrition, and education. It is in this context that this study is conducted to determine the level of 4Ps support and its implication to school performance in Opol West District, Division of Misamis Oriental.

This research was anchored from the study of Acupido et al. (2020), entitled Analysis on the Implementation of the Pantawid Pamilyang Pilipino Program: A Research Review stated that the assessment conducted by the beneficiaries themselves plays a crucial role in determining the effectiveness and impacts of the Pantawid Pamilyang Pilipino Program (4Ps) implemented across the Philippines. The findings of various studies indicate that the program has successfully achieved its goals in terms of improving health and education outcomes for the beneficiaries. However, challenges such as difficulties in accessing assistance, lack of financial literacy among beneficiaries, discrepancies in meeting program criteria, and limited understanding of the concept of 4Ps have also been observed during the implementation process.

According to Busaing (2020), entitled Assessment on the Outcome of the Pantawid Pamilyang Pilipino Program in Tabuk City, Kalinga stated that the objectives of the Pantawid Pamilya Program in Tabuk City, Kalinga have been largely achieved, as the majority of program beneficiaries demonstrate high levels of compliance with the program's conditionalities. Since the program's full implementation, there have been no instances of maternal complications during pregnancies among pregnant members of Pantawid Pamilya households. Additionally, nearly all beneficiaries' children have received full immunizations, demonstrating improved healthcare access and adherence. The program has also contributed to an increase in enrollment rates and maintained consistent attendance rates exceeding 85% among the beneficiaries. Furthermore, there have been no recorded cases of child labor, highlighting the program's impact in protecting children's rights.

Another study conducted by Flores and Miraña (2019), the effects of the 4Ps program on educational outcomes, such as enrollment, attendance, and completion rates, were examined. The findings revealed a positive influence of the program on these educational indicators, as beneficiaries displayed higher enrollment rates, improved attendance, and an increased probability of successfully completing their education.

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In this study, the researcher has considered the enrolment rate, drop-out rate, and graduation rate as dependent variables. The data involve three years, from 2019 to 2022, capturing trends over time. The enrolment rate indicates the percentage of eligible children in beneficiary households who are attending school, providing insights into the program's impact on improving educational access. The drop-out rate measures the percentage of students who discontinue their education prematurely, offering valuable information about the program's effectiveness in preventing early school withdrawal. Lastly, the graduation rate represents the percentage of students successfully completing their education within the expected time-frame, serving as an indicator of the program's influence on educational attainment among beneficiary households. By analyzing these variables over the specified period, the study aims to assess the program's overall support and its contribution to educational outcomes among the target population.

Data collection methods such as surveys and analysis of educational records can be employed to assess these dependent variables. Additionally, comparing the education outcomes from the enrolment up to the finish of their studies after the implementation has taken. The data can help determine the program's specific impact on school performance.

The independent variables encompass aspects related to education, health, and nutrition, which were evaluated in the context of the Pantawid Pamilyang Pilipino Program (4Ps) implementation in the Opol District. Under education, specific aspects were considered to gain insights into how the program influences educational outcomes and access to education. The health variable involves measurable indicators that assess health outcomes, healthcare utilization, and health practices, providing a comprehensive understanding of the program's impact on the health status and well-being of beneficiary households. Lastly, the nutrition variable focuses on factors related to the nutritional status and well-being of beneficiary households, allowing an assessment of how the program affects access to nutritious food, promotes healthy eating habits, and addresses issues of malnutrition. By considering these independent variables, the study aims to analyze the level of the 4Ps support on education, health, and nutrition outcomes to school performance. By examining these variables, researchers can gain insights into the program's support in improving nutritional status, enhancing educational opportunities, and promoting better health outcomes among the targeted households.

II. METHODOLOGY

The study employed the descriptive correlation method of research, which was essentially a quantitative description of the overall features of a selected group. It enabled the researcher to collect data through the use of a survey questionnaire. It could also employ a wide range of quantitative and qualitative methods to investigate one or more variables that could not be manipulated or controlled but instead had to be observed and measured. The respondents were the Pantawid Pamilyang Pilipino Program beneficiaries in Opol West District, Opol, Misamis Oriental. This study determined the Pantawid Pamilyang Pilipino Program (4Ps) support and its implication to school performance in Opol West District, Opol, Misamis Oriental. After collecting and recording the data gathered in this study, the following statistical tools were used. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to describe the variables in the study. Pearson Product Moment Correlation Coefficient (r) was employed to determine the significant relationship between the 4Ps support and its implication to school performance.

III. RESULTS AND DISCUSSION

Problem 1: How do the respondents assess the level of Pantawid Pamilyang Pilipino Program support in terms of Education, Health, and Nutrition?

Table 1: Summary of Respondents' Assessment Level of 4Ps Support

Variables	Mean	SD	Description
Education	3.4	0.671	Most of the time
Health	3.41	0.657	Most of the time
Nutrition	3.45	0.633	Most of the time
Overall	**3.42**	**0.654**	**Most of the Time**

Legend: 3.51 - 4.00 At all times/Very High 1.51 - 2.50 Sometimes/Low
2.51- 3.00 Most of the time/High 1.00 -1.50 Never/Very Low

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Table 1 confirms the summary of respondents’ assessment level of 4Ps support on the three variables. Overall, results show that respondents’ assessment level of 4Ps support in terms of education, health, and nutrition was high, as indicated by the overall mean of 3.42 (SD=0.654) described as **Most of the Time**. This indicates that the respondents hold a highly favorable perception of the Pantawid Pamilyang Pilipino Program support. Furthermore, it suggests that the program is widely regarded as effective and successful in addressing the specified issues, reflecting a broad consensus among respondents regarding its positive impact and effectiveness in achieving its objectives. Additionally, this reveals that the Pantawid Pamilyang Pilipino Program in Opol West District has received overwhelmingly positive feedback, particularly for its profound impact on education, health, and nutrition among learners and their families. Beneficiaries in Opol West District have reported significant improvements in educational outcomes, attributing increased school attendance and better access to educational resources, including textbooks and school supplies, to the financial support provided by 4Ps. In summary, the 4Ps program in Opol West District has played a pivotal role in fostering a healthier, better-educated, and more nourished generation, offering a promising future for learners and their families.

As asserted by Kura (2017), the program significantly improved the beneficiaries' quality of life, notably in terms of their health, education, and living conditions. The lives of people from impoverished households in the Philippines have been improved by the program, which has been determined to be an effective social protection tool in combating poverty.

Moreover, the variable **Nutrition** obtained the highest overall mean rating of 3.45 (SD=0.633), described as **Most of the Time**. It reveals a significant and consistently positive assessment among the respondents. This implies and signifies that, within the framework of the evaluation or survey, the nutrition aspect garnered a considerable level of endorsement. Furthermore, according to respondents, the Pantawid Pamilyang Pilipino Program has proven effective in enhancing and maintaining nutritional conditions among its beneficiaries. The elevated rating strongly suggests that the program's initiatives and support in the realm of nutrition have consistently yielded success, promoting healthier dietary practices and improved nutritional outcomes for the recipients. This emphasizes the program's substantial impact in addressing nutrition-related challenges encountered by the target beneficiaries, highlighting its effectiveness in this critical aspect. According to the World Bank (2017), adequate nutrition is crucial for the physical and cognitive development of children. Through the 4Ps, parents are encouraged to provide their children with proper nutrition, which can lead to better growth, development, and cognitive abilities. As posited by Reyes et al. (2017), the impact of the 4Ps program on the dietary practices and nutritional status of children was investigated. The research revealed that the program had a positive effect on improving dietary practices and reducing the prevalence of undernutrition among children.

However, the variable **Education** got the lowest overall mean rating of 3.40 (SD=0.671) described as **Most of the Time**. This means that there are challenges or shortcomings in the program's effectiveness in addressing certain aspects of educational support. This result underscores the importance of a comprehensive examination of program components to identify areas requiring targeted improvements. It signals an opportunity for the 4Ps program to address specific challenges within the education domain, ensuring a more impactful and well-rounded support system for the learners. This suggests that the program has had a positive impact on educational access and opportunities, but there could be variations or gaps in the consistency and quality of this support. Additionally, it reveals that some beneficiaries may prioritize meeting attendance requirements to secure cash transfers, potentially overlooking the overall quality of their education. This emphasizes the importance of continuous evaluation and improvement efforts to ensure the ongoing effectiveness of the 4Ps program in addressing educational needs and, if necessary, further improving its influence in this crucial domain. As posited by Baird et al. (2017), the beneficiaries of the 4Ps face various barriers to accessing education. These barriers may include long distances to schools, lack of transportation, and insufficient school supplies.

Hence, the Pantawid Pamilyang Pilipino Program has been successful in achieving its objectives, particularly in the education sector, according to several studies. Dela Torre (2017) found that the program's beneficiaries were supported in meeting their educational needs, leading to improved school performance indicators. Flores et al. (2019) reported that the cash grants provided by the program alleviated financial burdens for beneficiaries, allowing them to purchase school supplies and improve their academic performance.

Problem 2: What is the program support implication to school performance during the School Year 2019 to 2022, considering the Enrolment Rate, Drop-out Rate, and Graduation Rate?

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Table 2: Distribution of the Program Support Implication to School Performance during School Year 2019-2022 Considering the Enrolment Rate

School Year	Total Number of Enrollees	4Ps Enrollees	Enrolment Rate
2019-2020	5131	1036	20.19%
2020-2021	5560	1040	18.71%
2021-2022	5623	1153	20.51%
Total	**16314**	**3229**	**59.41%**

Table 2 discloses the program support implication to school performance during School Year 2019-2022, considering the enrolment rate. Overall, the highest enrollment rate was incurred during the School Year 2021-2022 as indicated by the enrollment rate of 20.51% with a total of 4Ps enrollees of 1,153. This means that a significant number of 4Ps beneficiaries were successfully enrolled in schools during this academic year, potentially reaping the intended benefits of the program, such as financial assistance for education-related expenses. This increase in enrollment signifies positive developments in education accessibility, outreach efforts, or economic conditions that encourage more students to enroll. This implies a potential correlation between social welfare programs and higher education enrollment, suggesting that targeted interventions can positively impact educational outcomes.

According to Dacuycuy et al. (2020), the 4Ps initiative yielded positive outcomes on the educational performance of its participants, including their academic achievements. The beneficiaries who participated in the program obtained higher grades, as reported. As posited by Fiszbein et al. (2019), the study found that conditional cash transfer programs like Bolsa Escola significantly increased school enrollment rates among beneficiary households. Families were more inclined to send their children to school because of the financial incentives.

Conversely, the lowest enrollment rate within this time frame occurred during the School Year of school attendance. Moreover, this data highlights the importance of considering external factors and contextual nuances in program design and implementation to address and mitigate barriers to education effectively.

On the other hand, the data reflects a dynamic educational landscape influenced by various factors, including economic conditions and external disruptions like the pandemic. This suggests continued program adaptation and support mechanisms to ensure consistent access to education for marginalized families. According to Lluz (2020), Despite the presence of financial aid, the persistent issue of substandard quality of life remains a significant challenge that can compel students to abandon their education. This connection to poverty continues to be an underlying factor influencing the decision to drop out of school.

Moreover, Mamerto et al. (2017) state that enhancing the educational outcomes of 4Ps beneficiaries in the Philippines can be achieved through the provision of supplementary assistance. This assistance may encompass diverse forms such as tutoring, mentorship initiatives, the provision of educational materials, and specialized training for teachers and school administrators, all contributing to the enhancement of academic performance and enrollment status.

Table 3: Distribution of the Program Support Implication to School Performance during School Year 2019-2022 Considering the Dropout Rate

School Year	Overall Number of Dropouts	4Ps Number of Dropouts	Dropout Rate
2019-2020	58	0	0%
2020-2021	7	0	0%
2021-2022	9	1	0.09%
Total	**74**	**1**	**0.09%**

As shown in Table 3, the program support implication during School Year 2019-2022 considering the dropout rate. Overall, the highest dropout rate was incurred during the School Year 2021-2022, as indicated by the dropout rate of 0.09%. The data reveal that out of 9 students, only one is a beneficiary of the 4Ps program and is leaving school. It suggests that even with targeted assistance programs, there can be challenges in preventing all instances of student disengagement. It is crucial for education authorities to closely examine the specific circumstances leading to these dropouts, whether related to socio-economic factors, academic challenges, or other issues, to tailor interventions and maintain the generally positive trend observed in previous years. This implies that despite the program's overall success in reducing dropout rates, there may be specific cases where students still face challenges leading to discontinuation.

In 2019-2020 and 2020-2021, no 4Ps dropout was reported. This means during the first two school years; there were reported instances of students participating in 4Ps dropping out of school. This implies that the program effectively supported and motivated these students to stay in school during those periods. Furthermore, it highlights that the schools in Opol West District maintained an overall low dropout rate throughout the three-year period. Nevertheless, it is crucial for the school to vigilantly monitor and address any specific issues related to the 4Ps program to prevent a future increase in dropout rates. As posited by Ledesma and Rodriguez (2021), the Pantawid Pamilyang Pilipino Program (4Ps) has had a beneficial impact on the academic success of its beneficiaries in the Philippines. The program's conditional cash transfers have led to increased school attendance, enhanced examination scores, and a decrease in school dropout rates among underprivileged children.

Table 4 shows the program support implication during the School Year 2019-2022, considering the graduation rate. Overall, the highest graduation rate was incurred during the School Year 2021-2022, as indicated by the graduation rate of 11.27%. This means a positive trend in graduation rates among 4Ps enrollees over the three School Years. This indicates that a greater proportion of students enrolled in the 4Ps program successfully finished their studies compared to previous years. This also implies that the rise in the graduation rate during this period may suggest the implementation of specific measures or enhancements aimed at improving the program's support for students, ultimately resulting in better educational outcomes. The data emphasizes the significance of monitoring graduation rates in relation to the 4Ps program. This could potentially signify positive changes in program implementation or other factors contributing to improved educational outcomes for students participating in the 4Ps program.

Table 4: Distribution of the Program Support Implication to School Performance during School Year 2019-2022 Considering the Graduation Rate

School Year	Number of 4Ps Enrollees	Number of 4Ps Graduates	Graduation Rate
2019-2020	1036	93	8.98%
2020-2021	1040	107	10.29%
2021-2022	1153	130	11.27%
Total	3229	330	30.54%

According to World Bank (2017), by encouraging school attendance and enrollment, the 4Ps program can contribute to improved educational outcomes. Children who stay in school longer are more likely to acquire valuable knowledge and skills, which can lead to higher graduation rates is a general statement summarizing the potential impact of conditional cash transfer programs like the 4Ps on education.

In contrast, the School Year 2019-2020 incurred the lowest graduation rate of 8.98%. The low graduation rate in 2019-2020 could suggest potential challenges faced by the 4Ps beneficiaries during this period. Insights into the circumstances surrounding this specific academic year are essential for a nuanced understanding. The implication is that targeted interventions and tailored support mechanisms may be required to address specific barriers affecting graduation rates, ensuring that the program continues to enhance educational outcomes for all participants.

As posited by Sasaki et al. (2019), the academic achievements of 4Ps beneficiaries decline as they progress to higher grades, impacting the program's Promotion Rate. The Average Attendance rate also tends to decrease as students advance to higher grades. Additionally, there is an increase in the number of retained/dropped students in Grade 10, contributing to a reduction in the overall completion or graduation rate.

Table 5: Summary of the Program Support Implication to School Performance during School Year 2019-2022

School Year	Enrollment Rate	Dropout Rate	Graduation Rate
2019-2020	20.19%	0.00%	8.98%
2020-2021	18.71%	0.00%	10.29%
2021-2022	20.51%	0.09%	11.27%

Total	**59.41%**	**0.09%**	**30.54%**
Average	**19.80%**	**0.03%**	**10.18%**

Examining the cumulative data, the total enrollment rate over the three years is 59.41%, the total dropout rate is 0.09%, and the total graduation rate is 30.54%. On average, the enrollment rate stands at 19.80%, the dropout rate at 0.03%, and the graduation rate at 10.18%. Notably, there is an evident trend of improvement in graduation rates over the years, with the most recent year reflecting the highest graduation rate. This suggests that effective measures or enhancements have been implemented in the 4Ps program to support students better, resulting in improved educational outcomes.

The Pantawid Pamilyang Pilipino Program has been successful in achieving its objectives, particularly in the education sector, according to several studies. Dela Torre (2017) found that the program's beneficiaries were supported in meeting their educational needs, leading to improved school performance indicators. Flores et al. (2019) reported that the cash grants provided by the program alleviated financial burdens for beneficiaries, allowing them to purchase school supplies and improve their academic performance.

Additional studies by Montilla et al. (2017) and Balacuit Jr. (2018) demonstrated that 4Ps students performed well academically, with high rates of satisfactory grades and no failures. These findings were consistent with the study of Flores et al. (2019), where the majority of respondents reported improved academic performance after receiving cash grants from 4Ps.

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Overall, the findings indicate that the Pantawid Pamilyang Pilipino Program has positively impacted education outcomes, including improved school performance, increased attendance, reduced drop-out rates, and a decrease in child labor. The program has also fostered parent involvement and support for their children's education. However, challenges remain in ensuring equitable access to the program for all deserving individuals.

Problem 3: Is there a significant relationship between the level of Pantawid Pamilyang Pilipino Program (4Ps) support and its implication to school performance?

Table 6: Result of the Test on Relationship between the Level of 4Ps Support and its Implication to School Performance

	Program Support Implication to School Performance			
4Ps Support	**Enrolment Rate** *r-value* *p-value*	**Dropout Rate** *r-value* *p-value*	**Graduation Rate** *r-value* *p-value*	**OVERALL/ INTERPRETATION** r-value p-value
Education	0.1 (WPR) 0.025* S	0.359 (WPR) 0.001* S	0.177 (WPR) 0.030* S	0.32 (WPR) 0.001* S
Health	0.236 (WPR) 0.045* S	0.134 (WPR) 0.012 S	0.208 (WPR) 0.011* S	0.147 (WPR) 0.027* S
Nutrition	0.137 (WPR) 0.035* S	0.181 (WPR) 0.026* S	0.257 (WPR) 0.048* S	0.185 (WPR) 0.024* S

Legend: *significant at $p<0.05$ alpha level S – significant NS – not significant

Pantawid Pamilyang Pilipino Program Support and its Implication to School Performance

Data in Table 10 displays the result of the test on the relationship between the level of 4Ps support and its implications on school performance. Overall, the respondent's level of assessment of 4Ps support showed a weak but significant relationship on its program implication as indicated by **the correlation r-value and probability value less than 0.05 alpha level which led to the rejection of the null hypothesis**. This implies respondents' level of assessment of 4Ps issues and its program implications are related to each other. The analysis of the data revealed that respondents' level of assessments of 4Ps program-related support was associated with its program implications, despite the relationship being characterized as weak. This association was statistically significant, as indicated by both **the correlation coefficient (r-value) and the probability value being less than 0.05**, which is typically considered the alpha level for statistical significance. In practical terms, this means that there is a discernible but not particularly strong link between how respondents view different aspects of the 4Ps program and the expected outcomes or implications of the program. The null hypothesis, which likely stated that there was no relationship between respondents' assessments and program implications, was rejected. Therefore, it can be inferred that there is indeed a relationship between how respondents perceive 4Ps program-related support and the expected consequences or effects of its implication to school performance.

Education Support**:** The table indicates a significant positive relationship between respondents' assessments of 4Ps education-related support and program implications for enrolment rate, dropout rate, and graduation rate in Opol West District. The positive r-values suggest that as respondents perceive the education-related aspects of the 4Ps program more favorably, positive program implications follow. This implies that the program's focus on education is associated with higher enrolment rates, reduced dropout rates, and increased graduation rates in the district.

Health Support: Similarly, respondents' level of assessment of health-related within the 4Ps program showed a significant positive relationship with program implications. This suggests that as respondents hold more positive views about health-related aspects of the program, positive outcomes are observed in terms of health indicators. The program's emphasis on health is associated with improved health indicators such as better enrolment rates, reduced dropout rates, and higher graduation rates among participants in Opol District.

Nutrition Support**:** The relationship between respondents' level of assessments of nutrition-related support and program implications is also notable. Positive r-values for nutrition-related issues indicate that when respondents have a more positive outlook on the 4Ps program's nutrition component, it correlates with positive implications in terms of enrolment rates, dropout rates, and graduation rates. This suggests that the 4Ps program's nutrition interventions are associated with better educational outcomes in Opol District. The further reveals that respondents' perceptions of various 4Ps program issues, including education, health, and nutrition, are linked to program implications in terms of enrolment, dropout, and graduation rates in Opol District. Positive evaluations of these program aspects are associated with favorable outcomes in education, health, and nutrition, ultimately contributing to improved well-being and educational achievements among the program beneficiaries. According to Acupido, the evaluation made by beneficiaries regarding the execution of the 4Ps plays a critical role in determining the degree of effectiveness and the influence of the policy on their lives. Based on the examined studies, it can be deduced that the impact of the 4Ps on health is substantial, successfully fulfilling its intended objectives. The program has effectively reached its targets in health and nutrition, although there is a lack of evidence supporting an enhancement in skilled birth attendance. Concerning education, the 4Ps also fulfills its objectives for the beneficiaries. Beneficiaries exhibit commendable performance in academic endeavors, and various aspects of education, including improved access, heightened attendance, and enhanced grades, represent notable improvements among the beneficiaries.

As posited by Aguado (2021), program beneficiaries successfully fulfilled the program's requirements and were deemed eligible. Regarding the assistance provided by 4Ps to its beneficiaries in areas such as parenting, household management, health, nutrition, and education, it was found to be extensive and aligned with the program's objectives. The implementation of these aspects of health and nutrition, and education was found to be highly effective. This underscores that the 4Ps program is successful in promoting social welfare and development a commendable performance in school among its beneficiaries.

IV. CONCLUSIONS

The following conclusions are hereby drawn for the study:

The 4Ps support increased the availability of fresh and nutritious food options for their family and most of the respondents prioritize nutrition over education due to the immediate and tangible impact on their well-being, where basic needs are a daily struggle. Moreover, it can be said that the School Year 2021-2022 is the highest in school performance on the program support implication, which is attributed to targeted program interventions and focused efforts to support students, resulting in heightened enrollment, reduced dropout rates, and increased successful completions during that academic year. Thus, there is a significant relationship between 4Ps support and its implication to school performance.

V. RECOMMENDATIONS

On the basis of the findings and conclusions of the study, the following recommendations are hereby forwarded:

1. School leaders should encourage their subordinates to strive hard in their areas of responsibility for quality education.

2. The Department of Social Welfare and Development and other government entities should monitor the efficiency, effectiveness, and sustainability of the 4Ps to support school performance.

3. Future research on 4Ps should be conducted by teachers in other places, considering other variables to validate the result.

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Utilization of Information and Communication Technology and 21st Century Skills

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ABSTRACT: Learning has now become beyond the four corners of the classroom. Utilization of Information and Communication Technology (ICT) enhances learning which students may either develop the 21st Century skills or otherwise. This study aimed to determine the relationship between utilization of ICT and 21st Century skills of students of East 1 District, Division of Gingoog City for SY 2023-2024. Specifically, this study sought to determine the extent of ICT utilization in terms of learning activities, and perceived impact; the level of 21st Century skills of students in terms of learning skill, creative thinking skill, collaborative skill, communication skill, and technological skills. This study employed descriptive correlational research design and utilized a researcher-made questionnaire for the ICT utilization and adapted and modified questionnaire for the 21st Century skills to 293 respondents who were selected through Slovin's Formula. Mean, Standard Deviation and Pearson Product Moment Correlation Coefficient were used to analyze the data. Results revealed that students' ICT utilization is at high extent. Students' 21st Century skills are developed specially the collaboration skill. There is a weak positive correlation between the extent of students' ICT utilization and 21st Century skill. Thus, promoting digital literacy programs to teach students how to effectively use ICT tools, evaluate online information, and understand digital ethics may be emphasized.

KEYWORDS: ICT Utilization, Impact of ICT, Twenty-First Century Skills

I. INTRODUCTION

Present-day students are born with the presence of the internet and smartphones. Most of them do not know or remember how life is without the internet and their phones. Growing up with all these technologies and access to vast information can overwhelm these individuals. That is why it is important that for teachers to be able to direct the students to become productive as individuals.

A Pew Research Center survey reveals considerable internet usage gaps among older and younger Filipinos (Gonzales, 2020). According to the survey, the Philippines has the 4th highest differential when it comes to internet use by age. 94% of 18- to 29-year-olds use the internet, at least occasionally, or own a smartphone. For the 50-plus crowd, the number is 36%, which makes for a percentage differential of 58. This signifies those older individuals are less likely to use or own these devices. On the contrary, most younger individuals have been dependent on smartphones and the internet.

A study of Philippine Institute for Development Studies (PDIS) indicates that 51% of Filipinos do not use the Internet. This is a significant portion of the population. The main causes of this unwillingness are a lack of knowledge about the internet and inexperience with using it. In addition, 31% of the nation's population refrains from engaging in online employment because they believe they lack the necessary knowledge or abilities (Hani, 2021). These findings highlight the urgent need for programs focused on improving digital literacy and skill development to enable a larger portion of the population to take advantage of the benefits offered by the Internet and online job opportunities.

Further innovations that aid education have further grown. Several emerging learning technologies were discussed in the study of Cukurova and Luckin (2018). These include virtual reality implementations, augmented reality implementations, mobile learning devices, physical computing tools, and internet of things hardware with sensors and technologies that allow collaborative learning at a great scale. This widens the boundaries of the teaching and learning process. Learning has now become beyond the four corners of the classroom.

The result of the study conducted by Hori and Fujii (2021) indicated that it is important to set tasks that provide a continuum of ICT use, both in and out of school, in order to motivate students. This may allow for further impact on the learning of the students, improving both their understanding and retention. These results may imply that incorporation of ICT has the potential to yield several positive outcomes for students. It can enhance their understanding of the subject matter by providing real-world contexts and applications for the knowledge and skills they acquire. It can also contribute to better retention of information, as students are more likely to remember and apply what they have learned when it is relevant to their daily experiences.

Meanwhile, the study of Mafang'ha (2016) indicated that using ICT in teaching has benefits for both teachers and students. Results further showed that poor ICT skills and lack of access to facilities and resources hinder the utilization of ICT by teachers in school. The findings showed that while ICT has the potential to improve teaching and learning processes, problems with educators' ICT proficiency and providing equal access to technological resources must still be addressed in order to fully realize these benefits in educational settings. It emphasized the significance of equitable resource distribution and professional development to enable successful ICT integration in schools.

II. METHODOLOGY

A research design, this study employed the descriptive survey correlational method of research as its primary approach to achieve its defined objectives. Descriptive research is a comprehensive and systematic inquiry method that focuses on uncovering facts and providing a thorough and precise interpretation of the findings. This method is particularly effective in shedding light on current conditions, prevalent practices, existing situations, or any observed phenomena (Siedlecki, 2020).

In the context of this study, a descriptive-survey research approach was utilized to collect and analyze data. This research technique employed surveys as means of gathering pertinent information, which were used to explore and understand the relationship between the utilization of Information and Communication Technology (ICT) and the 21st Century skills of junior high school students. The descriptive-survey research method involved a series of structured activities, including description, data recording, detailed analysis, and insightful interpretation of the interplay between the variables under investigation.

By adopting this research approach, the study aimed to provide a detailed and comprehensive account of the relationship of utilization of ICT and the 21st Century skills of junior high school students. Through the systematic collection and analysis of data via surveys, this research illuminated this relationship, contributing valuable insights to the field of education and technology integration. This methodological choice underscored the study's commitment to offering a rigorous and informative examination of the subject matter, ensuring that the findings were well-grounded and substantiated.

III. RESULTS AND DISCUSSION

Problem 1. What is the extent of ICT utilization of students in the school in terms of:

1.1 learning activities; and

1.2perceived impact of ICT?

Table 1 on the previous page shows the ICT utilization of students in terms of Learning Activities with the Overall Mean of 2.90 with SD = 0.53, described as Agree and interpreted as High Extent. This means that students are extensively integrating ICT into their learning process, leading to improved efficiency, engagement, and access to resources. This also implies that they demonstrate adaptability to digital assessment methods, self-directed learning skills, and proficiency in digital communication and collaboration. With students having the ability to effectively utilize ICT for learning, increased academic achievement and a deeper understanding of subject matter can be better achieved.

Table 1: Learning Activities

Indicators	Mean	SD	Description	Interpretation
1. I use ICT to help me in doing my homework and projects.	2.89	0.54	Agree	High Extent
2. I play educational games to learn and master my lessons.	2.91	0.54	Agree	High Extent
3. I use ICT to access online resources.	3.07		Agree	High Extent
4. I use ICT to answers online tests and quizzes.	2.94	0.53	Agree	High Extent
5. I use ICT to look up online guides and videos to help me understand the subjects better.	2.91	0.54	Agree	High Extent
6. I use ICT to prepare slideshows and video presentations.	2.93	0.53	Agree	High Extent
7. I use ICT to easily get information outside of regular hour.	2.65	0.56	Agree	High Extent
8. ICT makes it easy for me to work together on group projects with my classmates.	2.97	0.52	Agree	High Extent

9. I develop literacy skills I need through ICT.	3.04	0.51	Agree	High Extent
10. ICT helps me grow by adjusting learning experiences to meet my needs.	2.73	0.55	Agree	High Extent
Overall Mean	**2.90**	**0.53**	**Agree**	**High Extent**

Note: 3.26 – 4.00 Very High Extent; 2.51 - 3.25 High Extent; 1.76 - 2.50 Low Extent; 1.00 - 1.75 Very Low Extent

Moreover, indicator 1, on ICT utilization of students in terms of perceived impact, the statement, *ICT helps me understand difficult lessons*, has the highest Mean of 2.99 with SD = 0.5, described as Agree and interpreted as High Extent. This means that students find that ICT helps them understand difficult lessons. ICT may provide visual aids like videos and animations that make complex concepts easier to grasp. Interactive features allow for hands-on learning experiences, while access to online resources supplements traditional materials. Personalized learning options cater to individual needs, and collaborative tools foster discussion and knowledge sharing among peers.

On the other hand, indicator 10, *ICT helps me balance my virtual and face-to-face interaction activities,* has the lowest Mean 2.81 with SD = 0.65, though lowest but still described as Agree and interpreted as High Extent. This means that students perceived that technology makes it easier for them to manage both online and offline communication. This may also imply that they can use tools like social media and video calls to stay connected with classmates and teachers, whether they are in the classroom or not. This flexibility also helps with time management, as they can schedule meetings and work on projects online.

These findings underscore the importance of integrating both formal and informal uses of technology to enhance students' educational experiences and outcomes. The technical skills themselves are not sufficient to use ICT for effective information access. People's perceptions, presumptions, and beliefs around ICT affect how they evaluate and respond to the information they obtain. Understanding how individuals interact with the technology they use is vital. For students to succeed, they must receive help in learning how to incorporate ICT into their schoolwork, ensuring they can navigate and utilize digital resources critically and effectively (Stein & Sim, 2020).

Table 2 shows the ICT utilization of students in terms of its perceived impact with the Overall Mean of 2.93 with SD = 0.52, described as Agree and interpreted as High Extent. This means that students believe that ICT has influenced their performance in school and their lives in general. It also implies that ICT tools and resources have a significant influence on their academic outcomes and achievements. This can encompass various aspects, including the belief that access to ICT enhances learning opportunities, improves study efficiency, facilitates collaboration, or provides access to valuable resources.

Table 2: Perceived Impact

Indicators	Mean	SD	Description	Interpretation
1. ICT helps me understand difficult lessons.	2.99	0.51	Agree	High Extent
2. ICT makes access learning materials easily.	2.95	0.52	Agree	High Extent
3. ICT inspires and motivates me to engage in learning activities.	2.93	0.53	Agree	High Extent
4. ICT enhances my ability to communicate and collaborate with classmates and teachers effectively.	2.87		Agree	High Extent
5. ICT boosts my learning through its interactive experience.	2.94	0.53	Agree	High Extent
6. ICT helps me become more independent and study on my own, which helps me improve in studies.	2.95	0.52	Agree	High Extent
7. ICT upgrade my skills of concentration in studying.	2.98	0.51	Agree	High Extent
8. ICT integration on traditional lessons make it more interesting for me to study and learn.	2.93	0.53	Agree	High Extent
9. ICT usage has a positive impact on my mental and physical health.	2.97	0.52	Agree	High Extent
10. ICT helps me balance my virtual and face-to-face interaction activities.	2.81	0.54	Agree	High Extent
Overall Mean	**2.93**	**0.52**	**Agree**	**High Extent**

Note: 3.26 – 4.00 Very High Extent; 2.51 - 3.25 High Extent; 1.76 - 2.50 Low Extent; 1.00 - 1.75 Very Low Extent

Moreover, indicator 1, on ICT utilization of students in terms of perceived impact, the statement, *ICT helps me understand difficult lessons*, has the highest Mean of 2.99 with SD = 0.5, described as Agree and interpreted as High Extent. This means that students find that ICT helps them understand difficult lessons. ICT may provide visual aids like videos and animations that make complex concepts easier to grasp. Interactive features allow for hands-on learning experiences, while access to online resources

supplements traditional materials. Personalized learning options cater to individual needs, and collaborative tools foster discussion and knowledge sharing among peers.

On the other hand, indicator 10, *ICT helps me balance my virtual and face-to-face interaction activities,* has the lowest Mean 2.81 with SD = 0.65, though lowest but still described as Agree and interpreted as High Extent. This means that students perceived that technology makes it easier for them to manage both online and offline communication. This may also imply that they can use tools like social media and video calls to stay connected with classmates and teachers, whether they are in the classroom or not. This flexibility also helps with time management, as they can schedule meetings and work on projects online.

The integration of ICT allowed for a mix of traditional face-to-face and interactive virtual classes. This suggests that ICT was utilized to enhance both in-person and online learning experiences. Students may have used technology to access lecture recordings, participate in virtual discussions or activities, and engage with course materials outside of the classroom (Lewohl, 2023).

Table 3 shows the overall result of the ICT utilization of students. It has an Overall Mean of 2.92 with SD = 0.53, described as Agree and interpreted as High Extent. This means that students are able to utilize ICT as aid in their learning. This implies that ICT devices, equipment, and facility are readily available for students' use and that they have employed them in their schoolwork such as assignments and projects knowing its impact to performance and output. With access to computers, laptops, tablets, and internet connectivity, students engage in research, collaborative works and projects, and create multimedia presentations. The utilization of educational software, online platforms, and digital resources enhances the depth and breadth of their learning experiences.

Table 3: Overall ICT Utilization of Students

Variables	Mean	SD	Description	Interpretation
Learning Activities	2.90	0.53	Agree	High Extent
Perceived Impact	2.93	0.52	Agree	High Extent
Overall Mean	**2.92**	**0.53**	**Agree**	**High Extent**

Note: 3.26 – 4.00 Very High Extent; 2.51 - 3.25 High Extent; 1.76 - 2.50 Low Extent; 1.00 - 1.75 Very Low Extent

Through the utilization of ICT tools, students may access vast amount of information, allowing them to explore large datasets, perform comprehensive analysis, and express their discoveries through creative presentations. This integration fosters proficiency in digital literacy while also promoting critical thinking, improving problem-solving skills, and fostering creativity in both learning and practical application. By engaging with these tools, students develop a holistic skill set essential for success in the modern digital age.

Moreover, the variable on ICT utilization in terms of Perceived Impact has the highest Mean of 2.93 with SD = 0.52, described as Agree and interpreted as High Extent. The outcome indicates a strong agreement among students regarding the significant impact of ICT. It emphasizes the critical need for the integration of technology within learning environments to elevate student outcomes. This underscores the necessity of providing students with the necessary knowledge and skills to proficiently navigate, utilize, and harness technology for academic achievement. Recognizing the impact of ICT offers educators a valuable opportunity to explore into innovative teaching methodologies and pedagogical strategies, leveraging technology to enrich and optimize student learning experiences.

On the other hand, between the two variables of High Extent, Learning Activities have the lowest Mean of 2.90 and a SD = 0.53, described as Agree and interpreted as High Extent. The data implies that the students have utilized ICT in their learning activities for their respective schoolwork. This underscores the importance of ensuring access to ICT resources in educational settings to support student learning activities, fostering digital literacy skills essential for thriving in a technology-driven world. It highlights the need to prioritize investments in ICT infrastructure and support mechanisms to meet the evolving needs of students and enhance their overall learning experiences.

Problem 2. What is the level of 21st Century skills of students in terms of:

1.1 Learning;
1.2 Creative Thinking;
1.3 Collaborative;
1.4 Communication; and
1.5 Technological?

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Table 4: Learning Skills

	Indicators	Mean	SD	Description	Interpretation
1	I have a strong desire to learn.	3.30	0.54	Strongly Agree	Highly Developed
2	I value the importance of reflecting on meaningful learning experiences	3.28	0.55	Strongly Agree	Highly Developed
3	I search for the meaning and significance of various things on my own.	2.98	0.61	Agree	Developed
4	I convey information in a logical and clear manner.	2.94	0.63	Agree	Developed
5	I create diverse options for myself.	2.93	0.64	Agree	Developed
6	I find other options for daily life.	2.95	0.63	Agree	Developed
	Overall Mean	**3.06**	**0.60**	**Agree**	**Developed**

***Note:** 3*.26 – 4.00 Highly Developed; 2.51 - 3.25 Developed; 1.76 - 2.50 Slightly Developed; 1.00 - 1.75 Not Developed

Table 4 shows the 21st Century skills of students in terms of learning skills. It has an Overall Mean of 3.06 with SD = 0.60, described as Agree and interpreted as Developed. This means that students have developed their learning skills which signifies they are able to have strong desire for learning, value for reflection, search for meaning, convey logically, and create and fond diverse options for daily life. The students' ability to develop learning skills characterized by intrinsic motivation, critical thinking, meaningful learning, effective communication, creativity, and adaptability has profound implications for their academic achievement, personal development, and lifelong learning journey. This suggests that the students are actively engaged in their learning process, developing critical thinking skills, fostering creativity, and embracing lifelong learning attitudes.

Children's learning skills may be significantly influenced by how teachers and classrooms are set up and how they engage with one another. The study of Shoaib and Ullah (2021) found a positive relationship between students' learning skills and the classroom environment. To determine how classroom dynamics and teacher-student interactions affect learning outcomes, the study examined a number of these factors. The results highlight how important it is to establish classroom environments that are encouraging and favorable to improve students' learning skills.

Learning, intellectual, and critical skills have evolved among the different academic skills. The traditional practices of these skills have evolved into more specialized schools of thought, such as functionalist and critical schools. In academic writing, they are widely utilized by researchers, educators, and students to comprehend social phenomena, formulate hypothesis, and direct their investigations. These abilities are constantly put to the test and changed, which improves education. Acquiring skills is essential for academic success and shapes our comprehension of a range of topics (Shoaib et al., 2021).

Moreover, the table reveals that indicator 1, *I have a strong desire to learn*, has the highest Mean of 3.30 and standard deviation of 0.54 described as Strongly Agree and interpreted as Highly Developed. Students having strong desire to learn means that they are internally motivated and enthusiastic about acquiring new knowledge, skills, and understanding. They are eager to explore subjects, engage with learning materials, and seek out opportunities for intellectual growth.

On the other hand, the indicator 5, *I create diverse options for myself* has the lowest Mean 2.93 with SD = 0.64, described as Agree and interpreted as Developed. This means that students have the capacity to come up with various options or alternatives for themselves in different situations or contexts. They possess the capability to think creatively and consider different possibilities when making decisions or solving problems.

Active learning empowers students to explore diverse opportunities. When students are actively engaged, they broaden their horizons, gain practical skills, and build confidence. This involvement allows them to discover various paths and options for their future. By taking charge of their education, they can seek out a range of experiences, from internships to networking events, that align with their interests and goals (Barlow & Barlow, 2020).

Table 5: Creative Thinking Skills

	Indicators	Mean	SD	Description	Interpretation
1	I have the ability to generate new and innovative ideas	3.02	0.56	Agree	Developed
2	I have thoughts that flow.	2.85	0.62	Agree	Developed
3	I have the appropriate thinking for situations.	3.01	0.56	Agree	Developed
4	I have analytical or meticulous thinking.	2.87	0.61	Agree	Developed
5	I have a high level of imagination.	2.91	0.59	Agree	Developed
6	I have diverse thinking or imagination.	2.97	0.59	Agree	Developed

Overall Mean	**2.94**	**0.59**	**Agree**	**Developed**

Note: 3.26 – 4.00 Highly Developed; 2.51 - 3.25 Developed; 1.76 - 2.50 Slightly Developed; 1.00 - 1.75 Not Developed

Table 5 presents the 21st Century skills in terms of creative thinking. It has an Overall Mean of 2.94 with SD = 0.59, described as Agree and interpreted as Developed. This means that students have develop their creative thinking skills which signifies that they are able to acquire the ability to analyze, evaluate, and interpret information effectively. They can discern between different perspectives, identify logical fallacies, and construct sound arguments. This development empowers students to approach problems with a deeper understanding, enabling them to make informed decisions and solve complex issues with confidence.

Moreover, the table reveals that indicator 1, *I have the ability to generate new and innovative ideas*, has the highest Mean of 3.02 with SD = 0.56, described as Strongly Agree and interpreted as Highly Developed. This means that students possess a creative mindset and the capacity to think beyond conventional boundaries. This capability enables them to conceive fresh perspectives, solutions, and approaches to problems or challenges. They are skilled at integrating diverse information, drawing connections between seemingly unrelated concepts, and envisioning unusual possibilities.

On the other hand, the indicator 2, *I have thoughts that flow*, has the lowest Mean of 2.85 with SD = 0.62, described as Agree and interpreted as Developed. The data implies that students have the ability to generate ideas easily. This state of mental flow often occurs when someone is deeply engaged in a task or conversation, where ideas and insights seem to emerge effortlessly. It implies a sense of clarity, coherence, and momentum in one's thinking process, allowing for productive and creative thinking.

This suggests that providing students with tools, techniques, and collaborative environments that support creativity and idea generation can ultimately contribute to students' ability to generate ideas more easily.

It is important for students be able to let thoughts flow because it helps them think creatively, solve problems effectively, and adapt to new situations. In school, this skill helps them tackle challenging assignments and explore new topics. Later in their careers, being able to generate ideas sets them apart, allowing them to innovate and succeed in their fields. Even in everyday life, being able to think creatively helps them find solutions to various problems they encounter.

Table 6: Collaborative Skill

Indicators	Mean	SD	Description	Interpretation
1. I can work in pairs or small groups to collaborate.	3.05	0.58	Agree	Developed
2. I can collaborate with other students to set goals and create plans for the team.	3.07	0.58	Agree	Developed
3. I can collaborate to present group work in the classroom.	3.16	0.55	Agree	Developed
4. I can work as a team to gather opinions on group work.	3.09	0.57	Agree	Developed
5. I can provide feedback to friends or evaluating the work of other students.	2.99	0.61	Agree	Developed
6. I can push myself to adapt to working with friends.	3.04	0.58	Agree	Developed
Overall Mean	**3.07**	**0.58**	**Agree**	**Developed**

Note: 3.26 – 4.00 Highly Developed; 2.51 - 3.25 Developed; 1.76 - 2.50 Slightly Developed; 1.00 - 1.75 Not Developed

Table 6 shows the 21st Century skills in terms of collaborative skill. It has an Overall Mean of 3.07 with SD = 0.58, described as Agree and interpreted as Developed. This implies that students have developed their collaborative skills which signifies they were able to possess the ability to effectively work with others towards a common goal or task. This skill encompasses various aspects, including communication, teamwork, compromise, leadership, and conflict resolution. Collaborative students can communicate their ideas clearly, actively listen to others, and contribute positively to group discussions. They can work harmoniously in teams, leveraging each member's strengths and supporting one another's weaknesses.

Moreover, the table reveals that the indicator 3, *I can collaborate to present group work in the classroom*, has the highest Mean of 3.16 with SD = 0.55, described as Agree and interpreted as Developed. This means that students possess a collaborative mindset which expresses their readiness and willingness to work together with their peers to deliver a joint presentation. This statement indicates that they understand the importance of teamwork and are prepared to actively engage in the collaborative process. They are likely confident in their ability to communicate effectively with their group members, contribute ideas, coordinate tasks, and support one another to ensure the success of the presentation.

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Collaborative learning can significantly benefit students who may struggle with their lessons by providing them with support from their peers. Collaborative activities enable students to share information, clarify concepts, and collectively work towards understanding class material. Teaching methods are important in effectively develop engagement in students, suggesting that collaborative learning can be one such method. By working together on classwork, students not only improve their academic performance but also develop essential skills such as teamwork and communication, which are valuable for their future success (Kong, 2021).

On the other hand, indicator 5, *I can provide feedback to friends or evaluating the work of other students*, has the lowest Mean 2.99 with SD=0.61 which is described as Agree and interpreted as Developed. This means that students have the ability to provide feedback and evaluate work of their peers. This statement indicates that the students are confident in their skills to critically evaluate the work of others and provide suggestions or comments aimed at improvement. It also reflects a sense of responsibility and engagement in the learning process, as students recognize the importance of peer feedback in enhancing learning outcomes for everyone involved.

It important to emphasize teaching students' critical collaboration skills like asking for assistance, staying on task, and providing and accepting feedback. Knowledge and application of these collaborative skills can be significantly improved when given emphasis. This highlights the value of clear instructions in collaborative skills development in the classroom which can be employed to help students learn and succeed (Barbee, 2020).

Table 7: Communication Skill

Indicators	Mean	SD	Description	Interpretation
1. I can present ideas effectively through various forms of communication, such as speaking, writing, and taking action in diverse ways.	3.05	0.56	Agree	Developed
2. I can clearly answer questions in front of a large group of people.	2.79	0.63	Agree	Developed
3. I can utilize media and technology effectively and impactfully.	2.90	0.60	Agree	Developed
4. I can communicate effectively in various situations.	2.84	0.62	Agree	Developed
5. I can communicate for different purposes, such as informing, teaching, motivating, and inviting others.	2.98	0.58	Agree	Developed
Overall Mean	**2.91**	**0.60**	**Agree**	**Developed**

Note: 3.26 – 4.00 Highly Developed 2.51 - 3.25 Developed 1.76 - 2.50 Slightly Developed 1.00 - 1.75 Not Developed

Table 7 shows the 21st Century skills in terms of communication skill. It has an Overall Mean of 2.91 with SD = 0.60, described as Agree and interpreted as Developed. This means that students have develop their communication skills which signifies they are able to develop their ability to convey information effectively, whether it is through speaking, writing, listening, or non-verbal cues like body language. Communication skills involve not just the ability to express oneself clearly and articulately, but also to understand and interpret messages from others. This includes active listening, asking questions for clarification, and responding appropriately.

Moreover, indicator 1, *I can present ideas effectively through various forms of communication, such as speaking, writing, and taking action in diverse ways*, has the highest Mean of 3.05 with SD=0.56, described as Agree and interpreted as Developed. This means that students are confident and proficient in expressing their thoughts and ideas using different mediums. This suggests that students feel capable of effectively communicating their ideas not only verbally (speaking), but also in written form (writing), and through their actions.

On the other hand, indicator 2, *I can clearly answer questions in front of a large group of people*, has the lowest Mean 2.79 with SD=0.63 which is described as Agree and interpreted as Developed. This implies that students have confidence and ability to communicate effectively in public settings. This means that the students feel comfortable and capable of articulating their thoughts and ideas when speaking to a large audience. It implies that they possess strong verbal communication skills, including clarity of expression, coherence in presenting ideas, and confidence in delivering responses.

Prentiss (2021) highlights the significance of fostering a supportive classroom culture that encourages risk-taking and growth mindset regarding public speaking. Teachers play a crucial role in creating an environment where students feel safe to practice and make mistakes, knowing they will receive constructive feedback and support. This approach can help students build confidence gradually, as they gain experience and refine their public speaking skills. The study suggests that incorporating opportunities for peer collaboration and peer feedback can further alleviate speech anxiety by providing students with additional support and perspectives. By fostering a collaborative and inclusive learning environment, educators can empower students to overcome speech anxiety barriers and develop effective communication skills essential for academic and professional success.

Table 8*: Technological Skill*

Indicators	Mean	SD	Description	Interpretation
1. I use technology or the internet for self-learning.	3.09	0.55	Agree	Developed
2. I choose the appropriate technological tools to successfully accomplish tasks.	3.06	0.57	Agree	Developed
3. I evaluate the reliability and relevance of online sources of information.	3.00	0.59	Agree	Developed
4. I use technology to track the assigned tasks.	2.92	0.62	Agree	Developed
5. I use technology to help share information (such as presenting in multi-media formats, audio, or video).	3.07	0.57	Agree	Developed
6. I use technology to support teamwork or collaboration.	3.05	0.57	Agree	Developed
7. I use information wisely and creatively	3.10	0.55	Agree	Developed
Overall	**3.04**	**0.57**	**Agree**	**Developed**

Note: 3.26 – 4.00 Highly Developed; 2.51 - 3.25 Developed; 1.76 - 2.50 Slightly Developed; 1.00 - 1.75 Not Developed

Table 8 presents the 21st Century skills in terms of technological skill has an Overall Mean of 3.04 with SD = 0.57, described as Agree and interpreted as Developed. This means that students have developed their technological skills which signifies they were able to gain proficiency in using various digital tools, software, and technologies. Students with developed technological abilities may navigate faster within the digital world, completing tasks and obtaining resources more quickly.

The development of technological skill is related to improved academic achievement in children. This implies that having a strong command of technology improves students' capacity to manage schoolwork and make efficient use of digital resources, which improves academic performance. Creative and cooperative ICT use improves students' achievement suggesting that students who use ICT in innovative and collaborative ways typically achieve better academically because of increased contact and engagement with classmates and course materials (Youssef et al., 2022).

Moreover, the table reveals that indicator 7, *I use information wisely and creatively*, has the highest Mean of 3.10 with SD = 0.55, described as Agree and interpreted as Developed. This means the ability of students to efficiently search for reliable digital sources, critically evaluate their credibility, and apply them in innovative ways to solve problems or create content. They demonstrate proficiency in digital literacy, critical thinking, creativity, and ethical considerations in utilizing digital information effectively and responsibly.

On the other hand, indicator 4, *I use technology to track the assigned tasks*, has the lowest Mean of 2.92 with SD = 0.62, described as Agree and interpreted as Developed. This means that students have utilized technology in organizing and managing workload. This statement suggests that the students rely on digital tools and applications to manage their academic responsibilities efficiently. This includes task management apps, calendar apps, online learning platforms, note-taking apps, and personalized systems. By utilizing technology in this way, students can stay organized, meet deadlines, and effectively manage their tasks.

Proficiency in technological skills is crucial for efficiently utilizing technology to strengthen learning inside the classroom. To integrate technology into learning methods and for students to have relevant learning experiences, one must possess a high level of technological skills. Information and data literacy, communication and collaboration, digital content creation, safety and security, problem-solving, analysis, and reflection are among the six dimensions of basic ICT competence beliefs. These dimensions likely cover a variety of technological skills, suggesting that a wide range of competencies is required for successful ICT integration in education.

Table 9: Overall of 21st Century Skills of Students

Variables	Mean	SD	Description	Interpretation
Learning Skills	3.06	0.60	Agree	Developed
Creative Thinking Skills	2.94	0.59	Agree	Developed
Collaborative Skills	3.07	0.58	Agree	Developed
Communication Skills	2.91	0.60	Agree	Developed
Technological Skills	3.04	0.57	Agree	Developed
Overall Mean	**3.00**	**0.59**	**Agree**	**Developed**

Note: 3.26 – 4.00 Highly Developed.;2.51 - 3.25 Developed 1.76 - 2.50 Slightly Developed 1.00 - 1.75 Not Developed

Utilization of Information and Communication Technology and 21st Century Skills

Table 9 on the previous page shows the 21st Century skills of students. It has an Overall Mean of 3.00 with SD = 0.59, described as Agree and interpreted as Developed. This means that students have developed their 21st Century skills which suggests that students are prepared to succeed in today's society. These abilities help them adapt, think critically, work well with others, express themselves clearly, and use technology effectively. With these skills, students can tackle challenges and thrive in both their personal and professional lives.

Teaching students 21st Century Skills is essential because it enables them to deal with the challenges of a rapidly changing world. Along with traditional academic knowledge, these also include education, computer literacy, and interpersonal skills including teamwork and critical thinking. It is critical to give creativity and innovation top priority as the world becomes more competitive (Kennedy & Sundberg, 2020).

Moreover, the table reveals that among the 21st Century Skills, Collaborative Skills has the highest Mean of 3.07 with SD = 0.38, described as Agree and interpreted as Developed. The outcome indicates students have strong ability to work together with others. This involves communication, teamwork, compromise, and problem-solving within a group setting. Strong collaborative skills enable individuals to contribute positively to team dynamics, share ideas, delegate tasks, and achieve shared objectives efficiently.

On the other hand, among the 21st Century Skills, Communication Skills have the lowest Mean of 2.91 with SD = 0.60, described as Agree and interpreted as Developed. This means that students have developed communication skills which suggests that students have acquired the ability to effectively convey information, ideas, and emotions through various mediums such as verbal, written, and digital communication. These abilities include active listening, articulating thoughts clearly, adapting communication styles to different audiences, and utilizing technology for communication purposes.

Effective communication skills form the cornerstone for fostering positive connections, enhancing results, and minimizing risks in any endeavor. Actively prioritizing the development of these skills involves consistent efforts to create opportunities for feedback, evaluation, and continuous improvement. By nurturing strong interpersonal and communication abilities, individuals and teams not only achieve exceptional results but also cultivate wholesome relationships and foster productive cooperation. These skills enable clear articulation of ideas, active listening, and the ability to navigate conflicts constructively, thereby laying a robust foundation for success in both personal interactions and professional environments (Puscas et al., 2021).

Problem 3. Was there a significant relationship between ICT utilization and 21st Century skills of students?

Table 10: Test Correlation on Level of ICT Utilization and Level of 21st Century skills of students

Variables	r-value	p-value	Description	Decision	Interpretation
Learning Activities	0.408	0.002	Weak Positive Correlation	Reject Ho	Significant
Perceived Impact	0.422	0.001	Weak Positive Correlation	Reject Ho	Significant

Note: *Significant when computed p value <0.05.*

Table 10 shows the result of the test correlation between ICT utilization and 21st Century skills. The result shows significant relationship between learning activities and perceived impact and 21st Century skills. This means that both learning activities and perceived impact involving the utilization of ICT are significant in developing and improving 21st Century skills of students. This implies how the ICT utilization can leverage students in acquiring the necessary skills to thrive in this evolving digital society.

The study of Weber and Greiff (2023) reinforce these results by underscoring the importance of integrating ICT early in a child's education to foster 21st-century skills. It acknowledges the challenge of aligning ICT utilization with students' developmental needs while laying the groundwork for future skill development. By identifying cognitive and non-cognitive antecedents for ICT 21st-century skills, including reasoning, executive functions, motor skills, language development, and social-emotional development, the study highlights the multifaceted nature of skill acquisition. It suggests that effective integration of ICT should be developmentally appropriate and child-centered, leveraging playful activities and guided by teachers.

The study's findings highlight the assumption that utilization of ICT consequently leads to the development of 21st-century skills among students. The observed low positive relationship between ICT utilization and these skills suggests a more complex relationship that needs further exploration.

IV. CONCLUSIONS

This study came up with the following conclusions based on the findings of the study:

1. ICT utilization of students is not new to them especially on learning activities. Among the 21st century skills

2. Students have developed the 21st Century skills since these are practiced in most classes.
3. The ICT utilization is part of the 21st Century skills development.

V. RECOMMENDATIONS

Based on the findings and conclusions found in this study, the following recommendations are presented.

1. With already high extent of ICT utilization among students, schools may ensure consistent access to computers, laptops, tablets, and reliable internet connectivity for all students. By fostering a culture of innovation and exploration, schools can empower students to fully utilize ICT tools for research, collaboration, and multimedia presentations.

2. With already developed 21st century skills among students, comprehensive strategies should be put in place in schools to help students develop their capacity for adaptability, critical thinking, collaboration, effective use of technology, and clear communication. Project-based learning, interdisciplinary approaches, and opportunities for practical skill application can help achieve this.

3. As ICT utilization is significantly related to 21st-century skills, long-term may be done. Such as, promoting digital literacy programs to teach students how to effectively use ICT tools, evaluate online information, and understand digital ethics.

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Teachers' Emotional Intelligence and Filipino Work Values

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ABSTRACT: Emotional Intelligence (EI) is the capacity to perceive, understand, and manage one's own emotions and those of others. It encompasses the ability to recognize emotions, use them to enhance thinking and regulate emotions to adapt to the environment and maintain well-being. This study aims to assess the relationship between EI and Filipino work values among one hundred and twenty-one (121) teachers of Tagoloan-East District in the Division of Misamis Oriental School, School Year 2023-2024. Statistical tools such as mean, standard deviation, and Pearson Product Moment Correlation were used to analyze the data. It found that teachers showed very high emotional awareness but lower social skills. Discipline was the highest-rated Filipino work values, while passion as the lowest. There was a positive correlation between all indicators of EI and work values, with self-motivation scoring the highest and social skills the lowest. It was concluded that teachers' high emotional awareness enhances their ability to empathize and interact effectively with others. High discipline among teachers indicates a strong commitment to their responsibilities and work ethic. The positive correlation between EI and work values suggests better emotional management with stronger work values. It is recommended that nonverbal communication and reflective practices be improved to express emotions better and foster meaningful connections to maintain a positive mindset. Thus, this enhances active listening, empathy, and social interaction skills.

KEYWORDS: emotional intelligence, emotional awareness, Filipino work values

I. INTRODUCTION

Emotional Intelligence is the capacity to detect, control, and understand one’s own emotions as well as those of people around them. The most effective leaders share one important characteristic: they are all highly intelligent in terms of emotional intelligence. Emotional intelligence matters most when it comes to happiness and success in life. It was a set of competencies showing the ability to recognize, understand, and manage behaviors, moods, and impulses (Hubscher-Davidson, 2019). It was also discussed that emotional intelligence was the ability to perceive emotions accurately. Using emotions to enhance thinking involves understanding and accurately identifying emotions and effectively regulating them in oneself and others. If the innate foundations of the employees are not functioning, this also shows in handling their coworkers and the work itself. It was perceptions of how well one understands, regulates, and expresses emotions to adapt to the environment and maintain well-being. If the employees are happy and content with themselves, this emanates from how they view the workplace, from the physical structure to the elements.

Reston (2019) states that a person who has a high degree of emotional intelligence can easily take advantage of recognizing and managing their own feelings and those of others around them. It helps to take control of the conflict, creates a positive working environment, contributes to teamwork, develops a common vision among team members, helps to perform successful change management, helps to control stress, and improves communication.

On the other hand, Cullimore (2021) posits that Filipino traits in the workplace—like being responsible, resourceful, calm under pressure, eager to learn, and taking the initiative—are consistent with the traits of leaders who help move their organizations forward. He also states that with these values, Filipinos can effectively manage while remaining in touch with the needs of their employees and organizations.

As Linden et al. (2017) imposed, individuals with a high general factor of personality score higher on trait and ability emotional intelligence, so social effectiveness is a factor. Many academics claim that it is significant and reflects a wide range of characteristics associated with important spheres of life, including mental health and workplace behavior, as well as both social and mental well-being. Others tend to encourage it to be interpreted as primarily statistical or deliberate bias brought on by the techniques used to assess personality. Due to other things, a propensity for socially acceptable behavior or some people may develop exaggerated self-images and gain more socially valued character traits even though this does not necessarily reflect how they genuinely behaved.

A study by De Dios (2020) identifies the indicators of emotional intelligence. The ability to recognize what one is feeling, understand emotional responses to events and recognize emotions affect behavior and performance. When one is self-aware, one can see as others see oneself. Managing emotions involves maintaining focus and clear thinking even in the face of intense feelings. This skill is crucial for taking responsibility for one's actions and preventing impulsive decisions that might later be regretted.

Moreover, self-motivation is the ability to harness deep emotions to drive and guide oneself towards goals. This capacity empowers individuals to take initiative and persist through obstacles and setbacks. Finally, social skills include the ability to manage, influence, and inspire emotions in others. Handling emotions in relationships and influencing and inspiring others are essential foundation skills for successful teamwork and leadership. As personalities differ from person to person, creating emotional intelligence in the workplace takes effort. Anyone who has ever worked in a toxic work environment can attest to the importance of increasing empathy in this space (Miller, 2019).

In the workplace where the researcher is stationed, it was observed that some teachers struggled with managing their own emotions. This display of emotions sometimes influences teachers to perform less in their work.

Hence, this research primarily aims to assess the relationship between emotional intelligence and the Filipino work values of the teachers. In addition, it hopefully will aid in improving understanding and managing methods in both management and teaching.

This proposed research greatly considered and was influenced by Daniel Goleman's Emotional Intelligence Theory (1998). He is a scientific journalist, author, and psychologist who popularized the concept of 'emotional intelligence, which was first coined in 1990 by Salavoy and Mayer.

The study of emotional intelligence among auditory, reading, and kinesthetic learning styles of elementary school students conducted in Indonesia in 2017 is also inspired by Goleman's (1998) emotional intelligence. Goleman (1998) stated that self-regulation was one of the elements of emotional intelligence. Self-regulation refers to emotion regulation, that is, the ability to remain calm under pressure or maintain and control their emotions to behave properly. The research results show that the kinesthetic learning style significantly affects emotional intelligence compared to auditory and reading learning styles. Kinesthetic learners are more likely to absorb knowledge through hands-on experiences and actively engage in activities, emphasizing learning by doing (Leasa et al., 2017).

Goleman's Theory outlines five key components of emotional intelligence. Emotional self-awareness involves recognizing one's current feelings and understanding how these emotions affect others. Self-regulation he defines as controlling or redirecting one's emotions, anticipating consequences before acting on impulse. He defines motivation as leveraging emotional factors to achieve goals, enjoy the learning process, and persist through challenges. Social skills involve managing relationships, inspiring others, and eliciting desired responses from them.

Filipino work values, on the other hand, was from Cuntapay's (1999) work values questionnaire. It consisted of forty-five (45) items with the variables on discipline. It also refers to the way to do what needs to be done. It enables one to focus on goals and to regulate one's emotions, while passion is the strong and intense emotional drive that fuels its pursuit; it is the capacity to accept or tolerate delay, trouble, or suffering without getting angry or upset. This facilitates learning through desire and enthusiasm.

II. METHODOLOGY

This research utilized a descriptive research design because the objectives and goals of the study are inherently descriptive. The aim was to describe, assess, and measure the teacher respondents' emotional intelligence and Filipino work values. The population, circumstance, or phenomenon is intended to be correctly and methodically described through descriptive study, which includes the what, where, when, and how inquiries can be answered. A descriptive research strategy can study one or more variables using various research techniques (McCombes, 2019).

Various statistical tools were used to extract statistically based implications, findings, conclusions, and recommendations. This includes frequency and percentage to measure the first part of the questionnaire and answer the questions regarding the distribution of the respondents according to their demographic profiles. Accordingly, the weighted mean was used to determine the emotional intelligence and Filipino work values of the teacher respondents. The measure of intelligence and degree of preference was measured using a 4-scaled Likert scale.

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Lastly, the test of significant relationships was measured using the Pearson Product Moment Correlation Coefficient at the p-value of 0.05.

III. RESULTS AND DISCUSSION

Problem 1. What is the level of emotional intelligence of the public elementary teachers based on the following?

1.1 emotional awareness;

1.2 emotional management;

1.3 self-motivation; and

1.4 social skills?

Table 1 presents teachers' level of emotional intelligence, with an overall Mean of 3.38 with SD = 0.91, which is described as Very much Agree and interpreted as Very High. This entails the capacity to comprehend and handle emotions adeptly. When applied in a professional setting, emotional intelligence offers substantial advantages, contributing to career advancement, fostering positive relationships, and cultivating a conducive work atmosphere.

Table 1: Overall Teachers' Level of Emotional Intelligence

Variables	Mean	SD	Description	Interpretation
Emotional Awareness	3.60	0.94	Very much Agree	Very High
Emotional Management	3.23	0.89	Moderately Agree	High
Self-Motivation	3.42	0.92	Very much Agree	Very High
Social Skills	3.27	0.90	Very much Agree	Very High
Overall	**3.38**	**0.91**	**Very much Agree**	**Very High**

Note: 3.26 – 4.00 Very High 2.51 – 3.25 High 1.76 – 2.50 Low 1.00 – 1.75 Very Low

Emotional intelligence holds significance as it aids in enhancing interpersonal connections, whether in personal or professional domains. In a professional setting, the advantages of emotional intelligence encompass the ability to grasp nonverbal signals, appropriately adapt conduct, make sound decisions, and emerge as a respected leader.

The variable*, Emotional Awareness,* has the highest Mean of 3.60 with SD = 0.*94*, which is described as Very much Agree and interpreted as Very High. Teachers possessing heightened emotional awareness are more adept at effectively navigating classroom dynamics. They can sense the mood of the class and adjust their teaching strategies accordingly. Recognizing students' emotional states allows teachers to provide appropriate support, fostering a positive and conducive learning environment. Emotionally aware teachers can handle conflicts more effectively by understanding the underlying emotional triggers and addressing them constructively.

The research conducted by Ninivaggi (2020) explored emotional awareness as the deliberate capacity to detect, discern, recognize, categorize, and comprehend one's personal emotional states and encounters, both autonomously and in conjunction with others. Basic emotions include happiness, sadness, anger, fear, surprise, contempt, disgust, and anticipation/hope. As people mature, emotional awareness develops into emotional literacy, which is an advanced understanding and cognitive mastery of emotions. This maturity is characterized by empathy and the ability to take diverse perspectives, allowing for a flexible range of emotions that support stability and resilience both daily and in challenging situations.

Further, the study of Ninivaggi reveals that emotional processing involves a series of steps that begin with an emotional trigger and end with a mental and behavioral response, progressing through four stages: emotion sensation, emotion perception, emotion comprehension, and emotion performance utilization. This process includes the activities and tasks needed to transform information each time it occurs, resulting in a more resilient outcome. Learned mindfulness is an innovative concept that is central to this emotional intelligence model.

Meanwhile the variable*, Emotional Management,* has the lowest Mean of 3.23 with SD = 0.*89* , which is described as Moderately Agree and interpreted as High. Teaching can be a highly demanding job with significant workloads, time pressures, and emotional demands. These factors can lead to stress and burnout, making it difficult for teachers to manage their emotions effectively. Teachers often have to display positive emotions even when they are not feeling them (emotional labor). This discrepancy can lead to emotional exhaustion and difficulty in managing their emotions.

In addition, Zhou et al. (2017) posit that emotional management involves mastering and regulating our emotions, effectively dealing with life's contradictions and events, and alleviating mental tension promptly with optimism and humor. The essence of emotional management is to resolve contradictions and transform incompatible issues into compatible ones. Resolving contradictions facilitates mood transformation and enhances emotional management capabilities.

Problem 2. What is the level of Filipino work values of the respondents based on the following :

2.1 discipline;

2.2 passion; and

2.3 patience?

Table 2: Overall Teachers' Level of Filipino Work Values

Variables	Mean	SD	Description	Interpretation
Discipline	3.54	0.94	Very Important	Very High
Patience	3.53	0.92	Very Important	Very High
Passionate	3.52	0.92	Very Important	Very High
Overall	**3.53**	**0.93**	**Very Important**	**Very High**

Note: 3.26 – 4.00 Very High 2.51 – 3.25 High 1.76 – 2.50 Low 1.00 – 1.75 Very Low

Table 2 presents teachers' level of Filipino work values with an overall Mean of 3.53 with SD = 0.93, which is described as Very Important and interpreted as Very High. This means that work values encompass the fundamental principles and convictions that shape your conduct and choices within the professional sphere. Recognizing one's work values facilitates making informed decisions about the professional path, ensuring alignment with personal objectives and aspirations. Workers who possess a profound sense of purpose in harmony with their work values are likely to experience heightened job satisfaction and engagement. It is crucial for an individual to discern their sources of motivation and understand how these factors shape their daily work.

Giray's (2021) study expands on existing research on work values in education by assessing the work values of 155 secondary school teachers in Taguig City and examining potential differences related to demographic variables. The results indicate that various work values, such as discipline, creativity, orderliness, patience, decisiveness, and achievement, are prevalent among secondary school teachers, with no significant differences across demographic factors. In light of these findings, educational institutions should encourage and motivate educators to foster their work values for both personal and career growth, potentially enhancing overall school effectiveness.

On the other hand, the variable *Discipline* has the highest Mean of 3.54 with SD = 0*.94*, which is described as Very Important and interpreted as Very High. A discipline teacher is someone who embodies self-discipline, organizational skills, and a commitment to maintaining a structured and effective learning environment. A disciplined teacher is consistently punctual. They arrive on time for classes, meetings, and other professional obligations, setting a positive example for students and colleagues. A discipline teacher maintains an organized classroom, lesson plans, and teaching materials. This helps create a conducive learning environment and facilitates smooth classroom management. Discipline teachers adhere to school policies and procedures. They follow established guidelines for grading, attendance, and behavior management, ensuring consistency and fairness in their approach. A disciplined teacher exemplifies professionalism, commitment to excellence, and a structured approach to teaching. These qualities contribute to a positive and effective learning environment, fostering the academic and personal development of their students. The discipline of teachers is a crucial factor in improving their performance and influencing students' behavior.

The study by Setyowati (2021) focusing on teacher discipline and its impact on performance standards of teacher evaluation found that discipline attitudes and behaviors, both in and out of the classroom, are often mirrored by students. The self-discipline of teachers also directly contributes to their performance. Furthermore, work discipline has been found to be a significant factor in teacher performance, with discipline teachers having a positive impact on achieving desired goals.

On the contrary, the variable *Passionate* has the lowest Mean of 3.52 with SD = 0*.92*, which is described as Very Important and interpreted as Very High. Although having the lowest results of all the indicators, it was still described as Very Important and interpreted as Very High. A passionate teacher is someone who goes beyond the basic requirements of the job and brings enthusiasm, dedication, and a genuine love for teaching into the classroom. A passionate teacher exudes enthusiasm in their teaching. They create a dynamic and engaging classroom environment that sparks curiosity and excitement among students. Passionate teachers have a deep love and knowledge of their subject matter. They convey the relevance and importance of the material, instilling a genuine interest in learning among students. A passionate teacher contributes significantly to the overall educational experience, leaving a lasting impact on students' academic success, personal growth, and love for learning.

Furthermore, Serin (2017) emphasizes the passion and enthusiasm that facilitates learning. Teachers driven by passion strive to enhance the learning potential of their students by creating effective learning environments. This study centers on the distinct impact that passionate teachers can have, highlighting how passion influences the effectiveness of both learning and teaching processes.

Problem 3. Is there a significant relationship between emotional intelligence and Filipino work values?

Table 3: ***Test of Correlation on Teachers' Emotional Intelligence and Filipino Work Values***

Variables	r-value	p-value	Description	Interpretation
Emotional Awareness	0.4508	0.0011	Reject Ho	Significant
Emotional Management	0.4417	0.0032	Reject Ho	Significant
Self-Motivation	0.7051	0.0001	Reject Ho	Significant
Social Skills	0.4352	0.0046	Reject Ho	Significant

Note*:* Significant if computed p-value is less than 0.05

Table 3 reveals the test correlation between teachers' emotional intelligence and Filipino work values. It shows the r-value of the following variables: emotional awareness (0.4508), emotional management (0.4417), self-motivation (0.7051), and social skills (0.4352). All are significant at the 0.05 level of significance. Therefore, it means that there is a significant relationship between teachers' emotional intelligence and Filipino work values. Thus, the null hypothesis is rejected.

In conclusion, the findings from Table 10 indicate a significant correlation between teachers' emotional intelligence and Filipino work values, as evidenced by the substantial r-value for emotional awareness (0.4508), emotional management (0.4417), self-motivation (0.7051), and social skills (0.4352). All these correlations are statistically significant at the 0.05 level, leading to the rejection of the null hypothesis.

This underscores the existence of a noteworthy relationship between emotional intelligence and Filipino work values. The observed significant correlations between teachers' emotional intelligence and Filipino work values, specifically in emotional awareness, emotional management, self-motivation, and social skills, highlight the intricate interplay between these aspects within the teaching profession.

Notably, the positive correlations affirm that teachers with higher emotional awareness, effective emotional management, self-motivation, and strong social skills tend to align more closely with Filipino work values. This suggests that educators possessing these emotional intelligence traits may navigate their work environments in a manner that resonates with the cultural values inherent in the Filipino context.

The statistical significance at the 0.05 level underscores the robustness of these relationships, highlighting the pivotal role that emotional intelligence plays in shaping how teachers embody and resonate with the cultural values ingrained in their professional context. This correlation elucidates the potential impact of emotional intelligence on fostering a more culturally attuned and effective teaching experience, contributing to a nuanced understanding of the interplay between emotional intelligence and Filipino work values in the realm of education.

In particular, self-motivation has the highest r-value of 0.7051, p-value of 0.0001 and intrepreted as significant, teaching can can be demanding, but self-motivation helps teachers maintain enthusiasm for their work, even during challenging times. It reminds them of the importance of their role in shaping the future and inspires them to bring their best self to the classroom every day. Further, self-motivation empowers teachers to persevere through obstacles and setbacks that arise in the classroom or within the education system. Whether it's adapting to new technologies, addressing student needs, or managing workload pressures, self-motivation fuels resilience and determination to overcome challenges.

Continuous learning and professional development are integral to effective teaching. Self-motivation drive teachers to seek out opportunities for growth, whether through attending workshops, pursuing advanced degrees, or collaborating with colleagues. It enables me to stay abreast of best practices and enhance their skills to better serve their students. Self-motivation help teachers set meaningful goals for themselves and their students, whether it's improving academic outcomes, fostering a positive classroom environment, or promoting social-emotional learning. It keeps them focused and accountable to these objectives, driving them to take proactive steps towards achieving them.

Furthermore, teachers serve as a role model for their students. Demonstrating self-motivation in their work not only sets a positive example for them but also instills in them the value of perseverance, dedication, and lifelong learning. It shows them that success is achievable through hard work and determination. Self-motivation is a driving force that fuels the passion for teaching, empowers them to overcome challenges, fosters professional growth, guides goal-setting efforts, and serves as a model of behavior for students. It is essential for maintaining effectiveness as an educator and making a positive impact in the lives of those they teach.

Teachers' Emotional Intelligence and Filipino Work Values

On the other hand, the variable social skills got the lowest r-value of 0.4352, p-value of 0.0046 and interpreted as significant. Teacher education programs often focus more on pedagogy and subject matter expertise rather than on interpersonal skills and social interactions. As a result, teachers may not receive adequate training in communication, conflict resolution, or relationship-building.

Kupczysyzn et al. (2021) conducted a recent investigation to delve into social skills during late childhood and assess their role in coping with stress. The study defines social skills as essential abilities enabling individuals to proficiently navigate interpersonal interactions. These skills facilitate the appropriate articulation of emotions, desires, attitudes, opinions, and rights, thereby playing a pivotal role in fostering relationships, adjusting to societal demands, and choosing effective coping mechanisms during stressful situations. In this context, social skills are highly valued for their role in fostering interpersonal relationships and helping individuals adjust to various social and environmental challenges. These skills are essential for managing stress effectively, as they enable children to employ adaptive coping strategies.

Lane et al. (2021) propose that emotional awareness contributes to improved emotional self-regulation, enhances one's capacity to navigate intricate social contexts and foster relationships, and promotes better physical and mental well-being. Effective emotional management helps teachers maintain a calm and positive classroom atmosphere. Teachers who manage their emotions well can build stronger, more trusting relationships with their students. Teachers serve as role models for their students. Emotional management helps teachers respond to challenging behaviors and conflicts in a composed manner. Narita (2023) asserts that the management of emotions endeavors to maintain emotional harmony.

Subsequently, self-motivated teachers are more enthusiastic and passionate about their subject matter and teaching. Teachers with high self-motivation are more likely to seek out professional development opportunities, stay current with educational best practices, and continually improve their teaching skills. Self-motivated teachers are often more willing to experiment with new teaching methods, technologies, and approaches. Krishan et al. (2021) assert that motivation plays a beneficial role in enhancing employees' self-efficacy.

Social skills enable teachers to develop positive relationships with students, colleagues, parents, and administrators. Teachers with strong social skills can manage their classrooms more effectively. Teachers who are adept at social interactions can engage and motivate their students more effectively. Socially skilled teachers can create a positive and inclusive classroom environment where students feel safe, respected, and valued. According to Noelia et al. (2021), social skills hold significant importance in enhancing relationships, adapting to environmental challenges, and choosing effective coping mechanisms for stress.

Hence, by cultivating emotional awareness, emotional management, self-motivation, and social skills, teachers can navigate the complexities of their work more effectively and contribute positively to their field.

IV. CONCLUSIONS

This study came up with the following conclusions based on the findings of the study:

1. Teachers possess a high emotional awareness that enables them to attune to and understand the emotions of those around them. This heightened sensitivity is integral to their role as it allows teachers to empathize with students, colleagues, and parents.

2. Teachers are highly disciplined. This proves that by maintaining a structured and organized approach in various aspects of their professional lives. This also involves the self-discipline of teachers, reflecting their commitment to fulfilling their responsibilities, adhering to schedules and consistently demonstrating a strong work ethics.

3. There is a positive correlation between teachers' emotional intelligence and work values.This suggests that the higher they can deal with themselves, the higher their values towards work are.

V. RECOMMENDATIONS

Based on the findings, the study presented the following recommendations:

1. Enhancing nonverbal communication skills can help teachers express their emotions more transparently, enabling others to better understand their mood. Reflective practices can bridge the gap between internal emotions and external expressions, aiding in the clearer communication of moods.

2. Teachers may develop meaningful connections with students by understanding their individual needs and celebrating achievements, both big and small. They need to foster a positive and resilient mindset, viewing challenges as opportunities for personal and professional growth. Organize regular collaborative planning sessions where teachers can work together on curriculum development, lesson planning, and problem-solving.

3. Actively practice the art of active listening, paying attention to non-verbal cues, and initiating conversations with new people. Cultivate empathy by understanding others' perspectives, maintaining positive body language, and developing small talk skills to ease into social interactions.

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Leadership Styles of School Heads: Impact on Teachers' Job Satisfaction

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ABSTRACT: This study was undertaken to determine the level of leadership styles of public school heads in terms of strategic, transformational, situational, servant and instructional Leadership; to determine the level of teachers' job satisfaction in terms of compensation and benefits, social relationship and work environment; to find the significant relationship between leadership styles of public school heads and teachers' job satisfaction; and to identify the independent variables singly or in combination that impact/s teachers' job satisfaction. The study was conducted at Jasaan North District, Division of Misamis Oriental to one hundred thirty-four (134) teachers as actual respondents through stratified random sampling. The study employed a descriptive-correlational and causal design, which included a quantitative approach through an adapted and modified questionnaire. The study used mean and standard deviation, Pearson Product-Moment Correlation and Multiple Regression Analysis to find the relationships among the variables and the most impactful variable/s. The results showed that the school heads' leadership style was at very high extent especially on strategic leadership style. The teachers' job satisfaction was at satisfied level. A significant low to moderate correlation with transformational and instructional leadership styles having great impact on teachers' job satisfaction. Thus, school heads may continue to develop and uphold their skills in practicing leadership styles and give more explicit strategies to support teachers' professional growth, to increase teachers' compensation and benefits for teachers to attain job satisfaction.

KEYWORDS: Job satisfaction, leadership styles, school heads, teachers

I. INTRODUCTION

Leadership in schools is important everywhere in the world. Leading a school is a very sensitive and complex undertaking because there are many things to think about and pay attention to extraordinary achievements from ordinary people. It is crucial to cultivate leadership styles that adapt to the demands of various contexts and the constituents of an organization. Effective leaders select their approach according to the conditions that influence and inspire them to accomplish objectives and goals.

Republic Act 9155, also known as the Governance of Basic Education Act, states that a school must be managed by the school head who has "the authority, responsibility, and accountability for achieving higher learning outcomes." His roles include but are not limited to leadership, management, teacher evaluation, and enforcing student discipline. With the various functions and duties stipulated above, the weight of the act rests on the shoulders of the principals. A leader's style of leadership influences how they inspire and guide others to accomplish shared objectives within the organization (Al Khajeh, 2018). But every leader has a certain talent. Nobody must possess all necessary traits for leadership. Successful school heads are those who established the role of being a leader that build strong leadership to achieve a progressive goal of schools' vision and mission (Estacio M. & Estacio D., 2022).

Job Satisfaction is the amount of pleasure or contentment associated with a job (Oco, et.al., 2022). Teacher's satisfaction is crucial to their teaching performance. The teachers' very high level of job satisfaction on school heads supervision and job security is contributing factor to their work performance. The teachers' work performance is inversely affected by the school head's guidance and directly affected by the teachers' job security (Baluyos, 2019). The foundation of this study is anchored on the premise that leadership style of public school heads lead to the teachers' job satisfaction. The purpose of the researcher to do this study is to determine whether the job satisfaction of teachers and the leadership styles of school heads will be significantly correlated.

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The paradigm of the study anchored on the Path-goal Theory of Leadership of House (1991) in Baumeyer (2022) which focused on how leaders influence followers' expectations and the belief that employees' performance greatly influenced by the leaders' leadership behavior. Moreover, House's theory advocates that leadership styles influence followers' work performance and leadership viewed as position or power but rather leaders served as coaches and facilitators to their subordinates.

Thus, the multidimensional field of leadership led to different approaches and new developments which demonstrates that leadership depends on personal aspects and progresses as various properties determined: the behavioral approach which leadership behaviors could be learned in the afterward; the modern approach which centers on human relationships in organizational structure; and the contingency approach which emphasizes the different conditions required different leadership styles (King & Vaiman, 2019). Additionally, it has been discovered that a leader's style affects how motivated and satisfied they are with their work, as well as how they establish a learning atmosphere, manage people and implement school changes (Waheed, et. al., 2018). However, each of these leadership styles have some pros and cons. If one style is not working, consider trying another one.

II. METHODOLOGY

This study incorporated respondents, data analysis, and interpretation, it employed quantitative research using correlational and causal design. This research focused on testing ideas and hypotheses that regulate and modify variables through the interpretation of numerical data.

Quantitative research explained a research problem through a presentation of trends or the requirement for an explanation of the relationship between variables. It employed a deductive reasoning, in which the researcher formulated hypotheses, gathered information to investigate the problem, and then used the data from the investigation, after analysis was made and conclusions were shared, to prove whether the null hypotheses were accepted or rejected (Namocatcat, 2022). Furthermore, causal research design looks for cause and effect relationships. However, unlike an experiment but like a correlational study, this research design did not manipulate any variables in the study (Ravid, 2019).

In quantitative research, structured research instruments were typically used to collect data and information. A wider sample population served as the foundation for the data collection findings because the research study was highly reliable then typically be duplicated.

This study utilized various descriptive statistics like mean and standard deviation were employed for Problem 1 and 2. Pearson Product Moment Correlation Coefficient, sometimes known as Pearson (r) was used to ascertain significant relationship between the level of leadership styles of school heads and the level of teachers' job satisfaction. Multiple linear regression was used to predict the impact of independent to dependent variables.

III. RESULTS AND DISCUSSION

Problem 1. What is the level of leadership styles of public-school heads in terms of**:**

1.1. strategic leadership;
1.2. transformational leadership;
1.3. situational leadership;
1.4. servant leadership; and
1.5. instructional leadership?

Table 1: Overall Leadership Styles of Public-School Heads

Variables	Mean	SD	Description	Interpretation
Strategic Leadership	4.46	0.55	Always	Very High Extent
Transformational Leadership	4.36	0.56	Always	Very High Extent
Situational Leadership	4.23	0.55	Always	Very High Extent
Servant Leadership	4.28	0.55	Always	Very High Extent
Instructional Leadership	4.30	0.57	Always	Very High Extent
Overall Mean	**4.33**	**0.56**	**Always**	**Very High Extent**

Note: 4.21 - 5.00 Very High Extent 3.41 - 4.20 High Extent 2.61 - 3.4 Moderate Extent
1.81 - 2.60 Low Extent 1.00 - 1.80 Very Low Extent

Table 1 presents the overall level of leadership styles of public school heads. It reveals that it has an overall Mean of 4.33 with SD=0.56, described as Always and interpreted as Very High Extent. This implies that public school heads always performed different leadership styles in their administration and instructional functions. School leadership involves directing the skills and efforts of teachers, students, and parents toward achieving common goals. The school leaders establish inclusive and motivating learning environments to provide individualization, mentorship, positive reinforcement, relevance, and differentiation.

Oco (2022) stated that leadership styles of school heads play a vital role to the success of the school and the teachers. Their leadership skills in various circumstances will help them in providing assistance and guidance to the teachers as well as to the students. Being a school head is a great opportunity as well as a great challenge.

Moreover, public school heads' Strategic Leadership, has the highest Mean of 4.46 with SD=0.55, described as Always and interpreted as Very High Extent. This finding implies that school heads or the center of the organizational learning process anticipate challenges or opportunities and adapt strategies that will help to prioritize areas for improvement. In addition, school heads utilized a strategic leadership style to improve strategic productivity, foster innovation and focus on management to aid with high quality instruction and learning reinforcement.

Strategic leadership constitutes an important component of an organization's management (Samimi et al., 2020). Thus, school heads who are strategic leaders established clear directions, allocated resources physically and considered various perspectives before making choices. Further, they are good communicators and attentive listeners who have the ability to influence others voluntarily in decision-making to enhance the school's long-term goals and success.

On the other hand, public school heads' Situational Leadership has the lowest Mean of 4.23 with SD=0.55, which is still described as Always and interpreted as Very High Extent. This finding implies that school heads always modify and adapt different approaches based on the competence and commitment of teachers and other personnel. School heads still have to continue these skills on this type of leadership as it provides advantages that are also important in their dealings with the challenges and functions of the school.

Situational leadership required individuals to be flexible and modify their conduct based on the situations without adhering to a set formula (Walls, 2019). Thus, situational school leaders foster a more collaborative and supportive environment that values different needs and abilities to every situation.

Problem 2. What is the level of teachers' job satisfaction in terms of:

2.1. Compensation and Benefits

2.2. Social Relationship

2.3. Work Environment?

Table 2: Overall Teachers' Job Satisfaction

Variables	Mean	SD	Description	Interpretation
Compensation and Benefits	3.65	0.60	Agree	Satisfied
Social Relationship	4.35	0.56	Strongly Agree	Strongly Satisfied
Work Environment	4.31	0.55	Strongly Agree	Strongly Satisfied
Overall Mean	**4.10**	**0.57**	Agree	Satisfied

Note: 4.21 - 5.00 Strongly Satisfied 3.41 - 4.20 Satisfied 2.61 - 3.40 Moderate
1.81.1 - 2.60 Dissatisfied 1.00 - 1.80 Strongly Dissatisfied

Moreover, the level of teachers' sob Satisfaction in terms of Social Relationship, has the highest Mean of 4.35 with SD=0.56, described as Strongly Agree and interpreted as Strongly Satisfied. This implies that public school teachers in Jasaan North District strongly agree that social support can foster teachers' satisfaction in which strong relationships with co-teachers, administrators and parents create a sense of belongingness, reduce stress and provide emotional and moral support. Thus, positivity and productivity can enhance more in the working environment.

Teachers working in collaboration experienced a sense of shared responsibility and job satisfaction (Kramer et al., 2018). When teachers work in an environment or workplace that helps one another they feel confident and comfortable knowing that they have the shoulder to rely on, but they also get the opportunity to give back by supporting and aiding their co-teachers.

On the other hand, the level of teachers' job satisfaction in terms of Compensation and Benefits has the lowest Mean of 3.65 with SD=0.60, which is described as Agree and interpreted as Satisfied. This implies that increasing teachers' compensation and benefits can lead to higher retention rates. Hence, teachers who feel supported by benefits are more likely to stay in their job. With the continuous increase of prime commodities, it is just normal that teachers too will look for additional sources of income or look for a job that has better benefits than the one that they currently have.

The benefits are giving importance on employees' welfare and financial security (Kristal, 2017). When the tenure of a job is secured and the salary and benefits are competitive and can support the teachers' need, they do not think of leaving and finding a new one. The crisis brought about by the pandemic is still felt up to this day making the teachers feel that they need security and stability.

Problem 3. Is there a significant relationship between the leadership styles of public school heads and the level of teachers' job satisfaction?

Table 3 shows the test correlation between leadership styles of public school heads and teachers' job satisfaction. The independent variable is the school heads' leadership styles in terms of strategic leadership, transformational, situational, servant and instructional. Moreover, teachers' job satisfaction involves compensation and benefits, social relationship and work environment.

For Strategic Leadership, it registered a computed r-value of 0.412 with computed p-value of 0.001. The computed p-value is less than the p-critical value of 0.05 level of significance. This implies that significant low positive correlation between school heads' leadership styles and teachers' job satisfaction was established when strategic leadership is taken into consideration. Leadership is an important factor in the management and maintenance of a smooth and productive school operation. It serves as the schools' and teachers' guide in achieving goals and objectives as well as on performing their duties and responsibilities according to the standards set by the government. Thus, strategic leadership style must be given importance.

Table 3: Test Correlation on Leadership Styles of Public-School Heads and Teachers' Job Satisfaction

Variables	r-value	p-value	Level of Correlation	Decision	Interpretation
Strategic Leadership	0.412	0.001	Low Positive Correlation	Reject Ho	Significant
Transformational Leadership	0.556	0.004	Moderate Positive Correlation	Reject Ho	Significant
Situational Leadership	0.501	0.001	Moderate Positive Correlation	Reject Ho	Significant
Servant Leadership	0.498	0.012	Low Positive Correlation	Reject Ho	Significant
Instructional Leadership	0.551	0.001	Moderate Positive Correlation	Reject Ho	Significant

Note: *Significant when computed p-value <0.05*

Strategic leadership was found to be a significant factor influencing employees' vision and organizational change, which is a crucial component of creativity and productivity in the studies by Sarwar et al. (2022) and Oco (2022). Therefore, creating a healthy work environment on the school campus required strong leadership and inspiring hard effort from each employee.

For Transformational Leadership, it registered a computed r-value of 0.556 with computed p-value of 0.004. The computed p-value is less than the p-critical value of 0.05 level of significance. This implies that significant moderate positive correlation between school heads' leadership styles and teachers' job satisfaction was established when transformational leadership is taken into consideration. Leadership is an important factor in the management and maintenance of a smooth and productive school operation. It serves as the schools' and teachers' guide in achieving goals and objectives as well as on performing their duties and responsibilities according to the standards set by the government. Thus, transformational leadership style must be given importance.

According to Postrano (2020) and Oco (2022), transformative schools provide an example for others to follow, inspiring bravery, self-assurance, and a commitment to work for the greater good. Teachers who work with transformational leaders get the trust, respect, and admiration of their peers and are inspired to go above and beyond expectations.

For Situational Leadership, it registered a computed r-value of 0.501 with computed p-value of 0.001. The computed p-value is less than the p-critical value of 0.05 level of significance. This implies that significant moderate positive correlation between school heads' leadership styles and teachers' job satisfaction was established when situational leadership is taken into consideration. Leadership is an important factor in the management and maintenance of a smooth and productive school operation. It serves as the schools' and teachers' guide in achieving goals and objectives as well as on performing their duties and responsibilities according to the standards set by the government. Thus, situational leadership style must be given importance. Northouse (2021) bolsters the results with his claim that this kind of leadership may be adjusted to fit a variety of circumstances.

It went on to say that among other situational considerations, situational leadership fosters teamwork and builds a sense of security. Therefore, teachers and school administrators need to possess this kind of leadership.

For Servant Leadership, it registered a computed r-value of 0.498 with computed p-value of 0.012. The computed p-value is less than the p-critical value of 0.05 level of significance. This implies that significant low positive correlation between school heads' leadership styles and teachers' job satisfaction was established when servant leadership is taken into consideration. Leadership is an important factor in the management and maintenance of a smooth and productive school operation. It serves as the schools' and teachers' guide in achieving goals and objectives as well as on performing their duties and responsibilities according to the standards set by the government. Thus, servant leadership style must be given importance. Canavesi et al. (2020) as well as Oco (2022), claimed that servant school leaders are morally grounded individuals who put the interests of their stakeholders and staff above their own needs, corroborate this conclusion. In addition, servant leaders delegate authority and make decisions alongside their followers in order to promote a trustworthy and cooperative atmosphere.

For Instructional Leadership, it registered a computed r-value of 0.551 with computed p-value of 0.001. The computed p-value is less than the p-critical value of 0.05 level of significance. This implies that significant moderate positive correlation between school heads' leadership styles and teachers' job satisfaction was established when instructional leadership is taken into consideration. Leadership is an important factor in the management and maintenance of a smooth and productive school operation. It serves as the schools' and teachers' guide in achieving goals and objectives as well as on performing their duties and responsibilities according to the standards set by the government. Thus, instructional leadership style must be given importance. The importance of instructional leadership was demonstrated by establishing responsibilities that included managing literary projects, empowering educators through professional development, and creating an engaging vision and mission. In order to ensure that teachers' sacrifices and efforts are in line with the department's and the school's objectives, school heads must take the lead in this regard (Hallinger, 2018).

Moreover, even if the correlation is weak to moderate level only, it still indicates a significant relationship, public school heads improve teachers' satisfaction by giving more explicit strategies to support teachers' professional growth and collaboration. The leadership style of school heads influenced the teachers' job satisfaction (Angwaomaodoko, 2023). Thus, school leadership is an essential component for effective and efficient institutions to set leadership philosophies for the employees' satisfaction to their job.

Problem 4. Which of the independent variables singly or in combination impact of job satisfaction?

Table 4 presents multiple regression analysis with independent variables that singly or in combination impact/s the teachers' job satisfaction. It is proved that only two (2) out of the five (5) independent variables have positively associated with the teachers' job satisfaction where $\beta = 0$ as null and the alternative of $\beta \neq 0$. Moreover, Transformational Leadership ($\beta = 0.4882$, t-value = 6.4457, p-value = 0.001) and Instructional Leadership ($\beta = 0.4637$, t-value = 4.3627, p-value = 0.001) have a positively impacted the teachers' job satisfaction.

This suggests that practicing transformational and instructional leadership as a public-school head can be in combination impact to the teachers' job satisfaction. An increase of school heads' efforts in terms of their transformational and instructional leadership styles would mean a 47.9% increase of the teachers' job satisfaction. Meanwhile, 52.1% attributed to the variable/s not included in this study. Thus, school heads should continue to inspire the teachers while giving them appropriate assistance that will help them more productive and better teachers.

Table 4: ***Regression Analysis on Leadership Styles of Public-School Heads and Overall Level of Teachers' Job Satisfaction***

	UC		**SC**			
Variables	**B**	**SE**	**β**	**t-value**	**Sig. (P-value)**	**Decision**
Constant	0.2514	0.3141	0.1748	3.9426	0.001	
Strategic Leadership	0.0468	0.0664	0.0188	1.0780	0.067	Accept Ho
Transformational Leadership	0.6537	0.4788	0.4882	6.4457	0.001	Reject Ho
Situational Leadership	0.0657	0.0742	0.0877	1.0832	0.231	Accept Ho
Servant Leadership	0.0538	0.0764	0.0679	1.8324	0.156	Accept Ho
Instructional Leadership	0.2782	0.5748	0.4637	4.3627	0.001	Reject Ho
	R	**R^2**	**Adjusted R^2**	**f-value**	**Sig. (P-value)**	**Decision**
Model	0.448	0.479	0.385	12.335	0.001	Reject Ho

Note: Significant when computed p-value <0.05

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Oco et al. (2022) stated that school heads that make themselves as an inspiration by performing their duties and responsibilities will also inspire the teachers to do the same. Moreover, with technical assistance provided for the teachers, they surely become more satisfied and inspired to better themselves and their craft to serve the school as well as the students.

In the same table, looking at the analysis of the independent variable level while holding the dependent variable constant at a time. As can be seen from the statistical results: Strategic Leadership ($\beta = 0.0188$, t-value = 1.0780, p-value = 0.067), Situational Leadership ($\beta = 0.0877$, t-value = 1.0832, p-value = 0.231) and Servant Leadership ($\beta = 0.0679$, t-value = 1.8324, p-value = 0.156) showed no significant impact with the Teachers' Job Satisfaction. This further implies that this style of leadership can still be observed and implemented by the school heads towards the teachers. These leadership styles have their unique features and functions which can be applied to situation or challenges that may arise.

Zhang (2023) stated that there are lots of leadership style that can be the most effective to enhance teachers' job satisfaction from one place to another due to culture and even the nature of the work environment that they have. It is just fitting that even if a particular leadership style must be given the chance to be utilized for its existence and importance is unquestionable.

IV. CONCLUSIONS

Based on the findings of this study, the following conclusions are formulated:

1. Though school heads apply all the leadership style on their administration but strategic leadership style is the most prominent.

2. Teachers maybe contented of their work because they have work but want to have a higher compensation and benefits.

3. Even if the correlation is weak to moderate level only, it still indicates a significant relationship. Therefore, public school heads have important role to play for the welfare of their teachers.

4. School leadership is an essential component for effective and efficient institutions to set leadership philosophies for the employees' satisfaction to their job.

V. RECOMMENDATIONS

Based on the findings and conclusion of the study, it is recommended that the:

1. The strategic public-school heads sustain the best practices and focus more on the empowerment and teamwork of stakeholders as well as on the implementation of situational leadership style to improve the teachers' job satisfaction.

2. The teachers' skills in budgeting and managing finances may be improved so that they can fully appreciate their compensation and benefits which would further sustain a positive work-life balance to remain more satisfied and committed to their jobs. Honestly, teachers need higher compensation and benefits because prime commodities are increasing.

3. The positive correlation between leadership styles of school heads and teachers' job satisfaction can further increase teachers' satisfaction to perform their job more efficiently and effectively. Thus, school heads and teachers may collaborate with each other for better communication and execution.

4. In providing trainings and seminars as well as in running school operations, transformational and instructional leadership styles may be given emphasis as the two styles have positively impacted the teachers' job satisfaction which can later lead to better performance and outcomes for the school, teachers and the learners.

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Learning Environment in a Pandemic

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ABSTRACT: The effectiveness of the learning paradigm shifted due to the outbreak of COVID-19 on the learning achievement of the Grade 9 students of Santa Maria National High School for the school year 2021-2022. This evaluated how learner characteristics, teacher's assessment of the students, resources, and learner support or e-learning affected the performance in mathematics besides the student profiles and learning environment. The research study used a descriptive-correlational design. A two-part questionnaire was used to collect data from 211 students' responses. Findings showed that most of the learners were from poor backgrounds in terms of financial status, and used smartphones in their learning. The learning environment was considered average, and the frequency of e-learning and resource usage was less. Mathematics performance was satisfactory. Statistically significant relationships were established between students' characteristics classroom contexts, and mathematics achievement. The study concludes that there is a need to improve the support for students which entails provision of resources, learning environment, and e-learning. More studies on the various learning scenarios during the pandemic are encouraged.

KEYWORDS: Learning Environment, Learners' Characteristics, E-Learning, Pandemic Learning, Learning Achievement, Teachers' Assessment

I. INTRODUCTION

Mathematics is a fundamental part of human thought and logic integral to attempts at understanding the world and ourselves. Mathematics provides an effective way of building mental discipline and encourages logical reasoning and mental rigor. In addition, mathematical knowledge plays a crucial role in understanding the contents of other school subjects such as science, social studies, and even music and art. Mathematics is a subject that needs close supervision and constant assistance from the teacher.

It was during the early days of January 2020 that scientists identified a new infectious disease caused by a novel coronavirus. Since then, the COVID-19 pandemic has caused massive disruptions to schools and universities. The COVID-19 pandemic is forcing educational institutions such as universities to shift rapidly to distance and online learning. COVID-19 has forced schools around the world to adopt distance and online learning. During these school closures, all face-to-face lessons were canceled, compelling many institutions, including to immediately transition from face-to-face in-person learning to completely online lessons. The abrupt switch to fully online learning has been particularly stressful for many instructors and students who prefer in-person instruction. Online learning is often stigmatized as a weaker option that provides a lower quality education than in-person face-to-face learning (Hodges et al. 2020).

The learning environment includes learning materials and technology, teaching methods, learning styles, and ties to societal and international contexts. The phrase also refers to aspects of human behavior and culture, especially the crucial part that emotion plays in learning. Similar to how an ecology combines living creatures and the physical environment, the learning environment is a composite of human practices and material systems (Balog, 2018). Modern learners require learning spaces that cater to both their individual and group needs. To tackle this challenge, educational leaders must create motivating and interesting physical and cultural environments (Chukwuemeka, 2013).

The academic, emotional, and social success of students in the classroom depends on their learning environment. It takes effort and planning to create a learning environment that is conducive to learning. They should be developed through deliberate actions, such as having positive interactions with students and acting in ways that would encourage learning activities in the classroom (Becton, 2017).

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Teaching and learning mathematics in the new normal is a challenge for teachers, students, and even parents. Since the government already prohibits face-to-face interaction between teachers and students, distance learning has been the learning modality that the Department of Education adopts. This modality has three types, namely: modular learning (printed or digital), television/radio-based instruction, and online learning. In modular learning, printed modules provide the students with the lesson, activities, and performance tasks that they can finish at their own pace and with the support and supervision of parents or guardians. Performance tasks were submitted on a scheduled time and were evaluated and assessed by their subject teachers. All works submitted were given equivalent grades based on the guidelines provided by the Department of Education.

Online learning is another methodology with the use of technology. Online mode is done when students study with their teacher and classmates through an application such as Google Meet, Zoom, and other online platforms. The goal of online learning is to keep the students engaged academically to retain what they have learned.

With these new methods, educators and learners face many challenges. Teachers and students were both struggling to live with the challenges this pandemic brought. This new way of learning caused by the COVID-19 pandemic can be an additional challenge during this tough time.

Santa Maria National High School's learning environment presents particular difficulties for students, teachers, and parents. Each of these individuals has proven resilient and adaptable in the face of these difficulties. Nevertheless, difficulties persist. Most of the issue's students run into in this learning environment are isolation, lack of access to technology, difficulty picking up new skills, difficulty focusing, and difficulty managing time.

Learning mathematics through TV/radio or even in Printed modules is hard because it is impossible for a learner to imagine a figure or to draw an illustration. After all, he can't see anything. Learner fails to comprehend an instruction. Chalk and board are indeed indispensable instructional materials when teaching and learning math. Even if a solution to a math problem is well-presented in a module, or learning activity sheet, it will never be enough without a teacher explaining the concepts and processes systematically for learners to understand both concept and content.

The implementation of an education system in response to the coronavirus outbreak and schools being closed can be supplemented with a curriculum that involves parental guidance. This would help in improving the education systems at large and ensure learning attainment in home settings. Learning through TV broadcasting and printed modules can made possible with the help of parents/guardians or other elderly family members. Most parents are found to be facilitating learning at home. It was revealed that parents found the sudden closure of the schools extremely disturbing and they were concerned about their children's routine. According to (Bhamani et al., 2020) parents believe that through schools, a formally structured routine is followed on most days of the week and this helps children understand the importance of time, scheduling, and doing assignments on a given timeline. All these elements of systematic routine help them shape their future work habits. According to a few parents, school plays a significant role in disciplining children. Parents also have struggled with providing time for their children especially when they have more than two kids at home going to the same school and having classes at the same time.

Therefore, it is essential to know how the students' learning environment affects how well they perform in mathematics. To provide correct and appropriate action that a teacher can take in this new normal, the outcome of this study may be helpful to both instructors and pupils. The policy-making body can develop activities and methods that meet the demands of the instructors and students in this new normal by understanding the learning environment and its level of impact on students' mathematical performance.

II. RESEARCH METHODOLOGY

Research Design

The researcher used a descriptive research design employing a correlational approach. Descriptive research design is a scientific method that involves observing and describing the existing phenomenon as cited by Garcia (2022). Thus, the profile of the respondents in terms of age, sex, educational attainment of parents, occupation of parents, and their level of performance will be described. In addition, it also utilizes a correlational method to determine the significant relationship of variables, correlational research design to be used. In this study, in particular, the researcher will look into the relationship between the profile, learning environment, and level of mathematics performance of students.

Population and Locale of the Study

The respondents of the study were the Grade 9 Students of Santa Maria National High School for the School Year 2021-2022, with a total population of 408. A total of 211 respondents were involved and determined using the simple random sampling technique.

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Table 1. Distribution of Respondents

Section	Population	Sample
Diamond	40	22
Emerald	39	21
Garnet	40	21
Sapphire	42	21
Amethyst	41	21
Turquoise	42	21
Aquamarine	40	21
Pearl	41	21
Jade	41	21
Ruby	42	21
Total	**408**	**211**

Research Instrument

To gather the data needed in this study, the researcher made use of a two-part survey questionnaire. Part I was used to elicit the demographic profile of the respondents such as age, sex, educational attainment of parents, occupation of parents, number of siblings, monthly income, and gadgets used by the respondents.

Part II is the set of questions that elicit the learning environment of the respondents in terms of learners' characteristics, an assessment used by the teacher, resources used in learning, learners' support system, and e-learning. These components were adapted from Teaching in a Digital Age by Anthony William (Tony) Bates, and modifications were made. The questionnaire was made by the researcher but some of the indicators were based on the study of McGhee et al (2007) and Pat-El et al (2013) and it was validated by six mathematics teachers and pilot-tested in Burgos National High School, Burgos, Ilocos Sur with the following results. It is computed using Cronbach's alpha.

Table 2. Reliability coefficient of the questionnaire

Indicators	Reliability Coefficient	Interpretation
Learners' Characteristics	0.864	Good
Assessment used by Teacher	0.901	Excellent
Resources used in Learning	0.847	Good
Learners Support System	0.874	Good
E-learning	0.928	Excellent

Assessment used by teacher and E-learning obtained a reliability coefficient of ≥ 0.9 with an interpretation of excellent while learners' characteristics, resources used in learning, and learners support system obtained a reliability coefficient of ≥ 0.8 with an interpretation of good. This means that the instrument is deemed reliable. For validity purposes, it was validated by six experts in Mathematics with a computed mean of 4.95, thus, the questionnaire is valid.

Data Gathering Procedure

Prior to the conduct of the study, a letter of request was forwarded to the office of the Schools Division Superintendent to conduct this study on the Grade 9 learners of Santa Maria National High School for the School Year 2021-2022. The researcher also sought permission from the Principal and advisers of all sections.

Upon approval, the researcher floated the questionnaires to the respondents through Google Forms. The questionnaires were collected and the responses were tallied and treated with the appropriate statistical tools. Before this, the researcher had already requested the grades of the respondents from their respective advisers for documentary analysis.

Statistical Treatment of Data

The Statistical Package for Social Science (SPSS) was utilized in the statistical analysis and treatment of data to be gathered. Specifically,

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Frequency count and Percentage were used to describe the profile of the respondents.

Weighted Mean was utilized to determine the level of the learning environment and the level of mathematics performance.

Simple Correlation Analysis was used to determine the significant relationship between the profile and the level of mathematics performance and the relationship between the level of learning environment and the level of mathematics performance.

Data Categorization

To determine the level of learning environment of the students, the following 5-point Likert scale was used:

Rating	Statistical Limit	Descriptive Rating	Overall Descriptive Rating
5	4.21 – 5.00	Always	Very High
4	3.41 – 4.20	Often	High
3	2.61 – 3.40	Sometimes	Moderate
2	1.81 – 2.60	Seldom	Fair
1	1.00 – 1.80	Never	Low

The following ranges, which were modified from the DepEd standard grading system, were used to assess the students' level of mathematical performance.

Mathematics Performance

Grades	Descriptive Rating
90 – 100	Outstanding (O)
85 – 89	Very Satisfactory (VS)
80 – 84	Satisfactory (S)
75 – 79	Fairly Satisfactory (FS)
75 and below	Did Not Meet Expectations (D)

III. RESULTS AND DISCUSSIONS

Profile of the Respondents

Age. The results showed that, with 119 responses, or 56% of the total population, the majority of respondents are 15 years old, while the least ages of the respondents were 16, 17, and 19 years old. The figures state that most students are of the common entry age for a ninth grader. They are already capable of accepting new responsibilities under the supervision of responsible adults, based on their developmental tasks at 15 years old. The findings of the study are aligned with the study, which revealed that most of the respondents were 15 years of age, which was also the most dominant age of junior high school students in a study conducted by Naungayan (2017).

Gender. The data shows that, of the total population, females made up 110, or 52 %, while males made up 101, or 48 %. The findings suggest that there are more women than men in the sample, which is normal in a setting like a school where it has long been observed that there are more girls than boys. The fact that girls are more likely than boys to be interested in attending school may help to explain this. This is supported by studies from Escalona (2015) and Barcelona (2017), where women outweigh men. Additionally, Garcia (2022) overview of Philippine Education study, which states that there are more females than boys enrolled in higher education. However, the results of the study contradict the findings of Milan (2018) articulating that there are more boys than girls.

Father and Mother's Educational Attainment. The results demonstrate that only a small number of individuals were unable to complete formal education. These results suggest that the majority of parents have high school and college degrees. According to Dagaylo-An and Tancinco (2016), majority of the respondents' parents had a college education. It accounted for 44% of the total number of responders. Ten of the parents who responded were elementary school teachers, while 17.5 percent were college graduates. However, according to Naungayan (2017), the majority of respondents have parents who have completed high school. Despite the disparities in results, both studies imply that the majority of respondents' parents were unable to complete any degree. Parents' educational level has been found to be an influence in academic achievement, quoted by Escalona (2015). By developing educational resources in the home and having specific attitudes and beliefs toward their children's learning, parents serve as a role model and a guide in encouraging their children to seek high educational objectives and ambitions. In this example, parents' educational attainment acts as a predictor of attitudes and values that parents utilize to establish a home environment that can influence their children's learning and achievement.

Parents Occupation. The statistics show that 44% of their mothers simply stay at home and take care of the household while 38% of their fathers are farmers. This could imply that the mother is preoccupied with how to care for the family's requirements while the father is working in a physically demanding field. The table also revealed that the second highest percentage belongs to others – fathers who are drivers, welders, technicians, and merchandisers. The third highest are parents who work abroad. This finding confirms the study of Barcelona (2017) who found out that the parents of her study were semi-skilled - farmers, fishermen, housekeepers, laborers, and other non-professional jobs. From the data, it can be inferred that 13% of moms are farmers. Mothers who work as laborers in the public or private sector make up a very small percentage of the workforce. This study suggests that moms choose to labor in the field alongside their husbands to make a living.

Number of Siblings. The data gathered shows that 33% of all respondents, or the majority of respondents, have two siblings. Whereas 18% of people have three siblings and 28% have one sibling. The families with 4 to 7 siblings are represented by the remaining percentages. This shows that families are conscious of their own socioeconomic demands and are able to plan for the betterment of their family while taking their priorities into consideration.

Monthly Income. It may be deduced that 52% of respondents said their monthly income was below 5,000 pesos, while 9% said it was between 21,000 and 30,000. This indicates that the majority of respondents are from low-income families and may not have extra money to spend on other resources that could help enhance students' academic progress. The results support a 2020 study by the National Association of Secondary School Principals (NASSP), which found that children living in poverty often lack the means at home to do their homework, study, or participate in activities that prepare them for success in the classroom. Although three-fourths of households presently have access to high-speed broadband, many low-income families lack access to computers, high-speed internet, and other resources that can help a kid outside of the classroom. These families' parents frequently work several jobs or longer hours, making it possible that they are unavailable to help their kids with their education.

Gadgets Used in Learning. It was noticed in the data that half of the respondents used smartphones as their gadgets for learning. Other gadgets are tablets with 21% of users, Cable TV with 13% of users, and only a few use Desktop computers and Laptop. And 1% have nothing to use for their learning. This indicates that the students have very limited technology resources to aid their learning experience. This implies that, given the available resources for their studies, it would be challenging for the students to build new knowledge and existing competencies. This is in consonance with the findings of Alfawareh and Jusoh (2014) as cited in the study of Pantaleon (2022) which revealed that ninety-four percent of students owned smartphones, and the majority of them used mobile by using as a computer connected to the internet and a digital camera.

Learning Environment of Grade 9 students along Learners' Characteristics

Table 2. presents the Level of Learning Environment of the students along Learner's Characteristics.

	Indicators	Mean Score	Descriptive Rating
1.	My goal in learning is to gain knowledge	4.68	Always
2.	I am eager to learn new things	4.43	Always
3.	I can easily remember the lessons during my previous grade level	3.48	Often
4.	I review the lessons I've learned in my previous grade level	3.46	Often
5.	I am competent in using the technology	3.72	Often
6.	I prefer to learn from the internet than from module	3.09	Sometimes
7.	I can learn from how others learn	3.71	Often
8.	I can understand the lessons from my module without any help	3.36	Sometimes
9.	I can focus on learning even with the temptations caused by gadgets.	3.44	Often
10.	Doing household chores do not distract my concentration in my studies.	3.68	Often
11.	I can always motivate myself to learn my lessons	4.09	Often
12.	I have high sense of responsibility in accomplishing the task provided in the module.	3.94	Often
13.	I accept feedbacks positively from my teachers which help me in doing my tasks.	4.21	Always
14.	I can learn at home because I have the assistance of my parents.	3.49	Often
15.	I can submit my deadlines for SLMs without any pressure.	3.76	Often
16.	I am capable to learn independently from the modules.	3.64	Often
17.	I follow the schedule set for the submission of module	4.37	Always
18.	I submit complete answers for a particular module	4.19	Often
19.	I properly labeled my answer sheets	4.38	Always
20.	My handwriting is readable and clear.	3.91	Often
	Overall Mean	**3.85**	**High**

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On Learners' Characteristics. As reflected in Table 2, respondents consistently feel that learning is about gaining knowledge, are ready to learn new things, welcome good feedback from their teachers that aids them in completing their assignments and are organized enough to label their response sheets. These indicators coupled with the features of the learners have a mean value that falls between 4.21 and 5.00, which is interpreted as Always while the item "I can understand the lessons from my module without any help" received the lowest mean rating, which was described as "Sometimes." This shows that while students' objectives are to complete the module's assigned tasks, they find it challenging to fully comprehend them. This also explains why students are responding to the exercises without fully comprehending the contents. The overall mean of all the indicators on the Level of Learning Environment of Grade 9 students along Learners' Characteristics is 3.85 and interpreted as Often, meaning the respondents often display the above-mentioned characteristics/indicators.

This supported a study by Itorralba (2022), which found that high school students struggle mightily with their reading and comprehension abilities. As a result, failing to completely understand the lessons and modules intellectually presents additional obstacles. Some kids no longer have the required depth of interest to maintain the required endurance as a result. Even worse, some leave out and forfeit their opportunity to pursue further education—college or senior high.

Learning Environment of Grade 9 students along Assessment used by Teacher

Table 3. presents the Level of Learning Environment of the students along Assessment used by the Teacher.

	Indicators	Mean Score	Descriptive Rating
1.	Authentic assessment tests focus on my analytical skills and ability to integrate what they have learned	4.06	Often
2.	I can demonstrate what I have learned through the assigned tasks and activities	3.83	Often
3.	I can calculate, explain, and describe whatever is asked in the assessment tool.	3.60	Often
4.	I can use portfolio in assessing my mathematical performance.	3.77	Often
5.	I can fully understand the activities given in the performance tasks and assignments	3.83	Often
6.	My teacher provides feedbacks to my answer in the assessment.	3.95	Often
7.	My teacher stressing my strengths and weaknesses concerning my learning	3.34	Sometimes
8.	My teacher encourages me to reflect on how I can improve my assignments/activities	4.25	Always
9.	My teacher gives me guidance to assist my learning	4.27	Always
10.	My teacher discusses with me the progress I make	4.20	Often
11.	After each assessment my teacher informs me how to improve the next time	4.22	Always
12.	My teacher discusses with me how to utilize my strength to improve my assignment	4.17	Often
13.	My teacher and I consider ways to improve my weak points	4.05	Often
14.	My teacher tries to explain in a different way when I do not understand a topic,	4.38	Always
15.	I have an opportunity to show what I have learned during class	4.02	Often
16.	My teacher asks questions that help me gain understanding of the subject matter	4.31	Always
17.	I am aware with the criteria by which my assignment will be evaluated	4.07	Often
18.	My teacher makes me aware the areas I need to work onto improve my results	4.23	Always
	Overall Mean	**4.03**	**High**

On Assessment used by the Teacher. As reflected on the table, respondents believe their teacher "always" encourages them to reflect on how they can improve their assignments/activities, guides them to assist their learning, informs them how to improve the next time, explains in a different way when they do not understand a topic and asks questions that help them gain an understanding of the subject matter. This means that feedback for teacher assessment is useful and effective in improving students' academic performance.

The lowest mean score of 3.34 which is interpreted as "Sometimes" was given to indicator number 7 which is my teacher stressing my strengths and weaknesses concerning my learning. This implies that teachers failed to give frequent feedback on students learning on their strengths and weaknesses. According to Fine et al. (2022) quantity of feedback delivered during the pandemic identified concerns relating to students' anxieties about having to study remotely from home and often in an isolated fashion. The teachers felt that one approach to allay student concerns was to increase the individual feedback they delivered. However, some teachers delivered less feedback to their students during the pandemic due to the technological challenges of working remotely. Some participants reported that the introduction of blended learning had been well received by students, despite the increased reliance on technology and the changes in learning and teaching behaviors.

Most of the indicators were given the descriptive rating "Often" with mean scores in the range of 3.41 – 4.20, resulting in the overall mean of 4.03 which is interpreted as "Often" means that students often receive feedback from assessment used by teachers, and this will improve their learnings. This result is consistent with a study by Ampofo (2020) that feedback helps students to know the benefit of learning, encourages students to be more active and participate in class activities, help students to internalize and process the demands of a task given to them by their teachers, increases the self-esteem of students, guides students in on their performance, feedback deepen the understanding of students on their performance and also clarify what students should do.

Learning Environment of Grade 9 students along Resources used in Learning

Table 4. presents the Level of Learning Environment of the students along Resources used in Learning.

	Indicators	Mean Score	Descriptive Rating
1.	All printed modules are always available for distribution.	4.49	Always
2.	I have a sufficient access to learning technology.	3.86	Often
3.	I have competency and proficiency in using various interfaces or systems that allow me to control a computer or another embedded system for studying	3.58	Often
4.	I am updated with the latest learning technology.	3.85	Often
5.	I have strong Internet access during online classes.	3.39	Sometimes
6.	I have a sufficient access to library resources.	3.00	Sometimes
7.	I have a sufficient access to laboratory equipment and materials.	2.84	Sometimes
8.	I have unlimited access to textbooks, worksheets, and other instructional materials	3.23	Sometimes
9.	I do not experience financial challenges when accessing learning resources and technology	3.21	Sometimes
10.	Laptops or computers are available for use.	2.98	Sometimes
11.	The geographical location of our home is a hotspot to access strong internet connection.	3.38	Sometimes
12.	Internet access is available at all times.	3.55	Often
13.	Printer and photocopier machines are available at home.	2.54	Seldom
	Overall Mean	**3.37**	**Moderate**

On Resources used in Teaching. As reflected on the table that students gave the highest score on "All printed modules are always available for distribution" with a mean score of 4.49 an interpreted as always. All public schools in the Philippines currently use this learning method. Modular distance learning is the method that most parents and students prefer.

Other indicators on the table are all about the use of technology, library resources and laboratory equipment and material in learning environment. The range of the mean score is 2.84 to 3.39 with a descriptive rating "Sometimes", This result means that using technology challenges of students varied in terms of type and extent. Their greatest challenge is the availability of learning resources at home and they are also challenge on their technological literacy and competency.

Indicator number 13 got the lowest mean score of 2.54 and it is interpreted as "Seldom", this means that printers and photocopier machines are seldom available at home.

The overall mean of 3.37 is interpreted as "Sometimes", implies that respondents have limited access or knowledge in using technology as resources in learning. Students' responses suggest that their learning environment in terms of the resources in learning is a great challenge to them. According to the findings of Rahayu et al. (2022) that access to technology greatly supports distance learning implemented by the government during the current COVID-19 pandemic. Through good access to technology, learning materials can be fully attained.

Learning Environment in a Pandemic

Learning Environment of Grade 9 students along Learners Support System

Table 5. presents the Level of Learning Environment of the students along Learners Support System.

	Indicators	Mean Score	Descriptive Rating
1.	My parents support me to learn at home.	4.05	Often
2.	My parents have the capacity to facilitate the modular learning sessions for me.	3.78	Often
3.	My parents and other members of the family assist me in answering the SLMs	3.52	Often
4.	My parents provide materials for my project	4.34	Always
5.	My parents help me in making my projects.	3.52	Often
6.	My parents communicate to my teachers if there are some unclarified instructions.	3.35	Sometimes
7.	My parents can manage to help me learn while looking for ways to earn	3.77	Often
	Overall Mean	**3.76**	**High**

On Learner's Support System. The high mean score on item 4 means that their parents always provide materials for their project. Indicators 1, 2, 3, 5, and 7 with mean scores interpreted as "Often" means that parents often support them in learning at home, parents can facilitate the modular learning sessions, parents assist them in answering the Self Learning Modules, and parents can manage to them learn while looking for ways to earn. The overall mean of 3.76 which is interpreted as "often" means that student great support system from their parents which is very important in this new learning environment. According to Daniela et al. (2021), a large role was played by the parents of the students, who had to become homeschoolers within a few days without prior training. While parental involvement has previously been analyzed as necessary but often insufficient, parents were now the ones who helped students to learn digital skills, helped them to learn, and helped them to understand how to organize the learning process of children in a balance with other daily responsibilities.

This corroborates the result of the study by Mau et al. (2021) that shows the positive beliefs of parents, students, and schools in parents' involvement to influence students' academic achievement, especially in Distance Learning. At home, parents agreed to control and guide their children in doing the assignments.

Learning Environment of Grade 9 students along E-Learning

Table 6. presents the Level of Learning Environment of the students along E-learning.

	Indicators	Mean Score	Descriptive Rating
1.	I receive appropriate help during online classes.	3.31	Sometimes
2.	I possess the ability to control my own thoughts, emotions, and actions during online classes.	3.39	Sometimes
3.	I have enough preparation time before an online class.	3.30	Sometimes
4.	I have good time management skills during online classes.	3.33	Sometimes
5.	I properly use online peer learning strategies.	3.25	Sometimes
6.	I am always willing to learn new technology	3.95	Often
7.	I have full understanding of directions and expectations during online classes	3.36	Sometimes
8.	I perceive technology as an instrument to getting help from other during online classes.	3.40	Sometimes
9.	I do not experience online distractions such as social media during online classes.	3.16	Sometimes
10.	I do not experience distractions at home as a learning environment.	3.35	Sometimes
11.	I do not have difficulties in selecting the best time and area for learning at home.	3.43	Often
12.	Home set- up does not limit/hinder the completion of certain requirements for my subject.	3.62	Often
	Overall Mean	**3.40**	**Moderate**

Learning Environment in a Pandemic

On E-learning. The table revealed that item 6 has the highest mean score which is 3.95 and it is interpreted as “Often”. The respondents are willing to learn new technology. This result means that respondents are trying to embrace the new Learning environment caused by the pandemic and one way to learn is to use the technology. This result means that respondents are trying to embrace the new Learning environment caused by the pandemic and one way to learn is to use the technology.

Almost all indicators (indicators 1, 2, 3, 4, 5, 7, 8, 9, and 10) got low mean scores which were interpreted as “Sometimes”, resulting in an Overall Mean of 3.40 as interpreted as “Sometimes” implies that the impact of E-learning on the respondents remains a challenge to them as they are not much satisfied on how E-learning helped them in their learning environment. This is similar to the findings of Maatuk et al. (2022) that students claim that the introduction of e-learning is difficult and that the low-quality of internet services is the biggest obstacle to its application. students demonstrate that there are limitations to e-learning and that the biggest downside is that it decreases the workload for teaching staff and raises the pressure on students. This corroborates the result of the study by Mahyoob (2020) that most EFL learners are not satisfied with continuing online learning, as they could not fulfill the expected progress in language learning performance.

Learning Environment of Grade 9 Students

Table 7. presents the Summary of the Learning Environment of Grade 9 Students.

Indicators	Overall Mean	Descriptive Rating
Learners’ Characteristics	3.85	High
Assessment used by Teacher	4.03	High
Resources used in Learning	3.37	Moderate
Learners Support System	3.76	High
E-learning	3.40	Moderate
Overall	**3.68**	**High**

As reflected in Table 7 the indicator Assessment used by Teacher got the highest overall mean which is 4.03 and it is interpreted as “High” This result implies that students often receive feedback from assessments used by teachers, and this will improve their learning. It is important that during the pandemic the learners should be given feedback from teachers and use their feedback for continuous improvement. According to Bazan (2022), feedback (supervision of practice, feedback itself, and evaluation) has a direct influence on the student’s performance in adjusting to feedback and improving their performance, a variable that, in turn, positively influences the students’ application and adjustment in self-assessed evaluations. Jellicoe and Forsythe (2019) also outlined as crucial steps, the relationship between the teacher’s feedback actions and the student’s incorporation of such feedback into their behavioral repertoire implies the student accepting the feedback provided by their teacher and having trust that said feedback will demand plausible challenges and changes in their behavior and learning.

Another indicator that got an overall mean that is interpreted as “High” is Learners' Characteristics. This also implies that Learners' Characteristics influence the learning environment during this pandemic. The learner's Support system got an overall mean of 3.76 and was interpreted as “High” which also implies the great influence of the support given to the learners to the learning environment in this pandemic. The most identified and common support system of the learners during this pandemic is the support they got from home.

Resources used in learning and E-learning are the two indicators with the lowest overall mean. This result implies that although these are useful in the learning environment during this pandemic, students still believe that utilizing these does not make their learning at the fullest considering the availability of these resources and their knowledge of how to utilize them.

However, the student's learning environment received a mean rating of 3.68, which is considered to be "High." This suggests that an environment conducive to learning will ensure both students' academic success and an effective procedure for teaching and learning.

Mathematics Performance of the Students

Table 8 presents the Level of Mathematics Performance of the respondents.

Numerical Ratings	F	%	Level of Performance
90 – 100	19	9	Outstanding
85 – 89	61	29	Very Satisfactory
80 – 84	19	9	Satisfactory
75 – 79	112	53	Fairly Satisfactory

74 and below	0		Did Not Meet Expectation
TOTAL	**211**	**100**	

Results revealed that a high percentage (53%) of the students obtained a final grade of 75-79 which indicates that a great number of students have a “Fairly Satisfactory” level of performance. The highest level of performance attained is “Outstanding” achieved by a small number (9%) of students, and there were no respondents who “Did Not Meet Expectations”. However, there is an average percentage of students who acquired “Very Satisfactory” (29%) and “Satisfactory” (9%) levels of performance. Furthermore, the mean grade of the students is 81.77 which indicates a “Satisfactory” level. This result suggests that Grade 9 students of Santa Maria National High School, in general, have an average level of performance in Mathematics.

Sunga (2015) obtained a mean grade of 82.8 % in his study of the Fourth-Year students of the public secondary schools in Pinamalayan, Oriental Mindoro. It is revealed in his study that 36.73% of the student-respondents fall under poor performance in Mathematics while only 0.36% of the respondents showed excellent performance. His findings denoted that students’ performance in Mathematics is affected by some other factors which are not indicated in this study. He implied that achieving high-quality Mathematics performance does not only call for coherent, well-articulated Mathematics curricula, competent and knowledgeable teachers who can integrate instruction with assessment, educational policies that enhance and support learning, classrooms with ready access to technology, and a commitment to both equity and excellence but of course, students’ factors must also be put into consideration.

Similarly, Escalona (2015), as cited by Dandin (2019), revealed that most of his respondents have a moderately satisfactory level of mathematics performance. The results mentioned above are similar to the findings of Millan (2018). He unveiled that fourth-year students from Sta. Lucia District, both from public and private schools is approaching proficiency level. This approaching proficiency has the same range of grades as the Satisfactory level of the current grading system. However, when taken individually, there seems to be a dissimilar result. Most of the public high school students perform fairly in the subject while their counterparts in the private schools are at a notch higher, a descriptive rating of Good. In terms of failed grades or those whose grades were lower than 75, the most number is observed at the public high schools with 66 out of 321 while only 13 out of 281 in the private schools.

Relationship between the Profile and the Level of Learning Environment

Table 9. presents the Relationship between the profile and the level of learning environment of the respondents.

Profile	**Learning Environment**									
	Leaner’ Characteristics		**Assessment used by Teacher**		**Resources used in Learning**		**Learners Support System**		**E-Learning**	
	Computed r	**p-value**	**Computed r**	**p-value**	**Computed r**	**p-value**	**Computed r**	**p-value**	**Computed r**	**p-value**
age	0.102*	0.040	0.096	0.166	0.887	0.115	0.010	0.887	0.081	0.241
gender	0.093	0.179	0.054	0.432	-0.021	0.766	.135*	0.050	-0.333	0.631
Fathers Educational Attainment	0.064	0.356	-0.018	0.045	0.028	0.689	-0.028	0.689	-0.006	0.934
Mothers Educational Attainment	0.052	0.449	0.010	0.885	-0.061	0.378	-0.044	0.528	-0.036	0.605
Fathers Occupation	-0.062	0.369	-0.078	0.259	0.002	0.974	0.062	0.368	-0.050	0.472
Occupation	-0.105	0.130	-0.065	0.349	-0.072	0.300	0.046	0.504	-065	0.349
Month Income	0.079	0.251	-0.015	0.832	0.019	0.786	-0.095	0.168	-0.052	0.547
Number of Siblings	0.056	0.422	0.125	0.69	-0.002	0.973	0.095	0.168	0.071	0.308
Gadgets used in Learning										

Learning Environment in a Pandemic

Cable tv	0.071	0.303	0.023	0.741	.178**	0.009	0.019	0.779	-0.048	0.492
Non-Cable Tv	0.022	0.747	0.015	0.833	0.024	0.728	-0.001	0.990	0.087	0.210
Basic Cellphone	0.090	0.192	0.085	0.219	-0.096	0.164	0.075	0.277	0.094	0.172
Smartphone	0.047	0.502	-0.041	0.551	0.110	0.112	-0.096	0.165	-0.022	0.755
Tablet	0.113	0.102	0.068	0.329	.144*	0.036	-0.031	0.654	0.084	0.224
Radio	0.058	0.403	.157*	0.023	0.076	0.271	-0.006	0.935	0.031	0.651
Desktop Computer	0.110	0.110	0.047	0.496	.143*	0.037	0.036	0.602	0.098	0.157
Laptop	0.126	0.067	0.089	0.197	.234*	0.001	-0.060	0.388	0.029	0.675
None	-0.059	0.391	0.014	0.836	-0.011	0.869	-0.015	0.834	-0.037	0.597

The findings show a substantial correlation between the age of the respondent, the characteristics of the learner, and the learning resources. The preference of students for particular sorts of online learning environments, particularly in terms of the types of learning resources employed, may be predicted by the student's age. For instance, older students have stated that they strongly prefer to watch videos of the professor lecturing, but younger students have stated that they prefer more interactive learning tactics (Simonds & Brock, 2014). Additionally, it demonstrates that there is a strong link between respondents' gender and the Learner's Support System. This supports Lino's findings, which were mentioned by Barcelona (2017) and revealed that gender had a substantial impact on pupils' math performance.

Regarding the technology utilized by the respondents, the results indicate that using cable TV as a learning resource has a substantial relationship to the learning environment in addition to other learning resources. Lessons from TV broadcasts are also utilized in this new learning environment or during a pandemic. Due to the strong correlation, learning environments can be improved by watching cable TV lessons. Countries used educational television during COVID-19, and a rapid reaction guidance note on using educational television programs during school closures was created. DepEd TV Channel - Lessons are broadcast on 207 television channels to all students around the nation. DepEd Commons - An online forum for public school teachers to encourage distance learning modes.

It is gleaned from the table that there is a significant relationship between using Tablets in the Learning Environment and Resources used in learning. This implies that using tablets as Resources in learning can promote an effective Learning Environment.

The result also shows that there is a significant relationship between using Desktop Computers and learning environments along with resources used in learning only and not significant to Learners' Characteristics, Assessments used by Teachers, Learners Support System, and E-learning. This result means that using Desktop Computers can promote an effective Learning Environment.

Lastly, using a Laptop has a significant relationship to the Learning Environment along with Learners' Characteristics and Resources in Learning. This implies that using laptops can greatly support students with learning difficulties, develop independence in students, help them master skills, and improve their proficiency as the major impacts of learning resources.

With the above significant relationships between using tablets, desktop computers, and laptops in the learning environment this means that students can improve Academic/Mathematics Performance by using the gadgets. The results revealed that the most popular tools used by learners throughout the pandemic were laptops (48.1%) and mobile phones (45.5%). However, only 2.5% of students used iPad tablets during the pandemic and just 3% used personal computers.

These gadgets facilitate communication and monitoring between teachers and students as if they were in the classroom. It is an easily accessible tool for students in terms of learning materials. For example, they can use tablets, desktop computers, and laptops to access E-learning. Gismalla et al. (2021) found that students strongly agreed it was necessary to close the university and use E-learning during the pandemic to control the spread of the virus. Thus, the majority of the students had a positive opinion of online learning using their gadgets. The main difficulties experienced by the students about online learning were a limited internet connection, a lack of familiarity with the online system, and technical support during exams.

Learning Environment in a Pandemic

Relationship Between the Level of Learning Environment and the Level of Mathematics Performance

Table 10. presents the level of Learning environment and the level of mathematics performance of the respondents.

Learning Environment	Mathematics Performance	
	Correlation Coefficient	p-value
Learners Characteristics	0.045	0.518
Assessment used in by the Teacher	-0.052	0.451
Resources used in Learning	0.172*	0.012
Learners Support System	0.118*	0.008
E-learning	-0.019	0.781

The correlation between the level of the learning environment and the level of mathematical performance is shown in Table 10. The computed correlation coefficient between learner characteristics and mathematics performance, which is 0.045, is less than the p-value of 0.518, as shown in the table. The outcome implies that there is no connection between the respondents' mathematics performance and their learner characteristics. This study suggests that learner characteristics, particularly in this novel learning environment, cannot affect their mathematics performance. This indicates that their attitude toward their studies in this new learning environment is insufficient to enhance their performance in mathematics. The majority of students had negative perceptions of the new learning environment. Bringula et al. (2021) assert that the transition to an educational environment had a detrimental effect on students' self-concepts in mathematics. More than 80% of the survey participants thought their math grades would be lower. Additionally, they have unfavorable ideas about how students see their abilities in mathematics, including their ability to comprehend lessons, solve problems, complete courses, do better than their peers or other students, and enjoy taking online classes. The new learning environment is still new to the students. On the other hand, students who have a positive self-concept in mathematics are more optimistic about passing the course, showing interest in learning, and performing well in the course as a whole. They are more likely to attend classes, complete assignments, assist their classmates with their assignments, remember lectures, and pass the course.

It also found that there is no significant relationship between the Assessment used by the Teacher and Mathematics Performance. Although students often receive feedback from assessments used by teachers, it does not guarantee that it will improve their Mathematics Performance of the students. Formative and summative assessments come after the lesson is discussed. In the new learning environment, there are no face-to-face discussions made therefore assessments were not as effective as when there’s an explicit discussion made. Although students often receive feedback from assessments used by teachers, it does not guarantee that it will improve their Mathematics Performance of the students. Dargo & Dimas (2021) revealed that having no interactive relationship between the teacher and the learners will lead the learners to not be interested in learning and refuse to explore their potential on their own. Learners are not able to interact with their teacher to ask questions about their lesson which leads to a lack of processing of the module’s content as well as a lack of explanation coming from the teacher. Some learners rely on the key answers included in their self-learning modules, so even errors were copied which gives teachers the thought that pupils aren’t reflecting well on what they are studying. In that case, the teacher will no longer determine if the pupils understood the content of the module or if is it the work of the learners.

Lastly, as to E-Learning to Mathematics Performance, it was found that there is no significant relationship. This result is similar to the findings of Balbaguio et al. (2020) that there were no significant relationships between the effect of electronic gadgets, level of proficiency in the use of electronic gadgets, and study habits on academic performance. Learners are aware of the effects, yet responsive and educated about the ill effects of gadgets. The study of Baticulon et al. (2021) categorized the inability to understand the content of the course as a personal barrier to E-learning and showed that this is a pedagogical challenge rather than a personal problem. Bringula et al. (2021) found out that some online learners have physical learning space limitations which make online learning inconvenient. This limitation contributed to their low academic self-concept.

On the other hand, it was found that there is a significant relationship between Resources used in Learning and Mathematics Performance. This result implies that resources used in learning such as printed modules, technology, internet access, library resources, computers, and laptops are essential in the learning environment, and utilizing these could improve the Mathematics Performance of students. The significant relationship between Resources used in Learning and Mathematics Performances means that in this new learning environment, these are the only ways to be successful academically since traditional face-to-face teaching and learning is not possible. The more the Learning resources used the more improved the Mathematics Performance is.

Learning Environment in a Pandemic

According to Wanjala, Khaemba, and Sindabi (2010), the moves to competency and performance-based curricula are well supported and encouraged by emerging instructional technologies and aids, such curricula tend to require access to a variety of information sources like teaching and learning aids. This would enable learners to acquire the expected experience.

Aksan (2021) also revealed that students' perceptions agreed on using the modular distance learning approach (MDLA). It means the students had positive perceptions regarding MDLA in Mathematics. The study also revealed that students agreed that using the modular distance learning approach (MDLA) in Math has few challenges. It had also a positive effect on students' performance Students performed very satisfactorily in Mathematics which means they had good quality performance.

Lastly, the result found that there is a significant relationship between Learners' Support System and Mathematics Performance. Parent support in a child's education is consistently believed to be positively associated with a child's academic performance. Children whose parents are more involved in their education have higher levels of academic performance than children whose parents are involved to a lesser degree. Since schools were forced to close during the pandemic, the learning environment shifted from traditional school settings to home learning, therefore Learners' Support systems from their parents are much needed especially in learning mathematics. The significant result means that the Learners Support System can improve the mathematics performance of the students.

IV. CONCLUSIONS AND RECOMMENDATIONS

The learning environment of the students in a pandemic is a great challenge. The learning environment for both the teachers and students needs to be considered in taking proper and appropriate action to implement in this new normal caused by the pandemic, especially in school setting. Knowing the learning environment and its effect on the mathematics performance of the students is an effective way to address and cater to the needs of the teachers and students in this new normal.

Based on the conclusions of the study the following are recommended:

1. Parents may prioritize the needs of their students by providing them with the resources that they need especially during pandemic times.
2. The learning environment of the students during the pandemic went through drastic change hence, it is recommended that parents and teachers assist them as they adjust from the normal before to the new normal at present.
3. To help the students improve their mathematics performance, teachers may provide supplemental and remedial activities that suit the needs of the students in the new normal or during a pandemic.
4. The proper use of gadgets in learning may be supervised by parents and teachers as this is one of the predictors of their mathematics performance.
5. Constant support from the parents is needed during a pandemic and in this new Learning Environment the students, hence parents, and other members of the support system must be aware of this great role.
6. A study may be conducted to include the other learning environments of the students during a pandemic and in the new normal to provide necessary assistance and support that cater to the needs of the students, especially in their mathematics learning.

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Digital Flipbook Culinary Night: Contemporary Information Digital Media

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ABSTRACT: The development of urban tourism is inseparable from the increasing use of digital technology in various fields. One of the popular city tours is culinary tourism, in its development it still requires innovation to strengthen the marketing aspect and convenience for tourists. In this context, Tangerang City has an Old Market culinary area that has long provided a variety of Tangerang specialties and contemporary culinary that is being loved by young people. The purpose of this study is to provide recommendations in the process of designing a culinary tour guide in the Old Market. Meanwhile, this research can provide convenience for tourists when visiting the Old Market area. This research was conducted using qualitative research methods that make culinary diversity in the old market area as a portfolio in making this culinary tourism guide which was designed into a digital Flipbook.

KEYWORDS: city tourism, culinary night, digital flipbook

I. INTRODUCTION

The development of sustainable tourism is a very important topic in the tourism industry today. The tourism sector contributes to the Gross Domestic Product (GDP), both through foreign exchange and economic turnover. From various countries, it shows that the tourism industry always ranks 4th or 5th in terms of earning foreign exchange for the country. As for one, the subsector that makes the largest contribution is in the culinary subsector. Data shows that the culinary subsector contributed IDR 455.44 trillion or around 41% of the total creative industry GDP of IDR 1,134.9 trillion in 2020. This cannot be separated from the supporting components in the tourism industry. These components include tourist attractions, accessibility, amenities or facilities, and ancillaries or organizations that take care of tourism (Sunaryo, 2013). Of these four components, quite a lot of expenses are made by tourists on amenities related to purchases. According to Yahya (2019) the potential for cultural tourism, is 60 percent and for shopping tourism and culinary tourism the potential is very large, namely 45 percent." (Kompas.com, 2019). Meanwhile, a survey in the UNWTO report, Global Report Vol 4, in Food Tourism, 2012, stated that 87 percent as gastronomic correspondents are very important in developing the tourism industry.

Cities work with branding strategies to enhance their representative elements and stand out from the rest in the current world. Cities often want to attract people, businesses or tourists, depending on the vocation and the defined objectives. To be successful, they work with strategies that enable the validation of identity and the creation of a unique image, creating and developing brands and brand identities that represent their local identity characteristics and offer a greater capacity for attraction and connection with inhabitants, tourists, visitors and other audiences (Kavaratzis 2004).

Tangerang City is one of the cities that is developing in the tourism sector in Banten Province. Tangerang City is directly adjacent to three major cities, namely DKI Jakarta, Tangerang Province, and South Tangerang City (Central Statistics Agency of Tangerang, 2016). Tangerang City, which borders three major cities, is a large industrial city. Although Tangerang City is a large industrial city, tourism to Tangerang City is also growing. According to Government Law No. 10 of 2009 concerning Tourism, tourism is a variety of tourist activities and is supported by various facilities and services provided by the community, entrepreneurs, the Government, and Regional Governments. The types of tourism are divided into seven types, namely sports tourism, religious tourism, agro tourism, cave tourism, shopping tourism, ecological tourism and culinary tourism (Ismayanti, 2010) Meanwhile, in Tangerang City there are several tourist attractions that are interesting to local and foreign tourists, which include:

Table 1: Tangerang City Tourist Attractions

Type of Tour	Tourist Attractions
Cultural Tourism	1. Festival Cisadane 2. Klenteng Boen San Bio 3. Klenteng Boen Tek Bio 4. Klenteng Khoet Goean Bio 5. Thousand Doors Mosque 6. Al Azhom Grand Mosque 7. Heritage Fort Museum a. Old Market Culinary Tour
Artificial Tourism	1. Tangerang City Square 2. Pintu Nam Sepuluh Dam 3. Situ Bulakan 4. Situ Cipondoh 5. Tanjung Pasir Crocodile Park 6. Tangerang Portrait Park 7. Tangerang Achievement Park 8. Adipura Monument

Based on data from the Central Statistics Agency of Tangerang City, it shows that during a period of 3 years there has been a growth in the number of bistros/restaurants in several regions, as seen in the table below.

Tabel 2: Data on the Number of Bistros/Restaurants by District in Tangerang City

District	Number of Bistros/Restaurants by District in Tangerang City		
	2018	2019	2020
Ciledug	14	10	14
Larangan	5	5	6
Karangtengah	7	7	7
Cipondoh	17	13	16
Pinang	4	8	8
Tangerang	20	82	88
Karawaci	53	100	101
Jatiuwung	10	22	22
Cibodas	22	10	14
Periuk	21	21	21
Batuceper	13	2	2
Neglasari	2	13	14
Benda	53	58	57
Total	241	351	370

Source : https://tangerangkota.bps.go.id/

Seeing the opportunities of the tourism industry in Tangerang City, with the development of current technology, many people really need tourism information, especially in terms of culinary information. There are types of tourism offered to a certain area, such as cultural tourism, gastronomic tourism, natural tourism and religious tourism. Currently, culinary tourism is the most visited tourist attraction by tourists. This encourages culinary to become a tourist attraction, especially in the Old Market area which is also a place of commerce in the past. The culinary in the Old Market area is heavily influenced by several dominant tribes in Tangerang City, such as the Sundanese, Betawi, and Chinese tribes. This causes some typical culinary in Tangerang City to be similar to typical culinary in the surrounding area. Usually the difference only lies in the spices and ingredients used. Therefore, this uniqueness is a special attraction for tourists to do tourism in Tangerang City. Moreover, many culinary providers in the Old Market Area that offer Tangerang City culinary specialties, can sometimes make it difficult for tourists to determine their destination, especially for the type of culinary specialties of the old market, because of the variety of culinary tours available. From this, it is necessary to create a digital flipbook that will make it easier for tourists to get information about culinary in the old market. In this digital flipbook, the location where the culinary is located is also included, so that it is not only in the form of text as a guide but also equipped with images.

Previous studies on the development of culinary tourism show several important approaches, first, research (Sims, 2009) of the two United Kingdom regions, the Lake District and Exmoor, argue that local food can play an important role in sustainable tourism as it is able to attract visitors' desire for authenticity in their holiday experience. Second, (Jeou-Shyan Horng, 2011) said that Hong Kong and Singapore do not have the abundant natural resources to develop more diverse tourism experiences, but they have diverse food and cultural backgrounds, and with a combination of tourism and creativity they can develop innovative, diverse and attention-grabbing culinary tourism. Third, (Farida & Setyowibowo, 2018) said that the culinary tourism information system in the city of Malang can provide convenience for tourists or residents in finding information on tourist attractions in the city of Malang. Detailed and accurate information can help tourists and locals in determining where to eat. Fourth, Research Results carried out by (Araujo, 2016), stated that the development of traditional foods contributes to the sustainability of tourism. In addition, Fifth, the results of the research (Besra, 2012), stated that culinary tourism has good prospects to be developed even though it faces many problems that hinder its development. Therefore, an appropriate marketing strategy is needed to market culinary services and support from many parties, especially the government.

Of these five trends, there are no studies that look at the development of culinary tourism in making it easier for tourists by providing digital flipbooks as an alternate replacement for printed versions of guidebooks in conducting culinary tourism in the old market. Digital flipbook is a graphic media that has advantages such as presenting information material in the form of words, sentences, or pictures, which can be equipped with colors so that they attract more attention to the reader. The purpose of this article is to complement the shortcomings of previous studies that still use print media as a medium of information and promotion, which can provide convenience to tourists in finding culinary information in the old market. The special purpose of this article is also to map the typical culinary of the city of Tangerang in the old market.

II. RESEARCH METHODS

This research is in the form of qualitative descriptive. This research was conducted in the Old Market area of Tangerang City. The application used in this study is kvisoft flipbook maker Pro. In general, this software device can input files in the form of PDFs, images, videos and animations so that the flip book made is more attractive, in addition, kvisoft flipbook maker has a template design and features such as backgrounds, control buttons, navigation bars, hyperlinks and back sound. Visitors/tourists can read as if they were opening a book physically because there is an animation effect where when changing pages, it will look like opening a book physically. The final result can be saved to html, exe, zip, screen saver and app formats.

The use of flip books can add information and increase understanding of culinary diversity in Tangerang's old market. The advantages of this media include the following: (1) visitors/tourists have a diverse experience of all media, (2) can eliminate various boredom because the media used is more varied, (3) not boring and (4) the use of flip book media without online internet.

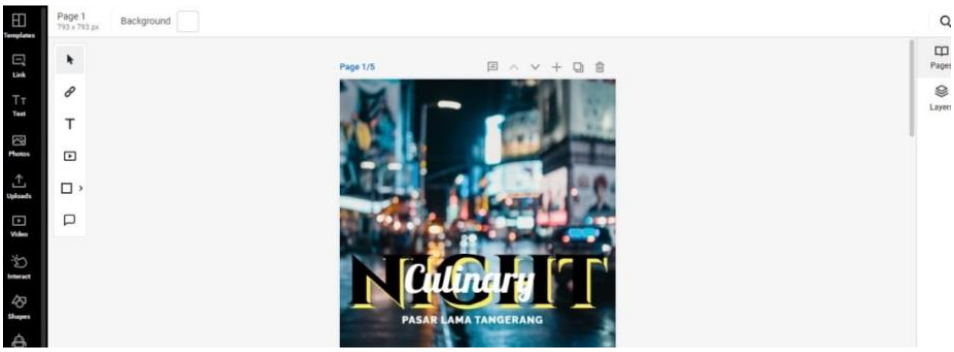

Figure 1: Kvisoft Flip Book Maker Home Page View

Source: Processed by the Author

Meanwhile, the materials used are culinary materials in the old market area of Tangerang City, in the form of typical culinary photos of the Tangerang old market, price range, culinary location, culinary information and visitor reviews. The creation of a flipbook is carried out in several stages, namely (1) Determining the purpose of the culinary tour guide, (2) Determining the shape of the flipbook, (3) Making a summary of the material, (4) Designing a rough draft (sketch), (5) Choosing the appropriate color, and (6) Determining the appropriate size and shape of the letters. The content of the flipbook consists of a cover that contains the title of the flipbook, the identity of the creator of the flipbook, and related agencies. The front part consists of a table of contents, The content section contains material on the type of culinary, culinary address, culinary price range, culinary description and culinary testimonials.

III. THEORITICAL FRAMEWORK

Culinary

Tourism is a variety of tourist activities and is supported by various facilities and services provided by the community, entrepreneurs, the Government, and the Regional Government. The types of tourism are divided into seven types, namely sports tourism, religious tourism, agro tourism, cave tourism, shopping tourism, ecological tourism and culinary tourism (Ismayanti, Pengantar Pariwisata, 2012). Culinary tourism itself is a type of tourism that is not solely to fill up by eating a variety of typical dishes from tourist destinations, but also to get an interesting experience by eating and cooking a variety of typical foods from each region. Culinary tourism is a tourism that is influenced by the desire to visit a food manufacturing place, food festival, restaurant, or a location with the aim of trying food (Hall, 2003), In addition, there are also other definitions of culinary tourism, namely everything related to food as a subject and medium, destinations and vehicles for tourism, and activities in tourism, namely tasting food at ethnic restaurants, visiting food festivals, trying food while traveling and even cooking at home (Pendit, 2003).

Flipbook-based multimedia

Flip Book is a type of classic animation made from a stack of paper resembling a thick book, on each page is depicted the process of something that later the process looks moving or animated (Perdana, 2013). The idea of Flip Book, which was originally only used to display animation, is now adopted by many vendors for various types of digital applications, such as magazines, books, comics and so on. The software provided by this vendor is now able to create Flip Book animations with more variety, not only text, images, videos and audio can also be inserted in the Flip Book that we make.

Flip Book is a book in the form of a digital file, whose readers can open page by page of the Flip Book as if reading a book or magazine in general. Flip books are usually booklets or magazines that are usually physically printed in paper media. However, with a certain programming mechanism, Flip Book can be packaged digitally, so that it can be opened like sheets of paper on a monitor screen or smartphone. An attractive Flip Book design can create a new impression of exclusivity, elegance, and innovation (Perdana, 2013:43).

Flip Book is a computer-based multimedia. Multimedia is a combination of various media (file formats) in the form of text, images, graphics, music, animation, video, interaction and others, which are packaged into digital files (computerized), and are used to convey messages to users (Sugianto, 2013:27). Multimedia according to Gayestik (Munir, 2012:15) explained that multimedia is a computer-based interactive communication system that is able to create, store, present, and re-access information in the form of text, graphics, sounds, videos or animations.

Flip Book or Flipping Book means a book that flips. The term Flip Book is taken from a children's toy that contains a series of different pictures, if opened from one page to another it will show that the pictures seem to be moving. Maf'ula, Hastuti, & Rohman (2017:1450) stated that flipbook is a medium in the form of e-books, e-modules, e-papers and e-magazines. This media has the advantage of being able to insert files in the form of pdfs, images, videos, animations, and has template designs, features such as backgrounds, control buttons, navigation bars, hyperlinks and backsounds so that the flipbook is made more attractive.

IV. RESULTS AND DISCUSSION

Tangerang City Tourism: Opportunities and Challenges

The city of Tangerang is a city full of history, consisting of various ethnicities (Malay, Sundanese, and Chinese), passed by the Cisadane river which is one of the three major rivers (Ciliwung, Citarum and Cisadane). In the modern Indonesia era, Tangerang City is the leading gateway to Indonesia because there is Soekarno-Hatta International Airport. With all the potential it has, there is another potential that is still not managed optimally, namely the diversity of Tangerang's typical local food which departs from the cross-ethnic fusion in Tangerang City. The existence of Tangerang City's typical culinary is centralized in the "Chinatown area" known as the Old Market. Carrying the concept of a culinary center, Tangerang Old Market is a special destination for tourists because they can get everything they want in one place. The diverse selection of snacks is also the main factor considered by many people to visit. Some examples of typical Tangerang food in the old market, namely Bubur Ko Iyo, Sate Ayam Pak Iskak, Gencom, Laksa Tangerang, Mpek mpek Bakar, Asinan Sewan Kong Ayang, Sate Squid, Gildak, kepak ayam mail, nasi uduk encim Sukaria, Kedai Es Bun Tin, Es Podeng grandma etc.

Currently, the existence of night culinary tourism in Pasar Lama has been running, almost every night (especially on weekends) this area is filled with thousands of visitors who come from various regions in Tangerang City to hunt for culinary delights in the past or present. However, it must be admitted that the management of the Pasar Lama culinary area has not been implemented optimally, such as aspects of facilities, cleanliness, design, traffic regularity, and parking lots. In the future, the government should make the Old Market area a culinary area that is friendly to all groups of people (including people with disabilities), neatly arranged, instagramable, and displays information about the historical value of the Old Market.

Digital-Based Tourism Innovation

The 4.0 revolution brings the world to a different level than the previous one, everything is digitally connected, so that changes are happening quickly. In the tourism sector, organizers and tourism actors (both government and private) are competing to change the paradigm and approach in marketing their tourism products, including culinary tourism in big cities. Culinary tourism is a trip that includes consuming local food from an area, travel, with the main purpose of enjoying food and drinks, and can also visit a culinary activity. The current trend of tourists is to come to tourist areas in search of local specialties, sometimes they undertake to pay a fortune just to enjoy the food. The lifestyle of the community has also now changed, people do culinary tourism not only to eat to fill their stomachs but they are looking for atmosphere and service as part of the food served.

Multimedia technology has promised great potential in changing the way a person learns, acquires information, adjusts information and so on. Digital Flipbook can be an innovation in providing culinary tourism guides, in addition, it can also save forests. Some of the advantages of this digital flipbook are: Can save space you save, Can reduce illegal logging because it does not use paper but is produced digitally, does not require special maintenance and Is easy to find or the desired page because it uses the search feature.

In the development of digital-based tourism, one of the important things is the delivery of tourism product information to the public easily and massively. Information is very important for human life. Especially with the current speed of technology which requires the public to continue to follow the changes that occur. In the past, humans got information by reading books, reading newspapers, or witnessing an event firsthand. In this era of modernization, humans can get information easily through digital information technology. Sulistyo-Basuki in the book Introduction to Library Science (1993) stated that information technology is technology used to produce, store, process, and disseminate information. So digital information technology is information management technology in digital form through the digitization process. Reporting from Forbes, digitization is taking analog information and encoding it into zero and one (binary language) so that computers can store, process, and transmit that information.

Digital Flipbook Culinary Night: An Effort to Increase Prestige

Digital technology, which is seen as a turning point in creative production, is evolving and becoming increasingly constant in society, directly affecting visual identity and brand branding. The internet, social networks, and other interacting devices allow brands to become living organisms (Nes 2013). Later the ebook will be the same as the one in the background, if it is OK to enterSome of the steps that need to be taken to realize this creative idea are by carrying out various strategic activities and implementing the right operational steps. These steps can be done by:

1. Determining the objectives, this step is important and necessary in a research action plan, what can be taken in this research is that the community needs a lot of practical and easy information to be reached by a wide range of people. The use of social media and also digital media is a strategic thing to do considering that the dissemination of information in this contemporary era uses more digital media.
2. Determining the shape of flipbooks, flipbooks have become a new trend in the use of information media in contemporary times. Because it is still new and relatively not widely known by most people, the use of this flibook must be as easy and easy as possible. An interesting food menu will certainly be a magnet for tourists to use this platform.
3. Making a summary of the material, this summary of the material does not need to be long and complicated. The important thing is to be able to contain clear and accurate information. Primary data will be referred using the best references so that accurate information is obtained.
4. Designing a rough draft (sketch), this is necessary as the main material for the reader. This rough draft is a pioneer to know that this platform is feasible and able to attract attention from the public.
5. Choosing the right color, color is a crucial and urgent part. When the colors and gradients are interesting, readers will easily retrieve data, browse various information and graphics. This study suggests that 70% of the flipboard content will contain

interesting images and colors. The number of images will be more than the writing. As in various previous research results, a person will be more interested in images (visuals) than writing.

6. Determine the appropriate font size and shape. The content of the flipbook consists of a cover that contains the title of the flipbook, the identity of the flipbook creator, and related agencies. The front part consists of a table of contents, basic competencies, indicators, and learning objectives. The content section contains material on the type of culinary, culinary address, culinary price range, culinary description and culinary testimonial

These are the strategic steps that will be made as the embodiment and axiology of this research. Culinary and digital will be trends that will continue to develop in the future. The combination and collaboration between digitalization and culinary will be a unique and interesting creativity.

CREATIVE CONCEPT

Digital Book Name

The creation of the Culinary Night Pasar Lama digital guidebook uses the title "Culinary Night Pasar Lama". This digital book will provide information and knowledge to readers who want to do culinary tourism in the Pasar Lama area, Tangerang. This digital book can also be a guide for tourists who want to know culinary locations in the Old Market Area, Tangerang.

Media Type Format

Digital books are the main medium for making culinary guidebooks in the Tangerang Old Market area, using Digital Flipbooks.

Color Tone

The color tones that will be used in this digital book are the types of colors so that it can support and display visual results that look more attractive and can arouse appetite. As well as supporting colors such as basic colorswhite and black to show a clean, hygienic, and neat look.

Layout Style

What is used is the Circus layout of the presentation of information media whose layout does not refer to the standard provisions. Combination/fusion of elements of photos, text, squares, and lines. Then combine color variations, but the colors used are still in unity.

Printers

The typography that will be used in the title of this digital book is the Cinzel Black and Lobster Style fonts, then for the title in the book content uses the Mulish Regular Style font, while in the bodycopy part of the content of this culinary book uses the Mulish Regular Style font.

Figure 2:Cover Digital Flip Book Culinary Night

Source: Processed by the Author

Figure 3:Table of Contents Flip Book Culinary Night
Source: Processed by the Author

Figure 4:Table of contents Flip Book Culinary Night
Source: Processed by the Author

V. CLOSING

CONCLUSIONS AND SUGGESTIONS

The development of culinary tourism in Tangerang City has progressed in terms of quantity and diversity of culinary types. However, it has not been accompanied by serious governance and a touch of modernity in terms of promotion. The variety of culinary available sometimes makes it difficult for tourists to find culinary that is unique to the city of Tangerang itself, so the government must provide a digital platform to make it easier for the community. In research, one of the things needed is the availability of digital book guides that can provide convenience in culinary tourism in the Tangerang Old Market area. The digital guide to culinary books in the form of flip books is a breakthrough for the government to improve public services, especially in the field of tourism in modern and digitized urban areas.

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Service Quality and Customer Satisfaction in Trapiche 2 Waterworks in Tanauan City

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ABSTRACT: This study assessed the service quality and customer satisfaction at Trapiche 2 Waterworks in Tanauan City. The purpose of this research was to determine the quality of water services and their effect on customer satisfaction. A descriptive-correlational design was employed, with data collected from 150 households using stratified random sampling and self-administered questionnaires. The study utilized mean scores and Pearson product-moment correlation for data analysis. Results indicated that the overall service quality, encompassing water quality and quantity with a mean score of 3.00, and personnel service with a mean score of 3.22, was rated as "good" by customers. However, issues such as water discoloration, unpleasant taste, and unreliable supply were noted. Customer satisfaction levels regarding price with a mean score of 3.18, customer service with a mean score of 3.15, and convenience and availability with a mean score of 3.17 were rated as "satisfied," but concern about billing transparency and service consistency remained. A significant relationship was identified between service quality and customer satisfaction with r values that ranged from 0.273 to 0.409 and p values that ranged from 0 to 0.001, emphasizing the need for continuous improvement. The study concluded that enhancing water purification processes, improving personnel training, and increasing transparency in billing could positively impact customer satisfaction. Recommendations included public awareness campaigns on waste management, infrastructure upgrades, and regular customer feedback assessments. This research highlighted the importance of addressing service quality to ensure equitable access to clean and reliable water, ultimately contributing to the community's well-being and sustainability.

KEYWORDS: service quality, water quality and quantity, personnel service, customer satisfaction

I. INTRODUCTION

Water, the essence of life, is at the heart of an escalating global crisis. Despite its abundance on Earth, the mismanagement and neglect of water's invaluable resource have cast a shadow on humanity's future. The precarious situation of water resources worldwide demands urgent attention, as disparities in access and quality persist, threatening communities' well-being and sustainability. As mentioned by Yun et al. (2020), water has been a fundamental necessity for the sustenance and welfare of humanity. However, the combination of rapid population growth, economic advancement, increased vulnerability to disasters, and the effects of climate change have aggravated the issue of water scarcity and its management.

Likewise, waterworks services played a critical role in tackling challenges posed by water scarcity. As an essential resource for human survival and well-being, water requires effective management and distribution to cater to the requirements of an expanding population. Waterworks services played a pivotal role in ensuring that clean and safe water was available for drinking, sanitation, and other essential uses. (Saragih et al., 2019)

In Tanauan City, the issue of providing a safe and reliable water supply has become a top priority. Despite water being abundant in nature, it is a complex challenge for the local water utility, Trapiche 2 Waterworks, to ensure that every household has access to clean and usable water. This committee-managed water system faces obstacles concerning water quality, pricing, and availability, and the need to improve its quality of service for the residents' satisfaction. Overcoming these challenges is crucial because of the fundamental importance of water, which impacts every aspect of human life.

Consumers in Trapiche 2 Waterworks experience water quality issues such as discoloration, unpleasant taste or odor, or the presence of contaminants, which impact its usability for drinking, cooking, and other household purposes. The fact that the availability of the water supply at all times cannot be guaranteed must also be considered. This usually happens when there is a disruption in the service, which may be due to pump malfunction, clogging, and/or leaking in the distribution lines, and especially when there is a power failure in the area.

Concerning these issues, some consumers expressed the sentiment that the quality of water and the kind of service they received from the management were not commensurate with the cost they were paying. Service quality in waterworks referred to the level of performance, reliability, and satisfaction experienced by customers concerning the provision of water services. It encompassed multiple aspects, such as the availability of clean and safe water, the efficiency of water delivery and distribution systems, the responsiveness of customer support, and the overall customer experience. It was vital for customer satisfaction, trust, retention, competitiveness, operational efficiency, regulatory compliance, and social impact. By prioritizing service quality, organizations could create positive customer experiences, thereby contributing to their success and the well-being of the communities they served (Yamaqupta et al., 2021).

Furthermore, to address infrastructure issues and provide timely support, the researcher undertook this study to serve as the foundation for enhancing waterworks services in their locality. The urgency of the situation in Tanauan City was underscored by compelling research findings that illuminated the stark disparities in customer satisfaction, highlighting the pressing need for improved access and reliability. Moreover, the far-reaching impact of factors like economic growth, population expansion, and climate change on water resources accentuated the complexity of the issue at hand, which boiled down to service quality (Handayani et al., 2019).

Thus, with the predicaments, this study ventures into the core of this multifaceted challenge, focusing on the Trapiche 2 Waterworks in Tanauan City. It seeks to meticulously assess service quality, customer satisfaction levels, and the intricate relationship between these factors. With this study, water scarcity, inefficiency, and dissatisfaction relative to service quality are unravelled, which can help every individual in Tanauan City to have equitable access to clean, reliable, and satisfying water services.

In summary, given that global warming evolves into a terrifying and serious problem, it is of paramount importance that everyone, group, and/or nation unites in doing something that can halt or at least lessen its impact, which can be hazardous to the social, economic, and environmental state of the world. In general, this research is conducted to improve the water quality and service in the area and bring about customer satisfaction, but in the end, it also serves as a contributing factor to people's role in making this world a better place to live in by opening their eyes to the importance of water to mankind, its proper usage, and conservation for its sustainability. Moreover, it is necessary to in still in their minds that the earth is their haven; thus, it is proper for them, the entire humanity, to love, cherish, and protect it even in the simplest way people can because every precautionary measure or contribution to this effect, when accumulated, no matter how small, can be a great help in preserving and protecting our dear mother nature.

II. OBJECTIVES OF THE STUDY

This study aimed to investigate the relationship between service quality and customer satisfaction in Trapiche 2 Waterworks in Tanauan City. Specifically, it addressed the following questions:

1. What is the level of service quality of Trapiche 2 Waterworks in Tanauan City as assessed by its customers in terms of:
   1.1 Water Quality and Quantity, and
   1.2Personnel Service?
2. What is the level of customer satisfaction in Trapiche 2 Waterworks in Tanauan City in terms of:
   2.1 Price,
   2.2 Customer Service, and
   2.3 Convenience and Availability?
3. Is there a significant relationship between the level of service quality of Trapiche 2 Waterworks in Tanauan City and the level of customer satisfaction?
4. Based on the findings of the study, what action plan may be proposed?

III. METHODOLOGY

This study adopted a descriptive-correlational research design. According to Siedlecki (2020), it describes individuals, events, or conditions by studying them as they are without trying to manipulate any variables. The design includes collecting and analysing data to know if there is a relationship between them. This design aimed to explore the relationship between service quality and customer satisfaction at Trapiche 2 Waterworks in Tanauan City. By collecting and analysing quantitative data, this approach allowed for the identification of patterns and correlations without manipulating any variables. The descriptive aspect provided detailed information on the variables, while the correlational aspect assessed the strength and direction of their relationships.

IV. RESULTS AND DISCUSSION

TABLE 1.1 LEVEL OF SERVICE QUALITY OF TRAPICHE 2 WATERWORKS IN TANAUAN CITY AS ASSESSED BY ITS CUSTOMERS IN TERMS OF WATER QUALITY AND QUANTITY

Indicators	$\bar{X}$	VI
1. The water is free from odor.	3.35	VG
2. The taste of the water from the waterworks is pleasant.	3.04	G
3. The water from the waterworks is clear and free from visible impurities	2.80	G
4. The water is safe for drinking, cooking, or other household purposes.	2.88	G
5. The water pressure in the area is satisfactory.	2.99	G
6. The waterworks consistently maintains an enough supply of water.	2.93	G
General Assessment	**3.00**	**G**

Legend: 3.25 - 4.00 Strongly Agree – Very Good (VG) 2.50 - 3.24 Agree – Good (G) 1.75 - 2.49 Disagree – Fair (F) 1.00 - 1.74 Strongly Disagree - Poor (P)

Water Quality and Quantity was Good **(3.00)** as to the level of service quality of Trapiche 2 Waterworks in Tanauan City as assessed by its customers. Furthermore, the indicator "The water is free from odor" had the highest computed mean of **3.35** verbally interpreted as Very Good while the indicator "The water from the waterworks is clear and free from visible impurities" had the lowest mean of **2.80** verbally interpreted as Good.

Trapiche 2 Waterworks in Tanauan City has good service quality in terms of water quality and quantity as assessed by its customers. Customers are generally satisfied with the service provided by Trapiche 2 Waterworks. The water quality and quantity meet their expectations, contributing to a positive perception. Nevertheless, there remains space for enhancement especially in areas such as taste, clarity, and consistency of supply, to achieve
a "Very Good" rating across all indicators. Waterworks need to continue monitoring these indicators and take customer feedback into account to further improve their service quality. This will not only enhance customer satisfaction but also ensure the provision of a safe and reliable water supply, which is crucial for the well-being of the community.

As supported by Dietrich and Burlingame (2020), assessing water quality and quantity involved evaluating various parameters to determine if water is safe and suitable for its intended use. Odor, or the presence of any noticeable smell, was one of the factors considered in water quality assessments. Since some odors in water might indicate the presence of contaminants that pose potential health risks, waterworks must regularly monitor water quality.

Table 1.2 Level of Service Quality of Trapiche 2 Waterworks in Tanauan City as assessed by Its Customers in terms of Personnel Service

Indicators **The personnel at the waterworks…**	$\bar{X}$	VI
1. are friendly and approachable.	3.33	VG
2. respond promptly to customer inquiries or concerns.	3.29	VG
3. provide clear and accurate information about water-related issues.	3.11	G
4. are courteous and respectful.	3.21	G
5. efficiently handle billing and payment matters.	3.21	G
6. addresses issues and concerns professionally.	3.15	G
General Assessment	**3.22**	**G**

Legend: 3.25 - 4.00 Strongly Agree – Very Good (VG) 2.50 - 3.24 Agree – Good (G) 1.75 - 2.49 Disagree – Fair (F) 1.00 - 1.74 Strongly Disagree - Poor (P)

Personnel Service was Good **(3.22)** as to the level of service quality of Trapiche 2 Waterworks in Tanauan City as assessed by its customers. Moreover, the indicator "The personnel at the waterworks are friendly and approachable" had the highest average score of **3.33** verbally interpreted as Very Good. In contrast, the indicator "The personnel at waterworks provide clear and accurate information about water-related issues" had the lowest mean of **3.11** verbally interpreted as Good.

Trapiche 2 Waterworks in Tanauan City has good service quality in terms of personnel service as assessed by its customers. It implies that personnel service has a generally satisfactory level of service quality. Nonetheless, potential enhancement in the provision of clear and accurate information. Increasing communication and information dissemination in this regard could further elevate the level of service quality and overall satisfaction. Boninsegni et al. (2020) stated that friendliness creates a positive interaction between service providers and customers. When personnel were friendly, welcoming, and polite, customers felt valued, respected, and satisfied with their overall experience. Friendly interactions could enhance customer loyalty and lead to repeat and recommendable business. Also, some customers may feel anxious or uncertain when seeking a service. Friendly personnel could help alleviate these concerns by creating a welcoming and reassuring environment. When customers perceived that service providers were approachable and accommodating, it could reduce their anxiety levels and enhance their overall experience.

Table 2.1 Level of Customer Satisfaction in Trapiche 2 Waterworks in Tanauan City in terms of Price

Indicators **The price of water provided by Trapiche 2 Waterworks…**	$\bar{X}$	VI
1. is reasonable.	3.37	HS
aligns with its quality and services.	3.19	S
2. is competitive compared to other water service providers in the area.	3.20	S
3. is affordable for low-income households in the area.	3.17	S
4. is worth the value and benefits it provides.	3.08	S
5. is from a transparent billing structure and comprehensive pricing policies provided.	3.05	S
General Assessment	3.18	S

Legend: 3.25 - 4.00 Strongly Agree – Highly Satisfied (HS) 2.50 - 3.24 Agree – Satisfied (S) 1.75 - 2.49 Disagree – Moderately Satisfied (MS) 1.00 - 1.74 Strongly Disagree - Not Satisfied (NS)

Price was Satisfied **(3.18)** as to the level of customer satisfaction of Trapiche 2 Waterworks in Tanauan City as assessed by its customers. Additionally, the indicator "The price of water provided by Trapiche 2 Waterworks is reasonable" had the highest computed mean of **3.35** verbally interpreted as Highly Satisfied while the indicator "The price of water provided by Trapiche 2 Waterworks is from a transparent billing structure and comprehensive pricing policies provided" had the lowest computed mean of **3.05** verbally interpreted as Satisfied.

There is a positive assessment of Trapiche 2 Waterworks pricing, indicating that customers find the price reasonable, competitive, affordable, and worthy of the value and benefits it provides. The transparency of the billing structure and pricing policies also appeared to be satisfactory. However, room for improvement for stakeholders and policymakers in making informed decisions about water service provision is needed to highly satisfy the customers.

In the words of Saputra and Djumarno (2021), customers assessed the value they received from a product or service based on its price. When the price aligned with their perceived value, customers were more likely to feel satisfied with their purchase. A reasonable price indicated that the product or service offered good quality and met their expectations, leading to a positive perception of value.

Table 2.2 Level of Customer Satisfaction in Trapiche 2 Waterworks in Tanauan City in terms of Customer Service

Indicators **The customer service representatives of Trapiche 2 Waterworks…**	$\bar{X}$	VI
1. are knowledgeable and able to assist with inquiries or concerns.	3.23	S
2. apply prompt response time for addressing customer inquiries or concerns.	3.17	S
3. are accessible through various communication channels (e.g., phone, email, website).	3.14	S
4. are responsive to follow up on customer issues until they are resolved.	3.12	S
5. treat all customers with respect and fairness.	3.13	S
6. provide clear and understandable explanations of billing or payment inquiries.	3.09	S
General Assessment	3.15	S

Legend: 3.25 - 4.00 Strongly Agree – Highly Satisfied (HS) 2.50 - 3.24 Agree – Satisfied (S) 1.75 - 2.49 Disagree – Moderately Satisfied (MS) 1.00 - 1.74 Strongly Disagree - Not Satisfied (NS)

Customer Service was Satisfied **(3.15)** as to the level of customer satisfaction of Trapiche 2 Waterworks in Tanauan City as assessed by its customers. Furthermore, the indicator "The customer service representatives of Trapiche 2 Waterworks are knowledgeable and able to assist with inquiries or concerns" had the highest computed mean of **3.23** verbally interpreted as Satisfied while the indicator "The customer service representatives of Trapiche 2 Waterworks provide clear and understandable explanations of billing or payment inquiries" had the lowest computed mean of **3.09**, verbally interpreted as Satisfied.

The result implies that while the overall customer service at Trapiche 2 Waterworks in Tanauan City is satisfactory, there is a need for improvement in communication, particularly in providing clear and understandable explanations for billing and payment inquiries. With it as the lowest satisfaction rating indicates that it is a potential pain point for the customers. To enhance overall customer satisfaction, Trapiche 2 Waterworks should focus on improving communication skills, providing ongoing training, and implementing regular feedback mechanisms to address specific customer concerns.

Service Quality and Customer Satisfaction in Trapiche 2 Waterworks in Tanauan City

Furthermore, providing timely and prompt responses to customer inquiries or concerns is essential. Customers appreciated a quick acknowledgment of their issues and a proactive approach to resolving them. Prompt responses demonstrated that their concerns are taken seriously, increasing their satisfaction with the customer service experience (Rane et al., 2023)

Table 2.3 Level of Customer Satisfaction in Trapiche 2 Waterworks in Tanauan City in terms of Convenience and Availability

Indicators	$\bar{X}$	VI
1. The operating hours of Trapiche 2 Waterworks are convenient for everyone.	3.27	HS
2. The location of Trapiche 2 Waterworks is easily accessible.	3.24	S
3. The availability of emergency support (e.g., water leaks, pipe bursts) is responsive.	3.15	S
4. The payment options provided by Trapiche 2 Waterworks are convenient to use.	3.13	S
5. The customer service representatives are always on call.	3.10	S
6. The notification for water service interruptions (e.g., scheduled maintenance) is disseminated on a timely basis.	3.15	S
General Assessment	**3.17**	**S**

Legend: 3.25 - 4.00 Strongly Agree – Highly Satisfied (HS) 2.50 - 3.24 Agree – Satisfied (S) 1.75 - 2.49 Disagree – Moderately Satisfied (MS) 1.00 - 1.74 Strongly Disagree - Not Satisfied (NS)

Convenience and Availability was Satisfied **(3.17)** as to the level of customer satisfaction of Trapiche 2 Waterworks in Tanauan City as assessed by its customers. Furthermore, the indicator "The operating hours of Trapiche 2 Waterworks are convenient for everyone" had the highest computed mean of **3.27** verbally interpreted as Highly Satisfied while the indicator "The customer service representatives are always on call" had the lowest computed mean of **3.10**, verbally interpreted as Satisfied.

This suggests that customers were generally satisfied with the service of Trapiche 2 Waterworks in terms of convenience and availability. Trapiche 2 Waterworks is doing well in terms of providing convenient and readily available services to its customers. The customers find the service timing suitable and accommodating. Yet, it also suggests that enhancing the availability of customer service representatives is necessary to further enhance customer satisfaction to reach the “Highly Satisfied” category. It will be beneficial for the organization to identify specific areas where they can enhance their services. For instance, improving the operating hours and the responsiveness of customer service representatives could potentially increase the overall customer satisfaction level.

Roy et al. (2020) mentioned that customers had diverse schedules and commitments, and their ability to access services at their preferred time was crucial. When businesses offered extended operating hours or flexible service options, it accommodated customers' varying needs and enhanced their satisfaction. The flexibility to access services when it was most convenient for them demonstrated a customer-centric approach. Additionally, convenience was a significant driver of customer satisfaction. When businesses offered operating hours that suited customers' lifestyles and provided services at accessible locations, it reduced the effort and time required from customers. This convenience factor positively impacted satisfaction by making it more convenient for customers to engage with the business.

Table 3 Test of Significant Relationship between the Level of Service Quality of Trapiche 2 Waterworks in Tanauan City and the Level of Customer Satisfaction

Service quality of Trapiche 2	Customer satisfaction	r value	p value	Remarks	Decision
Water quality and quantity	Price	.273**	.001	Significant	Reject Ho
	Customer Service	.287**	.000	Significant	Reject Ho
	Convenience and availability	.279**	.001	Significant	Reject Ho
Personnel service	Price	.319**	.000	Significant	Reject Ho
	Customer Service	.409**	.000	Significant	Reject Ho
	Convenience and availability	.322**	.000	Significant	Reject Ho

There was a significant relationship between the level of service quality of Trapiche 2 Waterworks in Tanauan City and the level of customer satisfaction. For water quality and quantity, the correlation with customer satisfaction regarding price, customer service, convenience, and availability all showed a moderate relationship and was statistically significant with p-values of .001, .000, and .001 respectively. In terms of Personnel Services, the relationship is high. The correlation with customer satisfaction regarding price, customer service, convenience, and availability showed a statistical significance all with p-values of 0.00. There was enough statistical evidence to reject the null hypothesis.

This suggests that improvements in water quality, quantity, and personnel service could positively influence customer satisfaction regarding price, customer service, and convenience.

Dam and Dam (2021) underscored in their study that service quality has a direct and significant impact on customer satisfaction. When customers perceived that the quality of service they received met or exceeded their expectations, it led to higher levels of satisfaction.

The Proposed Action Plan

Improving public awareness of waste impact on water quality, enhancing water purification facilities, and implementing effective waste collection and management systems are important key actions for Trapiche 2 Waterworks, especially given the finding that "water from the waterworks is clear and free from visible impurities" received the lowest mean score from all the survey indicators. This emphasizes the need to address potential sources of contamination and ensure water purity. By raising public awareness of responsible waste disposal, investing in advanced filtration technologies, and optimizing waste management practices, Trapiche 2 Waterworks can enhance water quality, alleviate risks of impurities, and improve customer satisfaction. These proactive measures align with the wider goal of providing safe and reliable water services, essential for the well-being of the community.

Table 4 The Proposed Action Plan

Improving Quality Service of Waterworks in Trapiche 2 Tanauan City

KEY AREAS	OBJECTIVES	STRATEGIES/ ACTIVITIES	TIME FRAME	PERSONS INVOLVED	SOURCE OF FUND	SUCCESS INDICATORS
Improvement of Public Awareness on Waste Impact on Water Quality	To increase public awareness regarding the impact of waste disposal practices on water quality.	- Develop educational materials highlighting the direct correlation between proper waste disposal, water quality, and personnel service. - Conduct community workshops emphasizing the importance of responsible waste management in maintaining water quality standards and enhancing personnel service. . Implement targeted social media campaigns to disseminate educational content and engage the community in adopting sustainable waste management practices.	Monthly workshops; ongoing social media campaigns	Public Relations Department, Community Leaders	Public Awareness Budget from Barangay Funds	Increased community knowledge (measured Through surveys) and reduction in improper waste incidents by 80%.
Enhancement of Water Purification Facilities to Address Contaminants	To optimize water purification systems in addressing contaminants from waste.	- Evaluate current purification systems to identify specific areas for improvement related to water quality and personnel service. - Research and assess available filtration technologies to determine the most suitable options for addressing identified contaminants. - Develop a phased plan for facility upgrades, prioritizing critical areas based on their impact on water quality and personnel service. - Provide comprehensive training for water management personnel to familiarize them with new equipment and procedures, ensuring a smooth transition and optimal performance.	Annually for major upgrades; quarterly reviews	Water Management Department, Technical Engineers.	Infrastructure Budget, Grants	80% Improvement in water quality parameters, compliance with health standards.
Implemen-tation of Effective Waste Collection and Management Systems	To minimize the risk of waste contamination in water systems by improving waste collection and management practices	- Conduct a thorough assessment of current waste collection systems to identify areas for improvement and optimization. - Develop a comprehensive plan for waste collection route optimization, considering factors such as population density and waste generation rates. - Implement recycling incentives and educational programs to encourage community participation and promote sustainable waste management practices. - Enforce regulations and penalties for non-compliance with waste disposal guidelines, ensuring accountability and reinforcing the importance of personnel service in maintaining water quality standards.	Semi-annually for system updates; monthly monitoring	Waste Management Division, Local Government.	Operating Budget	Decreases in unmanaged waste by 80%, increased in the recycling rate by 80%

V. CONCLUSIONS AND RECOMMENDATIONS

Consistent with the findings, the following conclusions were drawn:

1. That Trapiche 2 Waterworks in Tanauan City generally provides a satisfactory level of service quality in terms of water quality, quantity, and personnel service, as assessed by its customers. The high rating for odor-free water suggests that customers are generally satisfied with the water's quality and quantity. However, they least agreed that the water is clear and free from visible

impurities. Additionally, customers express satisfaction with the friendliness and approachability of the waterworks personnel. Nonetheless, they least agreed that the personnel at waterworks provide clear and accurate information about water-related issues.

2. That customers are generally satisfied with Trapiche 2 Waterworks' price, customer service, convenience, and availability. The pricing meets customer expectations and contributes to their satisfaction, although it is least agreed that the price of water comes from a transparent billing structure and comprehensive pricing policies. Customers expressed contentment with the level of customer service, particularly appreciating the knowledge and assistance provided by the waterworks personnel, which positively impacts their overall satisfaction. However, they least agreed that the customer service representatives provide clear and understandable explanations of billing or payment inquiries. Additionally, Trapiche 2 Waterworks has effectively catered to the convenience needs of its customers through convenient operating hours, though it is least agreed that customer service representatives are always on call.

3. That there is a significant relationship between service quality and customer satisfaction, implying that improvements in water quality, quantity, and personnel service can be positively associated with customer satisfaction in terms of price, customer service, and convenience.

4. That the action plan proposed is necessary for better customer satisfaction in Trapiche 2 Waterworks in Tanauan City.

RECOMMENDATIONS

Based on the conclusions, listed below are the recommendations:

1. The waterworks management team in Trapiche 2 Tanauan City is recommended to implement measures aimed at improving water clarity and ensuring the absence of visible impurities. This can be achieved through enhancing filtration and treatment processes to deliver clearer water with no visible impurities. Additionally, establishing training programs for waterworks personnel to improve their communication skills and knowledge regarding water-related issues is crucial. Providing regular training sessions and implementing a system for updating personnel on water quality and related topics will enhance their ability to provide clear and accurate information to customers.

2. Customer service personnel may develop a transparent billing structure, clearly communicating water pricing breakdowns to customers. They may optimize representative availability, ensuring coverage during peak demand times. Additionally, implementing regular customer satisfaction surveys and analyzing feedback can help identify improvement areas. This feedback-driven approach enables the development of action plans and resource allocation to enhance customer service continually.

3. Since there is a significant relationship between service quality and customer satisfaction, the waterworks management team is suggested to implement a holistic improvement plan addressing water quality, quantity, and personnel service to enhance overall service quality and customer satisfaction. Additionally, the team should raise public awareness about the impact of waste disposal on water quality through educational campaigns and community outreach initiatives. Optimizing water purification systems to effectively address contaminants from waste is essential along with improving waste collection and management practices to significantly reduce the risk of waste contamination in water systems. Implementing these measures collectively will contribute to safeguarding water quality and public health.

4. Future researchers may opt to conduct comparative studies between Trapiche 2 Waterworks and other water service providers to explore variations in service quality and customer satisfaction across different contexts. This research can provide valuable insights into best practices and identify specific areas for improvement in water management strategies. By comparing and analyzing these findings, stakeholders can develop actionable strategies to enhance overall service quality and customer satisfaction in water service provision, thereby maximizing the outputs of such comparative studies.

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Comparative Analysis of High Impedance Fault Detection and Point Location of the Nigerian 330 Kv Transmission System Using Artificial Intelligent Models

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ABSTRACT: The occurrence of high impedance fault (HIF) in the power system network causes low current signal and sudden voltage surge which is disastrous to power system network. Currently, there has been no available means of detecting and locating HIF which involves low current and voltage arcing but there has been ways for detecting, identifying and locating the occurrences of high current. The occurrence of HIF is based on the contact of transmission and distribution lines with semi conductors which has caused several damages ranging from fire outbreaks to the distruction of power equipment causing increased blackout timeline. In this study, the occurrence of HIF on the Nigerian 330 kV transmission line is studied with the data utilized obtained from the Nigerian control center Osogbo. The data obtained is modeled in simulink and the outcome which is the current signal at normal condition and faulted condition are obtained. The transmission line distance is split into 4 points with the current signal at each point generated in simulink and exported to the matlab file. The data in MATLAB file is split to train, test and validate at 70%, 15% and 15% respectively. The data analysis performed is sent to the ANN (Artificial Neural Network) and ANFIS (Adaptive Neuro Fuzzy Inference System) with the current signal at normal condition. A 3-phase HIF is used as input data while the split distance is implemented as the target data to the models. The effectiveness of the the models in detecting and locating HIF obtained are analyzed. From the results of the comparative analysis presented, it is seen that the error deviation of the predicted HIF location with ANN for line 1 is 62 % whereas ANFIS is 2 %. Also, for line 2, ANN has a maximum error deviation of 50 % compared to 10 % of ANFIS. Lastly, ANN has an error deviation of 90 % while ANFIS has 3 % for line 3. This shows that ANFIS is a better model for detection and point location of HIF in the Nigerian 330 kV transmission network.

KEYWORDS: ANFIS, ANN, detection and point location, HIF, Transmission network

I. INTRODUCTION

One of the key concerns with electricity transmission and distribution networks is safety [1,2,3]. The electrical network's lack of security could cause harm to people and property. The best way to stop negative events from happening is through prevention. One of the problems that causes fatalities and financial harm in the Nigerian power system network is the occurrence of high impedance faults (HIF). When a conductor makes contact with the ground or another high impedance object, the HIF happens. During the occurrence of HIF, the current value is low and typically ranges from 0 A to 30 A (for transmission systems [4,5,6] since the impedance of the current path is high [7]. As a result, this type of fault cannot be detected by the typical over current relay; it is instead viewed as a regular load current rise. There are two variations of the HIF. A conductor breaks and hits the ground in the first form. The second version calls for only connecting an electrical conductor to a high impedance object (such as tree branches and leaves), not disconnecting the conductor altogether. The HIFs frequently involve an electric arc, which could ignite a fire [8,9]. The HIF current contains both low and high frequency harmonic components since the fault is nonlinear and has these harmonic components. Other network elements should be acknowledged as having broad frequency harmonics as well. The HIF should be carefully investigated as a result [10,11]. Artificial neural networks (ANN) and adaptive neuro fuzzy inference systems (ANFIS), are utilized in this paper for the detection and the point location of the incidence of HIF on the south-south 330kV transmission network in Nigerian power system network. Prior to the modeling, the transmission line distance are split into four equal points to ease the identification of the point location. The outcome of the performance of the artificial intelligent models are compared and analyzed.

II. REVIEW OF RELATED LITERATURE

The authors in [12], carried out HIF detection and classification of a transmission line network with alienation coefficients juxtaposed with voltage signals half cycle with moving window techniques. The outcome of the alienation coefficients were compared to the corresponding threshold values to aid in detection and classification of HIF. The research gap to this study was the absent of HIF location and the low accuracy of HIF detection of 45%. Also, in [13], the authors carried out HIF detection and location on power generation feeders by calculating the symmetrical components of current signal harmonics after detecting and classifying HIF with ANN. The current signal symmetrical calculation tends to solve the HIF location at various feeders but were majorly applied to two MatLab simulated feeders. The HIF location accuracy showed 49% outcome. The proposed HIF location outcome was low and can be said to be unreliable. HIF detection and location using distributed voltage monitoring devices that enables access to a fast sampled and expansive voltage measurement on distribution network was investigated in [14]. The measured voltages were modeled and simulated with comparison carried out at various feeder locations with the location selected with golden section search method. The accuracy based on the results presented by the author was 65%. The low accuracy of HIF location causes the proposed model not to be reliable. In [15], the authors carried out HIF detection and location using smart meters (SM) on distribution line networks that has distributed generators (DGs), power electronic loads (PEL) and Electric furnaces (EAFs). the SMs were installed in all the load points of the distribution system and are believed to be in closed proximity to the HIF fault. SMs was used in computing the index of captured second harmonics content in the load voltage measurement believed to be the occurrence of HIF. The procedure was used as a commercial smart energy meter to prove its feasibility. The outcome showed 76% HIF location accuracy in the absence of other forms of harmonics. The method proposed by the author only applies when the system does not have other harmonic distortion which is practically not possible making the proposed SM system not reliable. The authors in [16,17] studied the utilization of broadband impedance spectroscopy for the detection of high voltage (or voltage arcing which is the effect of HIF) in a high voltage single core cables. Distributed parameter model was utilized to study the effect of the wave impedance and the distributed parameters of the transmission lines on the broadband impedance spectroscopy of the lines measured with linear resonance technique to obtain the broadband impedance. The authors detected a 220 kV fault on a 145 kV line which implied that the broad impedance spectroscopy was effective in the detection of the cable insulation effects and occurrence of voltage arcing. However, the proposed method was unable to locate the occurrence of the voltage arcing. Similarly, the authors in [18,19] employed the least square estimation technique with HIF resistance and location estimated with the same model for the detection of high impedance fault in a 5-bus distribution network modeled in MatLab/Simulink. The outcome showed that it indeed required communication link to detect HIF having a location accuracy of 39%. In as much as the proposed model does require communication link to detect HIF, the model had HIF location prediction accuracy of 39% which makes the model unreliable for the location of HIF. HIF detection and location using a comparative analysis of zero sequence current and complex sequence current signals was investigated in [20,21]. Both current signals were measured with waveforms, RMS and spectrum electrical quantities applied on the obtained and determined current signals. The HIF detection and location simulation with these models was done in MatLab. The outcome showed that the use of complex current sequence was more effective in the detection and location of high impedance with the best model (waveform) having an accuracy of 61%. However, the models used for the HIF detection and location had a low prediction accuracy and absence of artificial intelligent model. In the examination of the effect of HIF location and detection on an injected high frequency signals on transmission lines [22,23], the signals at high frequency were transmitted with power line communication (PLC) structure. ATP draw was used for the simulation of the network with the aim of determining the HIF performance in detection and location method under various conditions. The outcome showed that the suggested procedure was effective in HIF detection and location process and hence should be applied on transmission lines but the proposed procedure lacks the ability to detect and locate HIF in a high voltage transmission network (from 150 kV upwards). In [24,25], the authors carried out HIF detection and location using smart meters on distribution networks on smart grids. The system was modeled in Simulink using voltage unbalanced based approach model. The prediction outcome of 43% after simulation was achieved but the low HIF detection and location predictability makes the proposed model to be unreliable. Relaying scheme of third and fifth harmonic excursion patterns and phase portraits on the detection of High impedance fault on low frequency was embarked upon by the authors in [26,27]. The outcome indicated that the proposed scheme was effective in identifying HIF at lower frequency and lower noise harmonics. Also when the harmonics is high (as in the case of the transmission voltages of Nigerian power system), the proposed scheme would not be able to detect HIF occurrence. In [28,29], the authors embarked on detection and classification of HIF in a transmission line compensated by UPFC with the aid of synchronized power measurement inserted at both ends of the transmission line which activates the magnitude of the apparent power difference at the end buses of the network for the detection and classification of HIF. The proposed scheme had a 69% accuracy in the detection and classification of faults.

III. MATERIALS AND METHOD

Modeling of the network in SIMULINK comprising of two generating stations and two transmission stations is shown in Figure 1.

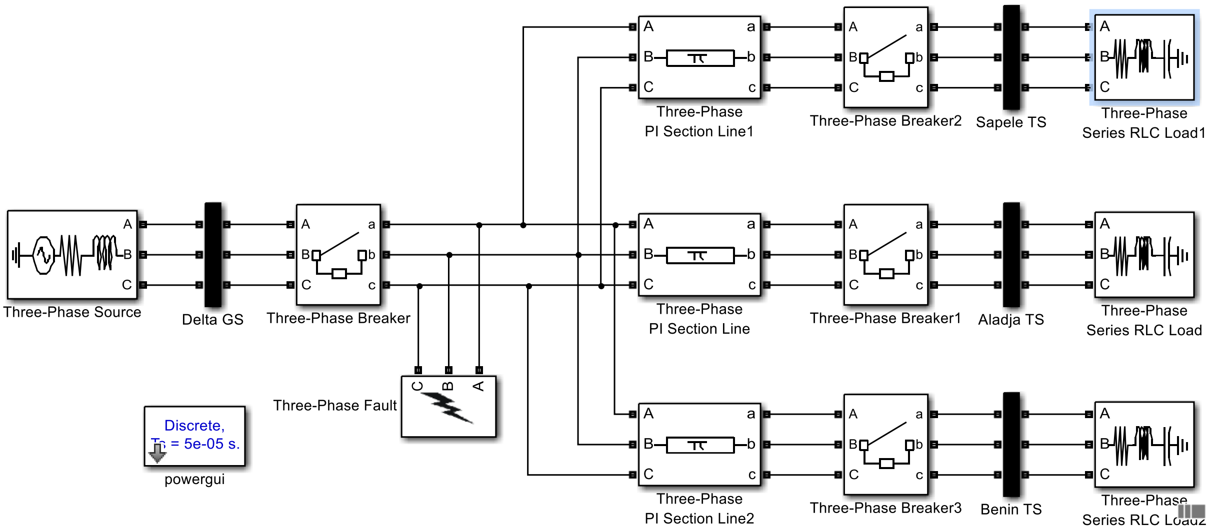

Figure 1. Network model in MatLab/SIMULINK.

Figure 1 is simulated to obtain the current signal from the split distance of the transmission lines as shown in Table 1.

Table 1: Transmission line split distance with the corresponding current signal during the occurrence of HIF

location	Distance (km)	Current signal		
		Phase A	Phase B	Phase C
Aladja (line1)	7.50	2.33	4.82	3.22
	15.00	4.21	8.33	8.99
	22.50	5.87	5.44	11.44
	30.00	6.33	7.97	15.33
Sapele (line2)	23.25	19.77	3.19	4.19
	46.50	5.31	5.42	13.22
	69.75	8.79	6.77	4.89
	93.00	19.11	8.31	10.31
Benin (line 3)	26.75	4.89	8.19	7.33
	53.50	3.11	4.11	4.32
	80.25	6.18	5.32	5.42
	107.00	5.67	6.71	1.41

The contents of Table 1 show that the distances of the transmission line are split into four points and the current signal obtained for each of the point location. The flow diagram for the modeling of the artificial intelligent in the detection and location of HIF is shown in Figure 2.

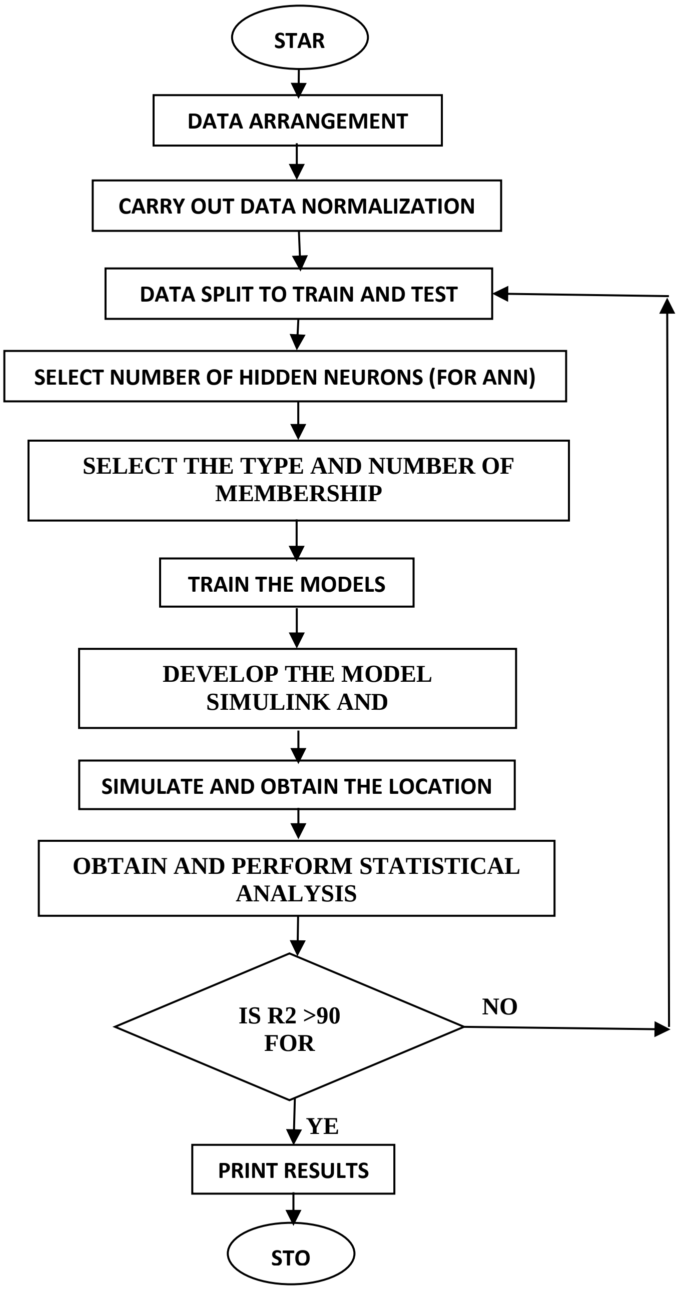

Figure 2. Proposed procedure of developing AI model

The power system network with ANN model is shown in Figure 3.

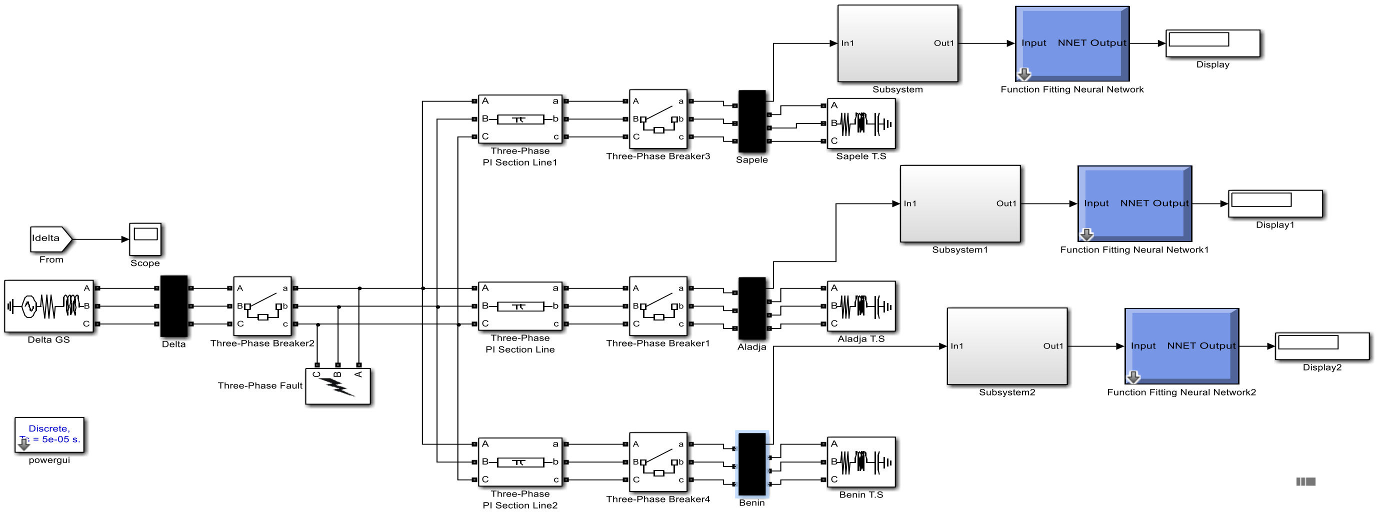

Figure 3. Power system network with ANN model

The ANFIS model structure is shown in Figure 4.

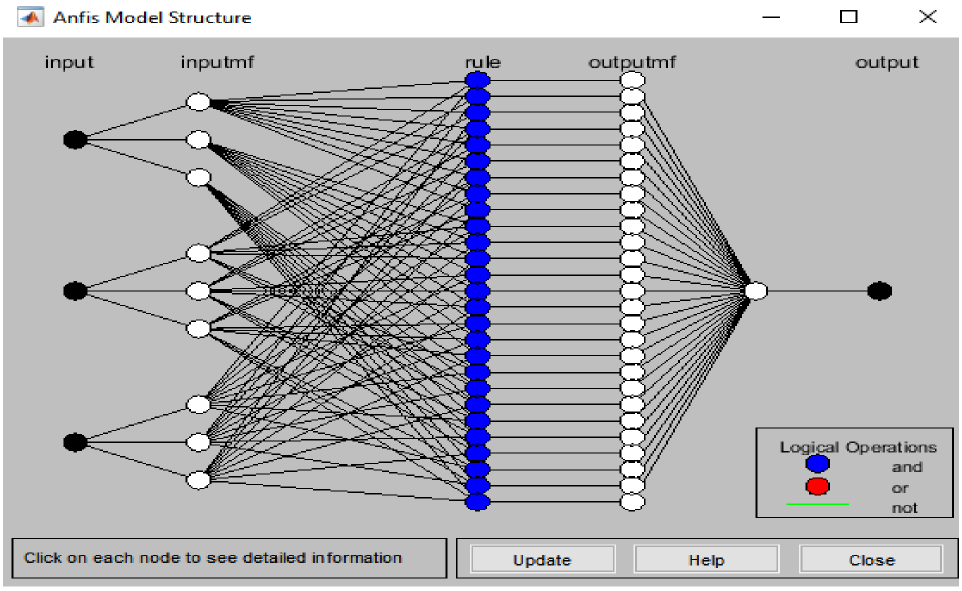

Figure 4. ANFIS model structure

The ANFIS model structure in Figure 4 comprises of three input neurons (which represents the HIF current phases) with each input data having three neurons which are the membership functions (which means each input data has three membership functions) making a total of nine membership functions. It also has 27 rule neurons with each rule having one output membership function leading to one output neuron which is the point distance location of the transmission line. The table for the inference rules is shown in Table 2.

Table 2. Inference Rules

Rule	Input 1	Input 2	Input 3	Output
1	In1mf1	In2mf1	In3mf1	Out1mf1
2	In1mf1	In2mf1	In3mf2	Out1mf2
3	In1mf1	In2mf1	In3mf3	Out1mf3

4	In1mf1	In2mf2	In3mf1	Out1mf4
5	In1mf1	In2mf2	In3mf2	Out1mf5
6	In1mf1	In2mf2	In3mf3	Out1mf6
7	In1mf1	In2mf3	In3mf1	Out1mf7
8	In1mf1	In2mf3	In3mf2	Out1mf8
9	In1mf1	In2mf3	In3mf3	Out1mf9
10	In1mf2	In2mf1	In3mf1	Out1mf10
11	In1mf2	In2mf1	In3mf2	Out1mf11
12	In1mf2	In2mf1	In3mf3	Out1mf12
13	In1mf2	In2mf2	In3mf1	Out1mf13
14	In1mf2	In2mf2	In3mf2	Out1mf14
15	In1mf2	In2mf2	In3mf3	Out1mf15
16	In1mf2	In2mf3	In3mf1	Out1mf16
17	In1mf2	In2mf3	In3mf2	Out1mf17
18	In1mf2	In2mf3	In3mf3	Out1mf18
19	In1mf3	In2mf1	In3mf1	Out1mf19
20	In1mf3	In2mf1	In3mf2	Out1mf20
21	In1mf3	In2mf1	In3mf3	Out1mf21
22	In1mf3	In2mf2	In3mf1	Out1mf22
23	In1mf3	In2mf2	In3mf2	Out1mf23
24	In1mf3	In2mf2	In3mf3	Out1mf24
25	In1mf3	In2mf3	In3mf1	Out1mf25
26	In1mf3	In2mf3	In3mf2	Out1mf26
27	In1mf3	In2mf3	In3mf3	Out1mf27

From Table 2, the inference rules is formulated. For the first rule, if the first input variable (phase A current signal) is in1mf1 and second variable (phase B current signal) is in2mf1 and the third input variable (phase C current signal) is in3mf1, then the location distance (output variable) would be out1mf1. The same procedure is used for all the rules in table 2. The power system network with ANFIS model is shown in Figure 5.

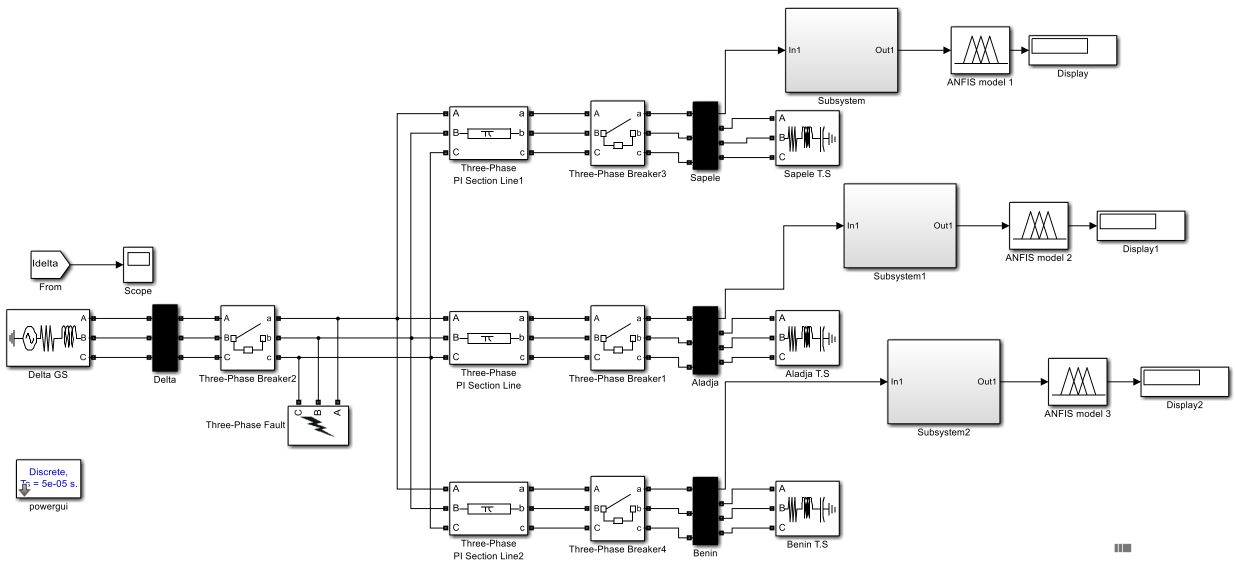

Figure 5. Power system network with ANFIS model

IV. RESULTS AND DISCUSSION

The error difference of the point location with ANN and ANFIS are depicted in Figures 6-8 for lines 1-3 respectively.

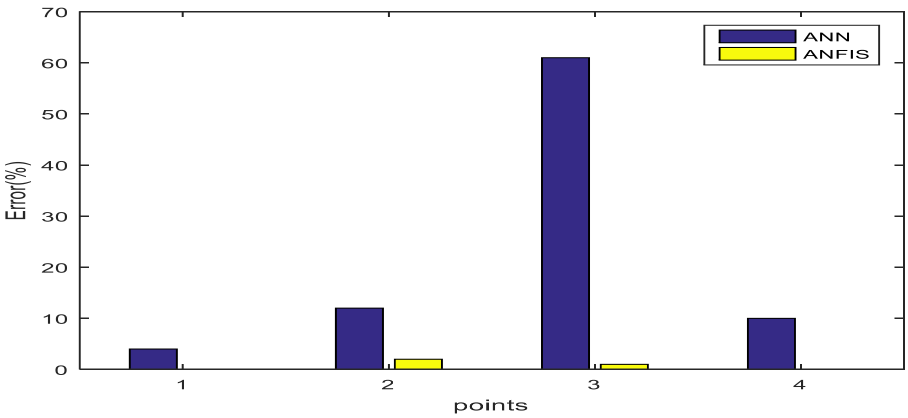

Figure 6. Error deviation in percentage for line 1

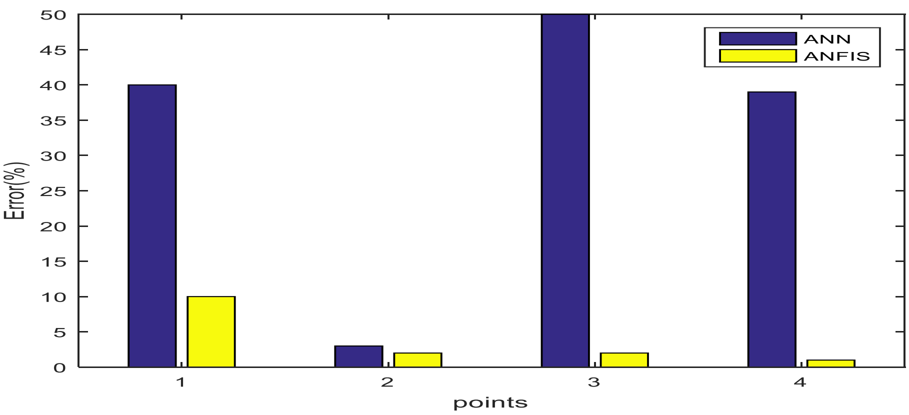

Figure 7. Error deviation in percentage for line 2

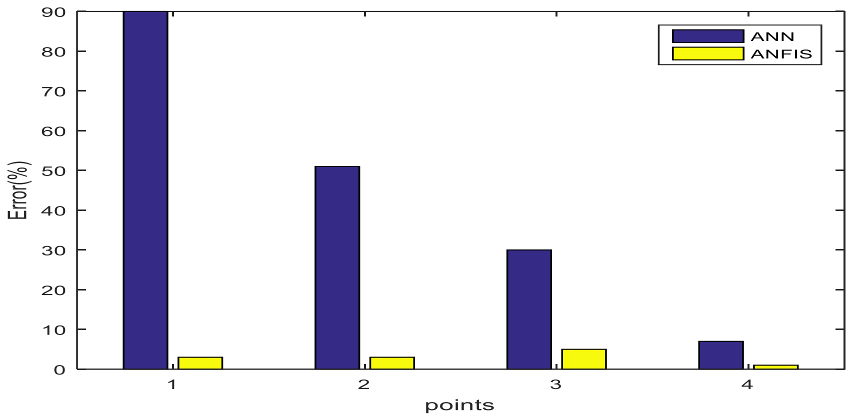

Figure 8. Error deviation in percentage for line 3

From the comparative analysis presented in Figures 6-8, it can be seen that the error deviation of the predicted HIF location with ANN for line 1 is 62 % whereas ANFIS is 2 %. Also, for line 2, ANN has a maximum error deviation of 50 % compared to 10 % of ANFIS. Lastly, ANN has an error deviation of 90 % while ANFIS has 3 % for line 3. This shows that ANFIS is a better model for detection and point location of HIF in the Nigerian 330 kV transmission network under review.

V. CONCLUSION

The major emphasis in this study was to carry out ANN and ANFIS for the location of HIF and apply the models in the power system network of the south south Nigerian 330 kV transmission network for the location of three phase HIF occurrence. The generation (source) station was Delta GS where the 330 kV line was linked to Sapele, Aladja and Benin at various distance of 93 km, 30 km and 107 km respectively. Each of the distances were split into 4 equal points where the faulted current signal were obtained and used as inputs to the ANN and ANFIS models. The target to the AI models was the actual distance. the simulink blocks of ANN and ANFIS models were inserted in the developed power system network model in simulink and the HIF location point distances were predicted and presented for the three locations with error deviation from the actual distance obtained and plotted. The result showed that ANFIS model had the better point location of HIF occurrence than the ANN model and as much should be utilized in the location of HIF.

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Teachers' 21st-Century Skills and Their Competence on Inclusive Education in Opol Districts

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ABSTRACT: In this 21st century, teachers are faced with a rapidly changing educational landscape that requires them to possess a new set of skills and competencies to effectively implement inclusive education practices. This study was conducted to determine teachers 21st-century skills and competence on inclusive education. Specifically it sought to answer the following questions; by profiling of respondents, assessing teachers 21st-century skills based on learning and innovation, information, media, and technology, and life and career skills as well as their competence on inclusive education on social regard for learning, knowledge about inclusive education, and diversity of learners; and determining the significance difference 21st-century skills and competence on inclusive education, and exploring the correlation between their competence on education and profile. The respondents of this study were the one hundred seventy-one (171) teachers in Opol East and West Districts, Division of Misamis Oriental for the School Year 2023-2024 was obtained using Slovin's Formula. The questionnaires were adopted and employed descriptive research design method and used simple random sampling for collecting data from the sample population of interest. Frequency, percentages, mean, standard deviation and Pearson-r were used to interpret the data of the level respondents' profile and significance difference on 21st-century skills and competence on inclusive education. The findings of the study revealed that respondents possess a very high level of 21st-century skills and competence on inclusive education, with a positive significant relationship between these skills as well as significant correlation between respondents' competence on inclusive education and their profile. The conclusion emphasizes the importance of professional development in 21st-century teaching practices. The study recommends government incentives, school head mentoring, and SPED teachers collaboration. It also suggests creating curriculum programs to bridge gaps in inclusive education and maximizing teachers' competence on inclusive education. In the end, giving these factors a top priority is essential for developing a supportive school environment and maximizing teachers' 21st-century skills and competence on inclusive education.

KEYWORDS: 21st-century skills, competence on inclusive education

I. INTRODUCTION

This study proposed that there exists a progressive and interdependent relationship between teachers' 21st-century skills and their competence on inclusive education within an educational setting. The assumption of this study highlights that teachers with higher twenty-first century skills are more likely have a higher competence on inclusive education that protects all diversity of learners, for have equal chance to study, learn, and developed the skills they need to flourish, and similarly time toughens their confidence in utilizing modern instructional methods. Emphasizing the importance of fostering 21st–century skills and competence on inclusive education culture can maximize its benefits.

In the 21st century, teachers are faced with a rapidly changing educational landscape that requires them to possess a new set of skills and competencies to successfully implement inclusivity practices. Inclusive education aims to provide all students, regardless of their abilities or backgrounds, with equal opportunities for learning and growth (UNICEF, 2023).

For this reason, the world officially focused attention on the need to give equal access and opportunities to education, especially in the Philippines through the Republic Act 11650, according to the declaration of this policy, the state will take the necessary actions to ensure that everyone has access to high-quality education by its policy of protecting and promoting that right at all levels. It willpower recognize, uphold, and promote the different opportunity to an education for all students with disabilities, including those who belong to linguistic, ethnic, or religious minorities. It will also make this education mandatory and accessible to them by making sure that no student with a disability is denied the opportunity to receive an inclusive, equitable, and high-quality education, and it will encourage opportunities for lifelong learning.

On the other hand, UNICEF (2023) ensures that everyone fulfills their human right to a high-quality education for the duration of their lives is the goal of the right to education. When education is approached inclusively, the needs of each student are considered, and everyone works together to attain goals. It recognizes that every child can learn and that every child has a unique characteristic, interests, abilities, and learning needs. For this reason, teachers must be equipped with the ability to differentiate instruction, accommodate diverse learning styles, and create inclusive classroom environments that foster collaboration and support for all students (Hamstead, 2024). They must also possess strong communication skills, empathy, and cultural competency to effectively engage with students from diverse backgrounds.

Therefore, teachers must continuously adapt and evolve their teaching practices in response to new technologies and pedagogical approaches (Alhothali, 2020). By developing teachers' twenty-first century skills and competence on inclusive education, they can establish inclusive education environments that enable all learners to reach their full potential.

In the 21st century, the teaching profession in the Philippines has undergone major changes due to developments of technology and evolving educational practices, as a result, educators are required to possess a set of skills known as 21st-century skills. Additionally, having competence on inclusive education is crucial for success in this field to effectively implement inclusive education practices.

This study is anchored to the Social Learning theory by Bandura (1977), it proposed that learning occurs through observation, imitation, and modeling and is influenced by factors such as attention, motivation, attitudes, and emotions. Bandura's theory emphasizes the importance of observing and imitating others as a means of acquiring new skills and knowledge. In today's interconnected world, social learning has become more prevalent than ever before. Through platforms such as social media and online communities, individuals have access to an abundance of information and can learn from experts across various fields. In the context of teaching, educators with high-level 21st century skills and competence on inclusive education are more likely to embrace 21st-century skills and exhibit a positive mindset on inclusive education that promotes and protects learners with or without learning disabilities.

By understanding the relationship between teachers' 21st-century skills and their competence on inclusive education, this research study can provide valuable insights for teacher training programs and educational institutions. It may help identify strategies for enhancing teachers' confidence in utilizing modern instructional methods while fostering a positive mindset on inclusion that promotes and protects learners with or without learning disabilities.

In the domain of research, scientific inquiry is the foundation of all scientific knowledge. It is a systematic approach that researchers use to investigate and understand the natural world. Through observation, experimentation, and analysis, researchers seek to answer questions and solve problems. These observations often lead to questions or hypotheses about how or why something occurs. This study anticipates that there were substantial correlations between the teachers' 21st-century skills and their level of competence on inclusive education

Further, this study also anticipates that there were positive relationship between teachers' twenty-first century skills and their competence on inclusive education when respondents categorize based on key stage area, highest educational attainment, years in teaching, related seminars attended, and position within the educational setting.

II. METHODOLOGY

This study employed descriptive research design in collecting the necessary data and information on the teachers' 21st-century skills and their competencies on inclusive education of Opol East and West Districts, Division of Misamis Oriental.

Descriptive research is a method used in both quantitative and qualitative studies to gather information about a particular phenomenon or topic (Siedlecki, 2020). It aims to provide a specified picture of the subject under study, allowing researchers to acquire a extreme understanding of its traits, actions, and connections.

In quantitative research, descriptive studies involve collecting numerical data through surveys, questionnaires, or experiments. This data was then examined using statistical techniques and correlations. On the other hand, qualitative descriptive research focuses on gathering non-numerical data through methods such as interviews, observations, or focus groups. This approach aims to gain the value and involvedness of social experiences and perspectives. Researchers analyze this data by identifying themes or patterns that emerge from participants' narratives or observations.

This approach was anticipated to produce a truthful and precise description of a scenario. Data must be gathered, tabulated, and computed for this study. To derive the implication of the findings, it was also involving the analysis and interpretation of the data. The characteristics of the teacher respondents, as well as their level of 21st-century skills and their competencies on inclusive education, was tested as variables.

Teachers' 21st-Century Skills and Their Competence on Inclusive Education in Opol Districts

Descriptive statistics were used to characterize the core properties of the data in a study. There was a brief explanation of the measurements and the sample. They provided the basis for simple graphical analysis as well as nearly all quantitative data research. Utilizing frequency and percentage, the respondents were divided among different criteria. The standard deviation was used to estimate the distribution of the data, and the mean was utilized to show the central tendency of responses—especially those pertaining to challenges. The investigation was performed to determine the significance of the difference in the problem when the respondents were grouped based on their profiles, and the Pearson-r moment of the coefficient was used to determine the significance of the relationship between the teachers' 21st-century skill and their competence on inclusive education.

III. RESULTS AND DISCUSSION

Problem 1: What is the respondent's profile in terms of key stage area, highest educational attainment, number of years in teaching, related trainings/ seminars attended, and position?

Table 1: Distribution of the Respondents' Profile in terms of Key Stage Area

Key Stage Area	Frequency	Percentage
Key Stage 4 (Grade 11-12)	3	1.80
Key Stage 3 (Grade 7-10)	18	10.50
Key Stage 2 (Grade 4-6)	78	45.60
Key Stage 1 (Kinder- Grade 3)	72	42.10
Total	**171**	**100%**

Table 1 shows the respondents' profile in terms of key stage area. Results show that participants with **Key Stage Area 2 (Grade 4-6)** are the highest number of responses in terms of Key Stage Area having a **highest frequency** of **78 (45.6%).** This indicates that majority of the respondents are handling Key Stage Area 2 (Grade 4-6) or the Upper Primary Level Teachers. One possible reason for the high frequency of respondents in Key Stage Area 2 (Grade 4-6) could be attributed to the presence of more classroom sections in Grade 4 to 6 compared to other grade levels, particularly in schools located in coastal areas. This suggests that there may have been a higher demand for teachers in this specific grade range, leading to the employment of more educators. Furthermore, Key Stage Area 2 serves as the preliminary stage for all students, despite of their capabilities to access quality education and develop essential skills that will benefit them throughout their lives.

In the recent study of Gomez (2022) assesses the academic performance of Key Stage Area 2 Araling Panlipunan pupils using the MELC framework proven to have a positive impact on the high frequency of Key Stage Area 2. By prioritizing essential learning competencies, educators can guarantee that learners are receiving a excellence education that prepares them for future success. Moreover, The MELC framework provides a clear and structured guide for educators to ensure that students are meeting the necessary learning objectives for their grade level, by implementing these competencies into the curriculum, teachers are better able to track student progress and identify areas where additional support may be needed. This allows for targeted interventions to help students succeed academically and reach their full potential.

On the other hand, data revealed that out of 171 respondents, the participants with **Key Stage Area 4 (Grade 11-12)** are the lowest number of responses in terms of Key Stage Area having a **lowest frequency** of **3 (1.8%)**. This means the least number of respondents are Key Stage Area 4 (Grade 11-12). One possible explanation for the low frequency of respondents from Key Stage Area 4 could be attributed to the fact that there are only two (2) Grade level in Key Stage Area 4. For more inclusive educational programs may need to consider including this group to ensure a comprehensive understanding of the educational dynamics across all grade levels.

In the recent study by Quinones' (2022), the importance of implementing inclusive practices in senior high schools, students can develop essential skills and knowledge that will prepare them for successful transitions into tertiary education and future career paths.

Table 2: Distribution Table Showing the Respondents' Profile in terms of Highest Educational Attainment

Highest Educational Qualification	Frequency	Percentage
Doctorate Degree	1	0.60
Master's Degree with Doctoral units	1	0.60
Master's degree	43	25.10

Bachelors with MA units	73	42.70
Baccalaureate Degree	53	31.00
Total	**171**	**100%**

Table 2 demonstrates the respondents' profile in terms of **highest educational attainment.** Results show that the participants with **Bachelor's degree with MA units** are the highest number of responses in terms of educational attainment having a **highest frequency** of **73 (42.7%).** This finding highlights the importance of higher educational qualification in shaping the demographic of the participants in this study. The high frequency emphasizes the commitment of the participants to pursue in earning MA units. Hence, the very reason why largely of the teachers are MA unit earners because 20 to 42 MA units are desirable for advancement from Teacher II to Teacher III.

Recent research by Chang et.al. (2020) confirms the idea that teachers with advanced degrees, like a Master's Degree, showcase more competence and specialized understanding in their fields. The high frequency in this category has been observed, which shows that teachers who want to pursue higher education are dedicated to lifelong learning and professional development.

On the other hand, data show that participants with **Master Degree with Doctoral units** and **Doctorate degree** are the lowest number of responses in terms of **highest educational attainment** having a **lowest frequency** of **1 (0.6**%). This statistic highlights a concerning trend in the field of education, as it suggests that there is a lack of individuals pursuing advanced degrees in teaching. Admission to Doctoral programs especially for teachers who cannot afford to pursue higher education due to financial constraints. In order to address this issue, it is crucial for educational institutions and policymakers to explore ways to make doctoral programs more accessible and affordable for teachers. Scholarships, grants, and other forms of financial aid can help alleviate the burden of pursuing advanced degrees. By investing in the professional development of educators through doctoral education, we can ultimately improve the quality of instruction and student outcomes in schools across the country.

Research by Turner and Johnson (2023) highlights various factors that hinder students' progress toward completing their doctoral programs, such as financial constraints, lack of mentorship, and limited access to resources. Recognizing the causes of the declining number of doctorate degrees can reform to address these barriers and support students in their academic pursuits. By implementing strategies to increase funding opportunities, improve mentorship programs, and enhance access to resources, institutions can better support doctoral students and increase their chances of success.

Table 3: Distribution of the Respondents' Profile in terms of Number of Years Teaching

Number of Years Teaching	Frequency	Percentage
30 years and above	15	8.80
26-29 years	6	3.50
21-25 years	12	7.00
16-20 years	32	18.70
15 years and below	106	62.00
Total	**171**	**100%**

Table 3 demonstrates the respondents' profile in terms of **number of years teaching.** Data show that participants with **15 years and below** are the highest number of responses in terms of number of years teaching having a **highest frequency** of **106 (62.0%).** This indicates that most of the participants had less experience in teaching which is 15 years and below. The reason of high frequency in the indicator because majority of the teachers employed in Opol West and East Districts have teaching experience of **15 years and below**. Less experienced teachers can bring a fresh perspective to the classroom, but they may also face challenges in effectively managing their classrooms and delivering high-quality instruction. While experience can certainly be valuable in teaching, it is also important to recognize the potential benefits that less experienced teachers can bring. Their enthusiasm, creativity, and willingness to try new approaches can create a dynamic learning environment for students.

Graham et al. (2020), emphasizes that teachers with more years of experience tend to exhibit higher levels of instructional effectiveness and classroom management skills compared to teachers with less teaching experience. Teachers' years of experience can make a difference in the quality of teaching, it is essential to consider various factors that contribute to effective teaching practices.

However, data show that participants with **26-29 years** are the lowest number of responses in terms of number years of teaching having a **lowest frequency** of 6 (3.50%). This finding sheds light on an interesting trend in the teaching profession, suggesting that individuals who have been teaching for over two decades may be less inclined to participate in surveys or research studies. It is possible that teachers who have been in the profession for a longer period of time may feel burnt out or overwhelmed by the demands of their job, leading them to prioritize their own well-being over engaging with research surveys. Exploring the reasons behind the lower participation of experienced teachers can provide valuable context and guide for future studies.

The study by Scherer et.al. (2023) posit that experience teachers are better equipped to navigate potential challenges that may arise in a modern learning environment, such as technical issues or student engagement. Their ability to troubleshoot and problem-solve is a valuable asset in ensuring a smooth and effective online teaching experience.

Table 4: Distribution of the Respondents' Profile in terms of Related Seminars or Trainings Attended

Level	Frequency	Percentage
International	20	11.70
National	7	4.10
Regional	2	1.00
Division	36	21.10
District	106	62.00
Total	**171**	**100%**

Table 4 demonstrates the respondents' profile in terms of **related seminars or training attended.** Results show that participants with **District Level** are the highest number of responses in terms of related seminars or trainings attended having a **highest frequency** of **106 (62%)**. This means a significant portion of the surveyed population had engaged in education at the District Level. Districts are required to conduct In-Service Trainings for Teachers' annually as part of the upskilling program in promoting professional development. These training sessions provide educators with the opportunity to enhance their teaching skills, stay updated on the latest educational trends and research, and collaborate with colleagues from different schools within the district.

As cited by Marcojos-Canon (2018), the purpose of training and development is to help teachers advance professionally and raise students' academic achievement. Teachers will be able to employ their pedagogical talents in the classroom through training and seminars

However, the data show that participants with **Regional Level** are the lowest number of responses in terms of related seminars or trainings attended having a **lowest frequency** of **2 (1%).** The data highlight a notable aspect of the surveyed populations educational experiences. Regional educational institutions often have limited budgets, which can make it difficult to provide ongoing training opportunities for educators. Without adequate funding, it can be challenging to offer professional development programs that are essential for ensuring teachers stay current with best practices and teaching methodologies. furthermore, only superintendent, supervisors, school heads, and select teachers are sent to trainings/seminars at the regional level.

Fenici (2021) emphasizes the value of professional development for teachers. Developing teaching abilities should be an educator's top priority because they are essential to the intellectual development of their students. Since teachers' performance has a significant impact on students' perceptions of the classroom, poor teaching practices can have a lasting negative impact on students' lives.

Table 5: Distribution of the Respondents' Profile in terms of Position

Position	Frequency	Percentage
Master Teacher 2	3	1.80
Master Teacher 1	6	3.50
Teacher 3	28	16.40
Teacher 2	21	12.30
Teacher 1	113	66.10
Total	**171**	**100%**

Table 5 illustrates the respondents' profile in terms of **position**. Results show that participants position as **Teacher I** are the highest number of responses in terms of teaching position having a **highest frequency** of **113 (66.1%).** This data sheds light on the dominance of entry-level teaching positions within the surveyed population, underscoring their significance in the composition of the teaching career. The high frequency of Teacher I positions suggests that a significant portion of educators are at the initial stage of their professional journey, potentially indicating a trend towards a younger workforce or a high turnover rate in this particular position.

Research by Smith and Johnson (2023) delve into the critical role that entry-level Teacher I positions play in the development of educators. One key finding from their study is that entry-level teaching positions provide new educators with invaluable hands-on experience. This practical knowledge allows teachers to refine their skills, develop effective classroom management strategies, and gain a deeper understanding of student needs.

However, data show that **Master Teacher 2** are the lowest number of responses in terms of teaching position having a **lowest frequency** of **3 (1.8%).** The low frequency of Master Teacher 2 positions suggests that there were few Masters Teachers employed in Opol West and East Districts. This indicates that Master Teacher 2 possess more responsibility and a greater task in their leadership positions, which leaves them with less time for extracurricular activities like taking part in curriculum development. This pattern might point to a preference for mentoring, curriculum creation, and other leadership responsibilities over survey participation, indicating the need for a more thorough comprehension of their time restrictions and obligations.

Research by Zhang, Ma, and Lu (2024) emphasizes that mentorship programs significantly contribute to teachers' professional development by providing guidance, support, and feedback. Mentors play a crucial role in helping teachers navigate challenges, develop new skills, and enhance their teaching practices.

Problem 2: What is the respondents' level of 21st-century skills considering learning and innovation, information, media and technology, and life and career?

Table 6 reveals the summary of the **distribution of the respondents' level of competence on inclusive education** with an overall mean of 3.79 (SD=0.410), interpreted as **Highly Competent**. This finding is significant as it demonstrates the effectiveness of teachers knowledge, competencies and skills in inclusive education. It also highlights the dedication and commitment of educators to meet the diverse needs of all students in their classrooms. The high level of competence observed among respondents is crucial for promoting an inclusive learning environment where every student feels valued and supported. It also reflects positively on the school's commitment to diversity and equity in education. It is clear that many educators are dedicated to creating an inclusive learning environment where all students can succeed. Teachers must strive to cultivate their own competencies in these crucial areas to better serve our future students.

Table 6: Summary Distribution of the Respondents' Level of Competence on Inclusive Education

Variables	Mean	SD	Interpretation
Social Regard for Learning	3.84	0.37	Highly Competent
Knowledge about Inclusive Education	3.73	0.46	Highly Competent
Diversity of Learners	3.80	0.40	Highly Competent
Overall	**3.79**	**0.41**	**Highly Competent**

Legend: 3.26-4.00 At All Times/Highly Competent 1.76-2.50 Rarely/Moderately Competent
2.51-3.25 Most of the Time/Competent 1.00-1.75 Never/Incompetent

In their study Montederamos and Cañon (2022) emphasize the importance of a teacher's professional background and competence in inclusive education. The authors argue that teachers must possess the necessary competencies in inclusive education such social regard for learning, knowledge about inclusive education, and diversity of learners to effectively support diverse learners in an inclusive classroom setting. One key aspect of a teacher's professional background is their level of education and training in inclusive education. Montederamos and Cañon (2022) suggest that teachers who have received specialized training in inclusive pedagogy are better equipped to meet the needs of all students, regardless of their abilities or disabilities.

Among the variables, **Social Regard for Learning** obtained the highest mean of 3.84 (SD=0.372), interpreted as **Highly Competent**. This focuses on the importance of fostering a positive attitude towards learning and promoting a supportive environment for all students to thrive academically. This means that respondents possess very high professional growth and development. Having a social regard for learning encompasses valuing education as a fundamental right and recognizing the diverse needs and abilities of each student. It involves creating an inclusive classroom culture where all individuals are respected, valued, and supported in their academic endeavors.

Maaño (2024), attests that teachers social regard for learning plays a crucial role in their behavior and connection to their teaching performance. Maaña (2024) emphasizes the importance of educators valuing the process of learning and demonstrating this through their actions in the classroom. Teacher social regard for learning can impact their relationships with students. Moreover, teachers' behavior and professionalism is essential in fostering a culture of academic excellence. It is imperative that educators continue to prioritize professionalism and positive interactions with their students to create an environment conducive to learning and growth.

Conversely, the variable **Knowledge about Inclusive Education** obtained the lowest mean of 3.73 (SD=0.46), interpreted as **Highly Competent**. This means that there is room for improvement in this particular area of competence. It is essential for educators to possess a strong understanding of inclusive education in order to effectively support students with diverse needs and abilities. A lack of knowledge in this area may result in inadequate support and inclusion practices within educational settings. By addressing the identified weaknesses in knowledge about inclusive education, educators can enhance their ability to create inclusive learning environments that meet the needs of all students. This may involve ongoing professional development opportunities and collaboration with colleagues who have expertise in this area.

In her article, Walsh (2018) one major finding from his study is that many teachers lack sufficient knowledge and training on how to effectively include students with special needs in their classrooms. This lack of knowledge can lead to challenges in meeting the individualized needs of these students and may result in feelings of isolation or inadequacy. It is imperative for educators to continuously strive to improve their understanding and implementation of inclusive practices in order to create a more equitable learning environment for all students. According to Walsh (2018) Inclusive education aims to dismantle barriers to learning by adapting teaching methods, curricula, and classroom environments to accommodate the needs of all students.

Problem 4. Is there a significant relationship between respondents 21st-century skills and their competence on inclusive education?

Table 7 presents the results test of the significant relationship between teachers 21st-century skills and their competence on inclusive education in terms of social regard for learning, knowledge about inclusive education and diversity of learners. Overall, results revealed that the respondents 21st-century skills showed strong positive significant relationship on their competence on inclusive education as indicated by the correlation r-value and probability value less than 0.05 alpha level which led to the **rejection of the null hypothesis**. This implies that the teachers 21st-century skills in terms of learning and Innovations skills, information, media and technology skills, and life and career skills was strongly related to their competence on inclusive education in terms of social regard for learning, knowledge about inclusive education, and diversity of learners. It is suggesting that the education system continues to evolve in the 21st century, it is imperative for teachers to possess a diverse set of skills in order to effectively support inclusive education. By fostering learning and Innovations skills, information, media and technology skills, and life and career skills, these educators can create a dynamic learning environment that promotes inclusivity

Table 7: Relationship between Respondents 21st-Century Skills and Competence on Inclusive Education

21st Century Skills Indicators	**Competence on Inclusive Education**			**OVERALL** *r-value* *p-value*
	Social Regard for Learning *r-value* *p-value*	**Knowledge about Inclusive Education** *r-value* *p-value*	**Diversity of Learners** *r-value* *p-value*	
Learning and Innovation Skills	0.764 (SPR) 0.001* S	0.714 (SPR) 0.001* S	0.674 (MPR) 0.001* S	0.774 (SPR) 0.001* S
Information, Media and Technology Skills	0.792 (SPR) 0.001* S	0.752 (SPR) 0.001* S	0.746 (SPR) 0.001* S	0.825 (SPR) 0.001* S

Life and Career Skills	0.812 (SPR) 0.001* S	0.710 (SPR) 0.001* S	0.730 (SPR) 0.001* S	0.808 (SPR) 0.001* S

Legend: *significant at p<0.05 alpha level S – significant NS – not significant

Moreover, Teachers who are well-versed in learning and innovation skills are better equipped to adapt to the diverse needs of their students. Educators must possess a wide range of skills in order to create a supportive and inclusive learning environment. One key skill that educators must develop is critical thinking. Critical thinking allows educators to analyze and evaluate information, identify biases, and make informed decisions about how to best support all students in the classroom. Creativity is another important skill for educators working in inclusive education settings. Creativity allows educators to think outside the box, adapt their teaching methods to meet the diverse needs of their students, and create engaging learning experiences that cater to different learning styles. Collaboration is also a vital skill for educators in inclusive education. Collaboration involves working with other professionals, parents, and community members to ensure that all students receive the support they need. By collaborating with others, educators can share ideas, resources, and best practices, ultimately leading to better outcomes for all students.

Additionally, proficiency in information, media, and technology skills allows teachers to utilize digital tools and resources to enhance their teaching practices. Staying informed about current trends in education through reliable sources is essential for maintaining competence in inclusive practices. Accessing up-to-date information allows teachers to adapt their teaching methods and curriculum to meet the needs of all students effectively. In addition, possessing strong information literacy skills enables teachers to critically evaluate and utilize various media sources in their lesson planning. By selecting appropriate materials that represent diverse perspectives and cultures, educators can foster an inclusive classroom environment that promotes understanding and empathy among students. All of these, does not only provides students with access to a wealth of information but also helps them develop essential digital literacy skills for success in the 21st century.

Furthermore, to effectively navigate the diverse learning environments found in inclusive classrooms, educators must possess a range of essential life and career skills. One key skill that is vital for success in inclusive education is communication. Educators must be able to effectively communicate with students, parents, and other professionals to ensure that the needs of all learners are being met. Strong communication skills can help build positive relationships and create a supportive learning environment for all students. Another important life skill for educators working in inclusive settings is adaptability. Inclusive classrooms often present unique challenges and require teachers to be flexible and open-minded in their approach to instruction. Being able to adapt quickly to changing circumstances and individual student needs is essential for creating an inclusive learning environment where all students can thrive. Life and career skills are essential for teachers to effectively prepare students for success beyond the classroom. By instilling qualities such as leadership, adaptability, initiative, productivity, and social responsibility in their students, educators can empower them to thrive in an ever-changing global society.

On the other hand, Nimante and Kokare (2022) posit that a high-quality inclusive education meet the needs of all learners in a complex and challenging task. This study revealed numerous challenges, problems, and limitations that arise in this endeavor. Despite teachers perceiving themselves as having certain competencies for inclusive education, many still do not feel comfortable and confident in practice within the inclusive classroom.

In the study of Montederamos and Cañon (2022) shed lights the importance of teachers' teaching competence in inclusive education, findings revealed that teachers may have good intentions and a desire to create inclusive learning environments, there are significant obstacles that must be overcome in order to effectively meet the needs of all learners.

Problem 8: Is there a significant relationship between respondents' competence on inclusive education and their profile in terms of key stage area, highest educational attainment number of years in teaching, related trainings, seminar, and position?

Table 8: Relationship between Respondents' Competence on Inclusive Education and their Profile

Respondents' Profile	**Competence on Inclusive Education**			**OVERALL** *r-value* *p-value*
	Social Regard for Learning *r-value* *p-value*	**Knowledge about Inclusive Education** *r-value* *p-value*	**Diversity of Learners** *r-value* *p-value*	
Key Stage Area	0.068 (NLR) 0.375 NS	0.137 (WPR) 0.035* S	0.152 (WPR) 0.047* S	0.132 (WPR) 0.025* S
Highest Educational Qualification	0.192 (WPR) 0.012* S	0.205 (WPR) 0.007* S	0.134 (WPR) 0.081 NS	0.191 (WPR) 0.012* S
Number of Years Teaching	0.254 (WPR) 0.001* S	0.311 (WPR) 0.001* S	0.223 (WPR) 0.003* S	0.286 (WPR) 0.001* S
Related Seminars and Trainings	0.253 (WPR) 0.001* S	0.305 (WPR) 0.001* S	0.157 (WPR) 0.041* S	0.259 (WPR) 0.001* S
Position	0.231 (WPR) 0.002* S	0.314 (WPR) 0.002* S	0.211 (WPR) 0.006* S	0.276 (WPR) 0.001* S

Legend: *significant at p<0.05 alpha level S – significant NS – not significant

Table 8 shows the test relationship between respondents' competence on inclusive education and their profile in terms of key stage area, highest educational qualification, number years of teaching, related seminars and training, and position. Overall, results show that the respondent's competence on inclusive education showed weak positive significant relationship on their profile as indicated by the correlation r-value and probability value less than 0.05 alpha level which led to the **rejection of the null hypothesis**. Therefore, significant means that the respondent's competence on inclusive education was related to their profiles.

Key Stage Area play a key role in determining the competence of educators in delivering inclusive education. Competence in Key Stage Areas also enables teachers to adapt their teaching methods to meet the individual needs of students with disabilities or learning difficulties. By understanding how different learners process information and engage with content, educators can tailor their instruction to promote academic success for all students.

Moreover, a teacher's highest educational qualifications play an important role in their ability to effectively implement inclusive practices. Individuals with advanced degrees, such as a Master's or Doctoral degree, are often better equipped with the knowledge and skills necessary to effectively implement inclusive practices in educational settings. Higher education provides individuals with a deeper understanding of special education laws, policies, and best practices for meeting the diverse needs of students. This knowledge allows educators to create inclusive environments that promote academic success for all learners, regardless of their abilities or disabilities.

Additionally, as educators, the number of years spent teaching plays a significant role in determining one's competence in inclusive education. With each passing year, teachers gain valuable experience and develop a deeper understanding of how to effectively support students with diverse learning needs. This experience allows them to refine their instructional strategies, adapt their teaching methods, and create a more inclusive classroom environment. Moreover, this exposure helps them develop a greater sense of empathy and compassion towards all learners, leading to more effective communication and collaboration with students, parents, and other professionals involved in the educational process.

Furthermore, participation in training/seminar programs related to inclusive education is important for educators to enhance their competence in catering to the diverse needs of students. These events provide opportunities for professional development, networking, and gaining new insights into best practices in inclusive education. Through these seminars and trainings, educators can learn about the latest research and strategies for creating inclusive learning environments that promote academic success for all students. They can also acquire practical skills in adapting curriculum, providing accommodations, and implementing effective instructional techniques that meet the individual needs of diverse learners.

Lastly, teaching position in relation to competence is vital for promoting inclusivity in education. Educators must continuously strive to improve their knowledge and skills in order to effectively meet the diverse needs of their students. By prioritizing professional development and collaboration, teachers can create an inclusive learning environment that empowers all students to reach their full potential.

According to Winter (2019), inclusive and exclusive education for diverse learning needs is a vital issue in today's educational landscape. By embracing inclusive practices, educators can create a more equitable and supportive learning environment where every student has the opportunity to thrive.

.In the study of Montederamos and Cañon (2022) "research findings revealed that only teachers' training significantly relates to their teaching competence in the correlation test between teachers' professional background (education, training, years of teaching) and their level of competence to teach inclusive education. It would be easier to address or prevent possible new challenges for teachers in mainstream classes if they improve their level of competence. Increasing the competence among teachers in teaching Learners with Special Educational Needs (LSEN) relies significantly on building instructional capacity through training."

Nimante and Kokare (2022) research has shown a significant connection between teachers' age, teaching experience, and their perception of specific competencies for inclusive education. The findings suggest that the ability of teachers to put those policies into reality is one of the biggest obstacles to the adoption of inclusive education. The effective development of inclusive practices may suffer significantly from teachers' lack of competency in implementing inclusive education.

IV. CONCLUSIONS

Based on the results and discussions presented, the following conclusions are drawn:

Most of the teachers in Opol East and West Districts holding Teacher I positions, teaching for 15 years and below, and handling Grade 4-6 level (Key Stage 2). They hold a bachelor's degree with MA units and have participated in District-level training and seminars.

Regarding 21st-century skills, teachers' in Opol Districts manifest a very high life and career skills, they know when it is appropriate to listen and when to speak. Moreover, in regards to competence on inclusive education, teachers possess a highly competent in social regards for learning, they can communicate policies and procedures to students, parents, and other concerned persons.

The 21st-century skills based on learning and innovation skills, information, media, and technology skills, and life and career skills were significantly related to their competence on inclusive education in terms of social regard for learning, knowledge about inclusive education, and diversity of learners, it is understandable for teachers possesses varied set of skills to successfully support inclusive education.

Generally, the teachers' profile in terms of key stage area, highest educational qualification, number years of teaching, related training/seminars attended, and position were significantly related to their competence on inclusive education, teachers' profile play a key role to adapt teaching practices to meet learners needs and difficulties in inclusive education.

V. RECOMMENDATIONS

On the basis of the findings of the study, the following recommendations are hereby forwarded:

1. The Governor and Mayors of Misamis Oriental may establish annual incentives for teachers in professional development, to increase the teachers pursuing Master's degree and attended trainings/seminars in International level. This is an opportunity for teaching personnel to better prepare educators for meeting the needs of all students, including those with disabilities or special needs.

2. The school heads may create mentoring and strategies in 21st-century skills with regards to Information, Media, and Technology skills. These strategies should specifically address the challenges that teachers face in applying a fundamental understanding of ethical/legal issues surrounding the access and use of media, in order to enhance educators' abilities to meet the diverse needs of all students in today's classrooms.

3. The teachers may actively seek out opportunities for collaboration with special education teachers to boost prior knowledge in inclusive education, in order to strengthen the ability to solve problems, to be able to informally assess the skills a student needs rather than relying on standardized curriculum. This can involve attending joint planning meetings, participating in professional development workshops focused on inclusive practices, or simply reaching out to colleagues for input and support.

4. The Master Teachers may create curriculum programs that bridge the gap between 21st-century skills in relation to competence on inclusive education practices. These programs have the potential to not only transform teaching practices but also inspire a new generation of educators who are dedicated to promoting equity and inclusion in schools.

5. The Educators may engage in seminars and trainings that is related to inclusive education. By participating in seminars and trainings sessions focused on inclusive education, educators can gain valuable insights into best practices and strategies for accommodating the individual needs of all students. As educators, it is crucial to constantly seek opportunities for professional development and growth in order to effectively meet the diverse needs of our students.

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Reading Motivation and Engagement among Grade IV Learners of Opol West District Schools

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ABSTRACT: Reading motivation and engagement are crucial factors for developing good literacy skills and fostering a love for reading. This study was conducted to determine the reading motivation and engagement among Grade IV learners. Specifically, sought to answer the level of reading motivation regarding reading efficacy, reading challenge, reading curiosity, aesthetic enjoyment for reading, reading recognition, and reading competition, as well as level of reading engagement in terms of behavioral, affective, cognitive, and social; and the significant relationship between the learners' reading motivation and engagement. In this study the respondents were one hundred sixty-one (161) Grade IV learners of Opol West Districts Schools, Misamis Oriental for the School Year 2023-2024 with a margin of error of 7% using a Slovin's formula. This study used a patterned and modified questionnaires and employed descriptive design method and simple random sampling to get the appropriate number of respondents in every school. Statistical tools such as means, standard deviation, and Pearson-r were applied to interpret the data on the level and significant relationship between learners reading motivation and engagement. Findings of the study revealed that the respondents have a very high level of reading motivation and high level of reading engagement. There is a positive significant relationship between learners reading motivation and engagement. The study concludes that learners like to challenge themselves to think hard if there were difficult questions and they are proactive in seeking out of meanings of unfamiliar words in books. It recommends that to create a quarterly reading competition activity for learners, assist learners' academic and personal development by encouraging them to participate in regular reading activities and giving them access to a variety of interesting reading materials, and learners need push themselves to read more books and materials, and join book clubs or discussion groups. It is important to emphasize the reading motivation and engagement for educational improvement as it illuminates the current state of learners reading deficiency.

KEYWORDS: reading motivation, reading engagement

I. INTRODUCTION

In the recent report of Programme for International Student Assessment statistics OECD (2019), Filipino students performed worse in reading comprehension than their neighboring international peers. This suggests that there is a need to address the difficulties and possible areas for improvement in the reading ability of Filipino learners. This hinders the schools from meeting their goal of providing quality and well-informed individuals.

Additionally, concerns exist regarding the reading motivation and engagement of students in DepEd Misamis Oriental for the School Year 2023-2024. 65, 579 of the total enrolment in Grades III to VI, 1, 698 or 2.59 % of students identified as frustrated readers. For this reason, reading motivation and engagement in public elementary schools, especially in Misamis Oriental is a matter of concern that needs immediate attention.

The Philippines history of learners' reading motivation and engagement can be traced back to the country's colonial past. During the Spanish colonization, education was primarily reserved for the elite, and literacy rates were low among the general population (Bai, 2023). This lack of access to education and limited exposure to reading materials hindered learners' motivation and engagement with reading (Nmore, 2023).

However, with the American occupation in the early 20th century, there was a renewed emphasis on education and literacy in the Philippines. The introduction of public schools and English as the medium of instruction brought about significant changes in learners' reading habits. Reading materials became more accessible, and libraries were established across the country.

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In recent years, there has been a growing recognition of the importance of promoting reading motivation and engagement among Filipino learners. The government has implemented various initiatives such as November as National Reading Month and Book Week celebrations (DepEd, 2011), 3B's Bawat Bata Bumabasa (DepEd, 2019), and CATCH-UP Fridays (DepEd, 2024) to enhance students reading literacy and encourage to develop a love for reading.

Despite these efforts, challenges remain in fostering a culture of reading among Filipino learners. Limited access to quality books, especially in rural areas, continues to be an issue (Bai 2023). Additionally, distractions from digital media have also affected students' interest in traditional forms of reading. This contributes to learners reading literacy problems.

Due to this context, the Department Education launch the DepEd Order No. 1.s 2024, Known as Re Implementation of CATCH-UP Fridays, a one-day class catch-up session every Friday starting January 12, 2024, to all public schools elementary and secondary learners to cultivate a reading habit. The catch-up Friday program aims to: provide opportunities for learners to develop low proficiency levels in reading, enhance learners' academic performance through independent reading performance, address learning gaps, and strengthen the reading proficiency of every learner.

Furthermore, due to the limited availability of quality reading materials in public elementary schools. Many schools have outdated books that fail to capture the interest of young readers. This scarcity hampers students' enthusiasm for reading, as they are unable to explore a wide range of genres and topics. Another important issue facing the education system in the Philippines is the lack of resources and infrastructure in many schools, especially in rural areas. This challenge is widespread and affects a significant number of schools in the country.

Therefore, relevance to personal interest and access to diverse literature are identified as potential mediating factors of students' reading motivation and engagement. Emphasizing the importance of a conducive environment that promotes reading as an enjoyable activity rather than a chore can effectively nurture lifelong readers who find joy in exploring the written word.

This research study was anchored on the Cognitive Development Theory of Jean Piaget (1981) and Self-Determination Theory proposed by Ryan and Deci (2008).

Cognitive Development Theory emphasize the development in children and constructive role of experience with peers and family members. According to Piaget (1981), individuals construct their understanding of the world through assimilation and accommodation processes. Reading motivation plays a significant role in this construction process by stimulating learners' curiosity and desire to explore new concepts. When students are motivated to read, they actively engage with texts, making connections between prior knowledge and new information. Piaget's Theory also highlights the importance of social interaction in cognitive development. It can be enhanced through collaborative reading experiences where learners engage in discussions about texts with peers or teachers. These interactions provide opportunities for students to share perspectives, exchange ideas, and challenge each other's thinking.

In addition to that Piaget's Theory as cited Mcleod (2024) explained that the way parents interacted with the children during reading may have a positive or negative result of Piaget. In this regard, children learn best when they have opportunities to interact with their environments, particularly with their parents who were a vital part of children's environment (Lehrl et. al., 2020).

On the other hand, Ryan and Deci (2008), on their Self-Determination Theory, motivation refers to engaging in an activity for the inherent satisfaction it brings without expecting external rewards. When learners perceive themselves as capable readers who can comprehend texts effectively, they are more likely to engage with challenging materials. They stress the role of relatedness in promoting reading motivation. Learners who feel connected to others through shared interests or discussions about books are more likely to find value in reading activities. Social interactions surrounding reading foster a sense of belongingness and encourage learners to continue engaging with texts. This sense of mastery fuels intrinsic motivation and leads to increased engagement with reading tasks. Moreover, motivation can guide students to engage in academic activities driven by the desire for enjoyment, challenge, and novelty rather than external pressure or obligation, without the expectation of rewards. Motivation can be fostered, particularly in the initial stages, even for activities that may not inherently captivate learners, to gradually transform them into sources of motivation throughout the learning process.

Nevertheless, motivate learning through learners' engagement with the literacy tasks used for instruction and extensive reading practice. Learners are more engaged when literacy instruction and practice opportunities are embedded in meaningful learning activities that are useful to and valued by the learner.

This study anticipated that there were substantial correlations between the learners' reading motivation in terms of efficacy, challenge, curiosity, aesthetic enjoyment, recognition, and competition along with their level of reading engagement in terms of behavioral, affective, cognitive, and social.

Moreover, this study also anticipated that there were a statistically significant difference in learner's motivation and engagement in reading categories based on gender, monthly family income, and number of family members.

The assumption of this study highlights that learners with higher reading motivation were more likely to engage in reading pursuits, contributing to their personal growth, and overall improvement of reading. Also, learners who are motivated in reading pursuits were likely more prepared for meaningful reading activities that address the special difficulties and opportunities within their capabilities to positively engage voluntarily in reading. Emphasizing the importance of conducive environments that promote reading as an enjoyable activity rather than a chore can effectively nurture lifelong readers who find joy in exploring the written word.

II. METHODOLOGY

This study used the descriptive design of research. According Manjunatha (2019), the descriptive research design is a study that describes the characteristics of a population or phenomenon being studied. Primarily used to gain an understanding of a group or phenomenon. This involves collecting data through surveys, interviews, or observation.

Through the data being gathered, it determined and answered the question if there is a significant relationship between the reading motivation and engagement of learners. The profile of the learner respondents, as well as their level motivation and engagement in reading, were be tested as variables. Data must be gathered, tabulated, and computed for this study. To derive the implication of the findings, it also involves the analysis and interpretation of the data. The results explained the underlying concepts that may be related to each piece of information after the interpretation.

The fundamental characteristics of the data in a study was described using descriptive statistics. Simple description of the sample and the measurements were provided. They served as the foundation for almost all quantitative studies of data, along with straightforward graphical analysis. The researcher used the following statistical tools to analyze the data of this study. For Problem 1, frequency and percentage were used to distribute the responders among various factors. While Problem 2 and 3, the mean was used as an indicator of the central tendency of responses, particularly those related to difficulties, and the standard deviation was used to gauge the distribution of data. And, when the respondents are divided into groups based on profiles, the analysis of variance was used to test the significance of the relationship in the problem, Pearson - r Correlation was used for Problem 3, to determine the significant relationship between the respondents' reading motivation and engagement.

III. RESULTS AND DISCUSSION

Problem 1. What is the respondents' level of reading motivation based on reading efficacy, reading challenge, reading curiosity, aesthetic enjoyment for reading, reading recognition, and reading competition?

Table 1: Summary of the Respondents' Level of Reading Motivation

Variables	Mean	SD	Interpretation
Reading Efficacy	3.26	0.83	Very High
Reading Challenge	3.34	0.81	Very High
Reading Curiosity	3.33	0.81	Very High
Aesthetic Enjoyment for Reading	3.26	0.83	Very High
Reading Recognition	3.32	0.83	Very High
Reading Competition	3.25	0.83	High
Overall	**3.29**	**0.82**	**Very High**

Legend: 3.26-4.00 At all Times/ Very High 1.76-2.50 Sometimes/ Low
2.51-3.25 Most of the Time/ High 1.00-1.75 Never/ Very Low

Table 1 summarizes the respondents' level of reading motivation with an overall mean of 3.29 (SD=0.82, interpreted as Very High. These results means that the participants exhibited a high level of motivation when it came to reading. This could be attributed to various factors such as personal interest in the material, perceived value of reading, or a desire to acquire new knowledge and skills through reading. The findings also suggest that the respondents may have experienced positive emotions while engaging with written text, further enhancing their motivation to read. By creating opportunities for students to explore a variety of genres and topics, educators can help cultivate a love for reading that extends beyond the classroom. Overall, these results offer valuable information for educators and researchers seeking to understand and enhance students' reading motivation. By recognizing the factors that contribute to high levels of reading motivation, we can develop strategies to support and encourage lifelong readership among individuals of all ages.

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In the study by Bakkaloğlu & Pilten (2022), personal interest plays a significant role in driving reading motivation. When individuals are genuinely interested in a topic or genre, they are more likely to engage in reading activities with enthusiasm and dedication. Enjoyment derived from reading also contributes to sustaining motivation over time, as individuals find pleasure and satisfaction in the act of reading itself. The findings of the study have important implications for educators and policymakers seeking to enhance students' reading motivation. By understanding the factors that drive individuals to engage with texts, educators can tailor instructional strategies and interventions to better support student learning outcomes.

The variable Reading Challenge obtained the highest mean of 3.34 (SD=0.81) interpreted as Very High. The high mean rating suggests that students find the reading challenge to be a valuable tool in promoting their reading skills and comprehension. This indicates that students who participated in reading challenge were able to effectively engage with challenging reading material and extract meaning from it. It is important for educators to continue implementing programs like the reading challenge to foster a love for reading among students. Additionally, the high mean rating suggests that students found the reading challenge to be both enjoyable and beneficial for their academic growth.

According to The National Literacy Trust (2020) Reading Challenge is a valuable tool in promoting reading skills and comprehension among individuals. This initiative encourages participants to engage in regular reading habits, which can have a positive impact on their overall literacy levels. Furthermore, the Reading Challenge fosters a sense of community among participants as they engage in discussions about the books they have read. This collaborative learning experience can enhance social skills and communication abilities in students.

In contrast, the variable Reading Competition got the lowest mean of 3.25 (SD=0.83) interpreted as High. The lowest mean indicates that the respondents were lack of motivation in engaging the activities in reading competition. It implies that teachers must create a program activities in reading competition that most of the learners were encouraged to participate. Another reason why this indicator got the lowest, perhaps there were issues with low reading competition activity implemented or communicated to learners. It suggests that there may be factors in engaging their full participation and enjoyment. It is necessary for educators and program developers to consider alternative approaches to fostering motivation in engaging the reading competition among learners.

Untold International (2020) reading with competition adds an element of fun and excitement to the learning process. Students are more likely to actively participate in reading activities when there is a competitive edge involved. This can lead to increased engagement, comprehension, and overall enjoyment of reading. Furthermore, students who engage in competitive reading activities tend to perform better than they even knew they were capable of. The pressure and thrill of competition can push students to strive for excellence and achieve academic success that may have seemed out of reach before. It is a valuable educational experience that encourages students to explore new ideas, connect with others through literature, and celebrate the beauty of language. It is an event that inspires young minds to become global citizens who appreciate the richness of diversity in our world.

Problem 2. What is the learners' level of reading engagement based on behavioral, affective, cognitive, and social?

Table 2: Summary of the Respondents' Level of Reading Engagement

Variables	Mean	SD	Interpretation
Behavioral	3.11	0.94	High
Affective	3.21	0.87	High
Cognitive	3.31	0.82	Very High
Social	3.18	0.89	High
Overall	**3.20**	**0.88**	**HIGH**

Legend: 3.26-4.00 Always/ Very High 1.76-2.50 Sometimes/ Low
2.51-3.25 Often/ High 1.00-1.75 Never/ Very Low

Table 2 presents the summary of the respondents' level of reading engagement with an overall mean of 3.20 (SD=0.88) interpreted as High. The high mean score means that the respondents were actively engaged in reading activities and displayed a strong interest in consuming written materials. This is a positive finding, as reading engagement has been linked to various cognitive and academic benefits, including improved language skills, critical thinking abilities, and overall academic achievement. However, reading engagement refers to the extent to which individuals are actively involved in the reading process, including their interest, motivation, and comprehension of the material. It is important to assess respondents' level of reading engagement as it can impact the quality and reliability of the data collected.

In the study by Barberg (2022) reading engagement plays a crucial role in developing critical thinking skills, expanding vocabulary, and fostering creativity. Students who are actively engaged in reading are better able to analyze complex texts, make connections between different ideas, and think critically about the world around them. Educators should strive to create an environment that encourages students to develop a love for reading and invest time and effort into their reading activities.

Moreover, the indicator Cognitive Engagement obtained the highest mean of 3.31 (SD=0.82) interpreted as Very High. This means that from this study highlight the significance of cognitive engagement in promoting academic success through reading. By fostering a culture of deep thinking and analysis in our classrooms, we can help students develop strong reading skills and become more active participants in their own learning. It is important for educators and institutions to recognize the importance of fostering cognitive engagement among students. By providing opportunities for active participation, critical thinking, and application of knowledge, educators can help students develop their cognitive abilities and ultimately enhance their academic success.

According to Miyamoto, Pfost, and Artelt (2019), children who are cognitively engaged are more likely to spend time deciphering unfamiliar words, working out the meanings of new words, monitoring their comprehension, and making connections between information in the book and their existing knowledge. This level of engagement not only enhances their vocabulary skills but also improves their overall reading comprehension. By actively participating in the reading process, children can deepen their understanding of the text and develop critical thinking skills. When they take the time to decode unfamiliar words and make connections between different pieces of information, they can construct a more comprehensive understanding of the material being read.

The variable Behavioral Engagement" got the lowest mean of 3.11 (SD=0.94) interpreted as High. This means that low rating suggests that there may be a lack of active participation and involvement in reading activities among individuals. This is concerning as behavioral engagement plays a crucial role in fostering a love for reading and improving literacy skills. It encompasses the actions and involvement of individuals in tasks or activities, reflecting their level of interest and motivation. Understanding behavioral engagement can provide valuable insights into how individuals approach tasks and interact with others. It is important for educators and researchers to further investigate why behavioral engagement received such a low rating and to develop strategies to enhance this aspect of reading engagement. By addressing this issue, we can help individuals become more motivated and enthusiastic readers who are actively involved in their reading experiences.

In the study by Mcgeown and Smith (2024) children's reading behaviors are reflected in their behavioral engagement. This covers the quantity and duration of children's independent reading as well as the range of their reading activities. .Moreover, Van Bergen et al. (2020) highlights the importance of children reading outside of school to enhance their reading skills and comprehension. Children who engage in regular independent reading outside of school are more likely to develop stronger vocabulary, comprehension, and critical thinking skills compared to those who do not.

Problem 3. Is there a significant relationship between the level of learners' reading motivation and engagement?

Table 3: Relationship between the Learner's Reading Motivation and Engagement

Reading Motivation Indicators	**Reading Engagement**				**OVERALL**
	Behavioral *r-value* *p-value*	**Affective** *r-value* *p-value*	**Cognitive** *r-value* *p-value*	**Social** *r-value* *p-value*	***r-value*** ***p-value***
Reading Efficacy	0.335 (WPR) 0.001* S	0.366 (WPR) 0.001* S	0.295 (WPR) 0.001* S	0.303 (WPR) 0.001* S	0.383 (WPR) 0.001* S
Reading Challenge	0.389 (WPR) 0.001* S	0.467 (WPR) 0.001* S	0.388 (WPR) 0.001* S	0.457 (WPR) 0.001* S	0.402 (WPR) 0.001* S

Reading Curiosity	0.439 (WPR) 0.001* S	0.434 (WPR) 0.001* S	0.354 (WPR) 0.001* S	0.456 (WPR) 0.001* S	0.499 (WPR) 0.001* S
Aesthetic Enjoyment for Reading	0.538 (MPR) 0.001* S	0.483 (WPR) 0.001* S	0.416 (WPR) 0.001* S	0.518 (MPR) 0.001* S	0.579 (MPR) 0.001* S
Reading Recognition	0.474 (WPR) 0.001* S	0.366 (WPR) 0.001* S	0.384 (WPR) 0.001* S	0.438 (WPR) 0.001* S	0.493 (WPR) 0.001* S
Reading Competition	0.301 (WPR) 0.001* S	0.363 (WPR) 0.001* S	0.231 (WPR) 0.001* S	0.368 (WPR) 0.001* S	0.374 (WPR) 0.001* S

Legend: *significant at p<0.05 alpha level S – significant NS – not significant

Table 3 shows the test relationship between the learner's reading motivation and engagement. Overall, results show that the learner's reading motivation and engagement showed weak to moderate positive significant relationship as indicated by the correlation r-value and probability value less than 0.05 alpha level which led to the rejection of the null hypothesis. This implies that the learner's reading motivation was associated to their reading engagement. This suggest that student who is actively participating in discussions about a book with peers (social engagement) may feel more motivated to continue reading and exploring new texts. Similarly, a learner who is deeply engaged cognitively with challenging material may find themselves more motivated to push through difficult passages. This finding is important as it highlights the importance of considering not only a student's motivation to read but also their level of engagement with the material. When students are motivated to read, they are more likely to engage with the text on a behavioral, affective, cognitive, and social level. This can lead to improved comprehension and retention of information. By fostering a positive reading motivation and encouraging active engagement with texts, teachers can help students become more proficient readers who are better equipped for academic success.

Moreover, reading efficacy, defined as one's belief in their ability to successfully comprehend and analyze text, plays a crucial role in determining reading engagement. Study revealed that learner with higher reading efficacy, they are approach to reading tasks with confidence and enthusiasm, leading to increased engagement with the material. And also, actively participate in reading activities, such as discussing the text with peers or asking questions about the content. This active engagement not only enhances comprehension but also fosters a deeper connection to the material. It is evident that reading efficacy plays a significant role in influencing an individual's level of engagement with book reading material. Educators should therefore focus on promoting and nurturing students' belief in their own abilities to read effectively in order to cultivate a love for reading and foster academic achievement.

Engaging in a reading challenge can significantly impact one's reading engagement. Reading challenges provide individuals with the opportunity to set goals, explore new genres, and actively participate in a community of readers. By committing to a reading challenge, individuals are more likely to prioritize reading as a regular habit and dedicate time to engage with literature. Participating in a reading challenge can also help individuals discover new authors, expand their literary knowledge, and develop critical thinking skills. Engaging with diverse texts through a reading challenge can broaden one's perspective and foster empathy towards different cultures and experiences. Participating in such challenges is not only beneficial for personal growth but also contributes to building a vibrant community of readers who share their love for books.

Additionally, reading curiosity plays a crucial role in determining an individual's reading engagement. Curiosity acts as a driving force that motivates individuals to explore new ideas, concepts, and perspectives through reading. When individuals are curious about a subject or topic, they are more likely to engage in deep reading practices, such as critical analysis and reflection.

Moreover, reading curiosity fosters a sense of intellectual curiosity and lifelong learning. Learners who cultivate a habit of being curious readers tend to develop a passion for seeking knowledge and expanding their understanding of the world around them. This continuous pursuit of knowledge through reading not only enriches their personal growth but also contributes to their academic success. Cultivating reading curiosity is essential for enhancing reading engagement and fostering a lifelong love for learning. By nurturing learners innate sense of curiosity through reading, they can unlock new opportunities for personal growth and intellectual development.

When it comes to the act of reading, aesthetic enjoyment plays a crucial role in fostering reading engagement. This enjoyment can significantly enhance learners overall reading experience and motivate them to continue engaging with the text. One of the ways in which aesthetic enjoyment contributes to reading engagement is through its ability to captivate readers' attention and stimulate their imagination. When readers find a text aesthetically pleasing, they are more likely to become fully immersed in the story or content, leading to increased focus and interest in what they are reading. Therefore, aesthetic enjoyment is a powerful tool that can enhance reading engagement by capturing readers' attention, stimulating their imagination, and creating emotional connections with the text. By appreciating the aesthetics of what they are reading, individuals can derive greater pleasure from their reading experiences and develop a stronger connection with literature or other forms of written content.

Furthermore, reading recognition is the ability to identify and understand written words and texts. It is a fundamental skill that is crucial for reading comprehension and overall literacy development. However, simply recognizing words does not equate to true reading engagement. When reading recognition is paired with reading engagement, a powerful synergy occurs. Recognizing words effortlessly allows readers to focus their cognitive energy on higher-level comprehension tasks, such as analyzing themes, interpreting characters' motivations, or evaluating the author's argument. While reading recognition is a necessary foundation for literacy skills, true reading engagement takes this foundation to new heights by fostering a deep connection between the reader and the text. By cultivating both skills simultaneously, readers can unlock the full potential of their reading experiences.

Lastly, reading competitions can be a valuable tool in promoting reading engagement among students. By creating a friendly competition where individuals or teams compete to read the most books or pages, students are motivated to spend more time reading and expanding their literary horizons. This type of structured activity can help foster a love for reading and encourage students to explore new genres and authors. In addition, reading competitions can create a sense of camaraderie among participants as they work together towards a common goal. This collaborative effort not only enhances social skills but also promotes a positive attitude towards reading. In conclusion, reading competitions play an important role in promoting reading engagement among students by motivating them to read more, improving literacy skills, and fostering a sense of community. Educators should consider incorporating these competitions into their curriculum as an effective strategy for encouraging lifelong readers.

In the study conducted by Wiggins (2021) the study revealed a strong positive correlation between reading motivation and engagement and student reading outcomes. Students who were more motivated and engaged in their reading activities tended to achieve higher levels of reading proficiency compared to their peers who lacked motivation and engagement. This suggests that fostering a supportive environment that promotes intrinsic motivation and active engagement in reading can significantly impact student achievement outcomes.

On the other hand, in their study Permatasari and Wienanda (2023) emphasizes the impact of extensive reading on improving reading motivation from a student's perspective. Study found that engaging in extensive reading not only enhances students' reading skills but also boosts their motivation to read more. This is crucial in academic settings as students who are motivated to read tend to perform better academically. It also highlights the importance of providing students with a wide range of reading materials that cater to their interests and preferences. By offering diverse reading options, educators can help students develop a love for reading and encourage them to explore different genres and topics.

IV. CONCLUSIONS

Based on the results and discussions presented, the following conclusions are drawn:

Learners reading motivation in reading challenge indicate that students value thought-provoking questions that stimulate cognitive processes and encourage students to reflect on their own beliefs and values.

Moreover, regarding the reading engagement in cognitive engagement, respondents expressed that they still try to understand the words that they do not know that is essential components of effective reading comprehension.

Lastly, learner reading motivation based on reading efficacy, reading challenge, reading curiosity, aesthetic enjoyment for reading, reading recognition, and reading competition were significant related to their reading engagement based on behavioral, affective, cognitive and social. Motivated learners often feel competent and confident in their reading abilities.

V. RECOMMENDATIONS

On the basis of the findings of the study, the following recommendations are hereby forwarded:

1. For School Heads and School Reading Coordinators to create an quarterly reading competition activity for learners. By creating a friendly competition where individuals or teams compete to read the most books or pages, students are motivated to spend more time reading and expanding their literary horizons. This type of structured activity can help foster a love for reading and encourage students to explore new genres and authors. This collaborative effort not only enhances social skills but also promotes a positive attitude towards reading.

2. For teachers and parents to assist learners' academic and personal development by encouraging them to participate in regular reading activities and giving them access to a variety of interesting reading materials in order for learners to strengthen and improve their reading behavioral engagement. Additionally, parents must encourage their children to spend 2-3 hours or more in reading fiction and nonfictions books at home. Importantly, provide learners with a wide range of reading materials and activities.

3. For teachers assess learners in engaging book reading to increase their motivation in reading. Teachers must push learners to read books and materials that align with their interests and explore diverse genres to find what captivates them most. And also, learners must encourage to join book clubs or discussion groups because it can provide with opportunities to connect with others who share their passion for reading.

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The Role of Biochemistry in Understanding Kidney Stone Formation andUrinary Health

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ABSTRACT: Renal illness caused by stones is the term for a solid substance concretion that usually develops inside the kidneys. A rising urological condition influences the well-being of people and affects about 12% of the world's population. An increased chance of ending stage of renal failure and they are closely related. There are several types of kidney stones. The CaC_2O_4 kidney calculi are the most common type. It appears at Randall plaque's renal papillary surfaces. (1)
Several physicochemical mechanisms, such as supersaturating, urinary stone nucleation, growth, aggregation, and retention components found in tubular cells, which aid in the complex process of formation of stones. An inequity between the elements that promote or inhibit the crystallization of urine influences these phases. Moreover, Scientists have noticed that renal injury of cells promotes particle retention reticular body. (2)

1. INTRODUCTION

1.1. An overview of Urinary tract stones

Stones in the urinary tract typically lodge in one kidney or more. The most prevalent type of kidney or bladder disease has afflicted people since 4000 B.C. and caused millennia of agony. Stopping the relapse of Kidney calculus is a serious health concern for people. A more profound understanding of the principles underlying the production of stones is essential to prevent the recurrence of stones. A higher chance of diabetes, vascular disease, end-stage renal failure, kidney stones and hypertension have been associated. Stones in the kidney have been suggested to be a systemic disease linked to metabolic syndrome. If nephrolithiasis is associated with nephrocalcinosis and represents 2–3% of patients with end-stage renal disease. (4)

2. THE URINARY TRACT AND RELATED STONES

The glomus shapes the pee filtrate, which at that point, goes towards the tubules where outflows or reabsorption changes its volume and creation. Whereas the proximal tub and gathering conduits handle miniature changes to pee structure, the proximal tubules handle most of the solute reabsorption. (5)
Pee that is 95% H2O, 2.5% urea, and 2.5% a blend of minerals, salts, chemicals, and proteins is concentrated by implies of the circle of Henle. Within the proximal tubules, basic supplements like proteins, amino acids, bicarbonate, calcium, phosphate, and potassium are reabsorbed and returned to the circulatory framework alongside glucose, cl, and H2O. Blood's salt and the destructive base agreement are controlled within the proximal tubule. Stone zones can differentiate, as shown. (6)

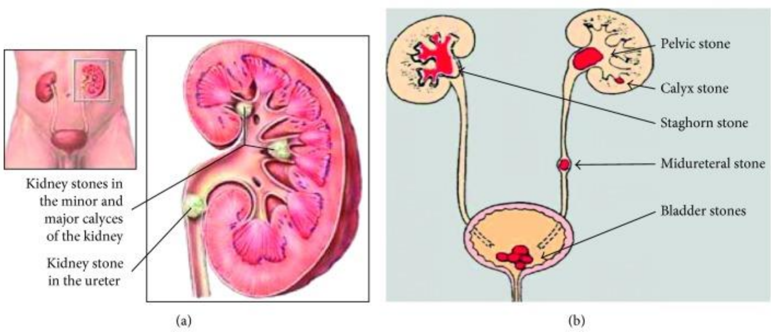

Fig (1): **Urinary tract stones in the urinary system**

3. TYPES OF KIDNEY STONES

3.1. Calcium stones: Oxalate and Phosphate

The awkward nature of the distinctive chemical composition of pee decides the chemical composition of kidney stones. The measure, frame, and chemical cosmetics (mineralogy) of stones change. Agreeing to varieties in mineral substance and etiology, kidney stones are regularly categorized into five categories as follows. Roughly eighty percent of all calculi within the pee are calcium stones, which are the foremost common sort of renal stones. Calcium phosphate (CaP, moreover known as apatite) (five percent), unadulterated oxalate of calcium (CaOx) (fifty percent), and a combination of both (45%) could be included within the rate of calcium stones. Brushite, also known as hydroxyapatite or calcium hydrogen phosphate, is the essential component of calcium stones. (7)

Most kidney stones contain calcium oxalate within the structure of CaOx monohydrate (COM, too known as weddellite, $CaC_2O_4{\cdot}H_2O$) or Calcium Oxalate dihydrate (COD, moreover known as weddellite, $CaC_2O_4{\cdot}2H_2O$), or both together, which makes up more than sixty percentage of kidney stones. The foremost thermally steady sort of stone is called COM. In clinical stones, COM is seen more frequently than COD. (8)

3.2. Mg NH4 and $Po4^{3-}$ stones

Triple phosphate stones and malady stones are other names for struvite stones, which influence 10-15% of people. It happens to individuals who have constant urease-producing urinary tract contaminations; Proteus mirabilis is the first overwhelming pathogen, but Pseudomonas aeruginosa, Enterobacter, and Klebsiella pneumonia are less common afflictions. In organizing to portion or cleave urea into noticing salts and CO_2, urease is required. This increases urine's stomach settling agent pH (more frequently than not more noticeable than 7). Since phosphate is less dissolvable in stomach settling agent pH than in acidic pH, it quickens onto the insoluble NH things, coming around inside the creation of a sizable staghorn stone. Compared to men, women are more likely to set up somewhat stone. E. coli is not associated with struvite stones and is incapable of breaking urea. (9)

3.3. Stones that consist of uric acid

Almost three to ten percent of the full stone sorts are spoken to by this. Purine-rich diets, especially those that incorporate creature protein sources like meat, cause hyperuricosuria, moo sum of pee, and a moo pee pH (pH<5.05), which exasperates the advancement of uric corrosive stones. People who have gouty joint pain may have kidney stones. Uric corrosive kidney stones are more visited in guys than in ladies, and idiopathic nephrolithiasis is the foremost common reason for the situation. (9)

3.4. Cystine stones

Fair over two percent of all stone classifications are these stones. It could be a condition influencing the exchange of cystine and amino acids. Due to a transformation within the rBAT qualities on chromosome 2, it causes a tall level of cystinuria in pee excretions, an autosomal passive condition that impedes renal tubular admissions of cystine or spills cystine into pee. (10)

It causes cystine stones to create and cannot break down in pee. People who are homozygous for cystinuria excrete about six hundred millimoles of insoluble cystine each day. As it were a clinical sign of this cystine stone sickness is the arrangement of pee cystine. (12)

3.5. Stones that are induced by medications

This kind spoke to around one percent of the sorts of urinary tract stones. These stones are brought on by medicines counting Guaifenesin, Triamterene, Atazanavir, or Sulfate solutions. For illustration, kidney stones can happen in patients utilizing the protease protein inhibitor indinavir sulfate, which is endorsed to treat HIV disease. Such lithogenic solutions or their metabolites may settle on pre-existing renal calculi or deliver a nidus. Alternatively, these medicines may cause the generation of calculi by disturbing the digestion system of purines or CaC_2O_3. (13)

4. THE STRUCTURE OF RENAL STONES

Urinary stones can have two different chemical compositions: the nonchemical substance (the structure) and the mineral and uncrystallised stages. The natural base of urinary calculi is made up of macromolecules including lipids, proteins, carbohydrates, and glycosaminoglycans (GAGs), which can either promote or inhibit the processes leading to kidney calculus growing (Table 1). The primary ingredients of the stones structure are protein chains (64%), carbohydrates without an amino group (9.6%), carbohydrates with an amine group just like glucosamine (5%), liquids (9.99%), as well as non-organic cinereal (10.5%). This system works like an example for the renal stone construction, and the substrate of all calculi includes phosphate lipid (8.6%) of the whole lipid, that in hand makes up roughly 10.3% of all stones. (14) Phospholipids in cell membranes, which are a component of the natural structure, facilitate development of $CaPO_4^{-3}$ and CaC_2O_4 crystals. The primary ingredient in the structure of all forms of stones is albumin. (14)

Label of polypeptide	Part in distillation			
	Nuclei formation	**Growing**	**Accumulation**	**Cell keeping**
Calcium-binding protein	-	-	-	=
UMOD	+	=	-/+	=
Bone/sialoprotein I	-	-	-	-/+
Plasma protein	+	=	-	=
uF1	-	-	-	=
Alpha1microglobulin	=	=	-	=
S100Alpha	=	-	-	=
Interalphainhibitor	-	-	-	-
Ulinastatin	-	-	-	-
Reg protein	=	-	=	=
Crypt dins	non	pro	pro	=
PCYT1B	non	in	non	=
Myelo-peroxidase	=	+	+	=
Nucleolar protein	non	non	non	+
HistonelysineNmethyltransferase	=	-	-	=
K IR	non	in	in	=
PolypeptideWnt2	=	-	-	=
Fetuin-A	pro	in	non	=
Calcineurin A	non	non	non	-
Hyaluronate	non	non	non	+
CDS	non	in	in	=
Polysaccharide H S	non	in	non	=
TFF-3	non	in	non	=
CCL2	non	non	non	+
A2	non	non	non	+
CD-44	=	=	=	+
Gamma-carboxyglutamic acid	=	-	=	-
H 1 B	non	pro	non	non
Clg	non	non	in	in
Fibrous protein	pro	non	non	non
Glycosaminoglycan	-	-	-	-
Citric acid	non	in	non	non
Pyro-phosphate	=	-	=	=
Mg^{+2}	=	-	=	=

(- refers to inhibition, + refers to promotion, = refers to non-effectiveness)

5. CRYSTALS FORMATION

The initial stage of kidney stone development involves the nucleus, also known as nidus, forming from supersaturated urine that is held within the kidneys. Total particles, ions, and atoms inside an overwhelmed fluid begin to form tiny clusters, which separate once the entire free power within the group is lower compared to that of the fluid. (13)

Calcium oxalate crystals, for instance, are created when charged soluble molecules like calcium as well as oxalate interact to become insoluble. Either a fixed particle mechanism or a free particle mechanism can generate nucleation in the kidney. When promoters outnumber inhibitors in supersaturated fluids, nucleation begins. (13)

Crystallization can happen at a smaller biochemical stress than what is needed to generate the first nucleus if one has been formed as well as if it has been attached. Within the procedure of nucleus generation known as heterogeneous nucleation, epithelial cells that are already present, urine casts, red blood cells, and various crystals in urine can all function as nucleating centers. Through promoting varying nucleation and crystal accumulation, the organic structure, mucopolysaccharide, functions as an agent for binding. However, it is asserted that microorganisms create apatite structures that operate as a crystallization hub during the creation of stones. The entire process amplifies stone formation. Current study focuses on the function of microorganisms that deconstruct $C_2O_4^{-2}$, like Oxalo-bacter formi-genes, in the development of CaC2O4 stones. [14]

Laboratory diagnosis

Laboratory diagnosis includes stone analysis, imaging studies, blood profiles, and a urine metabolic evaluation. Stone analysis plays a valuable role in the diagnosis of kidney stone patients, specifically in infrequently encountered kidney stones such as UA, cystine, infection-induced, drug-induced, and NH4+ urate stones. Imaging studies are valuable in the diagnosis of kidney stone disease. Despite numerous imaging methodologies, computed tomography is the most sensitive and specific mode of diagnosis (103). High fasting blood calcium, low phosphorus, and elevated PTH are suggestive of primary hyperparathyroidism. In that case, the patient must be considered for a noninvasive localization study followed by parathyroidectomy.

Normal serum calcium, low serum phosphorus, elevated 1,25(OH)2D, and normal PTH are suggestive of renal phosphorus leak. The finding of low serum potassium and low CO2 is suggestive of dRTA. Hyperuricemia and high serum triglycerides are encountered in patients with UA stones

Practical section

In this section, we presented several cases to describe examinations needed for ensuring the diagnosis of kidney stones. We examined the presence / absence of several parameters which are related with kidney stones. We conducted these examinations in two parts, for the first part of the examination we chose a sample consists of 16 volunteers from both genders and different age groups. Those participants had previously suffered from symptoms indicates to the probability of kidney stones existence. We applied different chemical & microscopic tests to the participants which are needed besides clinical symptoms for ensuring the presence of renal stones. In addition, for the second experiment we applied the same tests on one patient who had been diagnosed with kidney stones. We used the second part of the experiment to compare test values for the 16 participants with values related with kidney stones.

MATERIALS AND METHODS

Spectrophotometer or colorimeter measuring at 500 nm.
Matched cuvettes 1.0 cm. light path.
Using other general laboratory equipments.
Test procedure for quantitative determination of uric acid:
1_ assay conditions
Wavelength (500 nm.)
Cuvette (1 cm. light path)
Temperature (37 ◦C)
2_ adjust the instrument to zero blank of reagent.
4_ mix and incubate for 5 minutes at 37◦C or 10 minutes at room temperature (15-25◦C).
5_ read the absorbance of the samples and calibrator, against the blank. The color is stable at least 5 minutes.

Calculation:

Sample – Blank / Standard – Blank * 6 (Std. conc.) = mg/dL uric acid in sample
Procedure for Creatinine determination:
1_ Bring reagents and samples to room temperature.
2_ Set the photometer to 0 absorbance with working reagent.
3_ Pipette into labeled tubes
4_ Mix gently at room temperature and start stopwatch.
5_ Record absorbance at 500 nm after 30 second (A1) and after 2 min. (A2) of the sample or standard addition.
Standard concentration = 2 mg/dl
Concentration (sample) = A2- A1 (sample) / A2-A1
Standard * Concentration.

RESULTS & DISCUSSION

For the first part of tests the results were recorded for chemical and microscopic tests on the 16 participants. The observations we noted due to tests for those volunteers, many have high concentrations of creatinine in their blood, which might be a sign of kidney stones. In addition, in urine tests for some participants, we found a positive presence of epithelial cells which is a sign of inflammation (kidney stones could cause inflammation because of the injury in urinary tissues). Another clinical significance in others is that there is a presence of amorphous crystals in urine, which leads to high concentrations of uric acid in urine. (Positive sign for kidney stones case). For the rest, we noticed in the urine test that the range of RBCs and Pus is abnormal, which indicates an injury in renal tissues causing inflammation and the injury is from a possible presence of kidney stones. In the second part of the experiment we applied chemical and microscopic tests on blood and urine samples on a 27 years old young lady who already had the condition. These samples were taken from a pregnant female who had diabetic type2 and suffered from severe pain attacks frequently. She was diagnosed with kidney stones via ultrasound. The tests were applied in the early morning for two following days. She was diagnosed with (Hyperuricemia) after conducting the necessary tests on the patient's blood and urine samples. Accordingly, the blood serum test was repeated for two consecutive days to confirm the amount of uric acid, and it was performed in the morning. It was noted on the first day that the amount of uric acid was 9. The next day, the test was repeated under the same conditions and it was found that the amount of uric acid was 8.7. We were able to detect the existence of kidney stones in many participants by comparing with reference values and illness parameters which were emerged in the second part of the examination. The results for both sections of experiment are down below.

Patient	**Chemical test (serum samples)**	**Microscopic test (urine samples)**
Female – 34 years old	Uric acid → 7.3 Creatinine →3 high	RBC → 5-9 Pus → 9-13 high Epithelial cells →++++ Amorphous →+++
Male – 24 years old	Uric acid →5 Creatinine → 1.4	RBC → 3-6 Pus → 4-6 Epithelial cells → ++ Amorphous → ++
Male – 29 years old	Uric acid → 9.3 high Creatinine → 4 high	RBC → 7-9 high Pus → 10-12 high Amorphous → +++
Male – 43 years old	Uric acid → 7.1 Creatinine →3	RBC → 3-5 Pus → 4-6 Epithelial cells → ++ Amorphous →+++
Male – 32 years old	Uric acid → 5 Creatinine → 1.3	RBC → 3-5 Pus → 2-4 Epithelial cells → ++++ Amorphous → ++
Female – 38 years old	Uric acid → 6 Creatinine → 4.3 high	RBC → 9-15 high Pus → 5-6 Epithelial cells → +++ Amorphous → +++
Male – 26 years old	Uric acid → 5 Creatinine → 2	RBC → 3-5 Pus → 6-9 Amorphous → ++
Female – 34 years old	Uric acid → 5.1 Creatinine → 2	RBC → 9-13 high Pus→ 6-8 Epithelial cells → ++++ Amorphous →++
Female – 29 years old	Uric acid → 6.5 Creatinine→ 1.5	RBC → 5-10 high Pus →9-15 high Epithelial cells → +++ Amorphous → ++

Male – 54 years old	Uric acid → 8 high Creatinine → 3 high	RBC → 5-10 high Pus →13-15 high Epithelial cells → +++ Amorphous →+++
Female – 39 years old	Uric acid →5 Creatinine→ 1.5	RBC → 3-5 Pus→ 4-6 Epithelial cells →++
Female – 53 years old	Uric acid 7.3 Creatinine 4 high	RBC 7-10 high Pus 6-13 high Epithelial cells +++ Amorphous ++
Male – 19 years old	Uric acid →6.4 Creatinine →1.3	RBC →5-9 high Pus → 4-8 Epithelial cells → +++ Amorphous → +
Female – 40 years old	Creatinine → 3 high Uric acid → 5.1	RBC → 3-5 Pus → 15-20 high Epithelial cells → ++ Amorphous → +++
Male – 33 years old	Creatinine → 5 high Uric acid → 4.6	RBC → 5-10 high Pus → 9-13 high Amorphous → +++ Mucus → +
Female – 22 years old	Creatinine → 8 high Uric acid → 5.8	RBC → 5-9 high Pus → 4-6 Epithelial cells → +++ Amorphous → ++ Mucus → +++

The results as shown in the schedule for a young woman compared to reference values

Measured concentration of uric acid in blood serum	**Reference values for uric acid**
Day 1: 9 mg/dl High Day 2: 8.7 mg/dl High	Serum or plasma Women: 2.5 – 6.8 mg/dl Men: 3.6 – 7.7 mg/dl Urine 250 – 750 mg/24h
Microscopic test for a urine sample	Reference values
Day 1: Epithelial cells: 8-13 RBCs: 6-8 High Pus: 20-25 High Amorphous: + Mucus: few	RBC in urine: 4 cells/HPF Pus in urine: Male: 4 cells/HPF Female: 5-7 cells/HPF

Day 2: Epithelial cells: 6-10 RBCs: 4-7 Pus: 15-20 High Amorphous: +++ Mucus: ++	

Reference values:

Reference (normal) values
Creatinine in serum: Men (0.6-1.1) Mg/dl Women (0.5-0.9) Mg/dl
Uric acid in serum: Women: 2.5 – 6.8 mg/dl Men: 3.6 – 7.7 mg/dl
RBC in urine: 4 cells/HPF
Pus in urine: Male: 4 cells/HPF Female: 5-7 cells/HPF

CONCLUSIONS:

In conclusion, we found a graded association between episodes of kidney stones and the risk of adverse renal outcomes. Further research should be aimed at determining the mechanisms explaining this association and assessing the optimal way to prevent kidney stones in the general population, especially young women.

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The Relationship between Emotional Intelligence, Kinesthetic Intelligence, and Learning Motivation and Physical Education Learning Outcomes

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ABSTRACT: This study aims to (1) Find out the relationship between emotional intelligence and Physical Education learning outcomes of grade V students. (2) Knowing the relationship between kinesthetic intelligence and Physical Education learning outcomes of grade V students. (3) Knowing the relationship between learning motivation and Physical Education learning outcomes of grade V students. (4) Knowing the relationship between emotional intelligence, kinesthetic intelligence, and learning motivation to the learning outcomes of Physical Education grade V students in Kretek District State Elementary Schools in Bantul Regency. This research is a quantitative descriptive research with correlation. The study population was fifth grade students in Kretek District State Elementary School in Bantul Regency which amounted to 355 students. The sampling technique used the Slovin Formula with a cluster random sampling approach, totaling 188 students. Instruments of emotional intelligence, kinesthetic intelligence, and learning motivation using questionnaires, and Physical Education learning outcomes using report cards. Data analysis is multiple regression test. The results showed that (1) There is a significant relationship between emotional intelligence and Physical Education learning outcomes of grade V students, with a p-value of 0.000 <0.05 and a contribution of 16.51%. (2) There is a significant relationship between kinesthetic intelligence and Physical Education learning outcomes of grade V students, with a p-value of 0.002 <0.05 and a contribution of 13.94%. (3) There is a significant relationship between learning motivation and Physical Education learning outcomes of grade V students, with a p-value of 0.031 <0.05 and a contribution of 11.15%. (4) There is a significant relationship between emotional intelligence, kinesthetic intelligence, learning motivation to the physical education learning outcomes of grade V students in Kretek District State Elementary Schools in Bantul Regency, with a p-value of 0.000 <0.05 and a contribution of 41.60%.

KEYWORDS: emotional intelligence, kinesthetic intelligence, learning motivation, physical education learning outcomes

INTRODUCTION

School is a place for students to pursue education, one of which is Physical Education. Physical Education is an important subject, because it helps develop students as individuals and social beings to grow and develop naturally (Jeong & So, 2020). This is because its implementation prioritizes physical activity, especially sports and healthy living habits. One of the main objectives of Physical Education is to encourage motivation towards the subject to improve academic achievement or physical exercise training. The self-potential of a person will be able to develop with the existence of Physical Education (Fernandez-Rio, et al., 2020; Behzadnia, et al., 2018; Hinojo Lucena, et al., 2020). The learning success of each student is not the same as the others but each student has different abilities. There are some students who experience difficulties in learning, as a result the acquisition of learning outcomes achieved is less than optimal. One of the learning outcomes is influenced by intelligence. Intelligence can be broadly divided into seven types of intelligence, namely: linguistic intelligence, mathematical logical intelligence, spatial visual intelligence, musical intelligence, kinesthetic intelligence, interpersonal intelligence, intrapersonal intelligence (Ababneh, 2021; Maharani, et al., 2020). One of the multiple intelligences is emotional intelligence. Emotional intelligence can basically be formed and developed through education in the form of training and positive experiences. As stated by Amado-Alonso, et al. (2019) that the importance of shaping learners to better regulate and manage emotions by promoting sports training in school education. Therefore, Physical Education in schools is one of the efforts in shaping and developing students' emotional intelligence. Efforts to improve the quality of Physical

Education learning, in this case concerning student learning outcomes, it is necessary for every Physical Education teacher to understand and master and be able to apply the concept of eight types of multiple intelligences (Dos Santos & Hudain, 2020).
One of the intelligence items included in multiple intelligences is kinesthetic intelligence. Kinesthetics is related to the coordination of movements of the whole body or in other words the ability to equalize the mind and body, so that what is contained in the mind can be poured in the form of movement by the limbs (Yurita, et al., 2023). Kinesthetic intelligence, if considered in depth, is closely related to Physical Education subjects in schools (Ishar, et al., 2023). Students by utilizing this kinesthetic intelligence, it is hoped that students can have high Physical Education scores.
In addition, efforts to obtain maximum Physical Education scores in students, of course, are not only looking at the intelligence side, but how students are motivated in the material provided. Learning motivation itself basically has an influence on student learning outcomes. Learning motivation becomes a driving factor from within and from outside in students who aim to change behavior and other supporting elements. Motivation is a physiological and psychological condition contained in a person that encourages him to carry out certain activities, in order to achieve a goal (need) (Filgona, et al., 2020).
Based on some previous research results, including research conducted by Suci, et al., (2022) shows that there is a significant relationship between emotional intelligence and Physical Education learning outcomes, learning motivation with Physical Education learning outcomes, and emotional intelligence and learning motivation with Physical Education learning outcomes. The results of Andiri & Sultoni (2017) show that the correlation of emotional intelligence and achievement is only 0.5% of emotional intelligence data providing a direct influence on academic achievement, the remaining 99.5% or (100%- 0.5 = 99.5%) is caused by other technical and non-technical factors. The results of Fernanda's research, et al., (2023) show that there is a significant relationship between learning motivation and Physical Education learning outcomes. The results of Ishar's research, et al., (2023) show that there is a positive relationship between kinesthetic intelligence and Physical Education grades. The above presentation is certainly interesting to be studied and researched more deeply, therefore, researchers need to conduct a more in-depth research on "The Relationship between Emotional Intelligence, Kinesthetic Intelligence, and Learning Motivation to Physical Education Learning Outcomes of Grade V Students in State Elementary Schools in Kretek Sub-district, Bantul Regency".

METHODS

The type of research used is descriptive quantitative with correlation. The population in the study were fifth grade students in public elementary schools in Kretek sub-district, Bantul Regency. Researchers used the Slovin formula as a sampling technique. The population was 355 students with a sampling error of 5%, found a sample of 188 students. Questionnaires are used to measure emotional intelligence, kinesthetic intelligence and student learning motivation, Physical Education learning outcomes instruments based on report cards. Data analysis techniques using partial t test and simultaneous F test. This calculation will be assisted by SPSS 23.0 for Microsoft Windows.

RESULTS

The correlation test was conducted to determine the relationship of each independent variable to the dependent variable. The complete correlation test analysis results are presented in Table 1 below.

Table 1. Correlation Test Analysis Results

Variables	r_{count}	t_{count}	r_{table}	*sig*
Emotional Intelligence (X1)	0.547	4.361	0.143	0.000
Kinesthetic Intelligence (X2)	0.546	3.201	0.143	0.002
Learning Motivation (X3)	0.576	2.169	0.143	0.031

Based on the analysis results in Table 1 above, it can be explained as follows.

1. Emotional intelligence variable on Physical Education learning outcomes obtained rcount value 0.547> rtable 0.143, sig. 0.000 <0.05, then H0 is rejected, meaning that the hypothesis that reads "There is a significant relationship between emotional intelligence and the learning outcomes of Physical Education for grade V students in Kretek District State Elementary Schools in Bantul Regency" is accepted. The correlation coefficient is positive, meaning that if emotional intelligence is getting better, then the learning outcomes of Physical Education in grade V students at State Elementary Schools in Kretek District Bantul Regency will be better.

2. The kinesthetic intelligence variable on Physical Education learning outcomes obtained a rcount value of 0.546> rtable 0.143, sig. 0.002 <0.05, then H0 is rejected, meaning that the hypothesis that reads "There is a significant relationship between kinesthetic intelligence and Physical Education learning outcomes of grade V students in Kretek District State Elementary Schools in Bantul Regency" is accepted. The correlation coefficient is positive, meaning that if kinesthetic intelligence is getting better, then the learning outcomes of PHYSICAL EDUCATION in grade V students at State Elementary Schools in Kretek District Bantul Regency will be better.
3. Learning motivation variable on Physical Education learning outcomes obtained rcount value 0.576> rtable 0.143, sig. 0.031 <0.05, then H0 is rejected, meaning that the hypothesis that reads "There is a significant relationship between learning motivation and physical education learning outcomes for grade V students in Kretek District State Elementary Schools in Bantul Regency" is accepted. The correlation coefficient is positive, meaning that if the learning motivation is getting better, then the learning outcomes of Physical Education in grade V students in Kretek District State Elementary Schools in Bantul Regency will be better.

The F (Simultaneous) test aims to determine the relationship between emotional intelligence, kinesthetic intelligence, learning motivation to the learning outcomes of Physical Education grade V students in Kretek District State Elementary Schools in Bantul Regency. Analysis using the ANOVA test. Analysis rules if F count> F table and sig. <0.05, then the alternative hypothesis is accepted and vice versa. The results of the analysis are described in Table 2:

Table 2. F Test Analysis Results (Simultan)

ANOVA[b]					
Model	*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
Regression	1760.562	3	586.854	45.321	.000[a]
Residual	2382.569	184	12.949		
Total	4143.131	187			

Based on the results of the analysis in Table 2, the relationship between emotional intelligence, kinesthetic intelligence, learning motivation to Physical Education learning outcomes obtained Fhitung value 45.321> Ftabel (3; 184) 2.65 and sig. 0,000 < 0,05. Thus the hypothesis that reads "There is a significant relationship between emotional intelligence, kinesthetic intelligence, learning motivation to the learning outcomes of Physical Education grade V students in Kretek District State Elementary Schools in Bantul Regency", is accepted. It can be concluded that the regression model chosen is feasible to test the data and the regression model can be used to predict that emotional intelligence, kinesthetic intelligence, learning motivation together are related to the learning outcomes of Physical Education grade V students in Kretek District State Elementary Schools in Bantul Regency.

The results of the analysis of the Coefficient of Determination (R2) of emotional intelligence, kinesthetic intelligence, learning motivation on the learning outcomes of Physical Education for grade V students in Kretek District State Elementary Schools in Bantul Regency are presented in Table 3:

Table 3. Coefficient of Determination Analysis Results

Model Summary			
R	*R Square*	*Adjusted R Square*	*Std, Error of the Estimate*
0,652[a]	0,425	0,416	3,59844

Based on the Coefficient of Determination (R2) in Table 3, it shows that the coefficient of determination R Square is 0.416. This means that the contribution of emotional intelligence variables, kinesthetic intelligence, learning motivation to the physical education learning outcomes of fifth grade students in Kretek District State Elementary Schools in Bantul Regency is 41.60%, while the remaining 58.40% is influenced by other factors outside this study. Other factors that affect Physical Education learning outcomes such as learning methods, teachers, learning environment, learning facilities and others.

DISCUSSION

Based on the results of the study, it shows that there is a significant relationship between emotional intelligence and Physical Education learning outcomes with a contribution of 16.51%. The results of this study underscore the key role of emotional intelligence in regulating and improving emotions and being emotionally efficient, which leads to greater emotional satisfaction and results in a stronger sense of emotional well-being and a healthier mentality. The results of the study are supported by several studies including by Mardius & Enjoni (2022) showing that emotional intelligence variables have a significant effect on Physical Education learning outcomes. Ningtyas & Synthiawati's research (2022); Hasmara (2022) shows that there is a relationship between emotional intelligence and Physical Education learning outcomes. Monica & Prasetiyo (2019) hypothesis testing results show that the level of emotional intelligence (EQ) and the level of participation contribute to Physical Education learning outcomes, both individually and together. This means that the higher the emotional intelligence, the better the Physical Education learning outcomes. The results of the correlation analysis show that the amount of physical activity, self-efficacy, and emotional intelligence have a significant relationship in individuals (Wang, et al., 2020).

Méndez Giménez, et al. (2020) state that learners with high emotional intelligence have high levels of emotion recognition, control and regulation, and empathy. Learners with higher emotional intelligence tend to participate more in classroom activities, as emotional intelligence finds them fun and interesting, and these activities fit with their personal goals. According to various studies in education, positive emotions have been significantly associated with academic ability and well-being (Schonert-Reichl & Lawlor, 2018), intrinsic motivation (Pekrun, et al., 2017), participation (Mega, et al., 2019), and memory (Faith & Thayer, 2018). Trigueros, et al.'s (2019) study successfully demonstrated the importance of focusing on emotions in PE classes as emotions increase the propensity to get good grades and maintain active lifestyle habits. In this case, focusing on learners' emotions in sport proved to be quite beneficial. A review of the evidence suggests that the application of research-based trait theories of emotional intelligence in educational settings can result in tangible and lasting benefits for both individuals and schools (Petrides, et al., 2018). A meta-analysis found that physical activity is closely related to emotional intelligence, and individual psychological characteristics are more prominent after physical activity (Ubago-Jiménez, et al., 2019).

Emotional intelligence has been the focus of attention of many researchers. Emotional intelligence is understood as the ability to facilitate the recognition and regulation of emotions and the formation of adaptive behavior. The main theories on emotional intelligence are based on the trait model and the ability model, which share some common elements such as the fact that emotions are considered as predictors of positive adaptive behavior. The trait theory considers emotional intelligence as a construct that is associated with a set of stable traits related to personality, socio-emotional skills, motivational aspects and various cognitive abilities that are important for dealing with demands and stresses. The ability model views emotional intelligence as another type of intelligence that is based on the adaptive use of emotions and their application to thinking, enabling individuals to adapt to their environment and solve problems (Estrada, et al., 2018).

IQ and EQ play a very important and influential role in students' learning activities. Without the participation of EQ in the teaching and learning process, IQ will not function optimally. A good collaboration of IQ and EQ will produce learners who have high learning achievement. Emotional intelligence is the most important thing in determining the success of students because with loose emotions it can make smart students less able to decrease learning outcomes. Without emotional intelligence, learners will not be able to use their cognitive abilities according to their potential. It causes, that intellectual is not the only factor that can determine the success of students, but there are other factors that can influence it, namely emotional intelligence.

Emotional intelligence (EQ) has an important role for the process and development of students in achieving Physical Education learning achievement. Learners who have good emotional intelligence (EQ) are able to recognize themselves and are able to build good relationships with others. The higher the emotional intelligence of these students, the more self-control can be adjusted to the situation faced in Physical Education learning, so as to improve Physical Education learning achievement. Self-regulation by handling one's own emotions, so that it has a positive impact on the implementation of tasks, is sensitive to conscience and is able to delay enjoyment before achieving a goal and being able to recover from emotional pressure.

Based on the results of the study, it shows that there is a significant relationship between kinesthetic intelligence and Physical Education learning outcomes with a contribution of 13.94%. The results of the study were supported by several studies including by Irwansyah (2018); Ishar, et al., (2023); Aisyah, et al., (2024) showed that there was a significant relationship between kinesthetic intelligence and Physical Education learning outcomes. Koçak (2019) in his study stated that as the attitude towards sports increases positively, the physical kinesthetic intelligence also increases positively. Hatami & Seyfi's (2018) study showed that there was a moderate positive correlation between students' attitudes towards Physical Education lessons and the level of kinesthetic intelligence ($p<0.05$). In other words, the level of kinesthetic intelligence increases as the attitude of secondary school students towards Physical Education lessons increases, i.e. when the attitude of secondary school students towards Physical Education decreases, the level of kinesthetic intelligence also decreases.

Bodily-kinesthetic intelligence is the capacity to manipulate objects. It also requires better physical skills, will appreciate the extent to which athletes and sportsmen manipulate their bodies. If this intelligence is well developed; individuals will be able to shine as sportsmen, dancers, or surgeons (Suhadi, et al., 2020). Kinesthetic intelligence is a type of intelligence that is commonly possessed by humans. Kinesthetic is related to the coordination of movements of the whole body or in other words, the ability to equalize the mind and body, so that what is contained in the mind can be poured in the form of movement by the limbs.

Kinesthetic intelligence or physical intelligence is the ability to use the whole body and its components to solve a problem, make something, or use some kind of product, and coordinate body and mind to perfect physical performance. Kinesthetic is physical intelligence. Physical intelligence is the ability to use the mind and body together to achieve a desired goal. Kinesthetic intelligence allows humans to establish an important link between the mind and body, allowing the body to manipulate objects and create movement. This intelligence includes talent in controlling body movements and skill in handling objects (Rodji, et al., 2022).

Kinesthetic intelligence includes elements of physical skills such as: coordination, agility, strength, flexibility, balance, endurance and power. In human physiology, kinesthetics (kinesthesia) means the sense of motion that is part of the movement of bones through joints. Children who have high kinesthetic intelligence will be able to integrate coordination between nerves and muscles simultaneously to achieve one goal. Neural development as a regulatory center and the basis of a person's intelligence, not to mention multiple intelligences (Rodji, et al., 2022).

Kinesthetic ability is also said to be the ability of the body to perform or practice brain commands in a series of movements. Kinesthetic intelligence, if considered in depth, is closely related to Physical Education subjects in schools (Ishar, et al., 2023). This is because Physical Education subjects involve a lot of body movements that are coordinated in such a way as to form a series of movements that have benefits for a person's body. Kinesthetic intelligence is needed in Physical Education learning, because the movement process requires coordination of the nervous and muscular systems and motion controllers so that they are able to display beauty and communicate messages through the beauty of motion. By utilizing this kinesthetic intelligence, students are expected to have high Physical Education scores. In this regard, good grades in Physical Education can affect the quality of learning of students in achieving their educational goals.

Based on the results of the study, it shows that there is a significant relationship between learning motivation and Physical Education learning outcomes with a contribution of 11.15%. The results of the study are supported by several studies including by Barus & Sinuraya (2021); Putra, et al., (2020) that there is a significant relationship between learning motivation and Physical Education learning outcomes. Learning motivation has a positive effect on student participation and learning outcomes (Law, et al., 2019). Filgona, et al. (2020) argue that motivation drives learners in achieving learning goals. Trigueros et al.'s (2019) study shows that self-motivation acts as a predictor of academic performance and regular participation in physical activity. Several studies have shown that learners who have high levels of self-motivation show greater engagement in class and make better decisions, resulting in high academic achievement (Ramos & Gómez, 2019).

Learning motivation is one of the important aspects that every learner must have in order to follow learning well. Learning motivation is something that is useful to support students to succeed in participating in learning activities at school. Learning motivation is essentially the overall driving force within students that gives rise to learning activities, which ensures the continuity of students to cause learning activities and provides direction for the learning activities themselves, so that the desired goals of students are achieved. Learning motivation is one of the physical potentials that everyone has to increase work productivity. For students, learning motivation is one of the factors that affect physical readiness before receiving lessons at school, so that later with good physical fitness, students can receive the learning provided by the school optimally.

Motivation can function as a driver of effort and achievement, the existence of good motivation in learning will show good results. In other words, with diligent effort and especially realizing motivation, someone who learns will be able to produce good learning results. The intensity of one's motivation will greatly determine the level of learning achievement. A student must have good learning motivation to get good learning results. a student who has motivation in learning can be seen from his seriousness in preparing for learning. Learning motivation also has a significant relationship in the form of a role to contribute stimuli while learning, students will appear eager to accept the learning provided by the teacher during learning, especially Physical Education.

Based on the results showed that there is a significant relationship between emotional intelligence, kinesthetic intelligence, learning motivation to Physical Education learning outcomes with a contribution of 41.60%, while the remaining 58.40% is influenced by other factors outside this study. Other factors that affect Physical Education learning outcomes such as learning methods, teachers, learning environment, learning facilities and others. Learners with Physical Education learning, individuals feel competent in their abilities in motor skills, in other words, it is possible to develop basic movements such as running, climbing, balancing, jumping, rolling. As a result, Physical Education through activity-related behavioral changes, enables body control, coordination and development of the muscular-nervous system and provides mental and psychological harmony (Hatami & Seyfi, 2018).

It is not only physical that is needed to learn Physical Education, but intelligence and cognitive abilities also do not escape the object of Physical Education, for example, in addition to mastering various basic techniques of certain sports practically, students must also be able to master them conceptually or theoretically. Attitudes of sportsmanship and high discipline are also a reflection of Physical Education learning. Physical Education aims to develop knowledge, skills, confidence, and personality values related to physical activity, such as aesthetic development, and social development (Nurafiati, et al., 2021; Erianti, et al., 2022). This is caused by many factors that affect students' Physical Education learning outcomes, such as; motivation to learn, not only providing facilities to go to school, but closeness to children can help them learn and solve problems together (Rijaluddin & Mardius, 2022). Learning outcomes are the abilities that students have after receiving their learning experience. Good learning outcomes in Physical Education learning in particular are expected to be able to play a role in producing quality students, namely as humans who are able to think critically, creatively, logically and take the initiative in dealing with the symptoms of life both socially and technologically that develop in the midst of society in the current era of globalization. Learning achievement is influenced by several factors, including: factors of physical maturity or growth, intelligence (intelligence), training, motivation, and personal factors. External factors include family factors or the state of the parents' household, teachers, teaching methods, media used in the learning and teaching process, the environment and opportunities available, and motivation (Mulia, et al., 2021).

Emotional intelligence is an ability to motivate oneself, control feelings and impulses to keep stress from killing the ability to think, empathize and apply emotional intelligence effectively (Desai & Desai, 2018). Suleman, et al., (2019) stated that emotional intelligence accounts for 80% of individual learning success. Well-managed emotions can be utilized to support success in various fields because when emotions arise, individuals have more energy and are able to influence other individuals. Everything that these emotions produce if utilized properly can be applied as a source of energy needed to complete tasks, influence others and create new things.

Kinesthetic intelligence is a type of intelligence that is commonly possessed by humans. Kinesthetic is related to the coordination of movements of the whole body or in other words, the ability to equalize the mind and body, so that what is contained in the mind can be poured in the form of movement by the limbs. Kinesthetic ability is also said to be the ability of the body to perform or practice brain commands in a series of movements. Students by utilizing this kinesthetic intelligence, it is hoped that students can have high Physical Education scores (Ishar, et al., 2023).

Motivation becomes a growing spirit in every learner, and there is a sense of pleasure in the learning activities that are being carried out, so that if students have high motivation, there will also be a lot of energy ready to carry out the teaching and learning process (Kapti & Winarno, 2022). If someone has learning motivation, of course someone has an interest in themselves, is focused, serious and races against boredom to achieve achievement. The reality that occurs in these students, the learning provided by the teacher will indirectly be attached to the cognitive of students, and will be directly proportional to the learning outcomes obtained in the final semester exam.

CONCLUSIONS

Based on the results of data analysis, description, testing of research results, and discussion, it can be concluded that: (1) There is a significant relationship between emotional intelligence and Physical Education learning outcomes of grade V students in Kretek District State Elementary Schools in Bantul Regency, with a significance value of 0.000 <0.05 and a contribution of 16.51%. (2) There is a significant relationship between kinesthetic intelligence and the learning outcomes of Physical Education of grade V students in State Elementary Schools in Kretek Sub-district, Bantul Regency, with a significance value of 0.002 <0.05 and a contribution of 13.94%. (3) There is a significant relationship between learning motivation and Physical Education learning outcomes of grade V students in Kretek District State Elementary Schools in Bantul Regency, with a significance value of 0.031 <0.05 and a contribution of 11.15%. (4) There is a significant relationship between emotional intelligence, kinesthetic intelligence, learning motivation on the physical education learning outcomes of fifth grade students in Kretek District State Elementary School, Bantul Regency, with a significance value of 0.000 <0.05 and a contribution of 41.60%.

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Development of a Batting Tool for Learning Physical Education Sports and Health for Students in Elementary School

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ABSTRACT: Research objectives: (1) to generate products for the development of baseball games targeting elementary school students (SD), (2) to assess the viability of developing a baseball game bat for Physical Education learning (PE learning) in elementary students, and (3) to evaluate the effectiveness of a baseball game bat for Physical Education learning (PE) in enhancing the hitting skills of elementary school students. This study was categorized as Research and Development (R&D) or development research, consisted of the following stages: 1) identification of potential and problems; 2) collection of information; 3) design of the product; 4) validation of the product; 5) revision of the product; 6) conducting product trials; 7) further revision of the product; 8) conducting broader trials; and 9) finalizing the model through revision. The trial participants consisted of third grade students from SD Negeri Dalangan 1 (Dalangan 1 Elementary School) in Minggir District. The trials were conducted on a weekly basis. For small-scale trials, there were 6 students involved, and for large-scale trials, there were 12 students. The sample was determined by using purposive sampling. The selected instruments included a questionnaire for material experts and media experts to assess the eligibility of a batting tool as a medium for learning baseball games, as well as questionnaires to gather student assessment responses. The acquired data would thereafter be quantitatively examined by using descriptive statistics, through the calculation of percentages. The acquired results indicate the following: (1) the development of baseball game batting products goes through nine stages of development, and (2) The assessment of the development tool's viability is based on a) the trial validity conducted by material experts shows that the mean value at 4.89 levels of achievement 97.78% are in the "very feasible" category. b) Media specialists undergo validity testing, resulting in an average value of 4.83. The achievement rates for this testing are at 96.67%, placing it in the "very feasible" category. c) A smallscale feasibility trial is conducted. Students receive an average score of 4.62, which corresponds to 87.23% in the "very feasible" category. The large-scale feasibility trials, conducted through a questionnaire, show an average score of 4.95, which corresponds to 99.10% in the "very feasible" category. Additionally, the t-test results indicate that the mean post-test score of 85.42 is significantly higher than the mean pre-test score of 41.67. The rise can be deemed significant based on the statistical significance (2-tailed) with a p-value of 0.000 (less than 0.05). Therefore, the creation of a castle game bat product is highly viable and efficient for teaching Physical Education for elementary school students.

KEYWORDS: *batting tools, development, baseball games, elementary schools.*

I. INTRODUCTION

Khajir (2021, p. 3) explains that the education process can be referred to as school education, where the stages can be taken both through formal (elementary school to university) and informal (family, environment) channels. As for this formal pathway, it includes a variety of subjects delivered to students, including physical education, sports and health (PJOK). PJOK is included as a lesson delivered at all levels of education in order to develop the quality of students, especially in the physical realm, as well as to maintain a healthy life both physically and mentally, to achieve health in the daily lives of students (Komarudin & Prabowo, 2020, p. 57).

Susanto, et al (2022, p. 4-5) explain, the scope of PJOK includes sports and games, gymnastic activities, development activities, water activities, rhythmic activities, and out-of-school education. The sports and games in question include traditional sports, skills, games, manipulative, locomotor and non-locomotor, dynasty, athletics, kippers, rounders, basketball, soccer, table tennis, volleyball, badminton, field tennis, martial arts, and other activities. The various types of games contained in the PJOK material cannot all be organized in schools. The existence of a number of obstacles and obstacles becomes an excuse for not implementing some types of games.

Based on observations at several elementary schools in Kepanewon Minggir, one of the obstacles and barriers that occur during the PJOK learning process is the unavailability of adequate learning infrastructure, which has a negative impact on the implementation of learning which will also reduce the learning motivation of students in the learning material. Another obstacle or obstacle that occurs is the type of material from the learning carried out by the teacher is still limited, especially the types of game material for elementary school.

Therefore, it is necessary to develop in accordance with the needs and characteristics of the learners themselves which must also be adjusted to their level of growth and development (Wahyuningsari, et al 2022, p. 530) so that the game can optimize the motion experience of students and the game can be used as an effective means of learning PE, especially in elementary schools. An example of game material that can be implemented and given to elementary school students based on basic competencies is small ball games, especially the type of baseball material.

Baseball is a game that is carried out in teams using bats and small balls in an open field, the goal of which is to obtain the highest possible value (Pamungkas, 2015, p. 10). This game is easy to implement, but in its implementation, if the material is not delivered optimally by the teacher, it will certainly support the boredom of the students who take part in the learning process and cause difficulties from the students. Students when carrying out practical activities such as based on observations in the learning process of baseball games, many of the students experience difficulties when hitting, so that the majority of students are not interested in baseball game material, and have baseball game material scores below the Minimum Completeness Criteria (KKM), especially at Dalangan 1 Minggir Elementary School.

The boredom and difficulty of students in hitting based on observations is based on the batting tool used, where the batting tool used during the learning process of the baseball game has a very small cross section, unattractive colors, and the length of the bat handle is too long, making it difficult for students when carrying out batting practices (the bat rarely hits the ball). Therefore, the development of a batting tool can be an alternative to help students easily hit, as well as increase their confidence when participating in the learning process of baseball (valuable experience).

Efforts to develop a batting tool also need to adjust the characteristics, needs, and growth rates of students, besides that the development of tools made must focus on paying attention to the safety and comfort factors of students. The development of a batting tool must at least also refer to the content of educational goals in order to maximize all domains or domains of education to be achieved or developed, namely affection, cognition, and psychomotor of students.

The development of a baseball bat that can later be used by students is expected to be an alternative form of problem solving from activities carried out during the PJOK learning process. The hope of the development carried out can at least increase the interest of students, can overcome the boredom of students during the learning process, and can improve the skills and intensity of movement activities of students when taking PJOK lessons.

In connection with the above problems, it is necessary to develop equipment so that what was originally difficult can be simplified and changed to be easy without the need to eliminate the meaning of what the teacher conveys or teaches. In addition, the development of a baseball bat will increase the innovativeness of a teacher who can support students to be more interested, actively participate, and move in PJOK lessons. The study of the development of a baseball bat will be presented and harmonized with the characteristics, needs, level of development and growth of elementary school students which of course cannot be separated from the comfort and safety factors.

The implementation of the development of a baseball bat will be presented by changing the size of the hitting field which is larger than the previous size, shortening the length of the handle of the batting tool, providing holes in the cross section so that students find it easier to find out the hitting point, as well as providing materials and coloring that are more attractive to students. Development supports the creation of a baseball bat that has good feasibility and effectiveness in optimizing the PJOK learning process, especially in elementary schools. Through the gaps and realities above, researchers are interested in conducting a study with the title "Development of a Batting Tool for Physical Education, Sports and Health Learning for Students in Elementary Schools".

II. METHOD

Type of Research

This research is a development research or Research and Development (R&D). The development model used in this research is the Borg and Gall model. The results of this study are specifically to develop a learning media product for batting tools in a baseball game.

Time and Place of Research

This research was conducted at SD Dalangan 1 Minggir, whose address is Parakan Kulon, Sendangsari, Kapanewon Minggir, Sleman Regency, Yogyakarta 55562. The time of organizing the research was in April 2023.

Trial Subjects

The test subjects in this study were third grade students of SD Negeri Dalangan 1 Minggir with 6 students for small group test subjects and 12 students for large group trials. The technique used in taking subjects in this study was purposive sampling.

Development Procedure

The development research procedure uses the Borg and Gall model in Sugiyono (2013, p. 298), which includes: 1) potential and problems; 2) collecting information; 3) model development; 4) model validation; 5) model revision; 6. model validation; 5) model revision; 6) model trial; 7) model revision; 8) wider trial; and 9) final model revision.

Operational Definition of Variables

This research is a development research, this research develops a batting tool for the game of baseball. Tool development is a step that is carried out in designing and preparing carefully to develop, produce, and validate a media or tool (Palmizal, & Diana, 2020, p. 7). Then, the batting tool for the baseball game can be called a bat, which is in the form of a bat that is made using wood. In this study, the batting tool for baseball will be modified in order to create a development product that can support the learning of baseball games at school and can make a solution to the quality problems of students in carrying out baseball game learning, especially in carrying out basic techniques in the form of hitting.

Data, Instruments, and Data Collection Techniques

The data collection techniques used in this study were observation and interviews. Observation is used by researchers to understand and observe the means of learning the game of baseball in the research location. Meanwhile, interviews are used to obtain the necessary information in a direct way regarding the completeness of the learning facilities for the baseball game.

The instruments used in this study are a questionnaire for the feasibility of a batting tool and a questionnaire for students' assessment responses to the development of a batting tool for the game of baseball as a learning medium. The questionnaire uses a Likert scale.

Data Analysis Technique

Data analysis techniques in this study are qualitative and quantitative descriptive techniques with percentages. As for the qualitative type obtained through the implementation of interviews and suggestions given by experts. Meanwhile, the quantitative type is obtained through the acquisition of a questionnaire.

III. RESEARCH RESULT

A. Initial Product Development Results

Product design in this case is intended to make a product "batting tool for baseball". The design of the batting tool is made with a wider size, giving color interest, and changing the handle material on the bat which is more attractive and safe. Researchers make batting tool development products to be tested on media and material experts, so that they have the feasibility to be tested in small and large scale groups. The basic material of the bat is light wood (teak wood). The bat is painted using natural colors and the handle is coated with rubber. The bat is made with an overall length of 40 cm with a flat cross section at the top for ball contact, which is 30 cm long, 6.5 cm wide, 3 cm thick, while the bottom for the handle is 10 cm long, 2.5 cm wide, and 3 cm thick. cm, and 3 cm thick. The weight of the batting tool weighs 0.340 g. The product design of the development of a batting tool for the dynasty game in question, namely:

Figure 1 Initial Product Development Results

B. Product Validation Results

The development of this batting tool must pass validation and trials, where for material validation is carried out by material expert lecturers, while for media validation is carried out by media expert lecturers.

1. Material Expert Validation

Validation from material experts was carried out in the lecturer's room of Dr. Drs. Amat Komari, M.Si on December 20, 2023. The data obtained through this material expert validation can be presented with:

Table 1 Material Expert Validation Results

No	Aspects Assessed	Sum of scores	Mean	Achievement Level	Category
1	Physical	30	5	100%	Very feasible
2	Design	29	4,83	96,67%	Very feasible
3	Usage	29	4,83	96,67%	Very feasible
	Eligibility	**88**	**4,89**	**97,78%**	**Very feasible**

The results of the validation of the material expert for the 3rd grade PJOK learning batting tool at SD Negeri Dalangan 1 Minggir have an average score of 4.89 with an achievement level of 97.78% (Very Feasible). This assessment includes 3 aspects, namely the physical aspect with an average score of 5 achieving 100% (Very Feasible), the design aspect with an average score of 4.83 achieving 96.67% (Very Feasible), and the use with an average score of 4.83 achieving 96.67% (Very Feasible). Referring to the table above, it can then be displayed through a bar chart:

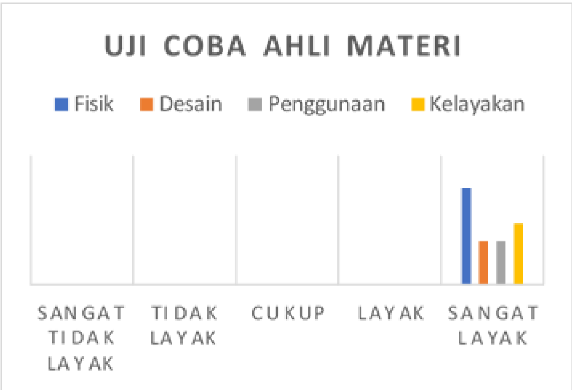

Figure 2 Diagram of Material Expert Validation Results

2. Media Expert Validation

Validation of this material expert was carried out in the lecturer's room Mr. Aris Fajar Pambudi, M.Or. on December 22, 2023. The data obtained through this media expert validation can be presented with:

Table 2 Media Expert Validation Results

No	Aspects Assessed	Sum of scores	Mean	Achievement Level	Category
1	Physical	30	5	100%	Very feasible
2	Design	28	4,67	93,33%	Very feasible
3	Usage	29	4,83	96,67%	Very feasible
	Eligibility	**88**	**4,83**	**96,67%**	**Very feasible**

The results of the media expert validation for the PJOK learning batting tool that the researchers developed obtained an average score of 4.83 with an achievement level of 96.67% (Very Feasible). This assessment includes 3 aspects, including the physical aspect with an average score of 5 achieving 100% (Very Feasible), design with an average score of 4.67 achieving 93.33% (Very Feasible), and use with an average score of 4.83 achieving 96.67% (Very Feasible). Referring to the table above, it can then be displayed through a bar chart:

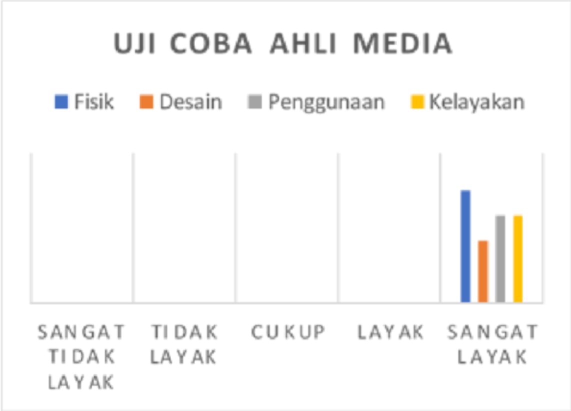

Figure 3 Diagram of Media Expert Validation Results

C. Product Feasibility Trial Results

The trial was carried out to find out the responses of students and PJOK teachers to the products that had been developed.

1. Small Scale Trial

This small-scale trial phase was conducted on December 23-25, 2023 to 6 grade 3 students at SD Negeri Dalangan 1 Minggir. 6 3rd grade students at SD Negeri Dalangan 1 Minggir. Based on the results of the small-scale trial of students on the product of the game beater in learning PJOK at SD Negeri 1 Dalangan, it is presented as follows:

Table 3 Small Scale Trial Results

No	Aspects Assessed	Sum of scores	Mean	Achievement	Category
				Level	
1	Physical	145	4,86	80,56%	Very feasible
2	Design	163	4,53	90,56%	Very feasible
3	Usage	163	4,53	90,56%	Very feasible
	Eligibility	**471**	**4,62**	**87,23%**	**Very feasible**

Based on the table above, the results of the small-scale trial of students on the product of the batting tool for the dynasty game in PJOK learning if displayed in the form of a bar diagram of the results, as follows:

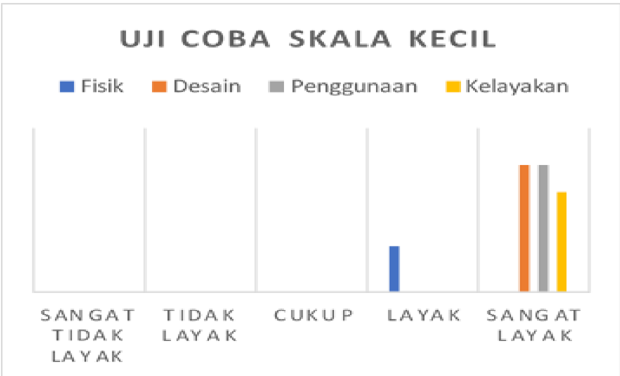

Figure 4 Diagram of Small Scale Trial Results

Thus, the students' assessment of the product of the batting tool for the game of baseball in learning PJOK is in the "very feasible" category with a percentage of 87.23% with an average score of 4.62, then the students' suggestions and input are revised according to the input from the results of the expert assessment. Based on the results of the assessment of students at the small-scale trial stage

Based on the results of the assessment of students at the small-scale trial stage, the batting tool for the dynasty game developed is very feasible to be tested at the large-scale stage.

2. Large Scale Trial

This large-scale trial phase was carried out on December 26-28, 2023 to 12 grade 3 students at SD Negeri Negeri 3.

12 3rd grade students at SD Negeri Dalangan 1 Minggir. Based on the results of the large-scale trial of students on the product of the game batting tool in learning PJOK at SD Negeri 1 Dalangan, it is presented as follows:

Table 4 Large Scale Trial Results

No	Aspects Assessed	Sum of scores	Mean	Achievement Level	Category
1	Physical	358	4,97	99,44%	Very feasible
2	Design	355	4,93	98,61%	Very feasible
3	Usage	357	4,96	99,26%	Very feasible
	Eligibility	**471**	**4,95**	**99,10%**	**Very feasible**

Based on the table above, the results of the large-scale trial of students on the product of the baseball bat in learning PJOK if displayed in the form of a bar diagram of the results, as follows:

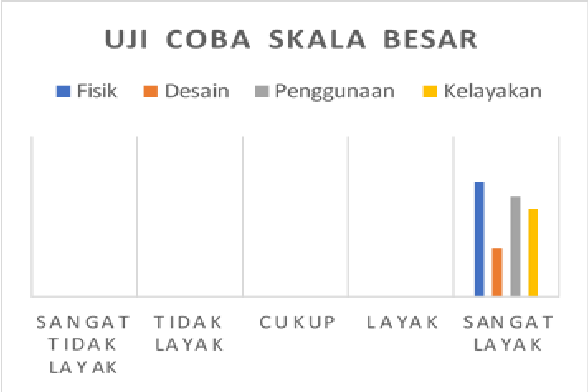

Figure 5 Diagram of Large Scale Trial Results

The students' assessment of the product of the batting tool for the game of baseball in learning PJOK is in the "very feasible" category with a percentage of 99.10% with an average score of 4.95, then the students' suggestions and input are revised according to the input from the results of the expert assessment. Based on the results of the students' assessment at the small-scale and large-scale trial stages, the batting tool for this game is developed is very feasible to be tested for effectiveness.

D. Revision of Development Products

The revision carried out on the product of the batting tool for the dynasty game in PJOK learning is based on the suggestions as well as input provided by the expert. The data used in the implementation of product revisions are input as well as suggestions that researchers get when validating products, in the form of:

1. Material Expert advice is that paint and rubber materials can use good quality materials. Then, the beater can be given 2 holes in the cross section with a diameter of 2 cm.

2. The Media Expert's suggestion is to ensure that the paint material really uses quality materials and replace rubber materials that are not slippery, more comfortable, and safe.

E. Final Product Review

The batting tool for the dynasty game in this study is made from a bat, namely light wood (teak wood). The bat is painted using natural colors and the handle is coated with rubber. The bat is made with an overall length of 40 cm with a flat cross section at the top for ball contact, which is 30 cm long, 6.5 cm wide, 3 cm thick, while the bottom for the handle is 10 cm long, 2.5 cm wide, and 3 cm thick. The weight of the batting tool is 0.315 g. The cross section of the batting tool adds 2 holes with a diameter of 2 cm. The final product of the development of a batting tool is shown through a picture, as follows: Figure 6 Final Product Review.

F. Effectiveness Test Results

This effectiveness test was carried out at SD Negeri Dalangan 1 Minggir with a sample of 18 students, using the effectiveness test. 18 students, using the t test through a sig level of 5%. But previously there will be prerequisite testing in the form of normality and homogeneity tests, with the results:

1. Normality Test

This test was carried out using the Kolmogorov- Smirnov (K-S) method through the SPSS 22 application at a sig level of 0.05 or 5%. The results obtained through the use of the K-S method, showed that the p-value of the pre-test (0.059) and post-test (0.059) exceeded 0.05, which indicated that the data was normally distributed.

2. Homogeneity Test

This test is intended to test how similarities exist in the variants between the pre-test and post-test. The method used in this test is the Levene Test, the result obtained is sig with a value of 0.747 (≥ 0.05). This situation reflects the existence of a homogeneous variant of the data group. Thus explaining the population has homogeneous or similar variants.

3. The t-test

This test is held to determine whether or not there is an increase in the hitting skills of the baseball game from students in elementary schools after the use of the baseball game batting tool that has been developed. The significance level that researchers apply is 5%. The criteria for the results obtained are significant if t count is obtained with a value> t table and sig below 0.05.

The results of the test obtained t count with a value of 18.894 which exceeds t table (df 17) 1.739 accompanied by sig with a value of 0.000 (<0.05) thus explaining the difference between the pre-test and post-test significantly. The mean of the pretest was 41.67. After the students were given a batting tool for the dynasty game that had been developed, the post-test average was 85.42. Referring to the results of this analysis, it can be understood that the basic batting skills of elementary school students increased after using the developed batting tool.

DISCUSSION

Based on research data during the implementation of small, large-scale trials, as well as effectiveness tests, it shows that, overall, students feel that the product development of the batting tool for the dynasty game made is very feasible and effective for use in learning PJOK at the elementary level. This statement is also based on the results of observations during the implementation of trials where the product development of a batting tool for baseball can arouse the motivation and learning participation of students when participating in the implementation of PJOK learning material for baseball games, such as students during the implementation of trials who feel happy and enthusiastic about using the batting tool that has been developed because they feel that the previous standard batting tool is too heavy and narrow in cross section so that students have difficulty hitting the ball when hitting while, using a batting tool that has been developed to suit the needs of students can make it easier for them to hit the ball when practicing basic batting techniques.

The results of these observations are in line with the results of his research Widodo (2014, p. 11), which explains the crosssection of the bat from a lighter and wider board when learning will make it easier for students to practice the motion of hitting the ball, so that students can more easily carry out the stroke. In addition, students who were previously passive and reluctant to try to practice basic hitting techniques because they felt they could not always hit the ball, by using the product development of batting tools, students became more enthusiastic and confident even, wanting to try continuously.

According to the opinions of students when conducting small-scale and large-scale trials, the advantages of the product development of baseball batting tools such as being more comfortable and painless when grasped because the batting tool is coated using elastic rubber and is not slippery, the batting tool development product is made of light wood to be used unlike the previous standard batting tool, the batting tool product has a larger width so that it makes it easier for students to hit the ball when practicing basic batting techniques in baseball, and according to students, the batting tool development product is unique because it has 2 holes with a diameter of 2 cm which also makes it easier for students to be able to better estimate the imposition of the ball. The holes in the cross section and the change of rubber to a more elastic and non-slip one are the result of improvements on the suggestions and revisions from material experts and media experts.

The interest of elementary school students in the product development of baseball batting tools can optimize the movement activities of students, which is in accordance with the nature of physical education in schools. According to Iswanto, & Widayati, (2021, p. 15) physical education is a learning process through physical activities designed to improve physical fitness, develop motor skills, knowledge, healthy living behavior, active, sportive attitudes, and emotional intelligence. This statement explains that through optimal movement activities from the application of the product development of the baseball bat, it is hoped that it can develop students both from the cognitive, affective, and psychomotor domains.

The development product of this batting tool is aimed at elementary school students so that, through this development product, students can play more actively and independently because the development product that is made is easy to use because basically the development product made gets "Very Feasible" results because it has been adapted to the needs and characteristics of students in elementary school. This is in line with the statement according to Mulyatiningsih, E. (2016, p. 2) that, in developing products, it is necessary to analyze the needs and characteristics of users such as if the level of understanding of students is still low, then the products developed must be made simpler so that they are easy to understand. It cannot be denied that behind the advantages of this development product, of course, there are also weaknesses such as the basic material of the bat using wood which over time will experience weathering. Based on these weaknesses, it is important for a PJOK teacher to always be able to innovate in creating learning tools or media that are feasible and attract students in participating in the learning process, in line with the statement according to Rahmadayani, et al, (2021, p. 151) teachers must be able to create and develop media or learning facilities with students, not just utilizing the media that is already available. In addition, it is hoped that the existing weaknesses can be a concern in conducting further development efforts to obtain product results that are more attractive and feasible for students.

IV.CONCLUSIONS

The results of the research evaluation of the school health effort program in Kapanewon Jetis Bantul Regency are:
Based on the results obtained, it can be understood (1) the product development of a batting tool for a baseball game through nine stages of development, (2) the feasibility of developing tools is assessed based on a) the material expert validity trial obtained an average score of 4.89 with an achievement level of 97.78% in the "Very Feasible" category b) the media expert validity trial obtained an average score of 4.83 with an achievement level of 96, 67% category "Very Feasible" c) small-scale feasibility trials of students obtained an average score of 4.62 percentage value of 87.23% category "Very Feasible" d) largescale feasibility trials through questionnaires showed an average score of 4.95 percentage value of 99.10% category "Very Feasible", (3) In accordance with the T test, the mean post-test is 85.42> mean pre-test is 41.67. The increase can be declared significant because sig (2-tailed) is 0.000 (<0.05). This means that the product development of a baseball bat is very feasible and effective to use for learning PJOK in elementary school students.

SUGGESTIONS

Based on the results of this study, there are several suggestions that can be given, namely:

1. For further researchers, it is suggested that they can develop subjects and development products on other materials, so that it is hoped that the implementation of learning can be widely identified.
2. For PE teachers, it is hoped that they can optimize the use of batting tool development products that have been made and can develop other more interesting learning tools to be used in the learning process at school.

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Learning Action Cell Program and Teachers' Functional Competency in Cagayan De Oro City

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ABSTRACT: Learning Action Cell (LAC) program influences teachers' functional competency. It is an integral part of professional development initiatives, which impacts teachers' instructional skills, classroom management, assessment strategies, and professional growth. This study focused on the implementation of LAC program and teachers' functional competency in the Division of Cagayan de Oro City. It sought to determine the relationship between the implementation of LAC and teachers' functional competency and find the level of implementation of LAC and teachers' functional competency. A descriptive-correlational method was used in this study. The respondents were one hundred forty-seven (147) public elementary school teachers. The survey questionnaire was the main instrument used to gather data. The statistical tools used were descriptive statistics such as mean and standard deviation. Pearson Product Moment Correlation (r) was employed to determine the relationship between the implementation of LAC and teachers' functional competency.

Findings revealed that the LAC program was well implemented, and the level of teachers' functional competency was outstanding. Hence, there was a significant relationship between the implementation of LAC and teachers' functional competency. It is recommended that LAC coordinators align LAC activities with the school's broader professional development plans. Teachers should also engage in collaborative projects with other educators to share experiences and best practices. School heads should also provide training and support strategies for teachers.

KEYWORDS: Learning Action Cell (LAC) program, teachers' functional competency

I. INTRODUCTION

The Department of Education (DepEd) launched the Learning Action Cell (LAC) Program in schools as a professional development exercise to enhance teaching and learning. LAC sessions have been implemented and organized through the initiative of the school principal and the designated coordinators. Most of the topics in LAC are taken from the division or district roll-out. With this, different topics related to teaching and learning were given emphasis. These numerous topics were given to the teachers, assuming that these would work as designed and planned. Professional development programs, such LAC sessions, can only be effective if they result in the improvement of teachers' functional competency.

Having competent educators and fostering their professional growth are crucial for the teaching profession. Through professional development opportunities, teachers can constantly improve their knowledge, skills, attitudes, values, and become more proficient at their jobs. It is made lawful and uniform by DepEd Order No. 35, s. 2016, titled "The Learning Action Cell as a K to 12 Basic Education Program School-Based Continuing Professional Development Strategy for the Improvement of Teaching and Learning". Facilitated by the school head or a qualified LAC Leader, LAC is a group of teachers that participate in cooperative learning sessions to solve shared difficulties experienced in the school (DepEd Order No. 35, s. 2016).

At the heart of every effective educational system are competent, dedicated, and skilled teachers. DepEd admits that the caliber of instruction has a significant influence on the quality of learning. Therefore, it is imperative to have competent teachers and to strengthen their development in the field of teaching. Through teaching knowledge and information, encouraging critical thinking, and motivating students to realize their full potential, teachers play a significant role in forming the future generation. To fulfill these responsibilities, teachers must possess a unique blend of functional competency. Functional competency, including expertise in teaching strategies and content knowledge, forms the anchor of an effective teaching-learning process, and is essential for creating an engaging and supportive learning environment. As the educational landscape continues to develop to meet the challenges of the 21st century, the role of teachers has become increasingly significant. The constant advancements of pedagogies, innovations in teaching methodologies, and the ever-changing needs of learners require teachers to adapt and develop their functional competency throughout their professional careers.

Further, the teachers' functional competency involves a collection of skills, knowledge, and attitudes that educators bring to the classroom, influencing the quality of instruction and the overall learning outcomes for students. The implementation of LAC as a professional development program can impact the development of teachers' functional competency. Effective professional development is the bridge that enables teachers to enhance their competencies and, in turn, positively impact student learning outcomes. Improving teacher quality through professional development is paramount for producing competent and responsible learners. Improved teachers' quality will mean enhanced classroom instruction.

As a result, enhanced classroom instruction indicates improved learning outcomes for the students. As a result, the Department of Education stressed how important it is to have educators who are effective and to provide them with professional development opportunities. Relative to this, DepEd introduced the Philippine Professional Standards for Teachers (PPST). In 2017, DepEd released D.O. No. 42, "National Adoption and Implementation of the Philippine Professional Standards for Teachers", which seeks to implement a defined measure to assess teacher performance, identify needs, and provide support and assistance for professional growth. Additionally, it seeks to clearly outline the standards for educators as well as the various career phases of professional development, from entry-level to highly skilled practice. It aspires to track and assess the performance of the teachers to determine organizational needs to enable continuous improvement and personal growth. It also serves as an approach to ensuring that both teaching and non-teaching personnel focus their working performance on upholding all the departmental policies. To ensure that teachers are capable of implementing the K to 12 programs, PPST serves as the guide to carry out all learning and development activities for teachers.

Specifically, the Division of Cagayan de Oro City, the Southwest I District, is composed of schools that are conducting LAC sessions regularly. The district's school heads are dedicated to raising the caliber of instruction and teacher competency. The researcher believes that the effective implementation of LAC in schools can create significant contributions to the development of the teachers' functional competency.

With this, the researcher conducted this study to determine the relationship between the implementation of LAC, based on DepEd Order No. 35, s. 2016, and the level of teachers' functional competency, according to DepEd Order 42 s. 2017, in Southwest I District, City of Cagayan de Oro.

II. METHODOLOGY

A descriptive-correlational method was used to gather information on the implementation of Learning Action Cell and the level of functional competency of the teachers. To achieve the objectives of this study, the researcher utilized a quantitative research approach. Focusing on quantifying data gathering and analysis is the main goal of a quantitative method. An extensive survey, using research questionnaires, was conducted to gather data on the implementation of LAC in schools and the level of teachers' functional competency, contributing valuable insights to the field of education.

A. Population and Sample

The respondents of the study were the 147 elementary school teachers in the Southwest I District of the Division of Cagayan de Oro City. It is comprised of Teachers I, II, and III from ten (10) elementary schools. These teachers collectively represent the focal group for evaluating the implementation of LAC and assessing their functional competency. Moreover, the study included new and experienced teachers from various subject areas and grade levels.

B. Research Instrument

In this study, the researcher utilized the major research tool – the survey questionnaire. The questionnaire was divided into two parts. Part I included the Implementation of the Learning Action Cell, which was patterned and modified from DepEd Order 35 s. 2016. One of the significant modifications made to the research instrument was revising the indicators, making them more relevant to the implementation of the LAC program. The second part of the questionnaire was related to the level of Teachers' Functional Competency, patterned from DepEd Order 42 s. 2017, known as the Philippine Professional Standards for Teachers (PPST).

C. Sampling Technique

In choosing the respondents of this study, the researcher used a purposive sampling method. In purposive sampling, the respondents were selected for a specific purpose or objective. Since the indicators in the tool used to measure the level of functional competency between teachers and master teachers were different; thus, the researcher selected all Teachers I-III of Southwest I District in the Division of Cagayan de Oro City, with a total of one hundred forty-seven (147) respondents.

D. Theoretical Framework

This study was supported by the Communities of Practice (CoP) Theory, developed by social learning theorists Jean Lave and Etienne Wenger. This theory specifies a framework for understanding how individuals with shared interests and goals come together to learn from each other through collaboration and collective expertise. There are three required components of CoP, namely domain, community, and practice.

In this study, the domain corresponds to the common interest of teachers to participate in professional learning activities, which contribute to improving their functional competency. Conversely, a community is a collection of individuals who get together frequently to exchange knowledge and have a shared passion or interest. The community, in this study, are the educators who participate in cooperative learning activities to address common problems faced by the school. Lastly, practice refers to shared resources, experiences, and ways of doing things that develop over time among members of a community. In this study, practice is represented by the LAC program, which provides opportunities for continuous problem-solving or cooperative learning in a common professional interest area, as well as self-directed learning, reflective practice that leads to action and self-evaluation and collective competency (DepEd Order No. 35, s. 2016).

E. Conceptual Framework

The conceptual framework highlights the dynamics between the implementation of LAC and teachers' functional competency. The provisions and regulations indicated in the DepEd Order No. 35 s. 2016, referred to as the Learning Action Cell as a K to 12 Basic Education Program School-Based Continuing Professional Development Strategy for the Improvement of Teaching and Learning, and the DepEd Order No. 42 s. 2017, titled National Adoption and Implementation of the Philippine Professional Standards for Teachers, acknowledges the significance of LAC as well as the development of teachers' functional competency in the context of education.

Through LAC, educators can assist one another in enhancing their material and pedagogical knowledge, practice, skills, and attitudes while also fostering a collaborative and professional spirit among school administrators, teachers, and the wider community (DepEd Order No. 35, s. 2016). On the other hand, the PPST will serve as the cornerstone for all programs and initiatives aimed at assisting teachers in being suitably prepared to carry out the K to 12 Program. It describes the expectations of teachers' increasing levels of knowledge, practice, and professional engagement. Simultaneously, the standards allow for teachers' growing understanding, applied with increasing sophistication across a broader and more complex range of teaching and learning situations (DepEd Order No. 42 s. 2017).

The study's schema illustrates how the variables that were employed in the investigation interacted with one another. It shows that the independent variable in the study is the implementation of LAC, which includes Learner Diversity and Student Inclusion, Content and Pedagogy of the K to 12 Program, Assessment and Reporting in the K to 12 Program, 21st Century Skills and ICT Integration in Instruction and Assessment, and Curriculum Contextualization, Localization, and Indigenization. The dependent variables include the teachers' functional competency indicators, which consist of Content Knowledge and Pedagogy, Learning Environment and Diversity of Learners, Curriculum and Planning, Assessment and Reporting, and Community Linkages and Professional Engagement.

In this study, the researcher aimed to find out if there was a significant relationship between the independent and dependent variables, presuming that a successful implementation of LAC in schools would improve the functional competency of teachers.

III. RESULTS AND DISCUSSION

Table 1. Summary Distribution of the Respondents' Level of Implementation of the Learning Action Cell

Variables	Mean	SD	Interpretation
Learner Diversity and Student Inclusion	3.73	0.44	Well Implemented
Content and Pedagogy of the K to 12 Basic Education Program	3.66	0.49	Well Implemented
Assessment and Reporting in the K to 12 Basic Education Program	3.61	0.52	Well Implemented
21st Century Skills and ICT Integration in Instruction and Assessment	3.66	0.50	Well Implemented
Curriculum Contextualization, Localization, and Indigenization	3.57	0.55	Well Implemented
Overall	**3.65**	**0.50**	**Well Implemented**

Legend: **3.26-4.00 At All Times/Well Implemented** **1.76-2.50 Sometimes/Partially Implemented**
2.51-3.25 Most of the Time/Implemented **1.00-1.75 Never/Not Implemented**

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Table 1 summarizes the respondents' level of implementation of the Learning Action Cell with an overall mean is 3.65 (SD=0.50), interpreted as Well Implemented. This means that teachers implemented the Learning Action Cell consistently. This implies there was a consistent effort among teachers to integrate the program into their teaching practices, ensuring continuous improvement in various aspects of education delivery. Teachers can share ideas, learn from one another, and approach problems in the classroom as a group by participating in cooperative talks and activities like LAC. Participation in LAC exposes teachers to research-based practices, pedagogical innovations, and effective teaching strategies that enhance their professional growth. The results resonated with the study of Fatih (2020) and Basco et al. (2022), which highlights the importance of professional development in enhancing teachers' knowledge and skills. Continuous education, through the Learning Action Cell, allowed teachers to constantly refine their pedagogical approaches and contribute to sustainable improvements in the education system.

The variable, Learner Diversity and Student Inclusion, obtained the highest mean of 3.73 (SD=0.44), interpreted as Well Implemented. This means that teachers were particularly adept at addressing the diverse needs of students and ensuring their inclusion in the learning process. This implies there was a solid commitment to creating inclusive learning environments where all students felt valued and supported, fostering better learning outcomes for everyone. Teachers who prioritize inclusion recognize and honor students' cultural backgrounds, languages, and identities, promoting a sense of belonging and respect within the classroom. This suggests that teachers need to focus on learner diversity and student inclusion to create inclusive, supportive, and enriching learning experiences that empower all students to reach their full potential. Embracing diversity promotes equity, fosters cultural responsiveness, enhances collaboration, and prepares students to thrive in a diverse and interconnected world. The support study further highlighted the importance of addressing learner diversity and inclusion in professional development programs, emphasizing the role of such initiatives in creating positive and caring learning communities (DepEd Order No. 35, s. 2016; Cartilla & Rondina, 2020).

However, the variable, Curriculum Contextualization, Localization, and Indigenization, got the lowest mean of 3.57 (SD=0.55) interpreted as Well Implemented. This means that there may have been room for improvement in integrating local and indigenous contexts into the curriculum. This implies that further efforts could enhance the relevance and cultural sensitivity of the education provided, promoting a deeper connection between students and their learning experiences. Contextualized and localized curriculum content captures students' interest and engagement by making learning more relatable and meaningful. Teachers can use familiar examples, contexts, and references that resonate with students' everyday experiences, increasing their motivation to learn. This finding is supported by the study of Dunn et al. (2018), which emphasized the importance of aligning professional development topics, such as those discussed in Learning Action Cell sessions, with key features of the education system, including curriculum contextualization and localization. This alignment ensured that teachers addressed critical aspects of education that contributed to improved learning outcomes for students.

Table 2. Summary of the Level of Teachers' Functional Competency

Variables	Mean	SD	Interpretation
Content Knowledge and Pedagogy	4.84	0.37	Outstanding
Learning Environment and Diversity of Learners	4.88	0.28	Outstanding
Curriculum and Planning	4.90	0.28	Outstanding
Assessment and Reporting	4.73	0.44	Outstanding
Community Linkages and Professional Engagement	4.84	0.38	Outstanding
Overall	**4.84**	**0.35**	**Outstanding**

Legend: 4.21-5.00 Always/Outstanding **1.81-2.60 Rarely/Unsatisfactory**
3.41-4.20 Very Often/Very Satisfactory **1.00-1.80 Never/Poor**
2.61-3.40 Sometimes/Satisfactory

Table 2 summarizes the level of Teachers' Functional Competency with an overall mean score is 4.84 (SD=0.35), interpreted as Outstanding. This means that the teachers consistently demonstrated high competency levels across all indicators. This implies that there is a strong foundation in teaching skills and practices among educators, producing a conducive learning environment for students. This also suggests that the district's educational system seemed to prioritize and effectively support the development of teachers' competencies. This finding is aligned with studies of Fatih (2020) and Heasly et al. (2020) on professional development emphasizing its crucial role in enhancing teachers' knowledge, skills, and attitudes, ultimately contributing to improved teaching practices and student outcomes.

The variable, Curriculum and Planning, obtained the highest mean score of 4.90 (SD=0.28), interpreted as Outstanding. This means that teachers excelled in designing effective curriculum frameworks and lesson plans, ensuring alignment with educational objectives and student needs. This implies that the district placed significant emphasis on curriculum development and strategic planning, which likely contributed to the overall high competency levels observed. By carefully designing a curriculum, teachers can map out what students need to learn and how to achieve those outcomes through well-organized planning. This finding resonated with the importance of professional development programs that focused on curriculum design and instructional planning, as they were crucial for enhancing teaching effectiveness (Dilshad et al., 2019).

However, the variable, Assessment and Reporting, got the lowest mean of 4.73 (SD=0.44), interpreted as Outstanding. This means that the teachers were proficient in conducting assessments and reporting student progress, but there were opportunities to further refine assessment strategies and reporting mechanisms. This implies that investing in continuous professional development in assessment practices could lead to even greater improvements in student learning outcomes. Assessment data guides instructional decisions by helping teachers identify which instructional strategies are effective and which areas require additional support. By analyzing assessment results, teachers can modify their teaching methods to better meet students' learning needs. This finding is supported by the study of Basco et al. (2022) and Reazo (2021) that underscored the importance of ongoing professional development initiatives like Learning Action Cell (LAC) sessions, which provided opportunities for teachers to enhance their assessment practices and share best practices with colleagues.

Table 3. Relationship between the Implementation of the Learning Action Cell (LAC) and Teachers' Functional Competency

Level of Implementation of the Learning Action Cell		Level of Teachers' Functional Competency						
		Content Knowledge and Pedagogy	**Learning Environment and Diversity of Learners**	**Curriculum and Planning**	**Assessment and Reporting**	**Community Linkages and Professional Engagement**	**Over-all Level of Teachers' Functional Competency**	**Interpretation**
Learner Diversity and Student Inclusion	*r* *P*	0.621 <0.001	0.339 <0.001	0.252 0.002	0.588 <0.001	0.365 <0.001	0.590 <0.001	**Significant**
Content and Pedagogy of the K to 12 Basic Education Program	*r* *P*	0.160 0.050	0.271 0.001	0.319 <0.001	0.356 <0.001	0.426 <0.001	0.422 <0.001	**Significant**
Assessment and Reporting in the K to 12 Basic Education Program	*r* *P*	0.442 <0.001	0.239 0.004	0.141 0.088	0.470 <0.001	0.116 0.160	0.376 <0.001	**Significant**
21st Century Skills and ICT Integration in Instruction and Assessment	*r* *P*	0.127 0.124	0.176 0.032	0.351 <0.001	0.399 <0.001	0.401 <0.001	0.402 <0.001	**Significant**
Curriculum Contextualization, Localization, and Indigenization	*r* *P*	0.455 <0.001	0.328 <0.001	0.293 <0.001	0.602 <0.001	0.272 0.001	0.524 <0.001	**Significant**

Legend: r = Pearson r correlation; P = probability value; Significant at 0.05 level; P < 0.05 (Significant); P > 0.05 (Not Significant)

Table 3 presents the relationship between the level of implementation of the Learning Action Cell (LAC) and the level of teachers' functional competency which obtained a Pearson r of 0.590 (p-value<0.001), interpreted as Significant. This means that when teachers actively participated in implementing the LAC with a focus on addressing learner diversity and fostering student inclusion, they tend to exhibit higher levels of functional competency. This implies that catering to diverse student needs and fostering inclusive environments positively influenced teachers' effectiveness and competence. This underscores the importance of targeted interventions and support for teachers in implementing strategies related to learner diversity and inclusion, which could positively impact their overall functional competency, thereby enhancing teaching effectiveness and improving outcomes for all students. This finding was consistent with research of Fatih (2020) and Heasly et al. (2020), indicating that ongoing professional development, such as through the Learning Action Cell (LAC), contributed to teachers' ability to adapt to changes in education, refine their pedagogies, and improve their overall competence.

Moreover, the Level of Implementation of the LAC considering Assessment and Reporting in the K to 12 Basic Education Program and the Level of Teachers’ Functional Competency, got a Pearson r of 0.376 (p-value<0.001), interpreted as Significant. This means that when teachers engaged more with LAC in Assessment and Reporting, they tend to show higher competency levels in these areas. This implies that the teachers are engaged in the aspects of assessment and reporting and have contributed to enhancing their overall competence. Effective strategies to integrate assessment and reporting practices enhance teachers' competency level and instructional practices. This also suggests that a structured approach to collaborative learning and professional development, such as LAC, could positively impact teachers' abilities in specific domains of teaching. This finding aligned with the understanding that effective professional development, such as through these sessions, should encompass all learning opportunities that enable teachers to adapt to changes in the educational system and improve their competence (Dilshad et al., 2019).

In addition, the Level of Implementation of the Learning Action Cell (LAC) in terms of Content and Pedagogy of the K to 12 Basic Education Program and the Level of Teachers’ Functional Competency, obtained a Pearson r of 0.422 (p-value<0.001), interpreted as Significant. This means that the implementation of the K to 12 program's content and pedagogy contribute to the level of teachers’ functional competency. This implies that the level of a teacher's functional competency is directly influenced by their mastery of content and pedagogical knowledge. Teachers who possess deep content knowledge but lack effective pedagogical skills may struggle to engage students or convey complex concepts clearly. Conversely, teachers with strong pedagogical skills but limited content knowledge may struggle to provide accurate and meaningful instruction. This finding resonated with the research on Teachers’ Professional Development Through Learning Action Cell (LAC), which underscored the significance of continuous education in refining teachers' competencies (Fatih, 2020). The implementation of LAC sessions, designed to foster collaborative learning environments and address specific pedagogical challenges, aligned with the notion of ongoing professional development as essential for enhancing teaching quality and, consequently, student outcomes.

Further, the Level of Implementation of the Learning Action Cell (LAC) in terms of 21st Century Skills and ICT Integration in Instruction and Assessment and the Level of Teachers’ Functional Competency, got obtained a Pearson r of 0.402 (p-value<0.001), interpreted as Significant. This means that when teachers actively incorporated 21st Century Skills and ICT into their teaching practices, they tend to excel in creating inclusive learning environments, effectively planning curriculum, assessing student progress, and engaging with the community professionally. This implies that prioritizing the integration of these skills and technologies could contribute positively to overall teaching effectiveness and professionalism. Incorporating advanced skills and technology into teaching is beneficial for various aspects of teaching competence. The 21st-century skills include critical thinking, creativity, communication, collaboration, digital literacy, problem-solving, adaptability, and more. Teachers need to understand and prioritize these skills to prepare students for the challenges and opportunities of the modern era. This finding resonated with the study of Dilshad, M. et al. (2019), Dunn et al. (2018) and Tyagi (2021) that effective professional development should encompass both technological advancements and traditional pedagogical knowledge.

Furthermore, the Level of Implementation of the Learning Action Cell (LAC) considering Curriculum Contextualization, Localization, and Indigenization and the Level of Teachers’ Functional Competency, got obtained a Pearson r of 0.402 (p-value<0.001), interpreted as Significant. This means that when teachers effectively incorporate local context, culture, and indigenous knowledge into their teaching practices, they tend to demonstrate higher levels of functional competency. This implies that acknowledging and integrating local culture and context into the curriculum could enhance teachers’ abilities to meet the diverse needs of learners, plan curriculum effectively, assess student learning, engage with the community, and create an inclusive learning environment. Teachers with a high functional competency level in curriculum contextualization, localization, and indigenization understand and respect diverse cultural backgrounds, values, and perspectives, enabling them to create inclusive and culturally responsive learning environments. They can adapt instructional strategies, materials, and assessments to meet the needs of diverse learners within specific cultural contexts. This underscores the importance of culturally relevant pedagogy and the integration of indigenous knowledge systems in education, which could contribute to more effective teaching and learning outcomes. These findings were consistent with a support study conducted by Khumalo (2019) and Hersly et al. (2020), which emphasized the significance of professional development, such as through Learning Action Cells (LAC), in enhancing teachers' competencies and improving the quality of education.

IV. CONCLUSIONS

The study concludes that Learning Action Cell (LAC) program is well implemented. LAC provides a platform for teachers to discuss and develop customized teaching strategies and equips them with the knowledge, skills, and resources necessary to create an inclusive learning environment where all students can thrive. The level of teachers' functional competency is outstanding across all domains. Specifically, the teachers have a strong foundation in designing effective curriculum frameworks and lesson plans, ensuring alignment with educational objectives and student needs. The significant relationship between the variables shows that the LAC program contributes to enhancing the functional competency of the teachers. It provides a structured framework for professional development and collaboration among teachers, leading to improvements in content knowledge and pedagogy, learning environment and diversity of learners, curriculum and planning, assessment and reporting, and community linkages and professional engagement.

V. RECOMMENDATIONS

This study has contributed to assessing the implementation of LAC and the functional competency of teachers. The recommendations are as follows:

1. LAC coordinators should align LAC activities with the broader professional development plans of the school. This integration ensures that LAC sessions contribute directly to the ongoing professional growth of teachers.

2. Teachers should engage in collaborative projects with other educators to share experiences and best practices. Seeking out mentorship opportunities helps teachers to enhance language instruction, foster an inclusive classroom culture, implement differentiated instruction strategies, and utilize innovative assessment techniques.

3. School heads should provide training and support strategies for teachers. Professional development programs and activities that focus on integrating assessment and reporting practices need to be prioritized to genuinely enhance teachers' competence and instructional practices.

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Enhancing the Role of Historical and Cultural Relics in Tourism Development: A Case Study of Can Tho City

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ABSTRACT: This article examines the efforts and challenges associated with promoting the values of historical and cultural relics in Can Tho City, focusing on their integration into tourism development. Can Tho, a centrally administered city in the Mekong Delta, possesses a rich cultural heritage that includes numerous historical relics and sites of revolutionary significance. These tangible cultural assets are pivotal for the city's tourism potential, serving as critical attractions for domestic and international tourists. The article explores the various initiatives local authorities undertake, including policy implementation, investment in infrastructure, and community engagement, to enhance the preservation and promotion of these cultural sites. It also addresses the limitations, such as inadequate funding, insufficient infrastructure, and the uneven awareness of heritage value among stakeholders. Recommendations are provided for improving the management and promotion of Can Tho's cultural heritage, emphasizing the need for better coordination among local agencies, increased investment, and the development of professional tour guide services. The article concludes that while significant progress has been made, further efforts are needed to realize the potential of Can Tho's cultural heritage in contributing to sustainable tourism and economic development.

KEYWORDS: Cultural Heritage; Tourism Development; Historical Relics; Can Tho City ; Preservation and Promotion

1. INTRODUCTION

Historical and cultural relics are a significant component of the national heritage system. They serve as valuable resources that can promote socio-economic development and enhance the quality of life by integrating with tourism CTCPC. (2019). These sites offer unique tourism products and diverse cultural experiences for visitors, combining elements of sightseeing, research, relaxation, ecology, and cultural beliefs. This integration contributes significantly to socio-economic growth (Bui, 2019).

Can Tho, a city with a rich history, plays a crucial role in Vietnam's economic, social, and defense sectors. It serves as a development hub for the Mekong Delta region. The people of Can Tho are known for their patriotic, solid spirit and revolutionary heritage CTCPC. (2019). The city's strategic importance was evident during the two resistance wars against foreign invaders, where it played a pivotal role in the national liberation and unification efforts.

Preserving and promoting cultural heritage value, mainly historical and cultural relics, is vital for sustainable development. This task contributes to revitalizing culture and fostering prosperity in the country and Can Tho city.

Despite the socio-economic progress and growth in tourism activities, Can Tho's tourism sector has not fully realized its potential. While the city has seen an increase in visitor numbers, the development of tourism infrastructure and services remains inconsistent. The lack of high-quality tourist destinations, unique tourism products, and effective connectivity hinders the city's ability to attract and retain tourists.

This article analyzes and synthesizes secondary data from various sources, including research publications, books, magazines, and reports from relevant city agencies and departments in Can Tho to address these challenges.

2. CURRENT STATUS OF THE WORK OF PROMOTING THE VALUE OF HISTORICAL AND CULTURAL RELICS IN CAN THO CITY

2.1 Overview of Can Tho's Cultural and Cultural Heritage

Can Tho, the central city of the Mekong Delta, is renowned for its serene river landscapes and hospitable people. It is a region steeped in rich spiritual traditions and favorable feng shui, serving as a cultural melting pot with numerous historical sites (CTCPC, 2019). As of 2020, Can Tho boasts approximately 325 historical and cultural relics and scenic spots, with 36 officially recognized—14 at the national level and 22 at the city level. This study focuses exclusively on Can Tho's recognized formal historical and cultural relics (DCST, 2021a).

Among the national-level cultural heritage sites in Can Tho are 14 significant historical relics, including the Special Committee of the Annam Communist Party (1929-1930) in Bui Huu Nghia Ward, Binh Thuy District; Nam et al. in Bui Huu Nghia Ward, Binh Thuy District; the Tomb of poet Phan Van Tri in Nhon Ai Commune, Phong Dien District; Hoi et al. in Bui Huu Nghia Ward, Binh Thuy District; the Grave of Valedictorian Bui Huu Nghia in Bui Huu Nghia Ward, Binh Thuy District; the large clinic of Can Tho in Tan An Ward, Ninh Kieu District; and the historical site marking the establishment of the Annam Communist Party Cell of the Red Flag Party in Co Do Town, Co Do District (Bui, 2019).. Other significant sites include locations related to the resistance war against the United States, such as the troop transfer location, Forward Military Medical Station, and weapons hiding place along Can Tho Arc Road in My Khanh Commune, Phong Dien District.

The city-level recognized relics include 22 notable sites, such as the Ong Hao Victory historical-cultural relic in Truong Long Commune, Phong Dien District; Thoi An communal house in Thoi Trinh A Area, Thoi An Ward, O Mon District; the Command Base of the 1968 Spring Offensive and Uprising (Plum Garden Base) in Binh Thuong B Area, Long Tuyen Ward, Binh Thuy District; Pothisomron Pagoda in Area IV, Chau Van Liem Ward, O Mon District; and the Victory site of the National Self-Defense Team in Can Tho Province in 1945 (Le Binh battle) located in Le Binh Ward, Cai Rang District. Other significant sites include Thuan Hung communal house in Tan Phu Area, Thuan Hung Ward, Thot Not District; Linh Son Co Mieu in Thoi Hoa 1 Area, Thoi Long Ward, O Mon District; and Dinh Thuong Thanh in Thanh My Area, Thuong Thanh Ward, Cai Rang District. Additionally, the site of the victory of Ong Dua in 1960 in Dinh Khanh A Hamlet, Dinh Mon Commune, Thoi Lai District, and the historical site Giang Gua Hamlet in Nhon Khanh, Nhon Nghia Commune, Phong Dien District, are noteworthy (DCST, 2021a).

Can Tho offers a variety of tourism types, including river life experiences, MICE tourism (meetings, incentives, conferences, exhibitions), eco-tourism, cultural-historical tourism, community tourism, and urban tourism. Each type of tourism aligns with the specific characteristics of different localities within the city's nine districts. However, the main attractions are concentrated in certain districts, such as Ninh Kieu District, which is ideal for developing MICE and urban tourism due to its central location and historical sites like Lon Temple, Ong Pagoda, and Can Tho Market Hall. Cai Rang District, known for the Cai Rang floating market, is perfect for river life tourism, offering a unique product that distinguishes Can Tho's tourism industry (Bui, 2019). Binh Thuy District, with its system of ancient villages, houses, communal houses, and pagodas like Hoi Linh Pagoda, Nam Nha Pagoda, Long Quang Pagoda, and Binh Thuy Communal House, is suitable for cultural and historical tourism. Phong Dien District, famous for its fruit gardens and various tourist spots, is ideal for eco-tourism. Additionally, Thot Not District is known for its natural ecosystems, such as the Bang Lang stork garden and Tan Loc Island, renowned for its fruit gardens and historic houses (Bui, 2019)..

Can Tho also features a system of natural dunes and islands, which hold the potential for developing high-quality eco-tourism and resort urban projects. These developments contribute to diversifying the city's tourism products, catering to the varied needs of both domestic and international tourists.

2.2 Achievements in promoting the value of historical and cultural relics and causes

2.2.1. These achievements

Firstly, on promulgating planning documents and plans

The city has issued guiding documents, regulations, and specific plans to implement the protection and promotion of cultural heritage values within its jurisdiction. These initiatives have been integrated into meetings and conferences to disseminate and thoroughly communicate the proposed content to all relevant agencies, departments, and organizations in the area for effective implementation. Key documents include (CTCPC, 2019):

- Directive No. 23-CT/TU dated June 5, 2018, from the Can Tho City Party Committee (CTCPC), emphasizing the strengthening of management, conservation, and promotion of historical and cultural relics in the city.
- Official Dispatch No. 1235-CV/TU dated January 9, 2019, from the City Party Committee, directing the enhancement of cultural and artistic activities within the city.
- Decision No. 105/QD-UBND dated January 13, 2016, from the People's Committee of Can Tho City, approving the development planning of the city's cultural industry until 2020, with a vision extending to 2030.
- Decision No. 3307/QD-UBND dated October 28, 2016, which approves the project "Protecting and Promoting the Art of Southern Don Ca Tai Tu in Can Tho City, 2016-2020."
- Decision No. 3616/QD-UBND dated December 29, 2017, approving the project "Preserving and Promoting the Value of Intangible Cultural Heritage of Can Tho City until 2020."
- Plan No. 117/KH-UBND dated July 16, 2018, detailing the preservation and promotion of historical-cultural relics, intangible cultural heritage, craft villages, and scenic spots associated with tourism development in Can Tho until 2020.

- Plan No. 89/KH-UBND dated April 14, 2021, outlining the continued efforts to preserve and promote historical-cultural relics, intangible cultural heritage, craft villages, and scenic spots in conjunction with the city's tourism development for the period 2021-2025.

These documents reflect the city's leadership's commitment to preserving and enhancing cultural heritage sites, providing significant support for the renovation and restoration efforts (Bui, 2019). As a result, many restored relics have become popular tourist destinations, attracting more visitors interested in historical and cultural exploration.

Second, on implementing propaganda to raise awareness of sectors at all levels and people of all walks of life about the importance of effectively exploiting the value of historical and cultural relics associated with tourism development. locally

The City Party Committee consistently emphasizes the importance of propaganda efforts to raise awareness among all sectors and the general public about the significance of effectively utilizing the value of historical and cultural relics in conjunction with local tourism development. The Party Committee annually issues official dispatches providing specific directives on these matters. They have called for enhanced propaganda efforts, mainly focusing on the purpose and significance of various cultural activities. These activities are often associated with advertising and promoting tourism, with a strong emphasis on showcasing the city's cultural and historical tourist destinations and the image of Can Tho's land and people.

To further this objective, the city organized a "Cultural Heritage Propaganda Contest," which allowed officials, union members, and students to interact and exchange experiences in propaganda work. This initiative aimed to promote the heritage value of local cultural assets while identifying and training potential cultural heritage propagandists. Such efforts are crucial in enhancing the professional quality of the city's cultural heritage propaganda teams.

Moreover, the city has shown a keen interest in producing and distributing various books and publications. Approximately 17,000 copies have been issued to educate and inform visitors interested in the value of the city's recognized relics. These publications are vital in spreading awareness and appreciation for Can Tho's cultural heritage.

Third, on implementing close coordination between relevant departments and branches in preserving and promoting cultural heritage associated with tourism development.

State tourism management in Can Tho has been characterized by effective coordination between various departments and localities, enhancing the efficiency of efforts to protect and promote cultural heritage values. Each year, the Department of Culture, Sports, and Tourism collaborates closely with the Department of Education and Training to implement educational programs to promote traditional values and cultural heritage, focusing on ethnic minority cultures and school-based tourism development for students. This collaboration includes organizing over 62 programs such as "Searching for Heritage," "Connecting Heritage," "Discovering Heritage," and "Students Preserve and Promote Cultural Heritage." Additionally, coordinated efforts are made to organize activities where students visit and care for historical and cultural relics (Bui, 2019). These initiatives help visitors, particularly students, better understand the historical traditions and cultural values of the locality and the Vietnamese people as a whole. The programs also work to build a model of tourism promotion within schools, fostering a culture where "everyone does tourism."

Furthermore, a coordination plan was established between the City Women's Union and Can Tho City Youth Union to organize activities focused on preserving and promoting the city's historical and cultural relics for 2019-2021. Activities under this plan include organizing tours, cultural exchanges, and traditional activities at heritage sites. There is also an emphasis on adopting, caring, and protecting the environment at these sites, with at least one site designated in each area. The activities include experiencing various forms of intangible cultural heritage, such as the Ky Yen ceremony at communal houses, memorial ceremonies for local historical figures and cultural celebrities, and participating in folk games, culinary events, and traditional music performances during festivals (Bui, 2019). The "Cultural Heritage Propaganda Contest" allows association and union officials to exchange experiences in propaganda work and promote the value of local heritage.

The Department of Culture, Sports, and Tourism, in partnership with the People's Committee of Binh Thuy District, developed a plan to elevate the Ky Yen Thuong Dien Festival at Binh Thuy Communal House to a city-level event. This annual festival has become a key highlight, facilitating connections between travel businesses and tourists and promoting cultural tourism. Additionally, the Department collaborates with the People's Committee of Thot Not District to organize the Tan Loc Fruit Garden Festival at Tan Loc Dong Communal House, attracting an average of 40,000 visitors each year. This festival serves as a platform to showcase the region's heritage and draw tourists.

Through these coordinated efforts involving the Department of Culture, Sports, and Tourism, the Department of Education and Training, the Can Tho Youth Union, and various district-level Youth Unions, the city has successfully promoted traditional propaganda and education about cultural heritage in schools. The diverse range of activities, including sightseeing, educational programs, and interactive experiences such as "Finding Heritage," "Connecting Heritage," "Discovering Heritage," and "Students

Preserve and Promote Cultural Heritage," has attracted significant participation, helping to foster a strong cultural awareness and appreciation among the youth and the wider community.

Fourth, about promoting tourism through the media and organizing cultural events

To date, several tourism routes associated with historical and cultural relics have been established, comprising four main routes that travel agencies promote and organize for tourists. These routes include the Cai Rang Floating Market - Noodle Craft Village - Truc Lam Phuong Nam Zen Monastery - My Khanh Tourist Village route; the Cai Rang Floating Market - Binh Thuy Ancient House - Binh Thuy Communal House - Con Son route; the Cai Rang Floating Market - Noodle Craft Village - Nam Nha Pagoda - Binh Thuy Communal House - Tan Loc Island route; and the route encompassing Ong Pagoda - Vam Xang Fruit Garden - Can Tho Bridge - Pitu Khosacrangey Pagoda - Can Tho Ancient Market - Can Tho Cruise - Ninh Kieu Night Market - Cai Rang Floating Market - My Khanh Tourist Village (Bui, 2019).

Significant efforts have recently been made to preserve and restore cultural heritages in Can Tho. This has resulted in the enhancement and promotion of several historical and cultural relics, which have played a crucial role in the development of community tourism services within the city. These activities have not only preserved the cultural essence of Can Tho but also provided unique and enriching experiences for tourists, thereby boosting the city's tourism industry and contributing to the local economy.

Fifth, Regarding building an interpretation team and researching effective automatic interpretation applications to enhance the value of heritage in tourist guiding activities and developing intelligent tourism products.

From 2016 to 2020, the city organized six training courses focused on interpretation skills and the management and promotion of monuments, which 324 participants attended. These courses aimed to enhance the professional competencies of those involved in preserving and promoting the city's cultural heritage.

For tour guides specifically, the Department of Culture, Sports, and Tourism conducted seven training classes to facilitate the renewal of tour guide licenses by regulations. Additionally, two specialized training classes were held for on-site tour guides, attracting a total of 342 participants (Bui, 2019). These educational initiatives aimed to improve the skills and knowledge of tour guides, ensuring high-quality interpretation services at historical and cultural sites.

In addition to traditional training, the city is also exploring the development of practical automatic interpretation applications to enhance the visitor experience. These innovative tourism products aim to provide visitors with easy access to information about heritage sites, thereby enriching their understanding and appreciation of these locations' cultural and historical significance. Such technological innovations are part of a broader strategy to modernize and improve the quality of tourism services in Can Tho, making it a more attractive destination for domestic and international tourists.

2.2.2 Reasons for Achievement

The achievements in promoting the values of historical and cultural heritage in Can Tho city can be attributed to the concerted efforts of various sectors, departments, and the general populace. Several fundamental reasons underpin these successes:

Planning, preserving, renovating, restoring, and promoting the value of relics in the city has received close attention and direction from the City Party Committee, the People's Council, and the City People's Committee. These governing bodies have been instrumental in driving initiatives related to the development, implementation, and financial investment necessary to protect and enhance the value of the city's relics. Their leadership has significantly bolstered the effectiveness of these efforts.

Furthermore, there has been a marked increase in awareness among officials, party members, and the general public regarding the importance of planning, preserving, repairing, and restoring monuments. This heightened awareness has led to the timely and effective preservation, repair, and restoration of numerous historical and cultural relics (Bui, 2019). As a result, these efforts have preserved the national cultural heritage and transformed many restored monuments into attractive cultural tourism products. This transformation has contributed to increasing visitor numbers and generating economic benefits for the locality..

2.3. Limited and causes

2.3.1 Limitations

Promoting heritage value in tourism development in Can Tho has been relatively low. Many historical relics have not been effectively utilized for tourism activities. Although community tourism programs in the city aim to integrate cultural and historical relics to diversify tourism products, in practice, there are few tourism activities centered around these sites (Bui, 2019). Consequently, only a few individual tourists visit the relics rather than organized groups. Additionally, some historical and cultural relics lack organized activities for welcoming and guiding tourists, with the primary reliance being on tour guides.

Investment in cultural heritage remains limited, and social funding is unstable, often facing challenges that hinder sufficient resource allocation to repair and embellish degraded relics. Some sites have not undergone necessary renovations due to the absence of appropriate mechanisms and policies, leading to a lack of cooperation and sponsorship from domestic and international economic organizations. As a result, many valuable cultural heritages remain neglected, with some at risk of further deterioration.

Moreover, the infrastructure and technical facilities supporting tourism are inadequate. Insufficient parking areas, food preparation zones, stream bathing areas, and restrooms contribute to a lackluster visitor experience. Consequently, the inherent value of historical and cultural heritages has not been fully harnessed to create compelling community cultural tourism products.

The community tourism model, linked to preserving and promoting historical and cultural heritage for sustainable development, has shown some initial success. It has facilitated the establishment of tourist routes and attractions, gradually attracting visitors and increasing overall revenue(Bui, 2019). However, the number of visitors remains low, and total revenue remains modest, indicating the limited development of community tourism around historical and cultural heritages in Can Tho. The city's ability to draw tourists back to visit cultural and historical relics is also minimal. The lack of attractive tourism products is a significant limitation at these destinations, further impacting the growth of the tourism sector.

2.3.2 Reasons for limitations

The limitations in promoting and developing tourism around historical and cultural relics in Can Tho can be attributed to several key factors:

Firstly, the propaganda, promotion, and the creation of tourism products tied explicitly to each monument have not been effective. While there has been some progress, certain relics have not reached their full potential in expressing and promoting the unique local characteristics of the area.

Secondly, during the upgrading and repair of some monuments, there has been a tendency to alter architectural elements or even replace worship objects, leading to theatricalization and commercialization (Bui, 2019). Additionally, some relics, such as the Ong Hao Victory site in Phong Dien district and the Tay Do Battalion Victory site in Cai Rang district, suffer from inadequate infrastructure and are located far from the city center, hindering effective tour connections.

Thirdly, protecting and promoting the value of historical relics requires a long-term commitment. However, local government officials' awareness of the importance of preserving and promoting these relics is inconsistent (DCST, 2021b). There is a noticeable lag in innovation among some cultural heritage management officials, who often rely on outdated thinking and are not proactive or decisive in advising competent authorities on establishing suitable policy mechanisms. This lack of initiative hampers the creation of optimal conditions for protecting and promoting historical and cultural relics in the city.

Fourthly, the staff responsible for narrating and interpreting these sites frequently changes, leading to inconsistencies in professionalism and expertise. This instability negatively impacts the quality of propaganda and promotional activities and the overall visitor experience. Additionally, the managers of these monuments, who are often part-time employees in districts, communes, wards, and towns, generally lack sufficient experience and professional knowledge, further affecting the effectiveness of heritage management and tourism development efforts.

3. SOME RECOMMENDATIONS AND CONCLUSIONS

3.1 Recommendations

Several recommendations are proposed for different stakeholders to enhance the preservation and promotion of historical and cultural relics in Can Tho. The City Party Committee and People's Committee should strengthen the leadership and direction of party committees at all levels, ensuring the effective implementation of the Party's guidelines and the State's legal policies on heritage conservation(Nam & Thanh, 2024). It is crucial to continue planning and executing investment projects for building, renovating, and embellishing approved historical and cultural relics while considering digital transformation and climate change impacts (Bui, 2019). The efficient use of investment capital is essential for repairing and maintaining ranked relics and those at risk of degradation (Thang & Thanh, 2023a). Additionally, there should be a focus on infrastructure improvement, attracting investment in crucial tourism projects, promoting and utilizing historical and cultural relics for tourism development, and establishing a distinct Can Tho tourism brand linked with unique local products.

Training and fostering professional staff and interpretation teams at these relics are vital, with particular attention given to sites with significant tourism potential. Furthermore, festival management should be strengthened to ensure security, order, fire prevention, and environmental sanitation at heritage sites. Prompt detection and strict handling of violations are necessary to maintain order and create a safe and friendly tourism environment. Mobilizing societal contributions is also essential for investing in the restoration, embellishment, management, and promotion of historical and cultural values, intangible cultural heritage, craft villages, and scenic spots.

The Department of Culture, Sports, and Tourism (DCST) should actively advise the Party Committee and city government, ensuring timely promulgation of relevant plans and projects contributing to tourism development. Travel agencies are encouraged to develop comprehensive tours and routes, including historical and cultural relic sites, moving beyond craft villages and eco-tourism areas (Bui, 2019). Maintaining high professional standards is essential for tour guides and interpreters at these sites (DCST, 2021b). They should continually seek to improve their expertise and recognize the importance of promoting the values of Can Tho's historical and cultural heritage to domestic and international tourists. Alongside benefiting from city-led training initiatives, tour guides should independently pursue new knowledge and creative approaches to meet the evolving demands of the tourism industry (Thang & Thanh, 2023b).

3.2 Conclusion

Can Tho is one of five centrally administered cities in Vietnam, situated in the heart of the Mekong Delta and recognized as a riverside urban area. This strategic location and its natural conditions provide Can Tho with significant advantages for tourism development, mainly through its rich array of tourism resources (Bui, 2019). Among these resources is a comprehensive system of cultural and historical relics, including various tangible cultural heritages. These heritages, which are integral to the history and development of Can Tho—often referred to as Tay Do—encompass relics associated with historical and revolutionary events.

The cultural and ethnic values inherent in Can Tho's heritage play a pivotal role in promoting tourism, often called the "smokeless industry," across various localities in the country (Nguyen et al., 2024). Given this potential, it is crucial to prioritize the construction, preservation, and promotion of cultural values in conjunction with tourism development to attract a growing number of both international and domestic tourists. However, achieving this effectively requires a thorough understanding of the fundamental principles of leveraging cultural heritage for tourism. This understanding ensures that these resources are promoted and developed to respect and enhance the city's artistic legacy while contributing to its economic growth and appeal as a tourist destination.

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Improving Customer Engagement of Food and Beverage Small and Medium Enterprises (MSMEs) Through E-Commerce and Content Marketing Training

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ABSTRACT: Over the past five years, the rapid growth of MSMEs in Indonesia has also resulted in many MSMEs going bankrupt. However, this rapid growth of MSMEs is also accompanied by many MSMEs going bankrupt due to mismanagement and low competitiveness caused by the lack of adaptability to business digitalization through e-commerce and product promotion strategies through digital media. Similar problems are also experienced by Food and Beverage MSMEs in Ketintang Village, Surabaya. This drives the importance of increasing competitiveness with more effective business management and digital marketing strategies through community service programs in this area. This community service-based research consists of online store design training activities in e-commerce marketplaces and content marketing with outputs in the form of scientific publications in indexed international journals, publications in the mass media, increasing community understanding and skills, and YouTube videos aimed at improving customer engagement in e-commerce marketplaces. Using the experimental method, this study concluded that SMEs showed a positive perception of the importance of e-commerce in increasing market reach and sales and insight into digital marketing in compiling content marketing that can increase customer engagement for food and beverage products.

KEYWORDS: SMEs, e-commerce, digital marketing, customer engagement, food and beverage

I. INTRODUCTION

Digital transformation is becoming increasingly crucial for MSMEs in 2024. Recent data shows that adopting digital technology can increase MSME resilience to external shocks such as economic downturns and other disruptions. In addition, this transformation drives productivity and expands market access through e-commerce and digital (INSME, 2024; World Economic Forum, 2024). In 2024, it is estimated that there will be around 68 million MSMEs in Indonesia, with an annual growth of around 2% compared to the previous year. This growth is driven by the increasing adoption of digital technology, where more than 30 million MSMEs have joined the digital ecosystem for marketing, sales, and business management purposes. This step was taken in response to the increasingly digitally connected market and the need to remain competitive in the digital era. For more details, see Figure 1.

Growth in the Number of Indonesian MSMEs until 2023 (katadata.co.id)

Figure 1. Trends in the Development of the Number of MSMEs in Indonesia

However, challenges still need to be addressed, including limited access to digital skills, financial constraints, and the need for better infrastructure. Addressing these issues through multi-stakeholder collaboration and a tailored digital roadmap can help MSMEs overcome these obstacles and fully realize the benefits of digital transformation (Ventureburn, 2024; PC Tech Magazine, 2024).

By 2024, more than 85% of organizations recognize adopting new technologies as a key driver of transformation. MSMEs increasingly view digitalization as an option and a necessity to remain competitive in the evolving market landscape (Lanars, 2024). In addition, the Ministry of Finance encourages MSMEs to enter the digital market by developing Indonesia's digital ecosystem in terms of infrastructure and access to digital services. Based on the latest data, the Ministry of Cooperatives and SMEs estimates that the potential of the digital economy of MSMEs in Indonesia can reach a value of IDR 5,800 trillion in 2030, a significant increase from previous estimates. This development is driven by the opening of more comprehensive market access in the digital ecosystem, as well as the increasing number of MSMEs that are members of the digital ecosystem, which is targeted to reach 30 million players in 2024 (Cabinet Secretariat of the Republic of Indonesia, 2024; BPMI Setpres, 2024; BCG, 2024).

Partners in this Community Service program are Food and Beverage MSMEs. The partner profiles are described in Table 1 below.

Table 1. Partners Profile

Type of MSMEs	Food and Beverage MSMEs
Operating year since	2018
Institution partner	Ketintang Subdistrict, Surabaya
Number of employees/MSMEs	15 people
Sales/month	+- Rp 10,000,000/U$D 1.000, -

During this 1 year, the Food and Beverage UMKM initiated by Ketintang Village has been quite competitive with other similar professional competitors. Currently, partners also occupy empty space in the village office area. This COMMUNITY SERVICE activity began with discussions and benchmarks from other villages in Surabaya City. Figure 2 shows an open discussion regarding opportunities for cooperation between Surabaya State University and the Surabaya City Government.

Figure 2. Discussion of Collaboration Opportunities with Partners

Based on the initial discussion with the Head of Ketintang Village, several obstacles were encountered in the Food and Beverage MSME business. To support MSMEs in being competitive, it is time for each employee to be aware of digital marketing and digital financial records. These two things are inevitable and must be responded to immediately by all MSMEs in Indonesia to avoid being eroded by the increasingly rampant electronic marketplace. The presence of the Community Service program promoted by Surabaya State University also encourages MSMEs around the campus in the digital transformation of MSMEs. Likewise, there is a need for partners for new things learned in science at universities. Food and Beverage MSMEs are one of the business units initiated by the Surabaya City Government through Ketintang Village. Although currently only using manual Food and Beverage machines, Food and Beverage orders are still quite competitive with existing competitors:

Here are two main problems currently faced by partners and the Surabaya City Government as the partner manager:

1) Marketing carried out until now is still conventional, making it difficult for partners to reach a wider market. With increasingly sophisticated and fast technology, partners should be responsive to developments in the marketing world, which is now shifting toward digitalization.

2) There is a Lack of literacy and understanding of marketing content and E-commerce, so products cannot be marketed widely, for now, only through WhatsApp for Business.

II. LITERATURE REVIEW

A. Definition of Content Marketing and Its Benefits for MSMEs

Content marketing is a strategic marketing approach that focuses on creating and distributing consistent, relevant, and valuable content to attract and retain a clearly defined audience and drive profitable customer action. In today's digital era, content marketing is becoming increasingly important for MSMEs (Micro, Small, and Medium Enterprises). By utilizing content that provides added value, MSMEs can promote and educate customers about their products or services, ultimately increasing customer trust and loyalty. The main benefits of content marketing for MSMEs include increasing brand awareness, strengthening customer relationships, and increasing sales conversions. Recent studies have shown that MSMEs that consistently implement informative and high-quality content marketing can build authority in their industry, increase customer trust, and strengthen their position in the market. In addition, content marketing is often more cost-effective than traditional marketing, allowing MSMEs to reach a wider audience on a limited budget (Kemp, 2024; Digital Marketing Institute, 2023).

B. Customer Engagement to Increase Food and Beverage SME Sales

Customer engagement builds strong, sustainable relationships between customers and brands through meaningful interactions. In the food and beverage sector, customer engagement is critical in increasing sales and retaining customers. Customers who feel engaged tend to be more loyal and have a higher lifetime value for the business. Strategies to increase customer engagement in food and beverage MSMEs include interactions through social media, developing loyalty programs, using personalized marketing, and creating engaging content. Recent research shows that strong customer engagement significantly contributes to increased sales. Customers who feel engaged and valued are more likely to make more frequent and larger purchases. In addition, high customer engagement also helps MSMEs get valuable feedback for product or service development, which ultimately increases overall customer satisfaction (Hootsuite, 2023; Deloitte, 2024). One solution that partners already have is a smartphone. With a smartphone, partners can do digital marketing and better financial records. Some of the solutions offered in this community partnership program are optimizing digital and conventional marketing to reach a broader market. The digital marketing in question is advertising content and paying attention to search engine optimization and supporting facilities for more effective and efficient sales (Mavilinda et al. 2021). The importance of a comprehensive digital marketing plan in this COMMUNITY SERVICE program consists of (1) digital content design using the Canva image editor tool, (2) introduction to search engine optimization (SEO) and social media marketing (SMM), and (3) installation of business profiles on the Shopee e-commerce marketplace.

After the above solutions are implemented, it is hoped that partners can feel the benefits of this COMMUNITY SERVICE program, including:

No	Activities	Learning Materials
1	Training	Creating Marketing Content 1. Creating Campaign plan 2. Creating Content marketing 3. Creating Product Description and Catalogue
2	Practice	Selling Practices on E-commerce 1. Selling on Shopee 2. Selling on Go FOOD App
3	Evaluation	Customer engagement metrics

This Community Service program proposal is part of a series of ongoing community service programs, especially for MSMEs. Based on the problems formulated in sub-chapter 1.2, the solutions offered have also been carried out on several parties before. For more details, see Figure 3.

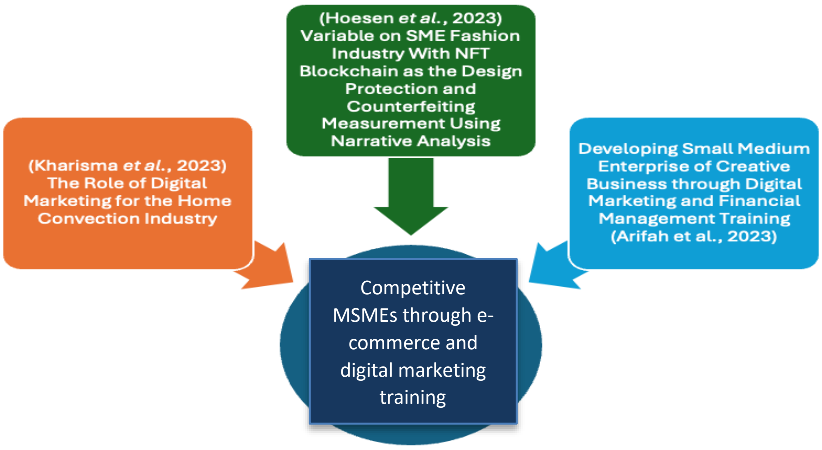


Figure 3. Relationship between team research and program proposals

III. METHOD

The implementation flow of this Community Service activity is generally divided into two parts: e-commerce and Digital marketing content. Figure 4 shows the flow for each solution offered.

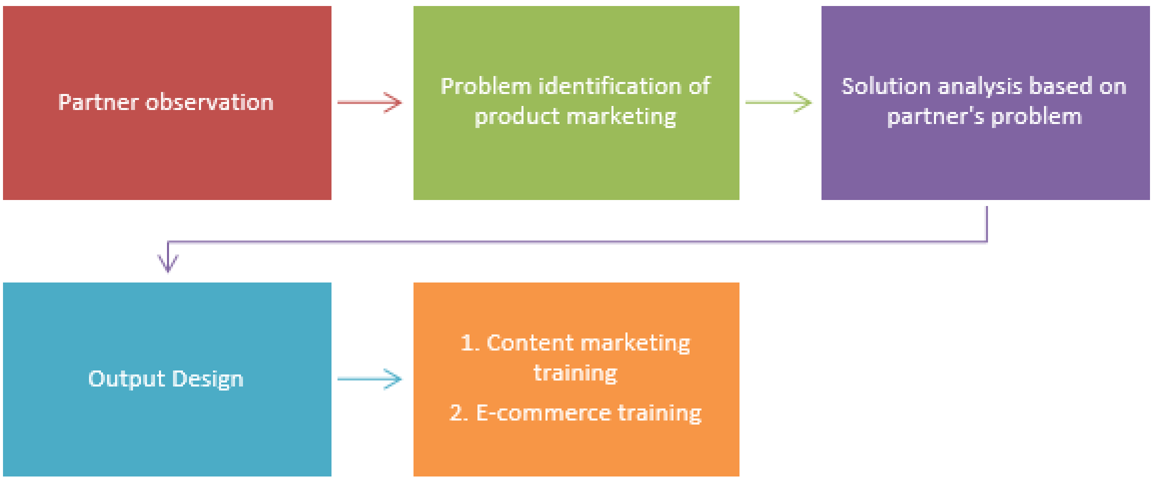


Figure 4. Community Service Activity Implementation Flow

The explanation of each stage of Community Service implementation, as presented in Figure 4, is as follows:

1. The first stage begins with the implementing team and partners observing problems. Both parties then prioritize problems based on urgency and needs.
2. The second stage defines partner problems related to marketing. After identifying the three problems, the proposing team offers several solutions to partners based on their priority.
3. In The third stage, the implementing team designs the main outputs for partners, namely Marketing Content and compiling E-commerce modules for partners.
4. In The fourth stage, the implementing team compiles various outputs according to the realization of activities that have been achieved. The output targets in question include scientific articles, mass media articles, videos of activity implementation, and evaluation of partner empowerment.

A. Partner participation

The proposing team hopes that these partners can actively participate in this activity in the following ways:

1. Have a high commitment to providing information about their conditions truthfully.
2. Highly committed to using training and training output best.
3. Help facilitate the administrative process according to applicable procedures and provisions at the proposer and partner institutions.
4. Continue to comply with health protocols in activities the proposer holds.
5. Provide school facilities and infrastructure and take time during the implementation of the Community Service program

B. Activity implementation team

The following table shows the implementation team and their respective roles in this Community Service activity proposal.

Table 2. Division of Team Roles and Responsibilities

Name	Roles	Time Allocation	Responsibilites
Fresha Kharisma	Team leader	8 hours	▸ Prepare proposals ▸ Prepare final reports and budget accountability
Ika Diyah Candra Arifah	Member	6 hours	▸ Drafting progress reports ▸ Drafting scientific articles
Nanang Hoesen	Member	6 hours	Create news in electronic mass media and produce articles
Hafid Kholidi Hadi	Member	6 hours	Submit web to DJKI, Create and edit videos to be uploaded to electronic mass media
Muhammad Fachmi	Member	6 hours	Taking questionnaire data from MSME respondents
Cai Gi	Member	6 hours	Taking questionnaire data from MSME respondents

C. Evaluation and sustainability of the program

Skills evaluation can be done using a project assessment approach. Implement digital marketing content systems and designs to measure the capabilities of MSMEs in digital marketing. To support the program's sustainability, the community service team will help implement training results and brief applications and discuss them with partners.

IV. RESULTS AND DISCUSSION

A. Implementation of Community Service Content Marketing and E-Commerce Training

This community service is designed to support micro, small, and medium enterprises (MSMEs) in the food and beverage sector in improving their content marketing and e-commerce skills. With the rapid growth of digital platforms, this training aims to help MSMEs optimize their online marketing to increase sales and competitiveness in the market. The purpose of this activity is to equip food and beverage MSMEs with content marketing skills to promote their products effectively on social media and other online platforms, teach the use of e-commerce to sell products directly to consumers through online platforms, help MSMEs understand how to design digital strategies that suit their market needs and provide practical guidance on creating attractive content and managing online stores. Target Participants This training is targeted at MSME entrepreneurs in the food and beverage sector who want to improve their online marketing and MSME workers or staff involved in marketing and selling products in the Ketintang sub-district area, Surabaya, Indonesia which will be held in August 2024.

The materials presented in this training are (Figure 5):

● Introduction to content marketing: Techniques and strategies to attract customers through content.

● Food and beverage content creation: Product photography, writing product descriptions, and creating recipe videos or testimonials.

● E-commerce strategy: How to start and manage an online store, payments, logistics, and customer service.

● Use of social media: Effective platforms for food and beverage marketing, how to create promotional campaigns, and the use of paid advertising.

Furthermore, in the practical session, MSME participants carry out direct exercises in the form of:

● Creating and editing visual content (product photos, cooking videos).

● Designing a marketing campaign on social media with real case studies.

● Simulation of creating and managing an online store with an e-commerce platform.

Discussion and Q&A are provided as interactive sessions to discuss challenges faced by participants, provide solutions, and answer questions. At the evaluation stage, a participant feedback session is held which aims to assess participant satisfaction and the effectiveness of the training using a feedback form. By understanding and implementing effective content marketing techniques and utilizing e-commerce, participants are expected to be able to increase the visibility and sales of their products.

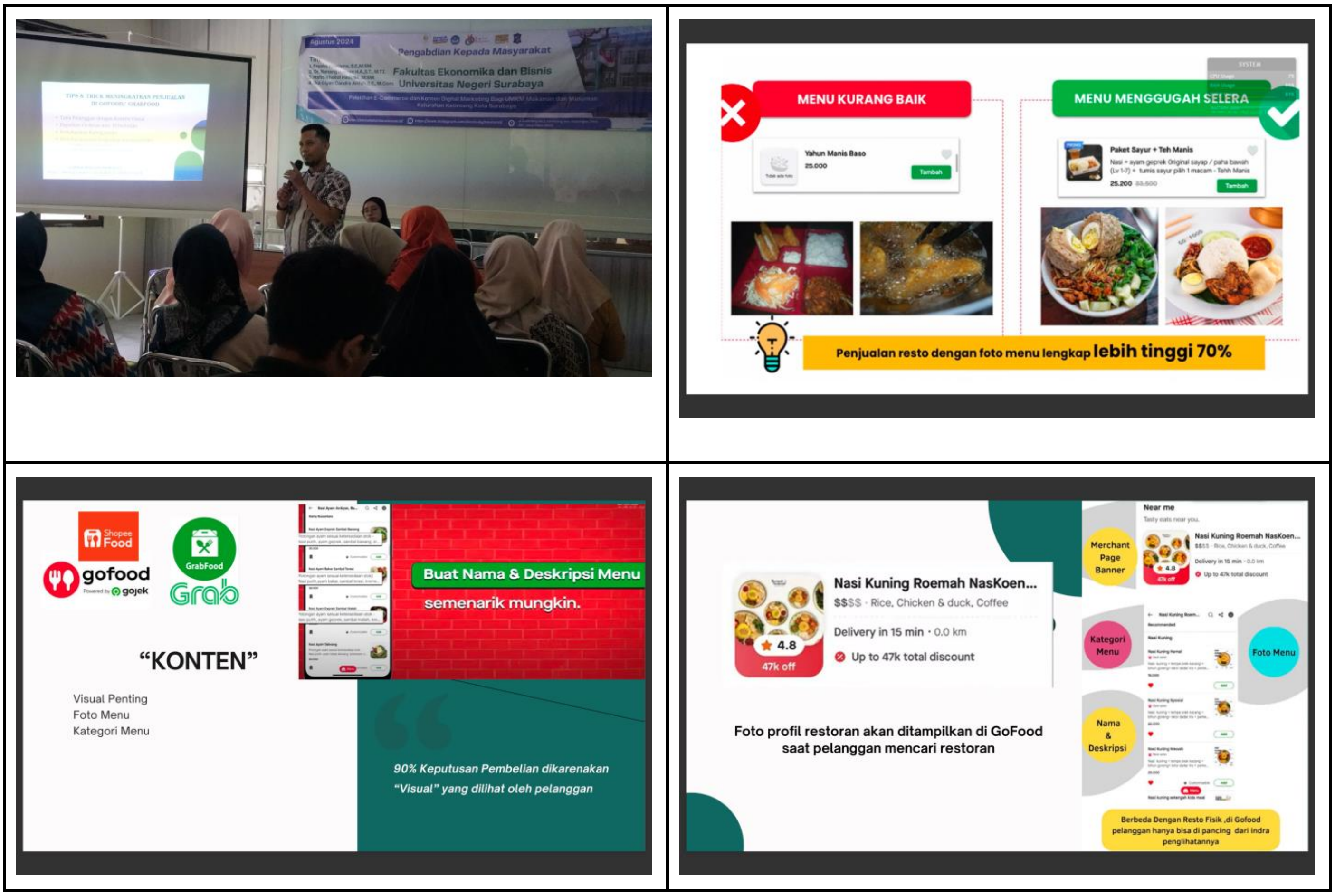
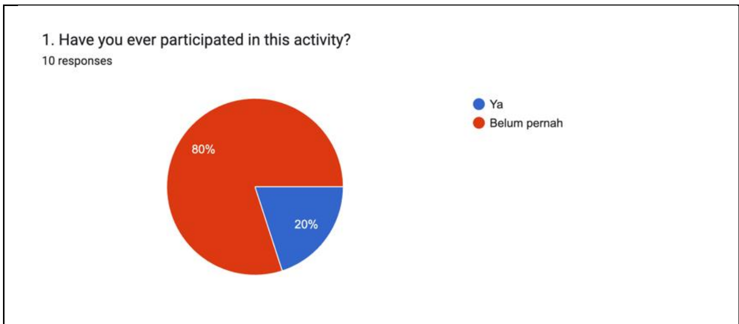
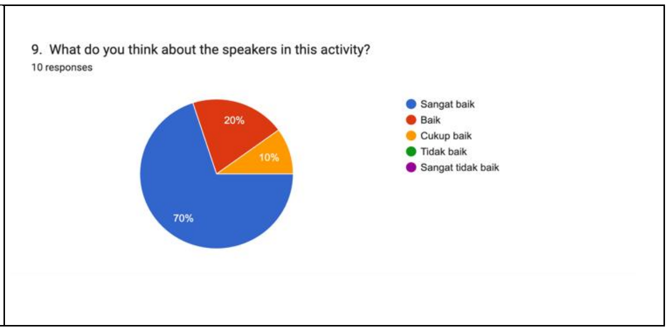


Figure 5. Documentation of Content Marketing Material for Food & Beverages SMEs

B. Results of Respondents' Perception Questionnaire on Content Marketing and E-Commerce Training

Based on the results of the respondent questionnaire on content marketing and e-commerce training, out of 10 MSMEs that participated in the training, 80% of respondents had never received content marketing and e-commerce training, so they needed this training and had an urgency to improve their marketing skills (where 80% also thought that this training was useful). In terms of training content, respondents' understanding of the training material on content marketing and e-commerce was quite good (70%).





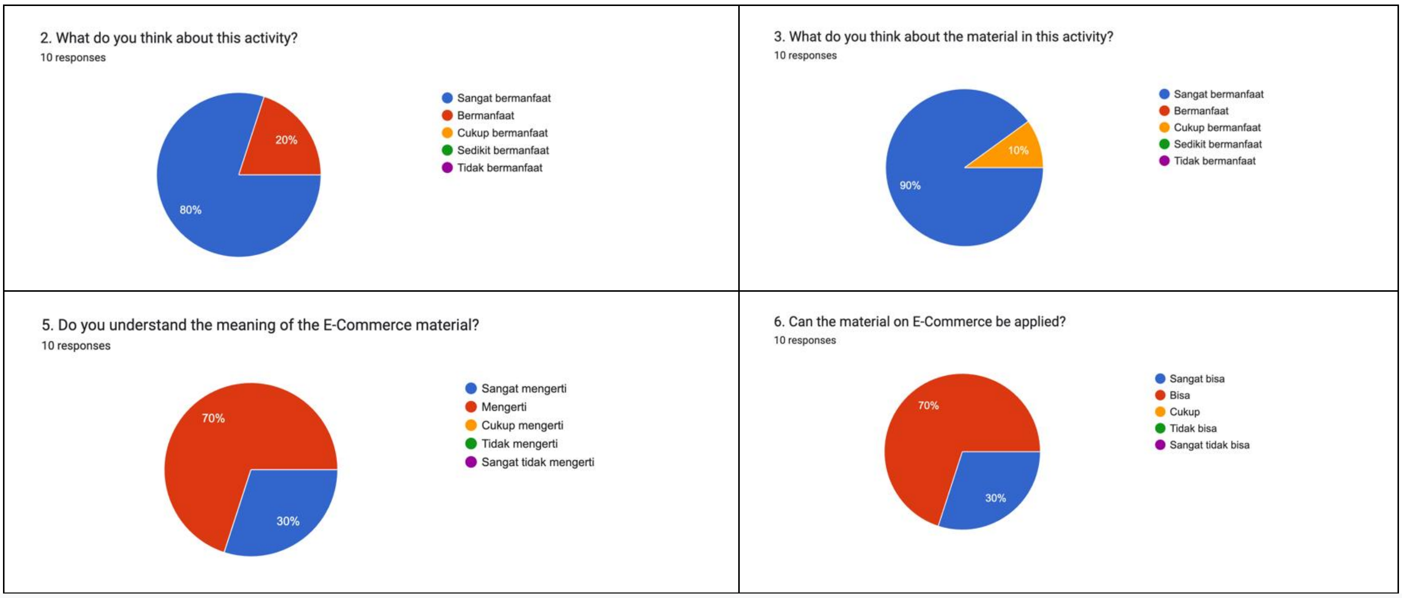


Figure 6. Results of SME Feedback Survey on Content Marketing and E-Commerce Training

Based on the survey questions asking for content marketing and e-commerce training suggestions, the respondents hope this training will be sustainable in the future, not just giving learning material. Programs like this can be delivered frequently to SMEs so that they can progress and become better. The participants hope that the community service (collaborated with the university) involving technology usage is beneficial since not all participants are good at technology literacy in e-commerce practice. After implementing this training, SMEs feel it can increase sales of SME products with improvements in their marketing content and promotions in e-commerce marketplaces and social media.

C. Food & Beverage SMEs' Customer Engagement Increase in E-Commerce Marketplace

Food and Beverage SMEs reported a 30% increase in repeat purchases from customers enrolled in their loyalty program. This resulted in a significant increase in engagement, with a 50% jump in social interactions and a 20% increase in product sales during the campaign. The campaign drastically increased brand visibility, with social media engagement up 40% and product sales increasing 25% after the campaign. Implementing the training materials increased customer retention by 25% and average order value by 15%. The improved visuals and clear descriptions contributed to an 18% increase in sales conversions. The SMEs also reported a 15% reduction in cart abandonment rates and increased customer satisfaction. The offer increased sales by 40% compared to previous months. This shows how food and beverage SMEs can increase customer engagement by using various creative and integrated strategies on the e-commerce platform.

V. CONCLUSIONS

Training in content marketing and e-commerce is essential for MSMEs (Micro, Small, and Medium Enterprises) in the food and beverage sector. Training helps MSMEs understand the digital tools and platforms to market their products effectively. This includes using social media, email marketing, and e-commerce systems. Training provides the technical skills needed to use e-commerce and content marketing technologies optimally. Training helps MSMEs design effective content strategies, including creating relevant and engaging content for the target audience. It teaches techniques for creating high-quality content such as product photos, recipe videos, and compelling product descriptions. Overall, content marketing and e-commerce training provides MSMEs in the food and beverage sector with the skills and knowledge needed to improve marketing performance, expand market reach, and optimize customer experience. This contributes to sustainable business growth and success in an increasingly competitive market.

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Development Media Learning Education Physical Android Based Sports and Health for Improving Students Understanding Class VIII School Medium First on Freshness Matter Physical

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ABSTRACT: This research aims to: (1) Develop educational learning media physical exercise and health android-based physical fitness material to improve understanding participant educate class VIII School Intermediate First (2) Know eligibility media learning education physical sport and health material freshness physical based android (3) Know effectiveness media learning education physical sport and health Android-based physical fitness material. This research is research and development (R&D) with the ASSURE model (Analyse leaners, State Standards and Objectives, Select Strategies Media and Materials, Utilize Material, Requirements Learner participation, Evaluate and Revise). Validation study done by media experts and material experts. The test subjects in this research were teachers and students. Test the trials carried out include small-scale trials, large-scale trials. Collection instrument data use questionnaire. Data which obtained are analyzed use test Paired Samples T-Test and Scale test Likert. The results of this research show (1) Development of educational learning media physical fitness and sports material based on Android through six stages namely Analyze leaners, State Standards and Objectives, Select Strategies Media and Materials, Utilize Material, Requirements Learner participation, Evaluate and Revise. (2) Eligibility media assessed based on: a) Material expert assessment obtained an average score of 4.45 with a percentage of 89% included in the very feasible category, b) The media expert's assessment obtained an average score of 4.44 with participant 8.9% enter in category very worthy, c) Test try scale big participant educate obtained average niali 4.61 with percentage 93.40% enter in category very worthy, d) Test try scale Most teachers obtained an average score of 4.70 with a percentage of 93.80% in the very category worthy. (3) Based on test Paired Samples T-Test obtained mark mean posttest 67.50 > mean pretest 53.83 which means there is an average increase of 25%. This increase is said to be significant Because mark sig (2-tailed) 0,000 < 0.05. With so can concluded that media learning education physical sport and health material freshness physical based android worth using.

KEYWORDS: Android, Development, Freshness Physical, Media Learning

I. INTRODUCTION

Education is business aware for create participant educate active in process learning And can develop potential himself For own ability spiritual religion, personality, intelligence, morals glorious, as well as skills Which needed in life social, public, nation And country. Along with the development of the times, education hold role important in competition between developing country.

One of them is competition in develop all field, specifically in field education. Matter This was explained by (Pambudi et al., 2019) Which say that in process education happen interaction Which involve Teacher with participant educate so it is hoped that students can form character Which special, skilled in world education and capable change life become more Good through education. World education teaches educational science including natural sciences, technology, social, cultural, including them education physical.

Education physical is eye lesson Which must followed participant educate as means for participant educate to be able to develop potential himself through various activity physical. Three aspects contained in education physical that is psychomotor, attitude, and intelligence (Jeong & So, 2020). On in essence freshness physicality is related to the components of the human body and constitute base ability somebody for do activity daily with Good. Physical fitness is capacity And ability For Work in a way efficient without feel fatigue which meaning (Hariyono, 2016). In activities Study level freshness physical plays an important role, if freshness physical participant educates not enough Good so impact on activity learn it Which on Finally influential on results learn it. Through physical activity or exercise you can prevent symptom psychological as well as can protect mental health among people students (Tanir & Ozmaden, 2018). Physical fitness is beneficial for children school in increase knowledge and intelligence. In children who have level freshness Which Good, oxygen can have supplied to all muscles and tissues can utilized by organs body so that child No easy tired when have to study longer.

From results observation and interview on participant educate to material freshness physical Still difficult understood Because participant educate only Study use book text as instructional Media. Material delivered with lectures or demonstrations from Teacher. Part big participant educate said that learning with using worksheet books and demonstrations Teacher not enough interesting so that process learning PJOK material freshness physical not enough optimal. Matter this can prove from method process learning Which implemented Teacher is conventional methods and lectures as well lack of utilization of existing media so that impact on level understanding and enthusiastic participant educate in learning process.

Based on observation results in some School Intermediate First in Klaten Regency there are several school Which No convey or teach material freshness physical, so that students are less able understand material them. Lots material which need given and mastered by teachers, which often gives rise to problem in process learning. A number of matter the often time ignored because limitations mastery material, especially physical fitness material. Still minimal development media learning which support process learning in class Also in push by lack of teachers to utilize technology.

Researchers are also trying confirm with interview to Teacher PJOK in some School Intermediate First in regency Klaten, from results the interview obtained that on process learning Teacher No use media learning. Reason Teacher the that is No use media learning Because prefer to demonstrate directly direct.

This problem resulting in fewer students obtain information objective and benefit lesson which given by Teacher, specifically material freshness physical. Participant educate not enough add knowledge in a way independent, lack use and utilization media learning in process learning. Reach objective education need effort. Which done Teacher, start from pay attention to the process learning which held, evaluation which done, material which delivered, and media which used for in process learning.

The role of media in learning said very important, because media learning can clarify presentation message information, so that can expedite process Study and increase results Study. Media learning can help Teacher and students in achieving goals learning and increasing motivation Study participant educate (Literature et al., 2021).

Developing technology on era 4.0 this give influence for world education, specifically in media learning which used in learning process. Technology advances increase use device electronic for various needs like education and process learning (Palmer 2015).

In field education introducing Technological Pedagogical Content Knowledge (TPACK) to understand knowledge Teacher in merger technology in the learning process. Technological Pedagogical and Content Knowledge (TPACK) is A Construction Which Dynamic Which describe A knowledge Which required educators when designing learning, apply curriculum, teaching by guiding students in learning with digital technology.

Wrong One progress technology what is developing at this time is the telephone smart (smartphone). Smartphones with Internet, on turn provide access to platforms media social. Cell phone smart or smartphone and social media mobile devices are considered to be tool learning comfortable which provide access all material learning different which available (Saraubon, 2019). Smartphones or cell phone Smart has various operating systems which support the way device them. System operation Which very popular moment This is system operation android.

Newzoo in (Databoks, 2022) disclose that use smartphones in Indonesia in 2022 has reach 192.15 million users. Indonesia is an active user country smartphones number four in world along with China, India and America. Wrong One user active smartphones is middle school students. This matter open opportunity smartphones for used as media learning which effective. Like Which shown in image 2 below, a smartphone Which Lots used in Indonesia is android. Matter this because android own license open source. All company and individual can developing applications for operating Android system easily. So that operating system android develop faster and more widely used for smartphone device.

Android is development technology with specification media Which can load various type need among them needs based on visual, audio, visual, art chart, text, And soft files. Android Lots interested user smartphones Because the situation Which open source create developers within the application feel interested for develop Android operating system based application. System android mentioned own a number of excess and lack. Excess from android between other complete (complete platforms), open (open source), free (free platforms). Android's shortcomings are almost all application connected with Internet, the presence of advertising, and drains faster Power battery telephone clever. Although thus, excess from android more dominant compared the drawback so that can have used in learning. Now this there is there are lots of applications that can be downloaded by user android through service app store which are called Google Play Store.

Development Media Learning Education Physical Android Based Sports and Health for Improving Students Understanding Class VIII School Medium First on Freshness Matter Physical

Selection of media development learning based android felt according to participants' learning needs educate as well as support utilization smartphones as means Study so that students are more focused in use smartphones moment activity Study. Existence technology information and communication This capable handle limitations room and time, by Because That's a learning process that can be done Where just And When just, but interaction between Teacher And participant educate can taking place. Wrong One example utilises technology information and communication in the teaching and learning process that is with use media learning interactive with use android. Use media learning based android can support progress and development science and technology (Salsabila, et al., 2020).

Pay close attention problem which stated above, the emergence of an idea or idea writer for develop media learning on material freshness physical based android. Media learning based android material freshness physical can help process learning, where in in media learning based android Already there is material form theory, picture and form can show, audio, videos learning, And Which most important exists test competence Which in the form of questions as an evaluation to get see how much Far ability participant students in the learning process. Media created later can provide learning to related student's material lesson freshness physical. Besides the media developed is expected capable give learning and open A little outlook in developing learning media meaningful for teachers, especially in developing media through smartphones so that more practical done in where just and when just.

II. MATERIAL AND METHOD

Study This use method study R&D with use model development ASSURE, through stages the following 1) Analyse Learner, 2) State Objective, 3) Select media, technology, and materials, 4) Utilize media and materials, 5) Require learner participation, 6) Evaluate and revise.

The research was carried out at SMP N 3 Klaten, SMP N 4 Klaten, and SMP N 6 Klaten. Research subjects in research development this consists from 1 expert media, 1 material expert, 30 students on the test try on a small scale and on a scale trial The class consists of 90 students VIII Secondary School First.

With Teacher guardian eye lesson PJOK a student to obtain data regarding needs in research and development. Questionnaires are used for obtain data evaluation quality eligibility media Which developed according to media experts, material experts and students on test try scale small and test try scale big.

Technique analysis data which the first is the aim of content validity know the extent of the level of validity developed learning media. Furthermore, test reliability used for now consistency or regularity results measurement the instrument is used again as a measuring tool for an object or respondent. Test reliability instrument done with the aim is to determine the consistency of instrument as tool measuring so that results a measurement can have trusted (Muhidin & Abdurahman, 2017: 37).

Analysis eligibility media, data which has obtained based on stage test eligibility analyzed with use descriptive statistical method. Assessment results from validation expert material, expert media, participant educate, And Teacher Then converted become data quantitative scale 5 use reference conversion Sukarjo (2006: 52) on following table This:

Table 1. Category

No	Category	Score
1.	Very Good	5
2.	Good	4
3.	Fair	3
4.	Less Good	2
5.	Very Less Good	1

Data collection technique which used in study this that is with observation, interviews and questionnaires. Observation done moment will have implemented it study for obtain data as A base implemented it study and development. Interview implemented

Furthermore, look for average score on the instrument into a form of data qualitative using conversion reference Sukarjo (2006: 52) on table following:

Table 2. Intervals Score

No	Intervals Score	Category
1.	X > Xi + 1.8 SB	SL
2.	Xi + 0.6 SB < ≤ Xi + 1.8 SB	L
3.	Xi – 0.6 Sbi < X ≤ Xi + 0.6 SB	CL
4.	Xi - 1.8 SB < X ≤ Xi - 0.6 SB	KL
5.	X ≤ Xi – 1.8 Sbi	SKL

Information:

X : Actual score (achieved score) Average score ideal

Xi : Average score ideal = 1/2 (score maximum ideal + score minimum ideal)

SBi : Deviation standard ideal = 1/6 (Score maximum ideal-minimum score ideal)

SL : Very Worth It

L : Worthy

CL : Decent enough

KL : Not enough Worthy

SKL : Very Not Enough Worthy

Next, convert the actual score become category qualitative served in table the following:

Table 3. Category Qualitative

No	Intervals Score	Category
1.	X > 4.2	SL
2.	3.4 < X ≤ 4.2	L
3.	2.6 < X ≤ 3.4	CL
4.	1.8 < X ≤ 2.6	KL
5.	X ≤ 1.8	SKL

Information:

X : Score actual

Xi : Average score ideal = ½ (score maximum ideal + score ideal minimum) = ½ (5+1) = 3

SBi : Deviation standard ideal = 1/6 (Score maximum ideal-minimum score ideal) = 1/6 (5-1) = 0.67

Analysis of media effectiveness, at analysis data effectiveness media use results Study participant educate. Which done as much two-time test that is pre-test and post-test learning outcomes. Learning outcomes obtained in every stage the that is results from pretest during learning without given implementation or media Android- based learning and results posttest, namely the results of learning after given treatment with use media learning based android. Data results Study participant educate that is pretest and posttest, analyzed with use test prerequisite, test normality, test homogeneity and paired samples t-test.

III. RESULT AND DICUSSION

Products produced in research this is a media learning based android on material freshness physical education physical education subjects for participants educate School Intermediate First. Researcher expect product which generated can used as means for improve the learning process more effective and to develop as well as do innovation learning. Media learning based android material freshness physical on eye lesson PJOK for participant educate School Intermediate First This in development using methods ASSURE, which includes 6 steps, namely analyze learner, state standards and objectives, select methods media or material, utilize media and material, require learner participation, evaluate and raise. These stages are explained as following:

Analyze Learner stage at stage This is done in the analysis stage, in stage This researcher do a number of analysis covers characteristics participant education, preliminary study of the material learning and knowing ability beginning participant educate, analyze ability beginning participant students or students' initial knowledge to material freshness physical. Furthermore, know style Study students, such as audio, visual, or kinesthetic which must get attention different in every use media or method learning.

Standards and Objectives stage, on stage this done determine objective learning. Media which developed for facilitate students so they can learn and repeat return material so that can be easily understood. According to Wahyudi & Amry (2022) Wrong One factor supporter achievement objective learning is use media during process learning. Objective learning formulated with refers on channel objective learning material freshness physical class VIII in accordance curriculum independent that is activity physical And activity freshness For maintenance purchases And improvement health: Analyzing concepts, principles, And procedure as well as capable practice physical activity in accordance with guidelines need motion in exercise improvement degrees freshness physical as well as measurement the result And promote through media Which in accordance.

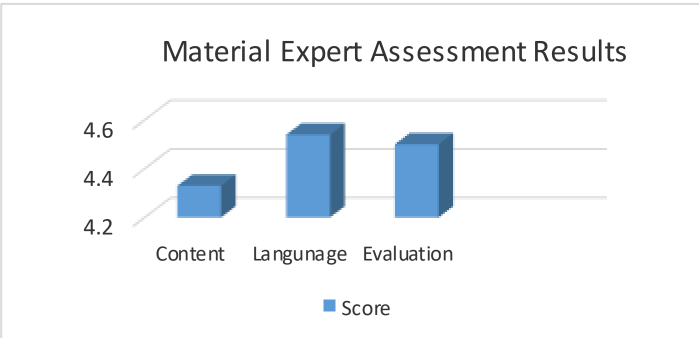
Select methods, media and stage materials on stage This Stage This done with with examine accuracy media based on objective learning which has formulated, support material learning, ease of obtaining and using media, conformity with characteristics participant educate and environment. On stage this utilize media and previously selected teaching materials, before being tested on students. Media which made through test validation expert. Expert validation consists of expert validation material, media expert validation. Validation test the expert is used to find out eligibility and quality media which developed. Media which appropriate used based on with characteristics participant educate as well as objective from development, namely learning media based android. On stage this done planning media which covers material, storyboards, and flowcharts.

Stage Utilize Media and The material at this stage is the test stage try media that has passed validity tests (product feasibility) from media experts and expert material after revised. Stage implementation this divided become two that is small scale trial stage and test stage try large scale.

Stage Requirements Leaner Participation, at this stage a test is carried out effectiveness which done in JUNIOR HIGH SCHOOL N 6 Klaten with a sample size of 30 participants educate. A pretest was carried out with 20 questions material freshness physical. After done pretest, furthermore given media learning education physical Android- based sports and health physical fitness material to participant educate, and given time 3 day for learn material freshness physical from application which has in give. Furthermore, done posttest for see results from understanding participant educate to material freshness physical.

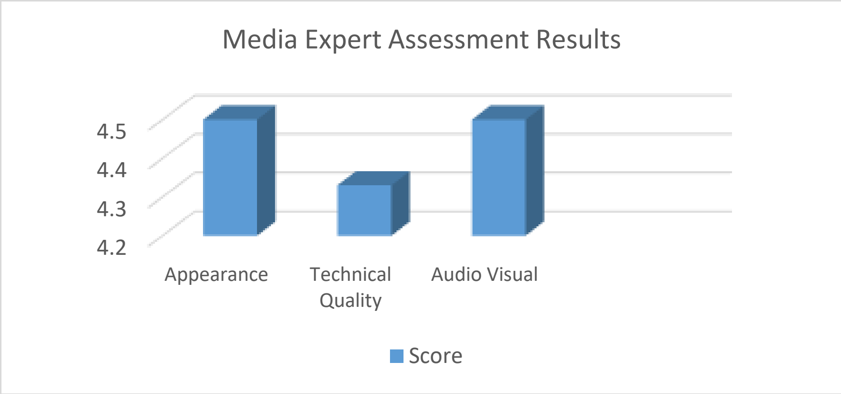
Evaluate and Revise Stage, on this stage: At this stage, data is obtained data evaluation media which has tested Try to use it as evaluation material and repair media in the future. Evaluation from revision is stages final important for develop learning media products. At stage this see return results data evaluation which collected. If from results data evaluation show there is weakness on component certain, return on part and revised.

1. Results Evaluation Expert Material



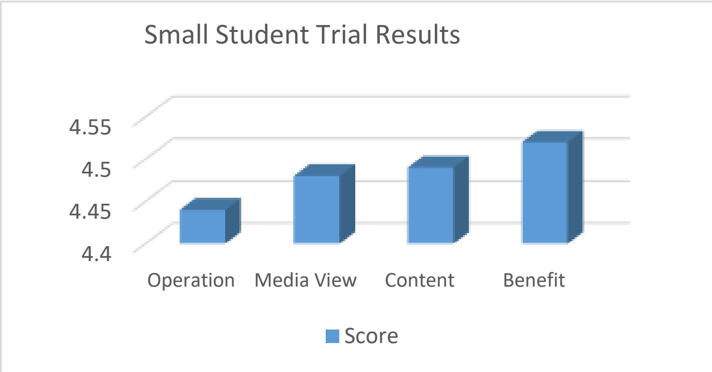
Based on the data above, you can know in terms of the material/content aspect obtained mark 4.33 enter in category very worthy, the language aspect obtained a score of 4.54 falls into the very worthy category, and the evaluation aspect obtained a score of 4.50 in the very worthy category. Based on criteria evaluation test eligibility and intervals score on formula scale 1-5, material expert assessment on development media learning education physical Android- based sports and health on physical fitness material included in the very decent category, with value average 4.45.

2. Results Evaluation Expert Media



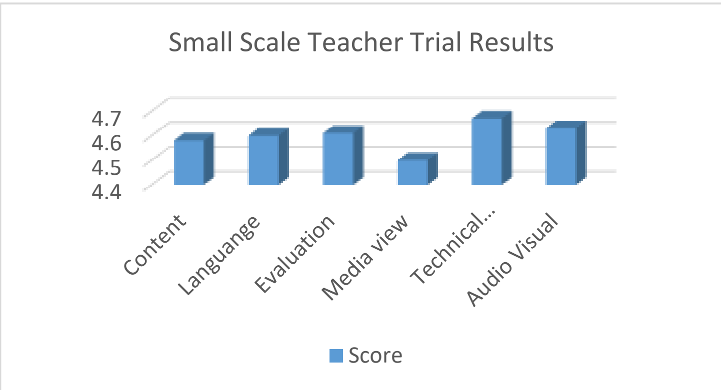
Based on data in on, can know from the aspect of the display obtained mark 4.50 enter category very worthy, aspect quality technically obtained mark 4.33 and aspect audio visual 4.5. Mark average every aspect that is 4.44. Based on criteria evaluation test eligibility and intervals score on formula scale 1-5, media expert assessment on development media learning education physical Android- based sports and health on physical fitness material included in very worthy category.

3. Results Test Try Participant Educate Scale Big



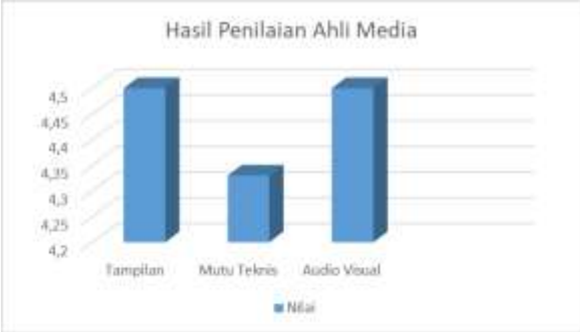
Based on data in on, can KNOW on aspect operation obtained mark 4.59 enter category very worthy, aspect appearance material obtained mark 4.61 enter category very worthy, aspect material/content obtained mark 4.59 enter very feasible category, and benefit aspects obtained mark 4.61 enter category very worthy. Mark average every aspect that is 4.61. Based on guidelines interpretation mark scale 1-5, development media learning education physical Android- based sports and health on test try scale big participant educate including in very category worthy.

4. Results Test Try Teacher Scale Big



Based on data in on, can know in terms of the material/content aspect obtained mark 4.69 enter category very worthy, The language aspect obtained a score of 4.71 category very worthy, aspect evaluation obtained mark 4.65 enter category very worthy, aspect appearance media obtained mark 4.79 enter in category very feasible, the technical quality aspect obtained value 4.56 enter category very worthy, and aspect audio visual obtained mark 4.75 falls into the very worthy category, and aspects benefit obtained mark 4.69 enter category very worthy.

5. Results Effectiveness Media



Test effectiveness done for knowing the effectiveness of the media learning education physical Android- based sports and health to increase participants' understanding educate class VIII School Intermediate First, on physical fitness material. Measurement on improvement understanding on material freshness physical use of media learning based android measured with compare mark average pre-test and post-test. This is done with help application IBM SPSS 20. Test What is carried out is the Paired Sample test T-Test. Results measurement from test t, it was found that the calculated t value was 20,240 > t table (df 29) 1,699 And mark significance 0.000 < 0.05, then this result shows there are significant differences between pre-test and post-test. Mean pre-test score amounted to 53.83 and post-test amounted to 67.50. Results the show that there is the difference between the average values before and after use media. Mark average post-test 67.50 > average pre-test t 53.83 Which means there is improvement the value of students' initial understanding and after use media learning based android. In accordance with base taking decision on test Paired Samples T-Test so media learning based android material freshness physical effective for increase understanding participant educate on physical fitness material.

6. Product Review End

As for appearance end from product which developed as following:

IV. CONCLUSION

Based on results analysis, can concluded that product media learning education physical Android- based sports and health material freshness physical for participant educate School Intermediate First class Which developed worthy used as means for increase process more effective learning and for develop and innovate learning. Based on effectiveness tests shows that level of knowledge participant educate about material freshness physique improves after using media learning based based android material freshness physical. There is a positive impact that can be seen from improvement results Study participant educate that learning media This of course own excess in support activity participant learning educate.

The advantages of the media learning based android on material for physical fitness, namely (1) Media has an attractive design appearance, easy to operate, and can be used in a way independent and can used Where and When just. (2) Media learning based android load material learning form writing, Images, videos, animation and explanation material Which innovative as well as easy for students to understand. (3) Apart available material learning, also available questions as material for participant evaluation educate in accordance with material which has studied.

There is media learning based android can minimize problem Which often happen on students, some of whom do not have textbooks, books left at home, is lost or damaged, and can makes it easier.

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The author would like to express his deepest gratitude to all students who have been willing to complete this research. It's a journey of growth, discovery, and collaboration, and it wouldn't have been possible without the support, guidance, and contributions of many individuals and entities. As a big expression of gratitude, I express my appreciation to those who have played an important role in making this effort a reality.

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The Spiritual Fruits of Desert Fathers (2)

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ABSTRACT: This paper is the continuation of our previous work, “The Spiritual Fruits of Desert Fathers (1).” Our inquiry has explored the spirituality of the Desert Fathers, specifically examining the notion that the emphasis lies not on achieving success but on producing fruitful outcomes by looking at the spirituality of the Desert Fathers about forgiveness, humor, poverty, solitude, and community within the broader context of a fruitful life. The purpose is to convey the spiritual essence of the Desert Fathers to a broad audience, ensuring that it is comprehensible and relatable to ordinary individuals while avoiding the use of intricate theological explanations or contentions.

KEYWORDS: community, Desert Fathers, forgiveness, humor, poverty, solitude

1. INTRODUCTION

In our current era, we have a multitude of resources and opportunities, yet paradoxically, we find ourselves in a state of greater poverty and emptiness compared to any previous time. In our highly digitalized, personalized, and less hierarchical postmodern society, a significant number of individuals experience a heightened sense of freedom. However, this newfound abundance and liberty come at a cost, as we face grave challenges such as the degradation of our ecological systems and the emergence of diseases like COVID-19. On one side, many people experience feelings of exclusion and dissatisfaction within a vast capitalist societal structure that appears insurmountable for individuals to overcome. Conversely, contemporary individuals are displaying a growing inclination towards exploring their inner selves as a means of finding respite from the pressures of an intricate and demanding social existence (Go et al., 2021; Kang et al., 2021; Chung, 2023; Seok & Chung, 2024). In the present circumstances, "spirituality" will emerge as a pivotal concept in 21st-century religion. From the perspective of Christianity, it refers to a sublime essence that becomes evident in the lives of contemporary individuals who cultivate an inner connection with God, regardless of their physical location, and who renounce the materialistic desires, conceit, and hubris prevalent in society. A close examination of the historical trajectory of Christianity reveals a consistent, profound sense of spirituality accompanying authentic resurgences of the Christian faith (Seok et al., 2021; Lee & Chung, 2024). This is due to the presence of devout individuals who maintain a personal and intimate connection with God, adhering to the teachings of Jesus (Kim & Chung, 2021). Consequently, their lives emit the essence of Christ, permeating their surroundings and influencing others. If Christianity does not prioritize numerical expansion through militaristic missionary evangelism, it can ensure its relevance in the 21st century by comprehending the diverse circumstances and requirements of individuals in our society and assisting them in leading a life of humble discipleship (Choi & Chung, 2023). This entails cultivating inner resilience that empowers them to apply the teachings of the Bible in practical situations, going through a process of maturation rather than just expansion. This maturation will involve the transformation of individuals' lives and the promotion of happiness, not primarily via numerical growth but through the development of their inner world (Kim et al., 2022). In this context, the spirituality of the Desert Fathers, recognized since the fourth century, is enlightening. Even if the general populace recognized the desert fathers, they often misinterpreted them as individuals with a vehement disdain for the world seeking refuge in the desert. We aim to transcend that preconception and uncover the quintessential embodiment of the Desert Fathers' innovative spirituality, a realm characterized by boundless liberation and exultation in the divine presence. They exhibited a profound devotion to both God and their fellow human beings. Despite facing challenging circumstances, they managed to lead a life of freedom and happiness by maintaining a state of equanimity, or inner calm. These individuals were truly remarkable, as they were able to overcome their self-centeredness and discover their authentic selves through their connection with God. By delving into the profound and aromatic desert spirituality, we aim to reconnect with the authentic essence of Christian spirituality. This study does not intend to analyze the intricate and obscure theological concepts of desert spirituality. Instead, we structure it as a practical theology or an educational coaching Psychology that encourages the fostering of spirituality in individuals, thereby bringing about practical transformation in our lives (Seok, 2024). Ultimately, the goal is to purify our communities and society as a whole.

2. RESEARCH METHOD

The teachings of the Desert Fathers, who practiced asceticism in the desert during the 4th century, provide us with comfort, courage, humility, and a broadened life perspective as we live in the 21st century. However, we must reassess the historical accounts of their language and behavior, initially conveyed in the antiquated dialect of the 4th century. We need to modify them to fit modern language to successfully utilize the precious knowledge they provide for our current existence. Therefore, this investigation is essential. Although their calm spirituality is praiseworthy, it is crucial to acknowledge that they are imperfect individuals rather than celestial beings who transcend the boundaries of humanity. Similar to us, the Fathers also demonstrate susceptibility to participating in weak conduct (Kim et al., 2022). As a result, they have devised and executed multiple measures to fight this tendency. Through their reflective analysis and discernment, they demonstrate a deep understanding of the fundamental dichotomy within human beings, particularly the simultaneous presence of innocence and depravity. Instead of criticizing weak individuals, they developed a spiritual practice in the desert that focused on God's love and grace. This allowed them to rise above their limitations and achieve exceptional outcomes.

At the outset, we have employed two texts for our research: *The Sayings and Stories of the Desert Fathers and Mothers* by Tom Vivian (2021), which is an English translation of the ancient language that recorded the words and deeds of the Desert Fathers, and *The Sayings of the Desert Fathers*, translated by Benedicta Ward (1995). We have utilized both of these texts to acquire knowledge. Evagrius Ponticus (345–399), a highly intelligent figure among the Desert Fathers, authored *The Praktikos* (Teachings for Ascetics) in Greek. We have rendered it in English and Korean (Dysinger, 2024; Kang & Chung, 2013). For this inquiry, we used it as the primary source material. In addition, we included four published works on the spirituality of the Desert Fathers as supplementary evidence in our research: Antony Rich's "Discernment in the Desert Fathers" and Haekyung Jung's "Exploring the Practice and Goals of Evagrius' Spirituality." Jung (2022) posited that the Desert Fathers' spirituality predominantly revolved around the achievement of tranquility (apatheia), whereas Rich (2007) contended that the Desert Fathers' spirituality was primarily focused on the notion of discernment (diakrisis). This research uses Graham Gould's (1993) investigation of the Desert Fathers' society to better understand the interactions among the desert hermits. Furthermore, Jun-Ki Chung's (2004a) research is highly beneficial in comprehending the essence of the spirituality exhibited by the Desert Fathers. This study presents the authentic words of the Fathers, which Chung has translated into Korean. We acknowledge that these works are exceptional and have had a significant impact on the formation of the Desert Fathers' theological identity during that specific era. What distinguishes our research from the ones they conducted? Prior research has explored the spirituality of the same subject, and our work is similar to past studies. Nevertheless, our profession encompasses a wide range of tasks and responsibilities. Our goal is to simplify and evaluate the spirituality of the Desert Fathers, aiming to improve comprehension for both scholars and the broader public. We are certain that this will greatly help more individuals experience the advantages of integrating the spiritual teachings of the Fathers into their daily lives. In this study, we will explore the concepts of forgiveness, humor, poverty, solitude, and community with the overarching concept of a "fruitful life," building upon our prior research.

3. DISCUSSION

3.1. Forgiveness

The tree of love yields forgiveness. The underlying foundation for both love and forgiveness is the same: the transcendent love emanating from God's divine nature. True forgiveness is attainable when we acknowledge the inherent worth of ourselves and others from a divine perspective, understanding that God's love extends to both us and our fellow human beings. Hate is the complete opposite of forgiveness. The current society we live in is filled with a tremendous deal of hate and hostility (Jeong & Chung, 2022; Park et al., 2022). In the media, there is a continuous presence of reports on armed conflict, acts of terrorism, and the recurring cycle of abuse and retaliation (Lee et al., 2021; Jeong et al., 2021; Tsyrfa et al, 2023). The cultivation of hatred is an inescapable consequence of division and conflict within the human domain. Feelings of helplessness and loneliness give rise to resentment towards those who are weak, neglected, and marginalized (Chung, 2010). They strongly dislike people who have considerable influence, possess prominent positions, and are members of the prevailing majority. They experience a sense of relative deprivation due to their perceived loss of possessions. Individuals who have a negative self-perception and feel a strong dislike for themselves are likely to project their hate onto others, seeing them as worthless, ignoring them, and holding hostility towards them (Chung, 2004b; Limaji et al., 2023). Regardless of one's growing worth or triumph over the target of animosity, enmity persists unresolved. Hatred, like a dual-purpose weapon, not only inflicts harm on others but also engenders mental devastation within oneself. The one who possesses hatred eventually suffers the most from this destructive emotion due to its inherent self-destructive character. Unfortunately, it is an indisputable reality that animosity begets further animosity, and this circle of animosity continues indefinitely.

God has offered a remedy for individuals ensnared by animosity. The instruction was explicit and unambiguous: "Demonstrate affection towards your opponents; engage in benevolent actions towards those who hold contempt for you" (Luke 6:27); and "If your opponent requires sustenance, provide nourishment; if they are thirsty, offer them a beverage" (Romans 12:20). However, the problem is that no matter how strongly we commit to following the commandments and how persistently we strive to forgive our enemies with pure determination, forgiveness remains unachievable. Strict adherence to the commandments alone cannot achieve forgiveness (Chung et al., 2021; Kim & Chung, 2023b). Forgiveness stems from the concept that "the divine holds deep affection for every individual." If you feel hatred because you believe you have no worth, you can overcome this hatred by acknowledging that you are an immensely valued being whom God loved unconditionally, even to the point of giving his son. If you believe that God values every person regardless of their worth, even if your neighbor acts as an enemy and causes you harm, you will sincerely respect and forgive them. None of the individuals currently in existence has the requisite worth or qualities to deserve the experience of divine love, based only on their abilities and circumstances. Hence, it is futile to evaluate a person's merit or lack thereof based on the standards of this world. The erroneous beliefs we hold about our values present a difficulty in the act of granting forgiveness to others. The offensive remarks and violations carried out by our neighbors cause us significant emotional distress, making it difficult for us to forgive (Seok & Chung, 2023). I am unable to expunge from my memory the words and acts he or she directed towards me, and consequently, I am experiencing emotions of anger, resentment, and even hostility. However, my neighbor's misdeeds do not diminish my inherent value as an individual. This implies that the actions or opinions of others should not affect my consistent values. My value's consistency stems from its divine source. The adjacent objects do not bisect, duplicate, or triple. Recognizing this truth allows us to embrace a more unbiased perspective on our neighbors' imperfections and wrongdoings (Seok & Chung, 2024).

However, forgiveness does not mean completely accepting and supporting the wicked actions of one's neighbors. The notions of sin and God's love are fundamentally incompatible, much like the impossibility of water and oil to blend. Forgiveness is not hiding wrongdoings but instead showing love and truthfulness towards one's neighbors. Forgiveness is the act of assisting our neighbors in their emotional recovery through love, which is the ultimate purpose behind God's creation. Forgiveness is crucial for fostering a healthy and affectionate bond with both God and our fellow human beings. People often perceive love and truth as challenging virtues to share. In a situation characterized by abundant love, the influence of truth weakens, rendering people more prone to indulging excessively in self-pleasure. On the other hand, when the truth is clear, it becomes simple to make the connection uninteresting due to a lack of affection. However, Jesus demonstrated a plentiful amount of love and truth and did not show any bias towards either group. He attained the establishment of truth by harnessing the force of love and then amplified the potency of love via the quest for truth. In John 8, Jesus neither pardons the woman who was apprehended for adultery nor pronounces a capital punishment upon her. If she had approached it in a dichotomous fashion, she would have needed to classify herself as either innocent or guilty. Jesus acknowledged that her wrongdoing justified the punishment, declaring, "Execute her by stoning," and confirmed her honesty by advising her to "refrain from sin in the future." He saved her from the brink of death by speaking the words, "Let the individual who is without sin towards her be the first to throw a stone at her." By saying the words, "Neither do I condemn you," Jesus forgave her for her wrongdoings, showing deep understanding and compassion. Her unwavering commitment to Jesus acted as the driving force that rescued her from the depths of her spiritual decline and immoral behavior, allowing her to fully accept her true identity. Like Jesus, the Desert Fathers had exceptional fortitude and a willingness to forgive the mistakes of others.

> One day, a monk residing in the desert committed an error. The senior members convened a meeting, and a representative was dispatched to Father Moses. However, he declined. Another monk returned and informed Moses:
> The rest of the monks are eagerly anticipating your arrival; therefore, please hasten. Father Moses stood up, filled a perforated basket with sand, carried it on his back, and went to their meeting. When the monks asked, "What is that, Master?" he replied, "The transgressions I have committed are seeping out from behind me, but I am unable to perceive them." Today, I have arrived at this place to pass judgment on the transgressions of others. This information rendered the monks speechless, prompting them to grant forgiveness to the monk who had erred (Chung, 2004a, 219).

The text does not provide details about the specific mistake the investigators found in this scenario, nor does it specify the severity of the offense. However, the Desert Father's community had already exposed his errors, leading to such widespread condemnation that the elders organized a disciplinary gathering. It is possible that the monk became aware of his transgressions and experienced a period of deep sorrow, guilt, and remorse. Father Moses possessed knowledge of this fact. For someone already condemned and grieving, additional censure is unnecessary. Excessive criticism will simply diminish his spirit or incite him to rebel. Father Moses had profound empathy for the man's predicament. He has a profound understanding that the person who commits sins and experiences the consequences of his actions must be forgiven. Father Moses exemplified the universal reality that humans are incapable of passing judgment on others, demonstrating this concept through his entire physique. How can a man, who easily discards his misdeeds like sand slipping through a basket with holes, pass judgment on the sins of others? Deepening awareness of our transgressions diminishes our tendency to judge others' transgressions, paving the way for genuine forgiveness. The Desert Fathers were acutely aware that every individual was a comparable transgressor in the presence of a divine deity, particularly regarding their transgressions. People who experience grief and remorse due to their transgressions often exhibit a natural inclination towards pardoning the minor errors committed by others. A young monk asked a senior monk the following question:

Is it advisable to conceal my brother's errors when I observe them? The elder replied, "When we conceal our brother's errors, God likewise conceals ours." Whenever we reveal our brother's errors, God also reveals ours (Chung, 2004a, 220).

We achieve genuine forgiveness when we recognize our equality with our fellow human beings in God's eyes. We do not enact forgiveness from a position of superiority as a morally upright individual, but rather from the perspective of a flawed individual who has received forgiveness for our transgressions. Forgiveness, like love, arises from togetherness rather than division. While forgiving our neighbor, true forgiveness is not based on a person's belief in our superiority or inferiority. Forgiveness is a mutual process. Forgiveness is possible when we acknowledge the inherent worth of our fellow human beings in the eyes of God, irrespective of our own opinions, desires, and evaluations (Kim & Chung, 2024a, b). Both I and my neighbors derive our value equally from a divine source. From that perspective, my neighbor and I are considered one organism and one entity. Transcending selfish division, embracing our fellow human beings as a unified entity, and fostering love and companionship can lead to genuine forgiveness. Forgiveness has the power to restore relationships with those who were formerly distant.

Engaging in seclusion and meditation in the desert served as a form of training to achieve self-awareness and reflect upon the hidden transgressions of deceased individuals within one's own dwelling. Despite his extensive training as a monk in seclusion, focusing solely on other people's wrongdoings and neglecting self-reflection would limit his spiritual progress. Conversely, providing affectionate welcome, nourishment, and solace to individuals who were grieving over their transgressions was a significant task associated with the divine realm. We, as individuals, inhabit the same world, and whether consciously or unconsciously, we all possess inherent vulnerabilities and engage in morally wrong actions, resulting in a pervasive sense of moral decay. As individuals, we possess inherent worth despite our vulnerability, as God demonstrates by extending forgiveness and love to us first. If we acknowledge our role as companions on a shared journey, display forgiveness towards our fellow individuals with heightened empathy and comprehension, and proceed together as a unified entity on the joyous pilgrimage, we shall find ourselves on the route leading to paradise.

3.2. Humor

A distinguishing characteristic of a mature personality is their distinct and individual sense of humor, which sets it apart from comedy in a broader sense. They abstain from employing malicious humor that elicits amusement at the expense of others, condescending comedy that mocks others' perceived inadequacy, or comedy that derives pleasure from obscene or sexual jokes. Self-objectification and self-awareness convey authentic and occasionally educational humor. Humor is always devoid of any intention to humiliate or highlight the errors of others. Nevertheless, the comedy does not exhibit self-deprecation or superficiality, akin to the performance of a clown. This type of comedy, typically resulting in smiles rather than laughter, is straightforward and spontaneous rather than deliberate. Consequently, individuals who are accustomed to superficial laughter or jokes may perceive those with such humor as dull and inclined towards seriousness. We believe that the Desert Fathers are often subject to a significant misconception. For certain people, the mental image associated with deserts could be that of individuals who are tough, unemotional, and excessively serious. Nevertheless, the Desert Fathers were genuinely developed individuals who possessed a high level of self-fulfillment, and they exhibited a remarkable ability to express cleverness and amusement. They were individuals who could view themselves as objects and embrace their true selves without judgment. They achieved self-awareness and embraced their true selves, free from concerns about others' opinions. Furthermore, when they saw others, they perceived them not as mere objects serving their desires, but rather as they truly were. Allow us to personally experience the humor of the Desert Fathers as expressed in their own words, which arises from deep thought and sincere self-examination:

> One day, Abraham, a disciple of the revered Desert Father Sisoes, respectfully suggested to his teacher, "Master, given your advanced age, could we try to interact more closely with the world of common people?" If there are no women present, then we should proceed. In response to his student, the master replied, and the disciple countered by inquiring, "Apart from the desert, where are women absent?" Then simply abandon me in the desert, the master said (Chung, 2004a, 225).

The disciple expressed concern about his teacher's advancing age, suggesting that he may have also experienced the constraints of living in the desert and desired a stronger connection to the outside world. The teacher may have scrutinized the student's cognitive condition. However, he responded affirmatively to his disciple's request, stating that he could travel to any place where there were no ladies present. In this context, a location devoid of women signifies an environment free from allure and moral transgressions. The teacher knew his student would dispute his answer. Nevertheless, rather than stubbornly asserting the superiority of his viewpoint, the teacher humbly placed his trust in his student and, simultaneously, reaffirmed his determination to remain only in the desert. Rather than asserting his position with a strong statement like "I will not leave the desert even if I die," the instructor answered calmly by distancing himself from the issue. He presented the pupil with a passive response, giving him the option to "leave me alone in the desert." The master displayed neither embarrassment nor attempted to conceal his own physical frailty. The teacher's sincere yet thoughtful demeanor as he discusses his vulnerability and potential abandonment in the desert makes us smile inwardly. In addition, he greatly appreciates the wisdom with which he clearly and confidently explains his decision to stay in the desert without imposing himself on the other individual. Now, let us examine another illustration that Evagrius gave in his *Praktikos* section 97:

One of the brothers possessed solely a book of the gospels, and he sold it to feed the hungry, saying something worthy of memory: I have sold the word that told me, "Sell what you have and give to the poor (Mt. 19:21)" (Dysinger, 2024).

What could be more entertaining and thought-provoking than reflecting on one's own poverty? Despite sacrificing all his possessions for the benefit of the impoverished, the monk exhibited neither self-pity nor vanity. Instead, the monk's self-deprecating humor, which treats his exceedingly destitute condition as an object, is so fitting to the circumstances that it elicits genuine laughter from the audience. His humor serves to satirize his anguish as he attempts to adhere to the teachings of the Bible, highlighting the core of the dilemma. We appreciate the refined and clever sense of humor that effectively conveys the essence of Christianity while downplaying concepts such as poverty, compassion, and sacrifice. The emergence of such humor was possible due to their mature and detached inner selves, which remained unaffected by their difficulties and external circumstances:

> A senior monk was a recluse near the Jordan River. He sought refuge in a cave due to the intense heat, only to encounter an enraged lion that immediately began snarling. Then, the elder addressed the lion. What's the reason for your excessive enthusiasm and reprimands toward me? Despite our proximity, our presence will not create a confined or crowded space. "If you desire to separate, you have the option to exit the premises, correct?" However, the lion was unwilling to depart (Chung, 2004a, 227).

The wit of the Desert Fathers extended even to lions. Despite being face-to-face with a lion, rather than feeling fear, he remained calm and confident enough to tell the lion, "If you're not happy, leave!" This artwork depicts the fantastical goals of the Desert Fathers, who sought to achieve a deep connection between humanity and the environment. It also showcases the Desert Fathers' distinctive wit and humor, despite appearing unrealistic:

> Once, a group of three monks visited an elder in his hut. One stated, "Master, I have committed to memorizing both the Old and New Testaments." The elder responded, "You have engaged in extensive conversation." Upon hearing that another monk said that he had duplicated the Old and New Testaments by hand, the elder responded by saying, "You have merely filled the closet with paper." Subsequently, the third monk expressed, "In my residence, the grass is sprouting within the heating system." The elder responded by saying the person was expelling the practice of hosting and accommodating visitors from his home (Chung, 2004a, 228).

The teacher employs humor to convey the message that the mere acts of memorizing the Bible, duplicating it, and fasting lack inherent significance. Presumably, the three monks desired to flaunt their virtue before their teacher. The teacher straightforwardly interpreted their achievements, aiming to impart the importance of humility and restraint as fundamental qualities. The teacher's statements are intriguing as they accurately mirror reality. We can infer that one student engaged in extensive verbal communication, given his thorough memorization of the Bible. The second student replicated the complete Bible, indicating that it must have contained a substantial amount of paper. Considering the presence of grass growing in the furnace, would it not be reasonable to assume that he would have ceased providing service to guests? The teacher used humor not to cause harm to others but to help his students recognize their ignorance and grasp fundamental concepts.

From the drawings we have previously examined, numerous ones provided insight into the humorous nature of the Desert Fathers. They had a fondness for analogies, and they considered reality to be akin to a different type of humor. Equating the act of blaming others while being oblivious to one's own wrongdoings to the metaphorical scenario of leaving a deceased individual at one's residence and grieving over the passing of someone else resulted in a combination of amusement and illumination. The humor of the Desert Father contained a sharp parody of reality, as demonstrated by Father Moses' act of pouring sand into a basket with holes and spilling it while on his way to condemn a brother. He humorously remarked, "My sins are leaking like this." The specific conditions of existence deeply ingrained the wisdom of the Desert Fathers. They transcended the boundaries of self and the universe; they fearlessly tackled even the most profound subjects, perceiving life as a marvelous and delightful source of humor.

3.3. Poverty

To fully understand the poverty of the Desert Fathers, it is crucial to avoid taking a broad or general viewpoint. In society, poverty, destitution, and a lack of material possessions are concepts that are associated with a negative perception and suggest a deficiency in abilities and drive (Park et al., 2021). However, the Desert Fathers considered poverty to be equal to worldly affluence. In the desert, the person with nothing was considered the most spiritually prosperous, just as riches determine one's material abundance in the world. In the desert, poverty meant a complete lack of material possessions. They willingly gave up all their possessions and belongings, aiming to own as little as possible. The experience of poverty, like a precious resource, profoundly nourished their spirits. According to Father Hyperechius, the monks' wealth resides in their conscious decision to willingly adopt a life of poverty: "Hello, monk! Deposit your precious belongings in the celestial realm, for it is there that you shall discover everlasting tranquility" (Chung, 2004a, 230).

We have conducted a comprehensive analysis of the significance of the desert fathers' state of extreme poverty from four distinct viewpoints. First and foremost, poverty might be likened to a voyage that ultimately leads to a state of utter humility. Due to their lack of personal possessions, the Desert Fathers had to depend on their work or the money they received through inheritance to acquire the materials essential for their survival. The Fathers experienced fatigue and hardship due to their little income, which they earned via strenuous manual work to meet their basic needs. Overcoming poverty is a challenging endeavor, but those who succeed in doing so experience solace and gradually enhance their resilience to endure adversity along the way. The Fathers recognized that poverty is an essential prerequisite for cultivating humility and that individuals who possess modesty find tranquility in the possessions they possess in this existence. Another consequence of poverty is that it forces individuals to choose a lifestyle that closely resembles that of a martyr. The Desert Fathers perceived themselves as living martyrs, embodying an ideal state of existence in their own lives. This is primarily due to the deceased's lack of interest in the material and external aspects of this life. Furthermore, poverty cultivates individuals' complete reliance on and appreciation for God. Immediate financial deprivation does not directly induce feelings of anxiousness. Anxiety stems from a lack of steadfast faith in God, irrespective of one's financial circumstances, whether they are impoverished or affluent, similar to how even wealthy individuals experience distress. Nevertheless, the Desert Fathers discovered that embracing destitution enabled them to conquer unease and maintain an unwavering devotion to God. A youthful monk advised an elderly and ill monk to offer financial assistance because of his advanced age and poor health. The senior monk in question suffers from leprosy. Subsequently, the elder monk asserted that while enduring this situation for six decades, he remained devoid of remorse, affirming that he derived the necessary provisions and sustenance from a celestial origin (Chung, 2004a, 232). Despite the old master's meager daily earnings, he astutely recognized the divine provision for his fundamental needs. He was concerned that the growing profusion of material possessions could undermine his belief in God. Reflecting on his enduring life of destitution spanning six decades, he asserted his complete contentment with God, who would supply his future needs. Moreover, their careful handling of resources directly resulted in the impoverishment of the Desert Fathers. To sustain themselves on Earth, individuals need clothing, nourishment, and shelter. However, the Desert Fathers firmly believed that these resources did not belong to them but were instead under their temporary care. Since nothing inherently owns everything, there is no need to form emotional connections or assert ownership. The Desert Fathers had a deep comprehension that God is the supreme owner of everything, and they acknowledged themselves as simply caretakers. Consequently, they regarded everyone who requested to borrow from them, stating, "Take whatever you need." Upon the debtor's arrival to settle the bill, they explicitly directed, "Restore it to its initial state." If the other party fails to make payment owing to extenuating circumstances, whether deliberately or inadvertently, they choose not to bring it up again. Individuals residing in a capitalist society, characterized by a prevailing conviction that material possessions are the key to pleasure, may perceive the lifestyle of the Desert Fathers, who get contentment from mere existence, as unachievable. Individuals, frequently entangled by their cravings and erroneously convinced of their possession of all things, can attain enlightenment through the teachings of the Desert Fathers. The central idea revolves around the notion that, as finite beings, we can only hold onto possessions for a limited time and that nothing truly belongs to us. The teachings have profound consequences. Similar to how a master commands a steward to give up all his possessions, we must also submit our lives. Understanding this concept will enable us to achieve an unrestricted sense of freedom, as demonstrated and embodied in the lives of the Desert Fathers, regardless of our financial situation:

> One day, burglars entered the dwelling of an elderly monk and demanded, "Surrender all possessions within your quarters." "Choose whatever you desire, children," the elder responded. The thieves absconded with all of his possessions, then vanished. Nevertheless, the monk pursued them with the misplaced wallet and exclaimed, "Gentlemen, please accept this as well!" The thieves expressed their admiration for the elder's [freedom of possession], returned all the stolen stuff, and humbly prostrated themselves before the monk. They engaged in a dialogue, asserting that this monk was undeniably a devout follower of the divine (Chung, 2004a, 237).

In line with this perspective, Schweiger (2019) argues that churches, along with other religious institutions globally, must promptly grasp the spiritual aspect of poverty and thereafter share this comprehension with those who are suffering from hunger and fatigue in different places.

3.4. Solitude

Desert spirituality, which involves rigorous training in isolation and silence, also leads to a state of seclusion. The Desert Fathers sought solace in the desert, not just as a means of avoiding worldly distractions but also to embrace a life of seclusion in those isolated regions. They were not hermitic, misanthropic individuals who shunned human contact. The desert rendezvous and subsequent establishment of a teacher-disciple bond unambiguously demonstrate their social nature. Nevertheless, the society they aspired to establish diverged from the shallow, transitory, and egocentric secular world. Instead, it aimed to be a realm where individuals could explore and encounter their concealed, authentic, and sacred essence in the presence of God (Seo & Chung, 2021). According to their perspective, a laboratory named isolation was necessary for humans to truly develop into social beings. Here, solitude refers not only to being physically alone but also to an internal state of seclusion (Yang & Chung, 2023).

There is a narrative that tells of a female monk who lived in the desert and had a profound awareness of this particular characteristic (Chung, 2004a, 238). She believed that a significant number of monks had lost their spiritual lives on the mountain that was renowned for its tranquility throughout its history. Even though they worked alone in their physical bodies, they were constantly looking for ways to deepen their emotional connection to the outside world. As a result, they were unable to achieve salvation. It was as if they did not feel a sense of belonging to either the world or to God; they found themselves in a state of ambiguity. Conversely, non-religious people in a culture devoid of religious practices achieved salvation through a life focused on cultivating inner tranquility within themselves. The Desert Fathers assert that one can find genuine isolation within oneself. Isolation creates the necessary environment for God to transform and renew us. The absence of solitude hinders the process of making fresh discoveries. When our minds are already filled with negative influences, how can we enrich ourselves with new experiences? We might liken solitude to discarding putrid, malodorous refuse and replenishing it with vibrant, life-giving water. By fully submitting ourselves to God and relinquishing all aspects of our existence, we enable God to bring out a new state of being. Isolation can lead us to freedom from societal impositions. Solitude compels us to fully dedicate ourselves to God, thereby serving as a conduit for His divine power. Individuals gain genuine introspection and profound understanding of their fellow human beings through solitude, a phenomenon that can be considered God's innovative artistic expression. When we are alone, we confront our authentic identities. In solitude, we engage in introspection and reconnect with our inner selves, which we have neglected due to a lack of self-reflection. By reestablishing eye contact and engaging in communication with our inner being, we have the potential to awaken from our emotional numbness, become aware of our wrongdoings, and seek forgiveness (Chung, 1996; Chung, 2003a, b). Solitude not only allows us to explore our own identity, but it also enables us to establish genuine connections with our neighbors. Paradoxically, solitude enables genuine togetherness. Living in solitude does not result in social isolation, and cohabitation does not automatically foster a sense of unity. One discovers one's authentic identity while alone and does not take advantage of one's neighbors for personal gain. Love and friendship flourish in such connections. Through solitude, we can cultivate authentic connections with others who live nearby. Solitude serves as a reminder of the genuine worth of both ourselves and others. In this world, we must demonstrate our worthiness through love. Through isolation, we gain the realization that our value is not dependent on the evaluation of society or individuals. How do we articulate the esoteric insights we uncover when we detach ourselves from the relentless demands of reality and immerse ourselves in solitude? Those who have encountered inner silence will understand the divine illumination that stirs them to recognize the origin of their being. It is a profound revelation and a transformative experience, akin to a blind individual gaining sight. During that period, we instinctively realize that we exist as absolute beings in God's presence and receive unconditional love. The inherent nobility of humans stems from their creation in the divine likeness of God and the Creator's profound satisfaction and delight in them. Solitude catalyzes new beginnings. We comprehend the genuine worth of ourselves and our fellow human beings as cherished entities in the eyes of God and will cease to engage in the acts of comparing, judging, or feeling envious of our neighbors.

It is also important to recognize that isolation encompasses the moments when we actively listen to God communicating with us. At times, we become preoccupied with making requests to God and overlook the messages that God is trying to convey to us. Thus, we must engage in consistent training to cultivate the ability to remain silent in a serene environment, thereby enabling us to receive divine communication (Montgomery, 2022).

3.5. Community

People may mistakenly perceive the Desert Fathers as individualists who completely oppose communal living due to their secluded lifestyle. Nevertheless, despite their efforts to isolate themselves from society and adopt a solitary lifestyle as monks in the desert, they did not fully embody the principles of individualism. Disciples sought advice from their teachers, who accepted young monks seeking guidance as their students, thereby establishing a social tie among monks. In addition, it was customary for reclusive monks to reside individually in a secluded dwelling known as a skete. However, there were other instances where they cohabitated and shared accommodations and meals with fellow monks. The huts of the monks so-called sketes stood in a secluded spot, with the sketes of other monks positioned nearby, though not readily visible. Consequently, the monks lived communally, providing assistance and support to one another as neighbors. When a monk remained silent for an extended period, nearby monks would visit him to ascertain his well-being. Despite their pursuit of personal seclusion, the Desert Fathers also had a profound affection for their neighbors and demonstrated their generosity by selflessly giving of themselves, thus building a distinctive society. While the Desert Fathers did not establish a community based on familial or occupational ties, it is evident that they indeed constituted a community. What type of neighborhood were they targeting? In a secular culture, a community is defined as a cohesive group that shares a common goal and ideology or as an interest group that collaborates for tangible advantages such as financial gain or recognition. Self-interest, financial interdependencies, and political and economic intentions all connect global communities (Kim & Chung, 2023b,c; Kim & Chung, 2024c). These societies establish a clear hierarchy between the upper and lower classes, further dividing individuals based on factors like wealth and power dynamics (Kim et al., 2023). There are instances in which individuals form a strong and cohesive bond with one another for the betterment of the community, but this union is limited in scope and duration and is primarily motivated by self-interest. The Desert Fathers did not withdraw from human society but rather from a social structure that was characterized by division and separation. The Fathers sought to avoid subjugation to others through formal structures of organization or authority. Furthermore, they had no desire to exert control or influence over others. The society was characterized by an ideal state where equality, freedom, and necessity were paramount. In the desert community, genuine love and openness thrived as individuals actively strived to overcome their self-centered tendencies. Deep and genuine connections fostered emotions in this location. Despite the unfavorable physical conditions, the attainment of pure love, as described in the Bible, transformed the setting into a paradise.

The bond between the teacher (Abbas) and the disciples established the desert community. Rather than selecting a teacher based on religious regulations or institutional criteria, the desert community granted the designation of a servant of God as a teacher to anyone who had endured years of hardship. Regardless of the emperor's advisor's social background or physical characteristics, including being a farmer, a slave, a black man, or a dwarf, anyone could become a teacher as long as other monks recognized them as dedicated servants of God. In our previous discussion, we clarified that love and obedience preserve the bond between the teacher and the student. The essence of the priestly bond was to renounce egocentrism and demonstrate love towards one another as fellow inhabitants (Augustine, 397).

Respect and obedience demonstrated the disciple's love for the instructor, while discipline and forbearance exhibited the teacher's love for the disciple (Kim et al., 2021). The Desert Fathers recognized the significance of community, particularly the ties between monks, in the advancement of spiritual growth.

The Fathers were aware that the community plays a crucial role in assisting pilgrims in reaching their common destination by providing support and nurturing for one another. The allurements and injuries that one is prone to succumbing to in solitude become far more manageable in the presence of a supportive community. The monks were honest with their fellow monks and did not conceal anything. They openly disclosed their innermost desires, including impure thoughts, avarice, wrath, and laziness. Within a nurturing group, monks were able to openly share their vulnerabilities and find solace, as opposed to facing harsh judgment for their errors. Every monk in this desert village established a natural and interconnected bond with their neighbors. They established a community to collectively seek a deeper connection with God. However, as they delved deeper into their pursuit of God, they increasingly uncovered the presence of their neighbors and gained a newfound appreciation for their worth and significance. They realized that it is unattainable to seek a connection with God without the involvement and support of others who live near them. Their interactions with their neighbors reveal God's love for us, and we cultivate our love for God by showing love toward our neighbors (Kim & Chung, 2023a). The Desert Fathers possessed a profound understanding that these two entities were not distinct but rather unified as one.

Let us examine the communal lifestyle that the Desert Fathers followed. The Fathers not only prioritized individual discipline but also fostered collaboration and kept proximity to their neighbors, enabling them to actively listen to their concerns (Kangas, 2011; Chung et al., 2021). One monk resided with his fellow monks and offered guidance to the non-monastic inhabitants in the surrounding area. They had a comprehension of the importance of seclusion and committing themselves to the city, as well as being sensitive to God's love for their fellow inhabitants. Within the arid village, they cultivated close connections with their neighbors, establishing a cohesive collective community. They could only achieve this accomplishment by straying from human nature's inherent self-centeredness and self-absorption. In the desert, monks prioritized the act of demonstrating hospitality towards their neighbors over engaging in fasting. Within their group, one rarely observes egocentrism, characterized by a preoccupation with one's personal belongings, possessions, and entitlements. Empathy, the desire to understand, experience, and help others as an extension of oneself, drives monks to follow the Bible's command to "love your neighbor as yourself." Within the desert community, the monks were coming to recognize an enlarged sense of self, perceiving their neighbors as an extension of their being. The Desert Fathers acknowledged that egocentrism resulted in strife and fragmentation within human society as individuals asserted their possession and adamantly refused to surrender it. Due to their complete lack of self-centeredness, the mature monks were unable to generate any conflict situations. Their notions of possession and ownership were devoid of significance. Gould (1993) has aptly noted that the Desert Fathers founded monastic communities in the desert to foster their spirituality through seclusion while still prioritizing collective spiritual goals. The group prioritized correcting the deleterious influence that certain monks had on other members. They worked together to focus all their efforts on resolving this problem and improving the spiritual welfare of the entire desert community. These habits played a crucial role in shaping the identity of desert spiritual cultures.

4. CONCLUSION

The Desert Fathers were indifferent to achieving success and unconcerned with other people's evaluations of them. They did not discriminate based on a person's wealth, race, education, or moral character. The Fathers did not allow any form of differentiation or division. They embraced and cherished every individual—not only their outward attributes but the entire essence of their being. As a result, the collective's support, pardon, and affection rejuvenated even individuals with limited strength, deficiencies, and errors and remedied their injuries. Recognizing the absence of ideal individuals and acknowledging that each person is fallible and prone to errors, they embraced one another as integral parts of a whole entity. The desert community provided the ideal environment for the cultivation of virtues such as obedience among priests, love for neighbors, forgiveness, humility, poverty, and solitude, allowing them to flourish in perfect harmony. The community fostered a culture of openness and mutual respect, allowing individuals to maintain their independence and live in solitude rather than merging into a collective entity. An aspect of paradise would be a society where people unconditionally love and embrace their neighbors, similar to how God loved humans. This community would thrive and evolve naturally and energetically, without imposing any pressure or force on its neighbors, and would bring forth new life. The monks, who managed to free themselves from the confines of self-centeredness and establish a strong connection with God's love, were responsible for creating that paradise.

Every aspect of the Desert Fathers' lives demonstrated the practical benefits of their faith. On the other hand, exercising caution in specific areas is necessary for reaching this level of spirituality. Gould, Jng, and Rich, contrary to some admirers, correctly point out that we should not mistake the Desert Fathers' spirituality for a supernatural movement or an extraordinary manifestation of the Holy Spirit. We should not assume that the Desert Fathers actively pursued mystical practices or engaged in enigmatic activities for self-promotion, even though they may have achieved a state of ecstatic serenity through deep contemplation, silent prayer, and Scripture memorization to connect with God. In fact, they showed us how to live by Bible teachings. The Desert Fathers' pure simplicity was based on a spiritual quest that leads to acute tranquility (apatheia) and an extraordinary depth of discernment (diakrisis), and this is the fundamental aspect of their simplicity that we must acknowledge.

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The Use of Communication Media in Increasing Understanding and Utilization of SiBadra Services for the Generation of Digital Natives and Digital Immigrants in Bogor City

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ABSTRACT: Bogor is one of the city in Indonesia that already adapt technology advancement. In Government sector, already adopted some policy that including of using technology support. One of them are feature that let public giving their thought and complaints to governments trough a specific online-application that called SiBadra whos made by the government. Adopting innovation about SiBadra which mainly use a certain communication media to spread the innovation itself, requires the involvement of various parties. The adoption of this innovation will gave birth to a generation that can utilize of using communication media of SiBadra services in Bogor City. Industrial era of 4.0 presenting two type of generation in terms of using media, those are digital natives and immigrants which form as a social system as well as a form of government readiness and alignment in efforts to digitalize the use of media. This research are closely related to communication media as a form of communication channel in the theory of Diffusion of Innovation initiated by Rogers in 1983. The aim of this study is to analyze the existing relation between communication channels and namely communication media in the adoption of SiBadra service innovation in Bogor City for the two generation which digital native and digital immigrants. The result of this research shows that the characteristic of digital natives and digital immigrants have a relation in the stage of adopting an innovation. The relation between them is showing positive terms which in increasing understanding and utilization of using the media. Relation that related to the stage of adopting an innovation such as understanding and utilization are supported by age, education, gender, and experience, which have significant relation in the stages of adopting an innovation. The second relation that related is the communication media. Communication media has a positive effect in the relation of the understanding of using the media and utilization of SiBadra services in Bogor City. Indicator that support the relation between communication media, namely print, electronic and social media.

KEYWORDS: communication media, digital immigrants, digital natives, SiBadra

I. INTRODUCTION

The industrial era 4.0 explains that Indonesia is doing a lot of development, related to human resource development or related to technology in a more advanced era. Development does not only stop with these two things, but is also closely related to the economy and empowerment that exists in each country in carrying out sustainable development (Waskita 2005). Development communication is closely related to the dissemination of information or messages related to reform, especially related to sustainable development. Development communication has the meaning of a method related to art that is closely connected with science which is mainly used to convey information with the aim of consciously or unconsciously using it to accelerate transformation in a country (Floor *et al*. 2022). Development in a country is related to sustainable development. There are 17 sustainable development programs related to a country. One of them is innovation and infrastructure (Cangara 2020). The concept of development is related to innovation. Innovation communication becomes a momentum in spreading innovation which can be sourced from ideas, concepts, technology, to government policies issued.

Innovation communication is a way of conveying messages, where the message is related to an idea, concept, ideas, even a policy that is new from a message sender to the recipient of the message in the context of village to city development in a country (Sumardjo 2014). Technological changes in Indonesia are marked by digitalization which is starting to develop. The industrial era

4.0 in Indonesia is marked by changes in media use, where what was initially limited to electronics and print has now shifted to digitalization. The large number of internet users in Indonesia marks this change. The number of internet users in Indonesia is 191 million individuals (David *et al*. 2017). Changes in digital technology occur in various sectors, one of which is in the government sector, namely with the existence of smart cities.

The city of Bogor, as one of the cities in Indonesia that has technological advances, has adopted a policy related to complaints. This policy was adopted from the PUPR Ministry, where the city of Bogor makes public complaints to the Bogor City government easier, namely by submitting them online. There is a lot of information regarding the adoption or use of complaint services provided by the government in the city of Bogor in various media. The online complaint service is named SiBadra. SiBadra is an abbreviation for information system for various complaints and suggestions (Murhana *et al.* 2016). SiBadra can be said to be an innovation that facilitates complaints received by various regional organizations in the city of Bogor. Based on data from the Bogor City Communication and Information Service, the number of complaints in 2023 is 1071.

The number of complaints compared with the number of people in Bogor City is not comparable. This problem is related to a problem that is often known as the spread of innovation. The spread of innovation or what is often known as the diffusion of innovation can be interpreted as an event or event from a special form of communication theory, and its uses are widely used in various areas of life (Haryadi 2018). One of them is activities related to new ideas that are socialized to the community. In connection with the innovation that was disseminated and adopted, especially the complaint system known as SiBadra, there were several problems. The implementation of innovation adoption is related to communication channels which are closely related to communication media (Hawari *et al.* 2023).

The adoption of innovation, which is mainly related to the use of communication media in spreading SiBadra innovation, requires the involvement of various parties. Adoption of innovation requires all parties or generations to be involved and take part in a change in attitudes and behavior regarding innovation, so that it is used as an answer to problems (Chairunnisa and Sasmita 2022). The birth of a generation can support the use of communication media in the adoption of SiBadra services in Bogor City. The digital generation is a benchmark for supporting the use of communication media in adopting SiBadra Service innovations in Bogor City. The digital generation is divided into two categories, namely the digital natives generation and the digital immigrant generation (Pensky 2009). The digital natives generation are individuals who are very close to cyberspace or a generation that cannot be separated from the internet (Rastati 2018). Another definition of this generation can be said to be a group of individuals, a combination of generations Y and Z, or in other words, the generation that was born after the internet, so that their lives cannot be separated from what is called the internet.

Communication media in the adoption of an innovation is used as a benchmark for innovation to be adopted by society. In connection with the context of development communication and closely related to innovation communication, media is something that needs to be paid attention to, especially in the industrial era 4.0. Media is one of the benchmarks in innovation communication which is directly involved and involved in spreading messages about new ideas. This involvement can be said to be a decision by individuals and communities from various generations to participate in activities with or without communication media. The use of media is closely related to development and innovation directly. The industrial era 4.0 presents various generations in media use, these generations are digital natives and immigrants as a form of social system and a form of government readiness and support in efforts to digitalize media use. This research is closely related to communication media as a form of communication channel in the theory of diffusion of innovation which was coined by Rogers in 1983. So this research raises the question of how communication media is related to the adoption of SiBadra service innovation in Bogor City for the digital natives and digital immigrant generation. With the aim of analyzing the existing relationship between communication channels, namely communication media, in the adoption of SiBadra service innovations in Bogor City for the digital natives and digital immigrant generation.

II. LITERATURE REVIEW

A. Innovation Diffusion

The Diffusion of Innovation Theory originates from a two-stage communication model. Diffusion is a process where innovation is communicated through channels and over a certain period, carried out in a social system (Saleh *et al*. 2022). Diffusion of innovation can be said to be a special form of communication. Awareness of a communication activity is a fundamental process, like it or not, and suggests that it is easy to understand and control (Ruben and Stewart 2014). Diffusion of innovation comes from the two words diffusion and innovation. Diffusion has the meaning of a spreading process, while innovation can be said to be an idea or something that is said to be new and is subjective in nature as to how each individual and group manages problems that are considered new.

Ideas considered new by every individual and the public constitute innovation (Rusmiarti 2015). Renewal is not just about ideas, but in the form of a physical tool or related idea that has never been used. Other research by Aji *et al*. (2019) revealed that new programs that have not been implemented or used by the community can be said to be renewal or innovation. Communication in the diffusion of innovation usually carries information. The novelty of the message makes diffusion special (Tjahjadi *et al.* 2021). Diffusion of innovation is defined as a form of change that occurs in the social sphere of society. The spread of innovation is a way or process of change in members of society, related to the social structure in each environment, rejected and adopted causing consequences of changes in the social system. The diffusion of innovation has the function of conveying updates from communicators who receive messages from mass media, to obtain a very strong effect so that it can influence the audience (Nurhidayah 2022).

Diffusion of innovation has several elements, namely innovation or what is often referred to as an idea or concept or policy that is considered new by each party subjectively. The speed of adoption for individuals varies greatly depending on the characteristics of the innovation as follows: Relative advantages, Compatibility, Complexity, Trialability, and Observability (Haryadi 2018). The next element is related to communication channels. Communication channels are said to be a way or path for the diffusion of innovation in a social system. The next element, time as an investment in the diffusion of innovation so that the innovation is adopted by the social system. The final element of innovation is the social system, as an element.

In addition, the diffusion of innovation can be adopted by members of the social system through several stages. The adoption of innovation is a decision by individuals and audiences to use a new idea or concept in society (Musyafak and Ibrahim 2005). The use of new ideas may or may not continue. The theory of diffusion of innovation has four stages, namely the knowledge, persuasion, decision, implementation and confirmation stages (Rogers and Shoemaker in Ruliana and Lestari 2019).

The next stage is related to the adoption of an innovation. At this stage, individuals and society have the decision to continue or reject innovation (Fuah and Ganggi 2022). The attitude of accepting or rejecting innovation is carried out at the confirmation stage, whether the audience uses an innovation or even opposes or discards it (Winangsih 2018). At the innovation adoption stage, this can be proven by the way the innovation can be utilized or simply understood.

B. Communication Media

The spread of innovation, so that the innovation can be adopted and understood, requires communication channels as a means of conveying messages. Communication media is used as a communication channel in the diffusion of innovation, so that innovation can be conveyed to the public. Media is a tool used to convey messages in the form of innovation to the public.

Mass media is basically divided into two categories and in its current development social media has become a form of media that is widely used by various generations (Ardianto *et al*. 2021). Mass media has become a tool in the current era as a source for disseminating information. Various media are increasingly developing. At first print media was a trend, now digital media has become the focus for the development of message delivery intermediaries.

The use of mass media as a form of communication in the adoption of innovation is an inseparable source. Basically, mass media is only divided into print media and electronic media. The era of industry 4.0 makes development and change real. The existence of digital media with internal involvement makes changes and developments in the media. The communication media used in the diffusion of innovation theory are print media, electronic media and social media (Saleh *et al.* 2022). Social media is a collection of software that allows individuals and communities to gather, share, communicate, and in certain cases collaborate with each other (Boyd 2009). Social media is defined as a medium on the internet that allows users to present themselves and interact, collaborate, share, communicate with other users and form virtual social bonds (Nasrullah 2022).

C. Digital Natives and Digital Immigrants

Innovations that can be adopted by the public basically require involvement from members of the social system. Based on Rogers' theory in 1983, it was stated that the involvement of members of the social system in the adoption of innovation has an inseparable role. Members of the social system consist of various existing generations.

The birth of the internet gave rise to various generations participating in using and operating the developments of the digital era. The development of media in the industrial era 4.0 has given rise to the birth of various generations. Pensky in 2001 explained that the generations involved in internet use were divided into two groups. The first generation is a digital native, and the second generation is the result of the internet and digital media. This term gives rise to the generation born after the internet and the generation born before the internet.

The are basically two views on the definition of digital natives (Creighton 2018). Firstly, as the original generation was born in the digital era, it cannot be generally accepted, it should be explained in detail. The generation of digital natives has variations for each individual. Differences between digital natives such as society, region, and existing technological advances always change over time. By definition, digital natives cannot only be measured from the age variable, but must be measured using other variables for each individual.

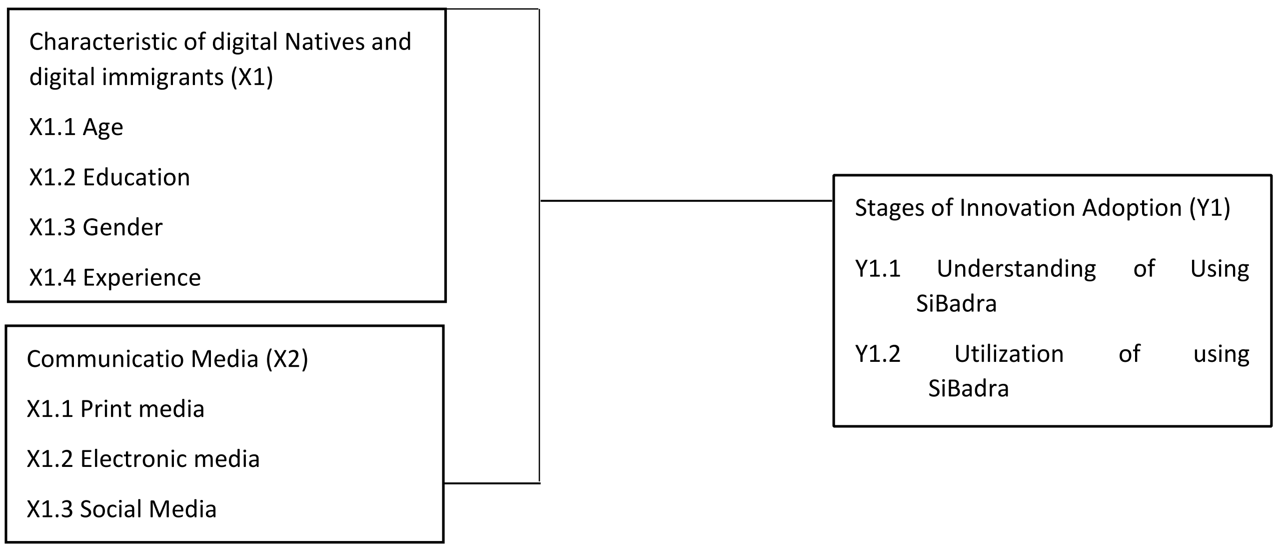
The digital natives generation can be said to be a generation that was born and grew along with developments in technology (Rakhman *et al.* 2019). The digital natives generation is characterized by using the virtual world to become the real world for the digital natives generation. One of the reasons is the development of the right brain of this generation of digital natives. This digital natives theory was originally discovered by Prensky in 2001. By definition, digital natives are related to the internet generation. The generation of digital natives or what is often referred to as the internet generation is basically divided into two, namely digital natives and digital immigrants (Rastati 2018). At one time, prefer reading in hardcopy format, such as books, newspapers, etc. The digital immigrant generation believes that much of its knowledge comes from writing (values text more), works consistently and gradually, so it takes more time, and finally this generation is just starting to learn technology (Pensky 2001).

III. FRAMEWORK

This research uses a framework of thought as a support for research that is measured in the field. The framework of thinking departs from the characteristics of the digital natives and digital immigrant generations, which are related to the diffusion of innovation in the use of communication channels. Media is one thing that is used to measure the relationship between the use of communication channels which leads to the stage of innovation adoption.

This research is related to innovation adoption, so it uses measurements based on the theory of Rogers (2003), Damastuti (2020), Rosyida *et al*. (2021), Prensky (2001), Badri (2022), most recently by Anderson and Jiang (2018) and finally research by Azmi (2020) including the characteristics of digital natives and digital immigrants, communication media, and the stages of innovation adoption.

The hypothesis in this research is that there is a relationship between the characteristics of digital natives and digital immigrants. The second hypothesis is that there is a relationship between communication media originating from print, electronic, and social media in the adoption of SiBadra service innovations for the digital natives and digital immigrants generation in Bogor City.



IV. METHODOLOGY

This research uses a quantitative approach, and has an understanding of stages that are based on assumptions, then variables are determined, until they are analyzed using valid research methods. The method used is a survey, and has the meaning of information being linked to respondents and using a questionnaire instrument. Surveys are used from population data or samples representing the entire population. Survey research can be said to be research taking and using samples from a population using questionnaires as the main data collection tool (Effendi and Tukiran 2015).

Before carrying out data analysis, a validity test is carried out to measure the validity of the research instrument used. The applications used to measure variable validity and reliability tests are the SPPS and Microsoft Excel applications. The validity test results were declared valid and reliable. The statement is valid by looking at the correlation coefficient (r count) ≥ 0.3 (r table).

Meanwhile, reliability. Instrument if a variable statement is reliable, what if the Cronbach's Alpha value is more than 0.600, namely 0.902.

This research uses primary data and secondary data. All data obtained directly from the results of questionnaires in the field when distributing questionnaires is used as primary data. Data obtained directly can be said to be primary data, while data obtained indirectly is called secondary data. Data analysis here uses Spearman rank correlation. Data analysis using inferential statistics with testing using Spearman rank can be shown with the formula below as follows (Kriyantono *et al*. 2014).

$$r_S = 1 - \frac{6 \sum d_i^2}{n(n^2-1)}]$$

r_s = Spearman Rank Correlation Coefficient di = Difference for Each Rank

V. RESULTS AND DISCUSSION

The majority of respondents who know and have experience related to adopting SiBadra services that use digitalization are digital natives. These results prove that as many as 60.6% of the 150 respondents from the digital native generation adopted SiBadra services in Bogor City. This generation understands and utilizes the stages of innovation adoption. The age described by Pensky in 2001 explains that the generation of digital natives is aged between 17 and 34 years. The generation over the age of 34 can be said to be the digital immigrant generation. The education level of the digital natives generation as the majority of respondents is at the higher education level, namely where they have completed university or undergraduate studies and equivalent. These results are proven by the respondents who filled in at the higher education level, namely 57.7%. Meanwhile, medium education was 37.5% and low education was 4.8%. In terms of gender, the majority who use and understand the use of SiBadra as a medium for complaints about digital services owned by the Bogot City government is 53.2%, while the remaining 46.8% who adopt SiBadra services are male.

A. The Relationship between the Characteristics of Digital Natives and Digital Immigrants with the Stages of Innovation Adoption

Based on the output of the Spearman correlation test results below, it can be seen the relationship between each indicator in the characteristic variables of digital natives and digital immigrants on understanding and utilization in the innovation adoption stage in the following table:

Table 1. Output of the Spearman Correlation Test Results

Characteristics of Digital Natives and Digital Immigrants	Stages of Innovation Adoption			
	Understanding		Utilization	
	r_s	Sig.	r_s	Sig.
Age	0,372	0,000	0,334	0,000
Education	0,354	0,000	0,336	0,000
Gender	0,451	0,000	0,489	0,000
Experience	0,354	0,000	0,349	0,000

The results of the analysis show that age (X1.1) on understanding and utilization in the innovation adoption stage has a significance value of 0.000 and this value is smaller than 0.050 (0.000 < 0.050), so it can be concluded that age has a significant relationship with understanding and utilization in the innovation adoption stage. adoption of innovation.

Education (X1.2) on understanding and utilization in the innovation adoption stage has a significance value of 0.000 and this value is smaller than 0.050 (0.000 < 0.050), so it can be concluded that education has a significant relationship with understanding and utilization in the innovation adoption stage. Gender (X1.3) on understanding and utilization in the innovation adoption stage has a significance value of 0.000 and this value is smaller than 0.050 (0.000 < 0.050).

So it can be concluded that gender has a significant relationship with understanding and utilization in the innovation adoption stage. Experience (X1.2) regarding understanding and utilization in the innovation adoption stage has a significance value of 0.000 and this value is smaller than 0.050 (0.000 < 0.050), so it can be concluded that experience has a significant relationship with understanding and utilization in the innovation adoption stage.

B. The Relationship between Communication Media and the Stages of Innovation Adoption

Based on the output of the Spearman correlation test results below, it can be seen the relationship between each indicator in the communication media variable on understanding and utilization in the innovation adoption stage in the following table:

Table 2 Output of the Spearman Correlation Test Results

Communication Media	Stages of Innovation Adoption			
	Understanding		Utilization	
	r_s	Sig.	r_s	Sig.
Print Media	0,581	0,000	0,552	0,000
Electronic Media	0,557	0,000	0,495	0,000
Social Media	0,414	0,000	0,441	0,000

The results of the analysis show that print media (X2.1) on understanding and utilization in the innovation adoption stage has a significance value of 0.000 and this value is smaller than 0.050 (0.000 < 0.050), so it can be concluded that print media has a significant relationship with understanding and utilization. in the innovation adoption stage.

Electronic media (X2.2) on understanding and utilization in the innovation adoption stage has a significance value of 0.000 and this value is smaller than 0.050 (0.000 < 0.050), so it can be concluded that electronic media has a significant relationship with understanding and utilization in the innovation adoption stage. Social media (X2.3) on understanding and utilization in the innovation adoption stage has a significance value of 0.000 and this value is smaller than 0.050 (0.000 < 0.050), so it can be concluded that social media has a significant relationship with understanding and utilization in the innovation adoption stage.

VI. CONCLUSION AND SUGGESTIONS

A. Conclusion

Based on the research results, it is clear that the characteristics of digital natives and digital immigrants are related in the stages of innovation adoption. This relationship is positive in increasing understanding and utilization of usage. Relationships related to the stages of innovation adoption such as understanding and utilization are supported by age, education, gender, and experience of use which have a significant relationship in the stages of innovation adoption such as understanding and utilization.

The second relationship is related to communication media. The research results can say that communication media has a positive relationship with understanding of using SiBadra, and also utilization in using SiBadra services in Bogor City. Indicators that support the relationship between communication media such as print, electronic, and social media.

B. Suggestion

Increased response from SiBadra managers both from Whatsapp and Instagram and even from the SiBadra service application in Bogor City must provide a faster response so that complaints are quickly resolved. No longer waiting and taking quite a long time to complain about problems felt by the digital natives and digital immigrant generation. So that complaints that need to be resolved immediately can be resolved quickly without waiting a long time.

The next suggestion relates to information in the media. The information in the media must explain a lot about the use of SiBadra. Especially in the industrial era 4.0. There must be a lot of information conveyed on social media regarding the use of SiBADRA so that the response in the media will be faster so that complaints can be resolved properly.

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Language Style in the Script Serat Piwulang Hamengkubuwana 1: Philological and Stylistic Studies

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ABSTRACT: This study aims to explain the use of language styles in the text of Serat Piwulang Hamengkubuwana 1. This study employed descriptive qualitative and modern philological research methods. The research data were collected from the manuscript and text of Serat Piwulang Hamengkubuwana 1, collection from the British Library, United Kingdom, with the code of MS 12337. The data collection technique used was the philological way of working. Semantic was employed to check the validity, while interrater was employed to check the reliability. The present research indicates three findings. The manuscript description elucidates that the condition of the Serat Piwulang Hamengkubuwana 1 manuscript remains good enough, with the text providing clear readability. The investigation reveals that only a limited number of sections of the text exhibited defects, specifically in the transliteration process, in which Javanese character was converted into Latin letters. The translation of the text is carried out by changing the Kawi and Javanese languages to Indonesian to make it more general. Furthermore, the language style used in Serat Piwulang Hamengkubuwana 1 is discussed. The linguistic style used is inspired by the rich tradition of the Indonesian language and Javanese culture.

KEYWORDS: Philology, Language Style, *Serat Piwulang Hamengkubuwana 1*

I. INTRODUCTION

Language serves as a means of communication among individuals. Generally, the language that is used as a means of communication can be in the form of oral or written. A notable illustration of the utilization of written language can be noticed in the composition of manuscripts. A manuscript is a work with certain characteristics. The content within the manuscript frequently exhibits subjective influences from the author. Hence, it is common practice to add words or sentences that have a certain semantic significance. Examples of this variation can be interpreted as language styles. Stylistics is the scientific field that centers on the study of language style. Pradopo in Lafamane (2020) explains the scope of stylistics, which encompasses several linguistic elements such as intonation, phonetics, vocabulary, and syntax, hence giving rise to distinct styles for each of these components. This section provides an overview of several features of the manuscript, enabling a comprehensive analysis through the perspective of stylistic studies.

A manuscript of Javanese origin is among the manuscripts that are available for scholarly examination. Javanese manuscripts refer to written literary works that are intended for instructional purposes and are composed in the Javanese language. Javanese manuscripts typically encompass a diverse range of knowledge, including life principles, educational content, and even original works authored by practitioners. Javanese manuscripts that contain piwulang or teaching can be distinguished into various aspects, such as religious science, social sciences, cultural sciences, and many other fields. The scientific values presented in the manuscript have inherent utility for individuals, serving as a valuable framework for navigating their daily life.

This research uses the object of the manuscript entitled Serat Piwulang Hamengkubuwana 1 (SPHB 1). The SPHB 1 manuscript contains an example from Sri Sultan Hamengkubuwana 1, who is recognized as the founder of the Yogyakarta Sultanate Palace. The use of language by the author in the form of styling is one of the attractions of the manuscript. Based on the manuscript inventory step, the SPHB 1 manuscript was only found in the British Library with the code number MS 12337. Iswanto (2014) explained that the MS code means that the manuscript is a single manuscript, not in the form of collections of manuscripts that are written in the MSS code. The only presence of the SPHB 1 manuscript in the British Library can be attributed to its inclusion in the loot collected by the United Kingdom government during the Geger Sepehi event in 1812.

The object of research in the form of a manuscript influences the method of research by using philological research methods. According to Baroroh-Baried et al. (1985), philology encompasses a comprehensive understanding of literature, encompassing the domains of language, literature, and culture. Mulyani (2014) explained that philology is a discipline related to the results of human culture in the past. Jordheim, as cited in Lonnroth (2017), elucidates that the fundamental nature of philology lies in its ability to endure and ensure its total continuity. Gumbrecht (2003) explains philology will always be used based on meanings that refer to the configuration of scientific skills and are geared toward the curation of historical texts. Philology can be defined as the scholarly study of languages, literature, and culture through the analysis of texts produced by a nation during a specific period. Therefore, philology is encompassed within the realm of the humanities.

The object of philological research is divided into two parts, namely manuscripts and texts. The manuscript, as presented by Djamaris in Ekowati (2017), is an ancestral relic in the form of writing on paper, palm leaves, or rattan. Meanwhile, Onions in Erlina (2015) states that a manuscript is an essay written by hand, which can be in the form of original writing or a copy of a discourse. The manuscript can be made in the form of sekar, tembang, or gancaran. Hence, manuscripts serve as a concrete embodiment of the outcomes of previous civilizations, encompassing the written materials that constitute them. Meanwhile, text is the content of the manuscript (Saputra, 2008). According to Baroroh-Baried in Badrulzaman (2018), texts are divided into three types, namely oral, written, and printed texts. Texts can be defined as a conceptual statement in the form of ideas that is formulated by the author and directed towards the reader.

Philology can be categorized into two distinct genres: traditional philology and modern philology. The scientific genre employed in the present research is modern philology. Mulyani (2014) argued that modern philology is a field of study that perceives variation as a product of human production, with the objective of identifying literary works produced by writers. Dewi (2018) explained that modern philology attempts to determine the authenticity of texts or components that closely approximate authenticity. This pursuit has significant importance in the examination of a nation's history and contributes to the development of the nation's character after the completion of philological research.

This research applies philological research steps. The steps of philological research undertaken are as follows: manuscript inventory, manuscript description, transcription (specifically in this section, the text transliteration step is used), text editing, text translation, and content analysis, which discuss the use of language style in the manuscript. The content reveals the language style. Language style is a way of generating thoughts that show the personality of the writer. This is in line with the opinion of Nilawijaya (2018) that language style is a way used by writers to show ideas through language to create a beautiful language representation of the author's personality.

Tarigan (2013) explained that language style is a language that is used to increase the effect by comparing a certain item or thing with other more general things. An example of the implementation of this viewpoint can be observed in the linguistic style of the figure of speech. Stylistic analysis generally explains the part of literary science that shows the relationship between language and its artistic function with the meaning (Leech & Short in Nurgiyantoro, 2019). Based on the definitions, it can be inferred that language style refers to the expressive and purposeful use of language by authors to convey their thoughts, attributes, and personality. The purpose of using language style is to create aesthetic properties in a literary work. Alongside the language styles seen in the Indonesian language, the SPHB 1 manuscript also identified many language styles derived from Javanese language.

The purpose of this study is to examine the manuscript and the use of beautiful language in the manuscript, or it can be called a stylistic study. Ratna (2017) states that stylistics is a science that studies language styles. Furthermore, the primary objective of this research is to facilitate comprehension of the SPHB 1 manuscript, in order enabling individuals to emulate the principles and character embodiment of Sri Sultan Hamengkubuwana 1. As a nation with a thick Eastern culture, the people of Indonesia need to interpret culture as a provision for living life, as contained in Javanese manuscripts.

II. METHOD

This study employed qualitative descriptive and modern philological methods. Kaelan (2005) defines descriptive research as a method of objectively and systematically examining an object to provide a rational description or explanation. Meanwhile, Mulyani (2014) suggests that the modern philological approach entails perceiving diversity as a means of generating meaning. This is in line with the purpose of the research, which is to find and explain the forms of language styles in the SPHB 1 manuscript.

The source of data in this study was collected from the Serat Piwulang Hamengkubuwana 1 digital manuscript. The manuscript can be accessed through the British Library website with code number MS 12337. The SPHB 1 was written manually using the

Javanese script. The data collection methodology employed in this study involves the application of philological research methods. The main instrument of investigation employed in this study is a tabular data card.

The employed methodology for data analysis is descriptive analysis. The selection of this technique was driven by the intention to analyze the script's substance by employing several linguistic styles, thus ensuring the acquisition of objective data. Katz (2006) explains that scientific research adheres to a prescribed framework or set of standards to ensure the absence of any interference from the research material. The assessment of data validity in this study is conducted through the utilization of semantic means and inter-rater reliability. This is because the data source employed in this study consists of word or sentence arrangements extracted from the SPHB 1 text. The primary objective of employing semantic data validity is to conduct a comprehensive collection and analysis of stylistic forms within the SPHB 1 manuscript. In the context of data analysis, interrater reliability refers to the process of ensuring the integrity and dependability of data obtained from several sources.

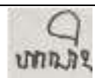
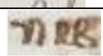
III. RESULT AND DISSCUSION

A. Result

Firstly, it is essential to start the discussion by elucidating the findings of philological research. As the manuscript of *Serat Piwulang Hamengkubuwana* 1 is exclusively stored in the British Library, the discussion will start with explanations of the manuscript, followed by an exploration of the subsequent research phase involving text transliteration, text translation, and stylistic analysis employed in the literature review of SPHB 1.

No.	Description	SPHB 1	No.	Description	SPHB 1
1	Author Name	Pangeran Pakualam	15	Pagination	Top Right Side
2	Storage	British Library	16	Ink Color	Black
3	Codex Number	MS 12337	17	Language	Kawi & Javanese
4	Year of Authorship	1812 M	18	Paper Stamp	4 Pieces
5	Owner Name	John Crawfurd	19	Picture Decoration	Page 1v & 2r
6	Manuscript Thickness	68 Pages	20	Number of *Pupuh*	20
7	Manuscript Size	21 cm x 27 cm	21	Number of stanzas	136
8	Manuscript Type	*Piwulang*	22	Examined *Pupuh*	20
9	Script	*Aksara Jawa*/Javanese Script	23	Manuscript Condition	Good with minor defects
10	Script Attitude	Upright	24	Script Material	*Dluwang* Paper
11	Script Strokes	Medium	25	Margin (LTBR)	2,5 / 3 / 2 / 1
12	Form of Script	*Ngetumbar*	26	*Dhapukan*	*Sekar Macapat*

The research findings are shown in Table 1, which provides a concise summary of the textual content presented in a tabular format. A description of the manuscript is carried out to explain its state with the aim of finding complete information in the SPHB 1 manuscript. The information under investigation encompasses both intrinsic and extrinsic data derived from the SPHB 1 manuscript. The manuscript provides a comprehensive analysis of the Javanese Script, including the identification of each letter. The form of the script is visually represented in Table 2, presented below.

Script Name	Form		Example	Standard Transliteration	Translation
	Aksara Jawa	Pair			
ha		… 		*asih*	affection
na		… 		*nraka*	hell
ca		… 		*campur*	mix
ra		… 		*raja*	king

ka		…		*kembar*	twin
da		…		*dewi*	goddess
ta		…		*tutuke*	his/her mouth
sa		…		*sira*	you
wa		…		*wani*	brave
la		…		*larang*	expensive
pa		…		*pareng*	allowed
dha		…		*dhumateng*	to
ja		…		*jangga*	neck
ya		…		*yuda*	war
nya		…		*nyawa*	life/soul
ma		…		*mari*	healed
ga		…		*gedhe*	big
ba		…		*bandha*	wealth
tha		…		*thathit*	lightning, thunder
nga		…		*Ngendika*	speak

The present research aims to examine the language style employed in the SPHB 1 text, identifying several types of language styles observed in both Indonesian and Javanese. The distribution of stylistic data in the SPHB 1 text is displayed in Table 3.

B. *Discussion*

The *Serat Piwulang Hamengkubuwana 1* manuscript is one of the collections of the British Library, United Kingdom, with code number MS 12337. The SPHB 1 manuscript is included in the relics of the Yogyakarta Palace, which were looted by the United Kingdom troops during the *Geger Sepehi* incident in 1812 AD. SPHB 1 was written by Prince Pakualam. He is the third son of *Hamengkubuwana 1*, specifically from *Raden Ayu Srenggara's* concubine. Prince Pakualam would later become *Paku Alam 1* and rule the Duchy of *Pakualaman*. Prince Pakualam had a close relationship with the United Kingdom government, especially with

John Crawfurd, the sovereign Resident of the United Kingdom in Yogyakarta at that time. John Crawfurd is the rightful owner of the SPHB 1 manuscript, which was later donated to the British Museum in the United Kingdom.

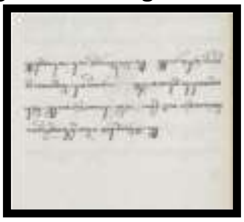
The SPHB 1 manuscript was probably written during the reign of *Sri Sultan Hamengkubuwana 2* before the Geger *Sepehi* incident in 1812. From that year until 2019, the Javanese people have not been able to know the existence of the manuscript directly. In March 2019, the Yogyakarta Palace held a symposium to honor the 30th anniversary of the reign of *Sri Sultan Hamengkubuwana 10*. The results of the symposium culminated in the collaboration between the Yogyakarta Palace government and the British government to facilitate the repatriation of several historic manuscripts that were confiscated during the *Geger Sepehi* incident. The manuscripts were returned home in a modified state, having undergone a process of conversion into digital manuscript.

Philology Research Results

The initial phase of philological research is the collection of manuscript inventory. A digital catalog investigation was conducted, revealing that the manuscript of *Serat Piwulang Hamengkubuwana 1* is exclusively accessible at the British Library, United Kingdom. Based on the information on the British Library website, the title is *The Teaching of Sultan Hamengku Buwana 1*. In contrast, the title in the written manuscript content is *Collection of Song, from the prince Pakualam*. However, the title of the manuscript is known based on one of KPH's social media posts. Notonegoro, the royal family of the Yogyakarta Palace, showed the caption of the title of the manuscript, namely *Serat Piwulang HB 1*.

The condition of the manuscript is classified as good, with three defects identified within its text. The condition of the manuscript can be seen from the images displayed on the British Library website. It is because the material for making the manuscript was from *dluwang* or is included in the premium paper. Regarding the use of paper, this is in accordance with Carey's (1980) opinion about the three volumes of manuscripts in the John Crawfurd collection written on premium quality Javanese paper, namely *dluwang*. There is a possibility that the SPHB 1 manuscript was not looted but was given by Prince Pakualam directly to John Crawfurd because the appearance or condition of the manuscript seemed to be well preserved.

Figure 1. Damaged Writing



(**Source**: http://www.bl.uk/manuscripts/Viewer.aspx?ref=add_ms_12337_fs001r) (*p.f.11v*)

The manuscript is organized into a systematic page division, consisting of 15 blank pages (*pp. f.i-r* to *f.1r*), 2 opening pages featuring illumination drawings (*pp. f.1v* to *f.2r*), 1 blank page adorned with a British Museum paper stamp (*f.2v*), 36 pages of textual material (*f.3r* to *f.20v*), and 14 blank pages (*f.viii-r* to *f.xiv-v*). Furthermore, the total number of pages in the SPHB 1 manuscript is 68. The manuscript is made of thick, dark brown paper. The British Museum's watermark is available on pages *f.viir*, *f.2v*, *f.13v*, and *f.20v*. There are several records, including the manuscript code, namely Add. 12337, the title description, and the note "*Purch of J. Crawfurd hg. Jul 1842.*"

On the opening page, there is an illuminated image that is predominantly red and yellow. The illumination image contains writing like an opening paragraph to start the text of SPHB 1. The written text functions as a reminder to the king's family and relations to continually uphold and demonstrate their moral character. In addition to the illuminated image, there is a paper stamp with the description of *the British Museum*. This paper stamp or *watermark* serves as a characteristic of the manuscript owner. The shape of the British Museum's paper stamp is in the shape of a circle with a brownish-red color.

Figure 2. British *Museum Paperstamp*

(Source: http://www.bl.uk/manuscripts/Viewer.aspx?ref=add_ms_12337_fs001r) (*p.f.15r*)

The transliteration employed in this study adheres to the principles of standard transliteration. Transliteration refers to the process of substituting one script or writing system with another alternative script (Baroroh-Baried in Ekowati, 2017). All Javanese letters (*Hanacaraka*) and its counterpart are found in the text of SPHB 1. *Sandhangan* shape and types of *Murda script* And *Swara script* also written in the text. Before transliteration, transliteration guidelines are needed to facilitate the transliteration step. The transliteration method used is the standard transliteration method. The standard transliteration method is carried out by converting Javanese characters into Latin characters and adjusted to the standard Javanese spelling.

The transliteration results found 1 *pupuh* that was defective, in the sense that the writing did not match the metre or rules of the *tembang macapat*. The *pupuh* is derived from the musical composition known as *Asmarandana*. The inappropriate arrangement of the *tembang* rules means that this section is skipped, and then a normalized part of the text is searched for. The normal part of the text lies in its adherence to the principles of *tembang macapat*, ensuring its transcribeability and translationability. In addition, there is a part of the text that has a defect. Transcribing defective sections of the text is not feasible due to the presence of fading ink, which affects the accuracy of the transcription. This section is located at 3 points on page *f.11v* in the SPHB 1 text. The results of transliteration, which experienced obstacles such as defects and inconsistencies in the rules, in this philological research were given a mark in the form of red on the writing.

The translation of the text or the transfer of meaning from the source language to the target language in this study is the replacement of Kawi and Javanese with Indonesian Language. The translation method used is literal and free, the purpose is to maintain the purity of the text layer in the source language (Badrulzaman, 2018). The primary objective of the text translation process is to facilitate readers' comprehension of the text's content within a broader language framework, specifically in the context of Indonesian. This study aims to explore the potential for individuals to acquire knowledge from the SPHB 1 document.

Language Style

There are many types of language styles with the aim of creating aesthetic properties in a literary work. One of the most common types of language styles used by the authors of *Serat Piwulang HB 1* is figure of speech. In addition to the figure of speech, there are also forms of proverbial language styles, the use of infixes, and types of language styles in Javanese, such as *sanepa*, *wangsalan*, *purwakanthi*, *tembung garba* and *tembung rinengga*. It is not possible to provide a systematic description of the 200 stylistic data findings separately. Hence, the analysis of language styles is limited to a small number of illustrative cases.

a. Simile

In the SPHB 1 text, 11 sentences of similes were found. An example of the use of similes is found in pupuh 1 stanza 24, the sentence reads " *badan iku* ***kaya*** *jarit putih / keneng reged tumulya ginirah*". The use of bolded connecting words is a characteristic of the simile. The word is used to compare 2 things, namely the body (*badan*) and the jarik cloth (*jarik*). These two things, if dirty, should be cleaned immediately. This implies that in the case there are human mistakes, it is important to promptly offer an apology.

The second example can be seen in *Pupuh* 19 stanzas 127, whose sentence reads " *wong ayu milangoni /* ***kadi*** *widadari nurun / tumedhak maring donya*". The sentence compares a beautiful woman who has the same beauty as an angel who descends into the world with a connecting word *kadi* which means *like*.

b. Metaphor

A metaphor is essentially synonymous with a simile, as both serve to compare two different things. One notable distinction is in the direct utilization of metaphorical comparisons, which do not rely on the connecting words. For example, in stanza 71-74, the sentence reads "*bathuk nila cêndhani / mêcis wutah sinomipun // alis angroning imbå / idêpé tumênggèng ngrawit // rêmanirå andhan-andhan / ondrawéla / kang nétrå 201 jait angraras // pipiné durèn sajuring / lathinyå manggis karêngat // grånå ngrungih amanêsi / athi-athi kudhuping turi / uwangirå sangkal putung / tênggêknyå ngêlunging jånggå / jåjå wijang amantêsi / lir ngudéntå pêmbayun sumagèng sêkar / pêmbayuné sang kusumå / anglir péndah cêngkir gadhing…..jêr riji pucuking êri / kenakané apanjang tuhu angraras // wawangkong pêpêd kumêtan // wêntisé pudhak sêsili*".

The examples illustrate the morphology of human body parts by comparing them to other entities that possess comparable shape or characteristics. For example, the sentence "*jer riji pucuking eri*" which means that the fingers that a person has are slender and pointed in shape which are described as sharp thorns.

c. Allegory

Allegory is a comparative language style that is conveyed through stories but has an implicit meaning in it. An example can be found in stanza 3, where the sentence reads, " *mayangkara rinengga ing kelir / nora pecat ngastane ki dhalang*." At first glance, this sentence is ordinary, but it contains an important meaning in life. *Mayangkara* or puppets can be interpreted as a human being, *kelir* as the universe, while a puppeteer is God who has power over all his creations. The clearer meaning is that humans can live in this world only by the will of God Almighty.

d. Pars Prototo

The concept of pars prototo encompasses the utilization of a synecdoche language style, wherein a specific portion name is employed to symbolize the entirety of the overall form (Moelino in Tarigan, 2007). In the text of SPHB 1 can be seen at *Pupuh 1* stanza 7 with the sentence " *tumepa tepa maring **kepala** / den mlas asih nitipake / mring kanca jiwanipun*". In the example sentence it is mentioned that the word *kepala* or head. The term "head" in the sentence does not pertain to a specific portion of the human body, but rather assumes a symbolic representation of the entire body. The contextual framework of the intended head refers to a leader.

e. Repetition

This is a form of language that involves the repetition of various elements such as sounds, words, word formations, phrases, sentences, and other forms. Its purpose is to enhance the narrative style and beauty of the text (Nurgiyantoro, 2019). In the text of SPHB 1, 3 forms of repetition figure of speech are found. One example is found in *Pupuh* 15 stanzas 82 with the sentence "*laraningsun sangking dika / wong ayu dika jampeni / nora waras sing usada / yen tan dika kang jampeni / larane ngeranuhi / **nora** waras sing sasembur / ra mungus / **nora** panas / yen ngelu dipunpilisi / lara brangta sapa bisa nambanana*". This example contains a form of word repetition. The bolded word, *nora*, in the context is that solace, especially related to romance, will be difficult to cure. In cases of physical illnesses, specific medications can be employed for treatment. Conversely, in cases of romantic illnesses, the one in concern carries the sole responsibility for its cure.

Other examples are found in *Pupuh* 18 stanzas 119 to 120 stanzas. The sentence " *amung dika kakang putra / kang bisa nambanana / sakit kawula wong bagus // **dede** lara ngelu panas // **dede** gumigil panas tis // **dede** lara kaapungan // pan **dede** esur larane / lara nyengkel kalelengan*". In this sentence, the form is the same, namely the repetition of words, while the word that is repeated is the word *dede* which means "not". The meaning of this sentence is broadly the same as the previous example, which is about pain related to romance.

f. Satire

Satire is only found in one sentence in the SPHB 1 text but has a deep meaning for mankind. The sentence is found in pupuh 7 stanza 51, it reads " ***kedhik cukup sinung akeh kurang***". The translation of the sentence is " if we are given a little, we will feel enough, but if we are given a lot, we will feel less". This sentence describes human beings living life in this world. Despite the limited quantity, a significant number of individuals can accept and find satisfaction in the resources provided to them.

Nevertheless, there exist certain humans that consistently experience a sense of inadequacy despite their resources being excellent. Satire does contain criticism of human shortcomings, the purpose of which is for them to introspect themselves.

g. Infixes

Infixes or inserts are lexical items that undergo morphological modifications as a result of linguistic influences. The author's utilization of infixes in the SPHB 1 script can be traced back to Javanese, also known as *seselan*. This can be seen from the dominant form of the word using *seselan -in-* and *-um-.* This type of language style is most found in the SPHB 1 text, which is 65 words. For example, the use of the infix -in- is found in stanza 12 while the use of the infix -um- can be found in stanza 127. Each sentence reads " *barang tingkah upama karya kulambi / badane kang **tinepa*** " and " *kadi widadari nurun / **tumedhak** maring donya*".

The word *Tinepa* is composed of the Javanese root word *Tepa,* which means measure or measure by adding an infix or *seselan -in-*. In this case, the word *Tumedhak* occurs because the root word is Javanese *medhak*, which means down, and it gets an additional morphological influence of the infix *-Um-*. The purpose of using the infix in the context is to create an impression of beauty in a word or sentence.

h. *Wangsalan*

Wangsalan is a sentence with a coded meaning, which means that the meaning to be conveyed is not written or shown clearly but only in the form of one or several syllables (Padmosoekotjo, 1960). The Javanese people do like to play guessing using words. Usage examples *Wangsalan* found on *Pupuh* 18 stanzas 112, with the sentence " ***jahe wana** atiningsun / kang ati **payang-payingan***". *Jahe wana* or wild ginger plants in Javanese have the term *lempuyang*. The sentence above contains a guess with a lighter in the form of wild-growing ginger or let's call it a ginger plant, so the answer that will appear in the next sentence is a term related to the ginger plant, namely *payang-payingan* which is taken from several syllables of the word *lempuyang*.

i. *Purwakanthi*

Forms of language styles *Purwakanthi* is a form of repetition. Repetition in Javanese language can be in the form of repetition of vowels, consonants, or words. An example of its use can be seen in *Pupuh 1* stanza 4 with the sentence " *aja lali ing **dhapur** / **dhapur** karsa sang adi Gusti*". The sentence contains a repetition of words or in Javanese it is called *purwakanthi guru basa (lumaksita).* The word that is repeated is *dhapur*. The meaning of the sentence is that humans who serve the king or God must always remember the original intention to serve.

Other examples as listed in *Pupuh 1* stanza 7. The sentence "***tumepa tepa maring kepala***". The sentence includes *purwakanthi guru swara* or a vowel repetition form. The vowels that are repeated are the vowels '*a*' at the end of the word. The meaning of the sentence is that when someone becomes a troop leader, they must have the ability or skill as a guide or role model for their troops.

j. *Tembung Rinengga*

Tembung rinengga is the same as the beautiful words. The purpose of its use is to create a more beautiful or aesthetic context of a word or sentence. In Javanese, one way to make a beautiful word is to use other terms, for example, with Kawi words (Padmosoekotjo, 1960). This section is in harmony with the text of SPHB 1 where most of the languages used are Kawi. Therefore, there are many examples of words in the Kawi language that are classified as having aesthetic properties, so the SPHB 1 manuscript is full of the beauty of the language style.

Application examples of *tembung rinengga* or beautiful words can be found on *Pupuh* 1 stanza 26 with the sentence " *sugih utang amelarati / maring anak putunya / ala sirnanipun / anak putune* ***turida***". The word in bold comes from the Kawi language, which means poor or sad. The purpose of writing the word *turida* is to realize the beauty of language rather than just writing poor or sad. Other examples are found in *Pupuh* 5 stanzas 35, the sentence " *nawang* ***kirana*** *purnama sidi*". Word *kirana* which is written in bold means moonlight. Indeed, the term "purnama" might serve as a substitute for the seemingly commonplace term "moon." The primary objective of word replacement is to enhance the artistic quality of a sentence within a literary composition.

The writer's adeptness in employing various language styles in the SPHB 1 text demonstrates their proficiency in systematically analyzing words in accordance with a specific rule, namely the rules of *tembang macapat*. Based on these proficiencies, the author possesses the ability to craft a literary composition characterized by a refined linguistic style. Within certain segments of the text, there exist sentences that are constrained to a sequence of words yet possess substantial semantic depth.

V. CONCLUSIONS

Based on the findings of the research analysis, it can be inferred that the application of philological research methodologies enables the public to gain knowledge regarding the condition and content of the Serat Piwulang Hamengkubuwana 1 manuscript. The philological research steps that have been carried out include manuscript inventory using catalog study steps, manuscript descriptions, text transliteration, text translation, and content analysis, namely the discussion of language styles in SPHB 1 manuscript. After philological research is carried out, the public can be helped to find out what is in the manuscript, such as intrinsic and extrinsic elements.

In the step of analyzing the content of the text, in this case, the use of language styles includes the form of figure of speech, proverbs, infixes, and several language styles in Javanese such as sanepa, wangsalan, purwakanthi, tembung garba, and tembung rinengga. There are 200 data on the use of sentences containing stylistic elements. The order of the types of language style from the most used is infix or in Javanese known as seselan with 65 data. Furthermore, the type of language style that is often used is the tembung rinengga with 60 data. The third place is the tembung garba, with the findings of 19 data. Followed by the metaphor with 16 data. The next order is simile with 11 data.

The subsequent application of linguistic style is purwakanthi, encompassing a total of 8 data points. There also exists a certain wangsalan language style characterized by 4 data. Moreover, it is important to note that there exists an equal number of linguistic styles, specifically three distinct types: allegory, repetition, and sanepa. There is a form of language style pars prototo as many as 2 data. Finally, there are several types of language styles in the last place with the number of data 1 including hyperbole, pleonasm, cynicism, satire, antithesis, and proverbs. It is expected that this research will contribute to the comprehension of culture, particularly among the Javanese people, by examining the content and linguistic style employed in the SPHB 1 manuscript.

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Ethics in Artificial Intelligence in the Banking Sector in Indonesia

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ABSTRACT: This research aims to find out the answer to whether the use of AI is a violation of ethics.

Methods: This type of research is normative legal research. This research uses secondary data. Data analysis uses qualitative data analysis techniques. The conclusion-drawing technique used is deductive.

Result: The research results show that Artificial Intelligence is only one instrument in bank activities. The use of AI in banking, the use of AI is considered a violation of Morals and Ethics if it violates the inner behavior which is a manifestation of good values and cannot find a justification for it.

KEYWORDS: Artificial Intelligence, normative legal research, secondary data

I.INTRODUCTION

The use of AI in the banking sector can be simply demonstrated by AI's ability to process both structured and unstructured data, which can improve risk management analysis. AI can identify, measure, and control risks that may occur in the banking world. For example, many Indonesians do not yet have a bank account. AI can help the verification process for new customers because it is integrated with Indonesian population data. The system will recognize the faces, signatures, and fingerprints of new customers according to their resident cards. Several banks have a policy of not requiring an ID card when opening an account according to the resident card address. AI has identified and controlled these risks. In addition to the term AI, there is the term Generative Artificial Intelligence (Gen AI) which refers to a type of AI with the ability to produce new data or output based on data that has been learned by AI. The Gen AI model can create new content that is like the training data that has been given to it. Compared to Gen AI, AI refers to something traditional. Traditional AI focuses on specific tasks and predetermined algorithms with limited capabilities on data to train algorithms. In the banking sector, the advantage of Gen AI compared to traditional AI is its ability to update an algorithm according to the development of customer relationships progressively and automatically (Indra Utoyo, 2021). For example, Gen AI can monitor the smoothness of customer loan payments in real time which is used to provide recommendations for top-up loans for certain customers automatically. The nature of Gen AI is not static but can adjust to customer behavior. Many banks use AI in the credit granting process, by conducting credit history, income, and customer behavior. In general, the algorithm is updated periodically using new training data sets. The chatbot feature used by banks and fintech is a rule-based chatbot with pre-defined key vocabulary. Such chatbots are unable to provide answers outside of previously anticipated scenarios. Chatbots with Gen AI can automatically update answers that are outside of the scenario. Gen AI chatbots can understand the context and intent of questions and interact with more human language and learn from the interactions that occur. One of the leading financial institutions in China has used iceboats to automate the credit collection process, including by scheduling when to contact customers and even negotiating discounts on bill payments with late paying customers.

This description shows the benefits or positive consequences of using AI for banking and society, but also the negative consequences for customers and banks. The negative consequences include data accuracy and security issues as well as ethical issues. Negative consequences for data accuracy and security will be viewed from a legal and ethical perspective. These negative consequences have the potential to disrupt the bank's reputation and public trust in banking institutions which are non-contractual relationships that inspire the bank's relationship with its customers. The problem is that Using AI results in negative impacts such as data security and accuracy and a need for more ability to explain things and also raises ethical issues. This problem can damage the Bank's reputation, which affects public trust in banking institutions. This research aims to find out the answer to whether the use of AI is a violation of ethics? . There is previous research in Law that examines legal developments in AI in Indonesia, namely conducted by Reza Farishy (2023), Firza, A. D. C., Samudera, et al. (2023), Camila Amalia et al. (2022), Sinta Dewi Rosadi, et al. (2022). Artificial intelligence research in banking in other countries has also been written by, among others, Fares OH (2022), Choithani (2022), and Hasan MM (2022). The difference between this research and the previous research results is that this research needs to focus on the challenge of developing AI in banking from the perspective of ethic. This research is an internal group research schema. This research is urgent to find out what challenges exist in implementing artificial Intelligence in the banking sector from the perspective of ethic.

II. RESEARCH METHODS

This study uses secondary data. This study does not use primary data. This study does not use direct data from respondents. The secondary data used are laws and regulations related to artificial intelligence as primary legal materials. Secondary data used as secondary legal materials are books, journals, expert opinions. Data are collected, analysed with qualitative analysis and described with qualitative descriptive methods. The conclusion drawing technique used is deductive.

III. RESEARCH RESULT AND DISCUSSION

A. State in Banking Activities and Public trust in banking institutions

There are 2 (two) bank and customer relationships, namely a contractual relationship and a non-contractual relationship. A contractual relationship is a relationship that is based on an agreement, whether in a savings agreement, credit agreement or other banking services agreement. The state provides regulations regarding these private relationships in the form of general regulations, namely the Civil Code which regulates matters of engagement. Regulations regarding engagements are contained in Book III of the Civil Code. There are conditions for the validity of the agreement which is one of the sources of the agreement and the principles of the agreement which can be drawn from the provisions therein. It should be remembered that Book III of the Civil Code is complementary.

The complementary nature of the law means that the provisions in this regulation will apply as long as the parties do not determine otherwise. In accordance with the principle of freedom of contract in law, the parties have the freedom to determine the content, form and with whom they will enter into an agreement as long as it does not conflict with the law, morality and public order. In non-contractual relationships, the state is present in the form of regulations that require banks to carry out activities that can realize these non-contractual relationships. The concept that customer trust in banking institutions is a concept that underlies the operation of a bank. Based on this, understanding the content or substance and methods in conducting banking interactions is a very urgent matter to be seriously improved Public trust in banking institutions is greatly influenced by the experience, perception, understanding of the community itself, this is in accordance with Weber's concept of thinking. Human actions are based on experience, perception, understanding and interpretation of a particular stimulus object or situation. This individual action is a rational social action, namely achieving goals or targets with the most appropriate means. The behavior of society in choosing banking institutions as an option compared to other financial institutions is relevant to this Theory and Concept which was later developed by Talcott Parsons in the Action theory which states that action is not behavior. Action is a mechanical response to a stimulus while behavior is an active and creative mental process. According to Parsons, the main thing is not individual action, but social norms and values that guide and regulate behavior. Objective conditions combined with collective commitment to a value will develop a certain form of social action. In relation to the use of AI in banking, if banking institutions can provide banking digitalization with the help of AI that does not harm customers, but even benefits customers, then this will increase customer trust in banking institutions.

B. Limitations of the Positivism Paradigm and Natural Law Theory

The need for regulations related to AI in banking in Indonesia in the context of legal schools can be included in the positivism paradigm by prioritizing legal certainty by emphasizing the separation between law and morality (Hans Kelsen), determining the concept of law solely based on regulations that are currently in force or that already exist, without considering the basis for its existence (John Austin). Without ignoring the importance of legal certainty, the purpose of the law to achieve justice as a manifestation of the principle of balance of interests is something that must be reflected, this is in accordance with the opinion of the natural law theory as stated by Thomas Aquinas, Lon Fuller, Stammler (Satjipto Raharjo, 2021)

This issue shows the limitations of legal positivism which prioritizes legal certainty, and if the related parties in this case the banking sector, OJK, LAPS SJK only use the law based on the authority of the institution in charge, then the law can only be used as a tool for injustice and oppression (Franz Magnis S, 1987), so that if banking institutions cannot implement and interpret these regulations properly, the law will not be able to achieve its goal of providing justice. Viewed from the aspect of balancing interests for customers, these provisions have the potential to become obstacles to the legal protection of bank customers based on the balance of interests. Although there are no specific regulations governing AI, the problematic regulations that will exist and are currently used as a legal basis raise the issue of the application of the positivism paradigm in practice, resulting in more formal justice. Formal justice in reality does not necessarily reflect real justice (substantial justice)The positivist movement began to grow in the 19th century, this movement marked the emergence of positivism. The Indonesian state, which for 350 years was under the influence of the Dutch legal system, was a long enough period for the Indonesian people to get used to the written legal system, as a result of the influence of the civil law system (Continental Europe) that it had adopted for centuries. This paradigm was pioneered by August Comte which was then used in legal science The positivist paradigm influenced the birth of modern law. The characteristics of modern law in general are that its prominent nature is the rational (and formal) nature of modern law. This rationality can even develop in such a way that it reaches the level of "rationality above all else". This means that when associated with justice, procedural justice according to the law is what happens.

The theory of natural law seems to have re-emerged in this period, which believes in the existence of moral idealism in positive law (Stammler). The idea of re-emphasizing the relationship between law and morality (Lon L. Fuller) occurred in the 20th century. The essence is that the idea of the theory of law that colors this era reveals the need for moral idealism that can be expressed in the order of positive legal norms. The development of legal theory that emphasizes the moral aspect in conceptualizing law is also followed by the development of legal theory related to the field of economics (John Rawls, Robert Nozick, John Finnis) which rejects the principle of utility and maximization. All three argue about the importance of legal rules that emphasize moral aspects. Differences in thinking arise when drawn to the philosophical aspect, even though the new teachings on law are only in theory, ideas or study movements. In practice, this teaching may not be able to shift the dominance of the modern legal order which currently has a positivist paradigm, but in any case, the idea that there is a need to re-emphasize moral idealism which is expressed in positive law will be more able to touch on the true aims of law which not only aims to achieve legal certainty but also justice for society.

Banking regulations, especially AI in banking in Indonesia, have characteristics that cannot be neutral because the legal relationship that occurs between customers and banks is always dominated by parties who have a more dominant position. In relation to ethics, the absence of specific regulations related to AI encourages related parties, especially banking parties, to use AI in banking activities, not only for the sake of seeking profit, but also without harming customers.

C. Artificial Intelligence in Banking from Ethics Perspective

The use of AI in banking can be seen from a Moral and Ethical perspective. As is known, Ethics talks about what is right and wrong and good and evil. If there is a division of norms in society, namely norms of trust, norms of politeness, norms of morality or conscience, and religious norms, then what is meant by ethics are good and right values that come from religious norms, norms of morality and norms of politeness. Ethics and morals are 2 words that are interrelated. Ethics and Morals, although inseparable, have different meanings. According to Frans Magnis S (1987). Ethics is a philosophy or critical and fundamental thinking about Moral teachings. Moral teachings are advice, sermons, benchmarks and collections of rules and regulations, both oral and written, about how humans should live and act in order to be better. According to Frans Magnis, ethics is critical and fundamental thinking about moral teachings. Thus, ethics is a science, not a teaching. Ethics and morals are also not at the same level. Moral teachings determine how humans should live, what is permissible and what is not. While ethics helps a person to understand. In other words, ethics as a science requires humans to behave morally critically and rationally. An immoral person can be said to be a bad person, but an unethical person means he is just a person who does not know about a science. If morals contain human obligations and values, then the task of ethics is to put forward arguments why something is a moral obligation. Morals discuss the right and wrong of an action from the deepest aspect (philosophical), while ethics examines the good and bad or the appropriateness or inappropriateness of an action to be done based on a rational and critical analysis of its moral views.

	MORAL	LAW
1	1 Morality is subjective and often requires clarity about whether an act is ethical or not	Law is objective and has greater certainty.
2	Morality concerns a person's inner behavior	Law only limits its scope to human outer behavior.
3	Moral sanctions: disturbed peace of conscience	Legal sanctions can be enforced.
4	Sanctions will be given by the community	

IV.CONCLUSION.

AI as a software that works on the orders and authority of the Creator of the software. AI in banking takes information from many degenerate sources and provides the information desired by the user. Ethical violations for users are possible if the user's actions meet the violations of living Ethical elements. In relation to the use of AI in banking, the use of AI is considered a violation of Morals and Ethics if it violates the inner behavior which is a manifestation of good values and cannot find a justification for it.

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Explorative Correlational Research Between Superstitious-Belief and Ten-Dimensional Personality Traits of Pupil Teacher from West Bengal Perspective

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ABSTRACT: Superstitious-belief has tremendous effects on the advancement and development of society as well as on personal aspects of a person. The light of education not only eradicates superstitious-belief but also influence personal development. The present study aimed to explore the influence and extent of ten-dimensional personality traits in Superstitious Belief of pupil teachers. 420 pupil teachers of different Teacher Educational Institutions of West Bengal were taken as sample. Random Sampling techniques for data collection purpose was chosen. Descriptive survey-based research method by online method via google-form was used to carry out this study. Correlational research design was used to carry out this study. A Standardized Superstitious-Belief Scale by Dr. Sanjeev Kumar Jha & Mr. Ashok Kumar which was further revised by the Researcher and a Standardized Differential Personality Inventory (DPI) by Prof. Arun Kr. Singh & Ashish Kr. Singh were used for this study. The outcome of the present research work reveals that for emotional stability, significant correlation is found with superstitious-belief. Boosting of Emotional Stability of the pupil teacher can eradicate Superstitious-Belief.

KEY WORDS: Superstitious-Belief, Personality Traits, Correlation, Superstitions, Belief, Pupil Teacher

1. INTRODUCTION

A life is not merely the physical existaence but a harmonic balance is necessaryy between body and soul in true sense of the term. The quality of life, considering various aspects like social, moral, spiritual etc, is determined by the education embedded within. Like fresh air a proper education inspires a human being for sustainability. Education not only helps the members of a society to learn the way of achieving goals, enriching skill development but also how to transfer and transform its cultural heritage along with social, economical and scientific knowledge with the dynamic pattern of advancement of the society. From the history of human race it is evident that superstitious belief has been the greatest enemy of scientific progress as well as social development. The term ‘Superstition’ is a Latin word with the meaning of “to stand over in awe”. In India, the so called Pandit gave some “do’s” and “don’ts” for human behaviour to their own interest. But unfortunately, these beliefs are still persisting not only in tribal and backward classes but also in modern people. The binding fibre of every societal aspect is well explained by psychosocial factors in which superstitious-belief play an important role. Traces of superstitious articulated in every society originated from illogical and irrational fear and associated with unnatural belief. Superstitions sometimes give confidence to people. Like many renounced Sportpersons wear same jersey having same number printed in it in. In Indian Subcontinents some superstitions like seeing a black cat, breaking a mirror, the number 13 etc. are well fabricated by the people in their regular daily life. Superstitious Belief may be compared with corona virus in aspect of its width of spreading. Corona virus affects our entire society irrespective of caste, gender, economy. On the other hand, superstitious belief is well observed in both so called lower- and upper-class society. Societal development takes a reverse run by the irrational beliefs of a society. The components of superstitious belief are vast in range; from believe in supernaturalism to daily-life normal routine work. In our cultural heritage people mainly copy their society and parents for learning but without proper justification. Superstitious-Belief can be thought as opposite to that of reality or possibility.

So, it is quite evident to us that the light of education should be everywhere in our society. And this noble task is carried out by our respected teachers. A teacher not only transfer the acquired knowledge but also inspire the future generation to combat with the challanges of modern, socialised and scientific world. However, in the changing globalised scenario of education teaching has become more challenging and complex. It is now not only a mere interaction between student and teacher but an organised, systematic process in which application of science, technology and consideration of behavioural science is of outmost importance. In this context a teacher should have an all-round ability starting from academic superiority to behavioural adaptability. Gordon Allport (1961) mentioned personality as uniqueness of behavioural pattern within an individual. Personality makes our actions, thought, feelings consistent and makes us different from one another. It is the behavioural non-superimposability. Personality can also be considered as the result of our actions. Our present action depends on our previous accumulated experiences. We cannot change it dramatically from day to day or week to week. Recent research findings have figured out that biological and genetic phenomena also have an impact on personality.

So far, we have coma cross two things namely superstitious-belief and personality. The former compels a society to take reverse run towards development. It engages people to think illogical, irrational, and unnatural. Again, personality can be considered as the result of our actions, thought, feelings etc. Hence, these parameters are appropriate, quite realistic and of outmost importance to the research on the relation between teacher personality and the superstitious-belief embedded in them. In this article we have tried to find out the correlation, if any, between Superstitious-Belief and Ten-Dimensional Personality Traits namely **decisiveness, responsibility**, **emotional stability**, **masculinity**, **friendliness, heterosexuality**, **ego-strength**, **curiosity**, **dominance** and **self-concept** of pupil teacher from West Bengal Perspective in a quantitative way.

1.1Background Of the Study

We have already mentioned abot the importance and appropriatenes of the research on superstitious-belief and personality. Let us consider some work on these parameters worldwide by several researchers. Rani, M. (2009) analysed social myths in the aspect of Belief of a society or a particular cultural and social system. After their analysis they found both rural and urban students possessed very low belief in social myth aspect. In 2009 H. Surmeli and M. Saka investigated Preservice teachers' attitude towards paranormal belief by collecting data from 236 third- and fourth-year pre-service teachers. No significant difference in paranormal belief among various departments was found. A study to measure the impact of superstitious attitude on the mental health of women Teachers was conducted by Dayal and Kaur in 2015. The researcher surveyed 200 female teachers from various rural and urban areas from Ludhiana district of Punjab. It was observed that that there is a significant difference in superstitious attitude and mental health of rural and urban women teachers. Another correlation study entitled as "Pre-service Teacher's False Beliefs in superstitious and Pseudoscience in Relation to Science and Technology" by Fuertes, A.M.; Sanchez, A.S.; Corrochano, D. & Jambrina, U.C. (2020) revealed that the prospective teacher has more interest in science technology than other same aged general population. They also have more false belief in pseudoscience and in superstitions. Influence of Superstitious-Belief on academic performance was investigated by U. Josephine, D.D. Joy and A. Rose in 2015 in South Eastern Nigeria. They found that academic achievements decreased by acquisition of superstitious belief and suggested that more developed rationale-based curriculum and knowing students' indigenous culture can eradicate superstitious – belief and enhance a good academic performance. In 2016, Kalita investigated about different types of superstitious behaviour among the Scheduled Tribe students of Nalbari in the Assam state of India. The researcher found no significant difference between Male and Female towards superstitious beliefs and also similar observation for graduate and Post- Graduate students for superstitious beliefs. Whereas Vijay et.al. (2017) observed that male teachers were more superstitious than female teachers taking 100 school teachers as sample. In 2017, Sindhu and Tamilselvi in their research work also tried to investigate the superstitious-belief of school teacher. By their work they observed that there is slight low degree of superstitious-belief of rural (more vulnerable) teacher than that of urban area. But the difference is not so significant. In 2018, Faiza Afreen highlighted on the psychosocial effect of superstition in her research work. The study revealed positive and negative influence on the psychology of people and the extent of superstitious- belief in social aspect. The researcher in this analytical approach makes a worthy contribution in understanding the superstitious belief with the help of secondary source of data. In 2019, a study by Ray et.al namely "The Indian Superstitions Scale: Creating a Measure to Assess Indian Superstitions" analysed the superstitious-belief by scientific thought and logic. The objectives of their study were to measure superstitious- belief is a context to Indian heritage and culture. They revealed 18 items are associated with superstitions which are reflected in a generalised manner across all over India in the contemporary time.

Besides superstitious belief sveral investigations have been done on personality as well. In 2011, A.J. Ferbstein carried out a research work to examine relationships among personality, perceived parenting styles, and locus of control in university students. The study infers that the combination of personality and perceived parenting is a better predictor of locus of control than either factor alone. The work demonstrates the role of school psychologists and social support to increase internal locus of control of the students. Bedel in 2012 examined Locus of Control, Epistemological Beliefs and Metacognitive Awareness in Preservice Early

Childhood Teachers. The Researcher revealed that there were significant correlations between Locus of Control and the first two factors of Central Epistemological Beliefs Scale. In 2013, Vorkapic and Puljic investigated with preschool children by analyzing the Big five personality model. No significant correlation was found between student's generation and age with personality. An attempted was made by Wiens and Ruday in 2014 to understand Personality and its impact on teaching quality. The study reveals that personality is not associated with teaching ability. Tiwari et. al. (2014) intended to find out Personality of Pupil Teacher on the basis of Socio-Economic status and gender variable with1000 samples. The study reveals that there is no significant difference on 10 dimensions of personality with socio-economic status but significant difference according to Gender. Prakash and Amaladoss (2014) reported personality of pupil teacher and the role of teacher education institution behind the development of the trait in their research. The researcher found that there was a significant difference in Personality between Self-Financed and Govt.-Aided student Teacher. In 2016, Andreea et.al aimed to investigate the nature of Personality Trait among different profession. Alsuwailem, A. & Elnaga, A. A. (2016) investigated the relationship between personality and Job Performance. They found that two trait- Conscientiousness and Extraversion positively correlated with productivity and performance. But the Neuroticism and Agreeableness Trait correlated negatively with leadership quality building. They also observed that the missing or less of trait conscientiousness degrades work performance and more can enhance work performance. Tamban, E.V. & Banasihan, L.G. (2017) aimed to study the relationship between Big -Five Personality Trait and Teaching Performance among the Faculty of Teacher Education Colleges. The outcomes of the research point out that teacher tend to be average in most of the Big Five Personality Traits except Neuroticism. They revealed that there was no significant correlation between teacher's personality trait and teaching performance. Malik, M., Fatima, G.& Chaudhry, H.A. (2017) studied about the role of female teachers to develop female student's personality growth for Lahore, Pakistan. They showed that female teachers from Private College Background were more engaged towards personality development of female teachers compared to public school. They also suggested that female teachers must go through training to know how to foster the girls' student's personality development. The research work carried out by Kok, R.& Meyer, L. (2018) for the evaluation of optimum person-environment relation in terms of Personality Trait of student teachers shows that a lower Agreeableness but higher Neuroticism. With Respect to Agreeableness Personality Trait a significant difference was observed for gender difference. Only in case of Extraversion a positive relation between person and environment was observed. Kell (2019) was trying to do a review analysis on Personality Trait of teachers and their effect on performance. A comprehensive review of the empirical literature from 1990 to 2018 was done by the researcher. The study was ranged from (1990 to 2018) a vast year but with a very few samples of only among 12 teachers. PRISMA method was taken and found that most studied showed that Agreeableness is a negative trait related to performance of teachers. Saad,J.; Dhanoa, K.S.(2020) worked on personality traits and Communal Orientations among Indian and Afgan Students and found that there was a significant difference between different personality trait and communal orientation among Indian and Afgan Students. Abood, H.M.; Alharbi, H.B.; Mhaidat, F. &Gazo, M. A. (2020) tried to establish the relationship between these three variables-Personality Trait, Self-Efficacy related Academics and academic adaptation. They observed no Correlation between Agreeableness Personality Trait and Academic Self-Efficacy and Academic Adaptation.

So, from the above discussion we can see that a lot of works have been done solely on superstitious-belief as well as with the personality. Various factors or parameters or variables of superstitious belief have been thoroughly explained and examined by several researchers. Similarly, various traits of personality have been examined from various aspects. But the relation between superstitious-belief and personality are rare in literature. So far, no study has been done on ten-dimensional personality trait correlations with superstitious-belief considering West Bengal perspective.

1.2. Statement of the Problem: Explorative Correlational Research between Superstitious-Belief and Ten-Dimensional Personality Traits of pupil teacher from West Bengal perspective.

1.3. Objectives of the study:

To study the relationship between **superstitious belief** and **dimension wise personality** of pupil teacher (pursuing B.Ed. course from teacher education institution).

1.4. Hypotheses of the study:

In this study we have only considered null hypotheses. There is no significant relation between Superstitious-Belief and Ten-dimensional personality traits namely decisiveness, responsibility, emotional stability, masculinity, friendliness, heterosexuality, ego-strength, curiosity, dominance and self-concept.

1.5. Significance of the study:

Teacher Education and Teacher Education institutions provide a platform for the pupil teachers to fulfil their ambitions and helps to reach their destination by worldwide collaboration of teaching artistic. Personality is one of the important qualities for a teacher which makes one different from other and more acceptable to the student. But an all-round development of personality is affected to a great extent in reality by versatile factors. Because of this, different research study, different commission and committee, different classroom activities, different psychological organization are working on the different variable of personality and provides necessary suggestions towards a critical justification in the teacher education field.

By measuring correlation of Superstitious Belief and Ten-dimensional Personality Trait in Pupil Teachers, we can measure the relation between acceptable beliefs and values from where they belong i.e., our society's belief and value systems, progressiveness or backwardness which our society incorporate in pupil teacher. So, evaluation of the relation of superstitious belief and different traits namely decisiveness, responsibility, emotional stability, masculinity, friendliness, heterosexuality, ego-strength, curiosity, dominance, self-concept personality trait will help us to measure the need of scientific literacy and awareness to foster progressiveness in our society. The present study has been aimed to explore the influence of personality traits in Superstitious Belief and in what extent. This area is very much untouched and we have tried to investigate the trait-based personality propaganda and superstitious-belief relationship among student teacher. Whether there is any role of a particular trait among these ten personality traits to eradicate Superstitious-belief and which traits should be nurtured in B.Ed. training period to develop proper rationale building have been verified.

1.6. Delimitation of the study:

The Study was delimited to-

- Two major variables i.e., Ten-dimensional Personality trait and Superstitious- Belief.
- Data was collected from only one state of India i.e.West-Bengal only.
- Data was collected from a fixed sample size of 420 pupil teachers of different Teacher Education Institutions of West -Bengal only.

2. RESEARCH METHODOLOGY

2.1. Type of the Research: Descriptive survey-based research method by online method via google-form was used to carry out this study.

2.2. Research Design: Correlational research design was used to carry out this study.

2.3. Population & Sample: Population will be Pupil teachers of different Teacher Educational Institutions and sample will be from 420 pupil teachers of different Teacher Educational Institutions of West Bengal.

2.4. Sampling Procedure:

Random Sampling techniques for data collection purpose was chosen.

2.5. Tool:

A Standardized Superstitious-Belief Scale by Dr. Sanjeev Kumar Jha & Mr. Ashok Kumar which was further revised by the Researcher.

A Standardized Differential Personality Inventory (DPI) by Prof. Arun Kr. Singh & Ashish Kr. Singh.

2.6 Variable: Major (Dependent) Variables:

Ten-Dimensional Personality Trait, Superstitious- Belief

3. ANALYSIS AND INTERPRETATION

From (In SPSS) Pearson Correlation Analysis the researcher found the following observations-

Sl. No.	Personality Trait	N	Pearson Correlation	Sig. (2-tailed)	Remarks
1	Decisiveness	420	-0.072	0.141	Not significant at 0.01 level.
2	Responsibility	420	0.039	0.421	Not significant at 0.01 level.
3	Emotional Stability	420	-0.206	0.00	Significant at 0.01 level.
4	Masculinity	420	0.058	0.238	Not significant at 0.01 level.
5	Friendliness	420	-0.042	0.395	Not Significant at 0.01 level.
6	Hetero Sexuality	420	0.039	0.422	Not Significant at 0.01 level.
7	Ego Strength	420	-0.071	0.145	Not Significant at 0.01 level.
8	Curiosity	420	0.041	0.401	Not Significant at 0.01 level.

9	Dominance	420	0.009	0.862	Not Significant at 0.01 level.
10	Self-Concept	420	0.007	0.892	Not Significant at 0.01 level.

The calculated Pearson Correlation (N=420) value is -0.206and Sig. (2-tailed) value is 0.00 for emotional stability. Hence it is significant at 0.01 level of significance. So, the null hypothesis is Rejected. And it can be concluded that there is a low negative correlation between these two Independent Variables. And also, a significant correlation between superstitious-belief and Emotional Stability personality trait is observed.

4. DISCUSSIONS & CONCLUSION

The outcomes of the present research work reveal that for decisiveness personality trait we found no significant correlation with superstitious-belief. And similar observation is found for maximum all other traits. i.e., responsibility, masculinity, friendliness, heterosexuality, ego strength, curiosity, dominance and self-concept. But for emotional stability the result significantly differs. For Emotional Stability, it is found that it is significantly correlated with Superstitious-belief. Emotional Stability of a person means the control over his or her emotions. Emotional stability also implies the handling of comments and criticism of a person in reality. From the Pearson Correlation value (r), it is found that Emotional stability is negatively correlated with Superstitious-belief i.e., if Emotional stability is high then that person possesses very low value of Superstitious-belief. We have also found that decisiveness, friendliness, ego strength is negatively correlated with Superstitious-belief. So, if a person possesses decisiveness, friendliness and ego strength alongside emotional stability then they also have very low value of Superstitious-belief. But for masculinity, responsibility and heterosexuality a very low positive correlation was observed. For dominance and self-concept, the result is very low. So, we can say that these traits are not at all related to Superstitious-belief. Almost zero or no correlation is present for these two traits. The result shows very practical outcomes if we consider these outcomes from our psychosocial aspect.

So, from the above discussion it is quite clear that 'eradication of superstitious-belief' and 'Personality development' are something which cannot be dramatically changed but a long period of time is essential and also interaction with the external environment is very important for both 'eradication of superstitious-belief' and 'Personality Development'. In this aspect the role of teacher and teacher educational institution is substantial to frame, to shape and to sharpen a prospective teacher's personality. A Prospective teacher will be the carrier of the lamp of teaching learning process in future. Personality is that property which will give proper direction to a prospective teacher and also for any teacher. So, every teacher educator should undergo with a process of nurturing emotional stability in order to achieve a better personality. In this research work we also tried to measure the influence of personality traits of prospective teacher on superstitious-belief. We correlated various personality traits with superstitious-belief by quantitative measurement to give some suggestive measures for betterment of Personality as well as for the eradication of superstitious-belief. Not only to be a good teacher but also to be a perfect human being for the society there must be a proportionate blending of all the traits in our personality. A very small seeds can only be transformed in an enormous banyan tree only if proper environment is given. Likewise, eradication of superstitious-belief and proper nurture of personality makes an ordinary individual into great.

5. RECOMMENDATIONS

Proper opportunity should be given to pupil teachers for better analysis and judge their own biases and beliefs. Scientific knowledge, Reasoning must be developed via novelty and heuristic method. Also, in curriculum practical classroom situation-based model absorption is needed for better understanding of the theoretical values and approaches. Teacher Educators should give opportunity to student-teachers for development and nourishment of their own reflection and independent actions. Assimilation of positive and curiosity-based ideas must be encouraged rather than memorization or wrote learning. Yoga and Interactive session are helping the personality of Student teachers enormously. So, curriculum should incorporate these two. Extra-curricular and co-curricular activity-based learning plays an important role in personality development and rationale building. Boosting of Emotional Stability of the pupil teacher can eradicate Superstitious-Belief. So, the negative emotional block should be overpowered by arranging various awareness programmes by the educational training institution.

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Analysis of Teaching Material Needs for Advanced Level BIPA Learners of Chinese Students

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ABSTRACT: This research aims to analyze the teaching material needs of Chinese BIPA students at an advanced level. In BIPA learning at Ahmad Dahlan University and Yogyakarta State University. The research subjects were Chinese students taking part in the BIPA program at UAD and UNY. Data collection using questionnaires, interviews. The research results show that in general Chinese students experience difficulties in memorization and grammar in BIPA learning. In writing skills, most Chinese students have difficulty switching between academic and spoken language. In reading skills, Chinese students experience pronunciation errors, such as P, B, R, D, T and so on. In speaking-listening skills, Chinese students experience difficulties in using verbs, active and passive forms, for example Me-Kan, Me, Ber, Me-an, Di-kan, and so on. these difficulties acquire their own unique and distinctive character. This can be used as a basis for preparing teaching materials and learning processes. For Chinese students, the need for adequate teaching materials is very important for them so that common problems in BIPA learning that occur among Chinese BIPA students will immediately be addressed so that Chinese students can make it easier to learn Indonesian.

KEYWORDS: advanced level, chinesse students, need for teaching

INTRODUCTION

On November 21, 2023, in France, the UNESCO General Assembly inaugurated Indonesian as the official language. Thus, there are now ten official languages of the UNESCO General Assembly, consisting of six UN languages, namely English, French, Arabic, Chinese, Russian, and Spanish, as well as four languages of other UNESCO member countries. Namely Hindi, Italian, Portuguese, and Indonesia. As a result, Indonesian is already recognized as an international language around the world. Various countries such as Australia, Hawaii, Suriname, England, Thailand, Japan, China, the Netherlands, and many others have studied and used Indonesian as a subject in schools, universities, and institutions. This year is the 75th anniversary of diplomatic relations between the People's Republic of China and the Republic of Indonesia. In fact, these two nations have had trade relations and mutual understanding since ancient times, and as time progresses, they are currently establishing extensive cooperation in various sectors such as tourism, culture, trade, and education.

According to reports from the Indonesian tourism ministry, as many as 2 million Chinese tourists visited Indonesia in 2019. China was one of the countries that visited Indonesia the most. If we look at the trade sector, Indonesia is China's fifth-largest trading country. China, on the other hand, is Indonesia's second-largest trading country and third-largest investor. Meanwhile, the two countries are also actively developing various educational projects to help each other. Examples include student exchange programs, government scholarship programs, and student credit transfer programs, among others. Currently, more and more Chinese students choose to study in Indonesia, not only because relations between the two countries are stable and close, but also because there are many interesting sides to Chinese students, such as culinary, culture, tourism, and others. According to a Chinese education ministry report, in 2019, there were 100,688 Chinese students in Indonesia. We anticipate an increasing number of Chinese students in the future.

Indonesian has become a global language. Indonesian for Foreign Speakers (BIPA) is one of the programs that makes Indonesia global. The BIPA learning objective is to teach Indonesian so that students can also get to know the culture (Salama and Kadir, 2022). In line with the BIPA learning objectives, the development of culturally charged BIPA learning materials explains the principles of developing culturally charged BIPA teaching materials, including the use of various languages. The materials provide easy-to-understand and practice techniques for four language aspects (Widayati, 2016). The study of BIPA teaching materials also addresses the need for BIPA learning by discussing the need for teaching materials and resources in the fields of economics and business knowledge (Yani et al., 2020).

Law Number 24 of 2009 confirms that Indonesian is the national language and lingua franca of the MEA (ASEAN Economic Community). According to Government Regulation Number 57 of 2014, Article 20 mandates that foreign citizens who work or reside in Indonesia must possess Indonesian language skills, as demonstrated by the Indonesian Language Proficiency Test (UKBI). The creation of competency standards for BIPA graduates and the achievement of BIPA learning at each level is underway. The Minister of Education and Culture has prepared Ministerial Regulation Number 27 of 2017, listing the BIPA learning SKL based on the UKBI and CEFR rankings. BIPA (Indonesian Language for Foreign Speakers) learning is based on CEFR (Common European Framework of Reference for Languages), which is a reference framework for foreign languages in the European region. We consider CEFR a relevant reference for determining competency at each level in the language field. In Indonesia, the government implements curriculum development and prepares teaching materials using Common Reference Levels, which range from 6 to 7 levels of learning. As a result, Asian countries, including China, are increasingly studying BIPA and its impact on education. Based on reports regarding the number of Chinese BIPA students in Indonesia from the Indonesian Ministry of Education and Culture, in 2022 there will be around 5000 BIPA students from 30 universities (PT) in China who will take part in the second batch of student exchange programs at 50 PTs throughout Indonesia. BIPA students will study at PT for one semester, and there are also programs available for one year. Apart from that, the Indonesian government, in order to support and encourage the spread of the Indonesian language, also provides scholarships for diligent and superior foreign speakers while promoting Indonesian culture and language to the international community.

Meanwhile, Indonesian is also a very popular foreign language for Chinese BIPA students. As cultural exchange between the two countries progresses, more and more Chinese BIPA students are coming to Indonesia, so the number of universities establishing Indonesian language departments in China is also increasing. By 2020, 20 universities will already have established Indonesian language departments in China. As the number of BIPA students from China increases, the BIPA learning program also faces many problems, so it must be adjusted and perfected to suit the conditions of BIPA students' abilities and character so that BIPA learning can be more useful in efforts to spread Indonesian culture and language throughout the international world. We are creating teaching materials specifically for BIPA learners to enhance their listening skills. This teaching material aims to improve listening skills through cultural context (Amalia & Arifin, 2021). Muzaki (2021) explores the development of BIPA learning modules that integrate local Malang culture as learning content aimed at advanced BIPA learners. Apart from that, there are also efforts to use audiovisual media as a BIPA teaching tool that introduces local Indonesian culinary delights, aiming to link language learning with more in-depth cultural experiences (Farinda et al., 2023). As a teaching material, local wisdom in teaching listening skills to BIPA learners can emphasize the importance of developing teaching materials that are relevant to the learner's cultural context (Ogustina et al., 2021).

So in this paper, the researcher will focus on the need for BIPA teaching materials for Chinese BIPA speakers. The average objective of Chinese BIPA students learning Indonesian is to understand the goals of advanced Chinese BIPA students in Indonesian, as well as the teaching materials required by these advanced students. The development of BIPA learning materials with cultural content for foreign speakers explains the principles of developing BIPA teaching materials, including the use of a variety of languages that are easy to understand (Widayati, 2022). Additionally, Muliastuti et al. (2016) discuss the instructional aspects and grammar exercises of teaching materials for advanced BIPA learning. In this research, all respondents were BIPA students from China who were continuing their studies in Indonesia.

This research aligns with Imam Suyitno's study, "Development of Indonesian Language Teaching Materials for Foreign Speakers (BIPA) Based on the Results of Learning Needs Analysis." The Journal of Discourse published this article in 2007. 9 Number 1. The results of this research indicate that an analysis of IFL students' learning needs is a prerequisite for developing adequate teaching and learning materials in IFL. Furthermore, Ari Kusmiatun conducted research on the topic chosen by Chinese students studying BIPA for the credit transfer program at UNY. The journal Litera, volume 15, number 1, published this article in 2016. The results of this research show that the chosen topic is the main key to success in learning the BIPA credit transfer program for Chinese students.

METHODS

This is qualitative research. This approach is used to describe the need for teaching materials, the goals of learning Indonesian, and the difficulties faced by advanced Chinese learners in listening, writing, reading, and speaking. The study takes into account the unique circumstances of every advanced Chinese student. The researcher serves as a key instrument in this study. The location of this research is at Ahmad Dahlan University and in Yogyakarta State in 2023 with research subjects of 30 Chinese students in advanced level classes at UAD and UNY for 2 semesters. At UAD, there are 10 students from Guangxi, China, and GUFL

(Guangxi University of Foreign Languages). At UNY, there are 10 students in advanced-level classes from Guanzhou, GDUFS (Guangdong Universities for Foreign Studies), and 10 students from Tian Jin, TFSU (Tianjin Foreign Studies University). We also obtained some data from advanced Chinese students who had already graduated. Data collection uses questionnaires and interviews. This research collects qualitative data through both written and spoken verbal means. Written verbal data can take the form of answers, complaints, comments, suggestions, criticism, or the presentation of any information obtained through a questionnaire.

DISCUSSION

China and Indonesia have always enjoyed extraordinary relations. The two countries initiated their relations centuries ago and received official recognition in 1950. Both countries are large among Asian countries in terms of territory and population; China is the most populous country on earth, while Indonesia has the 4th largest population in the world. Both countries are APEC members and major G-20 economies. Meanwhile, what unites the two countries is language. Indonesian and Mandarin have similarities in everyday vocabulary, for example: angpau in Mandarin is hongbau, the word noodle in Mandarin is noodle, and the word tofu (food) in Mandarin is doufu. Not only do the two countries share a common vocabulary, but their cultures also share many similarities. For instance, in Indonesian culture, visiting relatives' and grandfather's houses during the Eid al-Fitr celebration is a tradition, while in Chinese culture, giving angbau to children is a common practice, symbolizing health and happiness. As is widely known, there are many similarities in the culinary delights between Indonesia and China. For instance, one of Indonesia's typical culinary delights is chicken noodles imported from China, while bakpau, a popular dish among Chinese students, is a staple throughout Indonesia. As a result, Chinese students learn Indonesian, unlike other foreign students whose culture and language are different from Indonesian. Every year, thousands of Chinese students travel to Indonesia to study Indonesian culture and language, but they encounter numerous challenges. Based on this introduction, if you want to know the teaching material needs of advanced Chinese BIPA students, you must know the difficulties they are experiencing in learning BIPA and the goals of learning Indonesian. The aspirations of BIPA students to learn Indonesian are diverse. Some students are deeply interested in Indonesian language and culture, leading them to pursue a master's program in the Indonesian language department to delve deeper into the language and culture. Meanwhile, some students seek to acquire practical conversation skills, such as listening, reading, writing, and speaking, to enable them to work in companies where Indonesian is the primary language of communication. The goals of learning Indonesian among BIPA students vary, as do their learning material needs.

Determine the Challenges Faced by Advanced Chinese Learners When Using Indonesian.

Generally, the 30 students encountered issues in the areas of phonological, morphological, syntax, and discourse. For instance, the words "broken", "busy", "zamai", and "disciplined" become "lajin". This is influenced by the habit of Mandarin speakers who often pronounce the sound (r) at the beginning of a word to become (l), such as (rau) to (lau) which means 'vegetable', and (t) at the beginning of a word becomes (d), (p) at the beginning of the word becomes (b). Their first or second language, namely Mandarin and English, generally influences BIPA students. Therefore, we must identify these difficulties and gather recommendations for China's advanced BIPA learning. Sound level One of the factors contributing to this difficulty is the sound level. This is actually common among advanced-level BIPA students from China because of the differences in memorization methods between Indonesian and Mandarin. However, the following description highlights the common language difficulties among Chinese BIPA students.

- (r) at the front and end dissapears
  Based on the cases of 30 native Chinese advanced BIPA students, it was found that most of them had difficulty pronouncing the sound (r) inanimate. This is a common challenge among native Chinese BIPA students. The same thing happens to basic-level Chinese BIPA students, advanced and high. They struggle with pronouncing the sound (r) at the end of words like "basic", "hard", "think", and so on. This difficulty also arises when pronouncing words such as "light", "diligent", "recommendation", and so on. Out of a total of 30 Chinese advanced-level BIPA students, 25 reported that they encountered difficulties in pronouncing the sound (r) during their Indonesian language learning process. For instance, the words "low" become "ledah", "bed" becomes "lanjang", and "risk" becomes "lesiko". Mandarin speakers, who frequently pronounce the sound (r) in the word as (yi), influence this habit.
- The sound (P) in the word transforms into (b) or vice versa.
  Chinese advanced BIPA students typically struggle with pronouncing (b) and (p), as they struggle to distinguish between the pronunciation of (b) and (p). They will struggle to pronounce the sounds (b) and (p). For instance, we pronounce "journey" as "walking", "long" as "banjang" or vice versa, "many" as "panyak", "wake up" as "pangun", and so on. This is

because the pronunciation of (b) and (p) is very similar, whereas in Mandarin the pronunciation of (b) and (p) is very different.

- The pronunciation of (t) in the word can change to (d) or vice versa.
  Similar to the conditions discussed in the previous section, Chinese BIPA students often struggle to distinguish between (t) and (d) because (d) can be pronounced as (t) or vice versa. For instance, Chinese BIPA students tend to pronounce (with) as (tengan), (came) as (tatang), or conversely, (hand) as (dangan), and so on.

Teaching materials are necessary for advanced level BIPA students from China.

Based on the results of interviews and questionnaires, these students, with intermediate level Indonesian language skills, excel in various scenarios. For instance, they understand that they must use formal language when addressing lecturers or teachers, but they can use informal language when interacting with close friends. Even though they already know how to use language in a variety of scenarios, errors in transitioning between formal and spoken language frequently occur. For example, one of the advanced level BIPA students at UNY said that he often used the wrong form of spoken language in papers or essays. Grammar was what bothered him the most. For instance, he struggled with the application of prefixes and suffixes, Me-kan, role-playing, and the incorrect use of passive and active forms. Meanwhile, according to one of the advanced level BIPA students at UAD, the most challenging aspect of learning Indonesian is the pronunciation of R, B, P, D, Q, K, and G. This is because the Mandarin pronunciation of R, B, P, D, Q, and K differs significantly from the Indonesian pronunciation. As a result, 20 out of 30 Chinese advanced level BIPA students struggle with this issue. These difficulties acquire their own unique and distinctive character. Next, we will explore the genuine needs of native Chinese advanced BIPA students. Following this discussion, we should concentrate on strengthening the areas of weakness in the BIPA teaching materials designed for Chinese advanced-level BIPA students, ensuring each lesson is both efficient and functional for these students. Therefore, we must add advanced BIPA teaching materials specifically for Chinese students to the following learning sections:

- Training and guidance on the use of active forms and passive forms in grammar;
- Targeted teaching on speaking skills (particularly the letters R, B, P, D, Q, K, G, and so on);
- Special learning on prefixes and suffixes in grammar (me-kan, ber, enhance, oddness, done, and so on); and
- How to use Yang in grammar.

The most effective way to improve memorization is to talk a lot in front of the class. According to Ahmad Dahlan University's BIPA learning course for advanced BIPA speakers who cannot differentiate the letters B, P, D, T, K, G in Indonesian, the lecturer will take students to traditional and central markets. The lecturer takes students to the city to engage in conversations with locals, enhancing their speaking skills and their ability to recognize letters such as B, P, D, Q, K, and G. For instance, respondents from UAD reported that during a speaking course, they were required to visit the Malioboro terrace market to purchase souvenirs, but had to bargain with local vendors. This implementation not only piques students' interest in speaking courses, as it allows lectures to take place in a market environment, but it also enhances their speaking abilities and bolsters their memory of challenging letters.

The second strategy is to strengthen the ability to use Indonesian formally for advanced-level BIPA learners native to China. This strategy aims to enhance the use of Indonesian in both formal and spoken contexts. For instance, Yogyakarta State University's BIPA advanced level students revealed that they frequently received invitations to participate in various campus and national level presentations, providing them with diverse experiences and enhancing their formal Indonesian language skills. Based on these questionnaires and interviews, it is clear that, in addition to providing adequate teaching materials, it is crucial to specifically address the grammar deficiencies of Chinese advanced-level BIPA learners.

CONCLUSION

Language errors among native Chinese advanced BIPA students are a common problem. We can use this to identify the learner's characteristics. As is the case in advanced BIPA classes at UNY and UAD, BIPA students have unique characteristics in learning Indonesian language and culture. They have difficulty pronouncing some sounds in Indonesian. Apart from that, they also experience difficulties at other linguistic levels, such as morphology and syntax. Indeed, challenges also emerge at the discourse stage. Therefore, we can conclude that the teaching material needs of native Chinese advanced BIPA students are divided into two main areas: the first is the use of active and passive forms in grammar, and the second is the pronunciation of Indonesian sounds, specifically in letters. R, B, P, D, Q, K, and G are examples of these sounds. Prefixes and suffixes in grammar, such as me-kan, ber, enhance, oddness, di-kan, and so on, are the third area, and the use of errors between spoken and formal language in Indonesian is the final area. This has positive implications for the next period of BIPA learning for Chinese advanced-level BIPA students. We can use these findings to enhance the development of teaching materials and policy formulation for BIPA teaching programs, particularly for Chinese advanced-level BIPA classes.

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Community-Based Biomonitoring in Randuboto and Manyar Sidomukti Coastal Areas for Biodiversity Conservation

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ABSTRACT: The coastal area is certainly one of the most diverse ecosystems on Earth. This unique environment is characterized by the encounter of land and sea, forming a distinct ecotone zone. Randuboto and Manyar Sidomukti, fisherman villages located in Gresik Regency, thrives within this kind of diverse coastal ecosystem. The inhabitants rely heavily on their environment. Protecting this environment ensures the continued prosperity and resilience of the village's way of life. Biomonitoring is a method used for biodiversity accounting to indicate the quality of an environment. This process involves the quantification of various biodiversity metrics, including The Shannon-Wienerdiversity index (H index). Using this method, a study was conducted to assess the ecosystem condition in the Randuboto and Manyar Sidomukti coastal area. The mangrove community in Manyar Sidomukti exhibited a higher diversity index (H' = 0.42 – 0.68) compared to Randuboto (H' = 0 – 0.082), though both areas fall into the low diversity category with H' <1. In terms of bird species, Randuboto had a greater number (40 species) than Manyar Sidomukti (37 species). However, the Shannon-Wiener diversity index for birds was higher in Manyar Sidomukti (H' = 3.33) than in Randuboto (H' = 2.80). These findings suggest that mangrove populations require additional support to enhance their resilience, whereas bird populations appear to be relatively resilient to environmental changes. Efforts to bolster this include mangrove reforestation, community service and development, and training in community-based biomonitoring.

KEYWORDS: Biodiversity, biomonitoring, coastal area, mangrove, Randuboto, Manyar Sidomukti

I. INTRODUCTION

The coastal area is certainly one of the most diverse ecosystems on Earth. This unique environment is characterized by the encounter of land and sea, forming a distinct ecotone zone [1]. The interaction between terrestrial and marine ecosystems in coastal areas creates a rich tapestry of habitats that support a wide variety of plant and animal life. These zones are often teeming with biodiversity, ranging from mangroves and salt marshes to coral reefs and sandy beaches. The dynamic nature of coastal areas also makes them highly productive and important for numerous ecological processes [2]. Consequently, preserving these vital ecosystems is crucial for maintaining environmental balance and supporting human livelihoods.

Randuboto and Manyar Sidomukti, fisherman villages located in Gresik Regency, thrives within this kind of diverse coastal ecosystem. The inhabitants rely heavily on their environment, as most of their livelihoods are centered around fishery activities [3]. The rich marine life and fertile waters provide ample resources for the villagers, supporting both their economic and nutritional needs. This close connection to the sea also shapes the cultural and social fabric of Randuboto, with traditions and daily routines deeply intertwined with fishing practices. The sustainability of the coastal ecosystem is therefore vital for the well-being of the community [4]. Protecting this environment ensures the continued prosperity and resilience of the village's way of life.

Biomonitoring is a method used for biodiversity accounting to indicate the quality of an environment [5]. This process involves the quantification of various biodiversity metrics, including the Shannon-Wiener diversity index (H index) [6]. The Shannon-Wiener index is commonly employed to characterize species diversity within a community, providing insight into the ecological health of the area. By measuring the abundance and variety of species, biomonitoring helps identify changes in environmental conditions over time [7]. This data is crucial for conservation efforts, as it can highlight areas in need of protection or restoration. Ultimately, biomonitoring serves as a vital tool for maintaining ecological balance and promoting sustainable environmental practices [5].

Using this method, a study was conducted to assess the ecosystem condition in the Randuboto and Manyar Sidomukti coastal area. The H index was calculated for mangrove vegetation and bird populations. Analyzing these components provided valuable insights into the overall biodiversity and health of the ecosystem. This study is expected to serve as a baseline for future biodiversity conservation efforts, supporting the livelihoods of the people in Randuboto and Manyar Sidomukti. The findings can guide sustainable practices and inform policies aimed at protecting and restoring the area's natural resources. Ultimately, this research underscores the importance of preserving biodiversity for the well-being of both the environment and the local community.

II. METHODS

Sampling Time and Area

Population sampling and observation were conducted in the fostered area of Petronas Carigali Ketapang II Ltd. The observation locations were divided into two points: the mangrove conservation area of Randuboto Village and the Kalimireng mangrove conservation area in Manyar Sidomukti Village. Biodiversity observation activities in Randuboto Village took place on January 23-24, 2024. Meanwhile, biodiversity observation activities in Manyar Sidomukti Village were carried out on April 19-20, 2024. Vegetation sampling was done during the day while bird observation was conducted twice in the morning at 06.00-08.00 AM and in the afternoon at 02.00-04.00 PM.

Figure 1. Sampling area in Randuboto

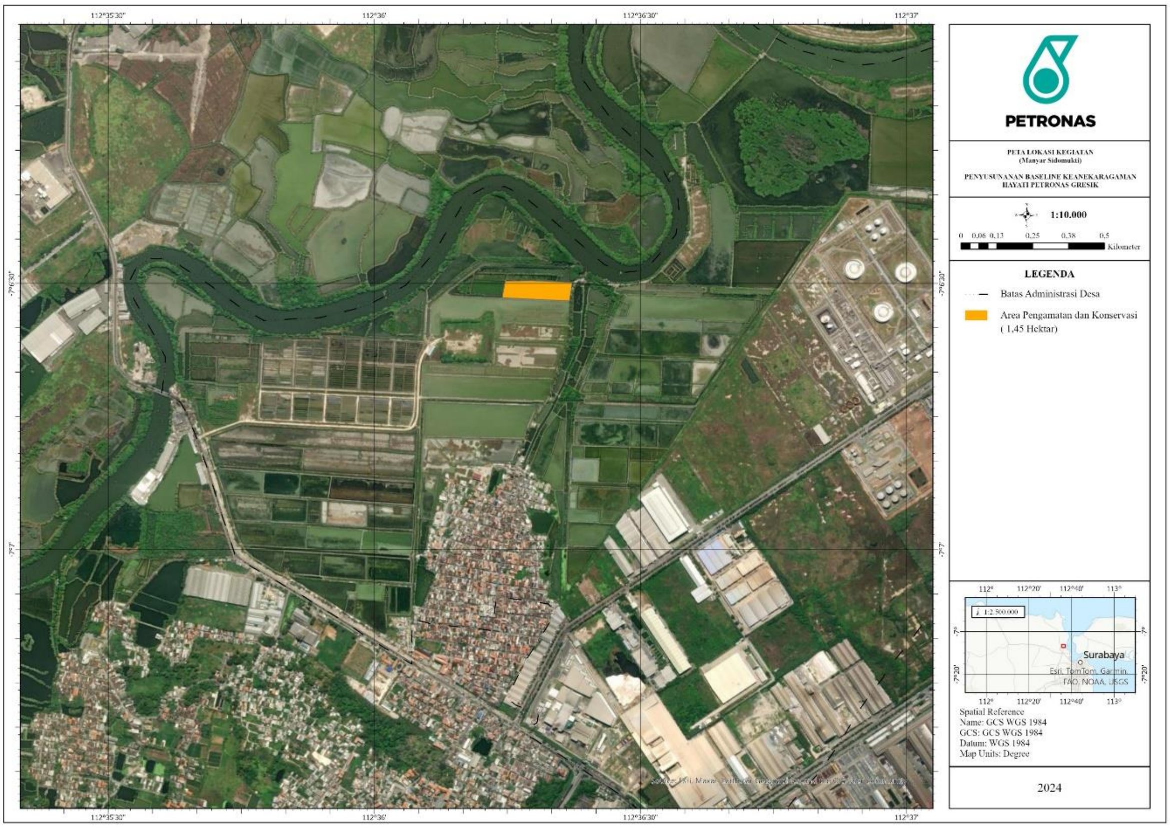

Figure 2. Sampling area in Manyar Sidomukti

Data Collection

Data collection was conducted on sample populations, including mangrove vegetation and birds in the area of study. The process involved extensive fieldwork to gather accurate and comprehensive data. Local communities played a significant role in the data collection process, contributing their knowledge and resources. Their involvement not only facilitated smoother operations but also enriched the data with indigenous insights. This collaborative approach ensured a more holistic understanding of the ecosystem [8].

1. Vegetation Population Sampling

Vegetation sampling was conducted using the transect method, a systematic approach for studying plant communities [9]. A transect line was established across the study area, and data were collected at 10 specific points along this line. At each point, the types and quantities of vegetation present were documented. This method provided a representative snapshot of the vegetation distribution and diversity within the area, allowing for an accurate assessment of the ecosystem's biodiversity. By using multiple points along the transect, the study ensured comprehensive coverage and reliable data for analysis [10].

2. Bird Population Sampling

Bird population was observed for 2 hours at a certain point, without moving. The data collected included species name, place found, and the number of populations observed. Observations were made using binoculars, cameras, bird identification books, and tally sheets. There were three observation points at Randuboto and only one at Manyar Sidomukti because the former area is larger than the latter.

Data Analysis

Each of the population diversity was determined using the Shannon-Wiener diversity index with the following formula [11].

$$H' = -\sum Pi \ \ln Pi$$

H' = Shannon-Wiener Diversity Index

Pi = the proportion of each species in the sample

ln = natural logarithm

III. RESULTS AND DISCUSSION

Vegetation Diversity in Randuboto and Manyar Sidomukti Coastal Area

Based on the results of field data analysis, there were 31 types of mangroves from 19 families found in all observation locations, with the composition of mangroves consisting of 17 true mangrove species and 14 associated mangrove species. True mangrove species as the main components of the mangrove ecosystem were found to come from the Aviceniaceae family (*A. alba*, *A. lanata*, *A. marina*, and *A. officinalis*), Rhizophoraceae (*Rhizophora mucronata* and *Ceriops tagal*), Sonneratiaceae (*S. alba* and *S. caseolaris*), and Acanthaceae (*Acanthus ebractiatus* and *Acanthus ilicifolius*). Other additional mangrove families from true mangroves include Combretaceae (*Lumnitzera racemosa*), Euphorbiaceae (*Exoecaria agallocha*), Meliaceae (*Xylocarpus granatum* and *Xylocarpus mollucensis*), Myrsinaceae (*Aegiceras corniculatum*), Palmae (*Nypa fruticans*), and Sterculiaceae (*Heritiera littoralis*). In addition to true mangroves, associated mangrove families were also found consisting of Pteridaceae (*Acrostichum aureum* and *Acrostichum speciosum*), Bignoniaceae (*Dolichandrone spataceae*), Asteraceae (*Pluchea indica* and *Wedelia biflora*), Convolvulaceae (*Ipomoea* sp.), Cyperaceae (*Eleocharis congesta*, *Scirpus latiflorus*, and *Scirpus littoralis*), Legumenosae (*Derris trifoliata*), Malvaceae (*Hibiscus tiliaceaus*), Verbenaceae (*Clerodendrum inerme*), and Portulacaceae (*Sesuvium portulacastrum* and *Sesuvium portulacastrum*).

Based on the distribution of mangrove species, the mangrove zoning area in Randuboto is composed of 29 mangrove species consisting of 16 true mangrove species and 13 associated mangrove species. The Aviceniaceae family is the family with the largest number of species that make up the research location. This indicates that the Aviceniaceae family has individuals with the highest tolerance and adaptation to environmental factors at the research location [12]. Meanwhile, the mangrove zonation area in Manyar Sidomukti is composed of 15 mangrove species consisting of 9 true mangrove species and 6 associated mangrove species, with Rhizoporaceae and Avicenniaceae as the dominant families. When viewed from the similarity of community composition, there are 13 mangrove species that are evenly distributed throughout the location. Meanwhile, 16 species were only found in the Randuboto Village mangrove zonation area and 2 species were only found in the Manyar Sidomukti mangrove zonation area, which were *Ceriops tagal* and *Scirpus littoralis*.

Table 1. Composition of mangrove species in sampling areas

Survey Location	Level	No	Scientific Name	Density (ind/ha)	H' Indeks
Randuboto	Seedling	1	*Avicennia marina*	69.063	0,056
		2	*Rhizophora mucronata*	469	
		3	*Lumnitzera racemose*	157	
	Sapling	1	*Avicennia marina*	6.475	0,082
		2	*Rhizophora mucronata*	400	
	Tree	1	*Avicennia marina*	319	0
Manyar Sidomukti	Seedling	1	*Rhizophora mucronate*	22.250	0,68
		2	*Avicennia marina*	8.000	
		3	*Sonneratia alba*	750	
	Sapling	1	*Rhizophora mucronate*	1.120	0,94
		2	*Avicennia marina*	360	
		3	*Sonneratia alba*	200	
		4	*Ceriops tagal*	40	
	Tree	1	*Rhizophora mucronate*	340	0,42
		2	*Avicennia marina*	60	

The mangrove community in Randuboto at the seedling and sapling levels is dominated by *Avicennia marina*. The species density value (individuals/hectare; ind/ha) of *A. marina* at the seedling and sapling levels is quite high, reaching thousands per hectare of land, having been calculated at 69,063 seedlings/ha and 6,475 saplings/ha. Meanwhile, at the tree level, only *A. marina* species was found with a density of 319 ind/ha. The value of the mangrove community diversity index is included in the low criteria with an index value of H' <1 [13]. On the other hand, the mangrove community in Manyar Sidomukti at the seedling, sapling, and tree levels is dominated by the *Rhizophora mucronata* species. The diversity index of the mangrove community in Manyar Sidomukti (H' = 0.42 – 0.68) is higher than Randuboto (H' = 0 – 0.082), but is still in the low category with H' <1.

Bird Diversity in Randuboto and Manyar Sidomukti Coastal Area

Field observations to identify bird diversity in all locations have been conducted. The results of the observations showed that the total number of bird species found in all locations was 57 species from 26 families. Based on their habitat, there were 32 species of water birds and 25 species of land birds. There were 9 families of water birds found consisting of Alcedinidae, Anatidae, Ardeidae, Charadriidae, Ciconiidae, Laridae or Sternidae, Phalacrocoracidae, Rallidae, and Scolopacidae. The water bird family is dominated by Ardeidae which consists of 10 species. Meanwhile, 17 families of land birds were identified, including Acanthizidae, Aegithinidae, Apodidae, Artamidae, Campephagidae, Cisticolidae, Columbidae, Cuculidae, Dicaeidae, Estrildidae, Hirundinidae, Laniidae, Meropidae, Nectariniidae, Pycnonotidae, Rhipiduridae, and Sylviidae. The Columbidae family is the land bird family that dominates the observation location with a total of 4 species.

Taking into account the distribution of bird species, 20 bird species were found evenly distributed in both observation locations. Bird species that were only found in the Randuboto mangrove conservation area were 20 species while 17 other species were found in the Kalimireng mangrove conservation area, Manyar Sidomukti. In addition, there were also several dominant or frequently encountered bird species and recorded during observations. The 6 dominant bird species in the Randuboto conservation area were *Ardeola speciosa*, *Egretta garzetta*, *Ardea alba*, *Sterna sumatrana*, *Sterna nilotica*, and *Phalacrocorax sulcirostris*. Meanwhile, there were 4 dominant bird species in the Manyar Sidomukti conservation area, including *Collocalia linchi*, *Ardeola speciosa*, *Lonchura maja*, *Lonchura punctulata*, and *Phalacrocorax sulcirostris*.

Based on the threat status records according to the IUCN Red List, 4 bird species have near threatened status (NT or Near Threatened), including *Anas gibberifrons*, *Charadrius javanicus*, *Anhinga melanogaster*, and *Limosa limosa*. As many as 1 bird species has vulnerable status (VU or Vulnerable), *Centropus nigrorufus*. In addition, 2 endangered bird species (EN or Endangered) were also found, those were *Numenius madagascariensis* and *Mycteria cinerea*. As many as 50 other species have low risk status (LC or Least Concern) [14].

Figure 3. A) *Sterna nilotica* and B) *Mycteria cinerea* documented at the observation sites

Table 2. Diversity and conservation status of bird species at sampling locations

No.	Scientific Name	Family	Survey Location		Conservation Status
			Manyar Sidomukti	Randuboto	
1	*Gerygone sulphurea*	Acanthizidae	**	*	LC
2	*Aegithina tiphia*	Aegithinidae		*	LC
3	*Todirhamphus chloris*	Alcedinidae	*	*	LC
4	*Todiramphus sanctus*		*	*	LC
5	*Anas gibberifrons*	Anatidae	**		NT
6	*Collocalia linchi*	Apodidae	***	**	LC
7	*Ardeola speciosa*	Ardeidae	***	***	LC
8	*Egretta garzetta*			***	LC
9	*Egretta sacra*			*	LC
10	*Butorides striatus*		*	*	LC
11	*Nycticorax nycticorax*			*	LC

No.	Scientific Name	Family	Survey Location		Conservation Status
			Manyar Sidomukti	Randuboto	
12	*Ardea purpurea*		*	*	LC
13	*Ardea cinerea*			**	LC
14	*Ardea alba*		*	***	LC
15	*Ardea intermedia*		*		LC
16	*Ixobrychus sinensis*		*		LC
17	*Artamus leucoryn*	Artamidae	*	*	LC
18	*Lalage nigra*	Campephagidae		*	LC
19	*Lalage sueurii*		*		LC
20	*Charadrius javanicus*	Charadriidae		*	NT
21	*Pluvialis fulva*		*		LC
22	*Mycteria cinerea*	Ciconiidae		*	EN
23	*Prinia inornata*	Cisticolidae	*	*	LC
24	*Treron vernans*	Columbidae	**		LC
25	*Streptopelia bitorquata*		*		LC
26	*Streptopelia chinensis*		**	*	LC
27	*Geopelia striata*		**	*	LC
28	*Cacomantis merulinus*	Cuculidae	*		LC
29	*Cacomantis variolosus*		*		LC
30	*Centropus nigrorufus*			*	VU
31	*Dicaeum trochileum*	Dicaeidae	**		LC
32	*Lonchura maja*	Estrildidae	***		LC
33	*Lonchura punctulata*		***	*	LC
34	*Hirundo rustica*	Hirundinidae		**	LC
35	*Hirundo tahitica*		**		LC
36	*Lanius schach*	Laniidae		*	LC
37	*Sterna hirundo*	Laridae (Sternidae)		*	LC
38	*Chlidonias hybridus*		*	*	LC
39	*Chlidonias leucopterus*			**	LC
40	*Sternula albifrons*		*	**	LC
41	*Thalasseus bergii*			*	LC
42	*Sterna sumatrana*			***	LC
43	*Sterna nilotica* (*Gelochelidon nilotica*)			***	LC
44	*Merops leschenaulti*	Meropidae		*	LC
45	*Merops philippinus*		**		LC
46	*Cinnyris jugularis*	Nectariniidae	*		LC
47	*Anhinga melanogaster*	Phalacrocoracidae	*		NT
48	*Phalacrocorax sulcirostris*		***	***	LC
49	*Pycnonotus aurigaster*	Pycnonotidae	*		LC
50	*Pycnonotus goiavier*		**	*	LC
51	*Amaurornis phoenicurus*	Rallidae	*	*	LC
52	*Rhipidura javanica*	Rhipiduridae	**	*	LC
53	*Actitis hypoleucos*	Scolopacidae	*	**	LC
54	*Xenus cinereus*			*	LC
55	*Numenius madagascariensis*			*	EN
56	*Limosa limosa*			*	NT
57	*Cisticola juncidis*	Sylviidae	**		LC
Species in total			37	40	
H' index			3,33	2,8	

The number of bird species in Randuboto (40 species) is greater than in Manyar Sidomukti (37 species). Meanwhile, the Shannon-Wiener diversity index (H’) for the bird community in Manyar Sidomukti (H’ = 3.33) is higher than in Randuboto (H’ = 2.80). This higher diversity index in Manyar Sidomukti is attributed to the more stable number of individuals of each species compared to Randuboto. In Randuboto, bird species are predominantly waterbirds. This dominance is due to the wider coverage of the Randuboto mangrove conservation area, which includes riverbanks, river estuaries, and joint protection zones (ZPB), whereas the Manyar Sidomukti mangrove conservation area is only near the riverbank.

Efforts in Biodiversity Conservation

Mangrove Reforestation

Mangrove forests play crucial roles in coastal areas by providing a range of ecological and socio-economic benefits. They act as natural barriers, protecting shorelines from erosion and reducing the impact of storms and tidal waves [15]. These forests also serve as vital nurseries for various marine species, supporting biodiversity and local fisheries. Additionally, mangroves sequester significant amounts of carbon, aiding in climate change mitigation [16]. They filter pollutants from water, improving coastal water quality, and provide resources and livelihoods for local communities [17]. Thus, mangrove reforestation is essential for protecting shorelines from erosion, supporting marine biodiversity, sequestering carbon, improving water quality, and sustaining local livelihoods.

In 2022, Petronas Carigali Ketapang II Ltd launched a major mangrove reforestation initiative by planting 10,000 seedlings of *Rhizhophora* sp., *Avicennia* sp. and *Bruguiera* sp. Mangrove reforestation involves the restoration and replanting of mangrove ecosystems, which are vital coastal habitats known for their ability to protect shorelines, support biodiversity, and sequester carbon. This effort marked the beginning of a sustained commitment to restoring the local mangrove ecosystem. The following year, the company continued this reforestation activity, planting an additional 10,000 seedlings of the same species, making it a grand total of 20.000 seedlings over two years.

Through this initiative, Petronas Carigali Ketapang II Ltd has successfully planted a total of 20,000 mangrove seedlings over two years. These efforts spanned an area of 2 hectares, previously used as a community pond. Mangrove reforestation is important because it helps mitigate climate change, supports fisheries, and protects coastal communities from erosion and extreme weather events. This large-scale reforestation underscores the company's dedication to environmental sustainability and the restoration of critical coastal habitats.

Figure 4. Mangrove planting

Community Service and Development

Local communities hold significant roles in biodiversity management in coastal areas by leveraging their traditional knowledge and direct involvement in conservation efforts [18]. They contribute to the sustainable management of natural resources through practices that have been refined over generations, ensuring the preservation of local flora and fauna [19]. Their participation in activities such as monitoring wildlife, reforestation projects, and sustainable fishing practices helps maintain the ecological balance and resilience of coastal ecosystems. Moreover, local communities can advocate for and implement conservation policies, fostering a sense of ownership and stewardship that is crucial for long-term biodiversity management [20]. By engaging in eco-tourism and educational initiatives, they also raise awareness and promote the value of biodiversity, further supporting the conservation efforts [21].

Community-based Biomonitoring in Randuboto and Manyar Sidomukti Coastal Areas for Biodiversity Conservation

Efforts to support the development of local communities in Manyar Sidomukti and Randuboto included a community service activity held in March 2024 at the Kalimireng Fishermen's Hall in Manyar Sidomukti. This initiative was a collaborative effort between the Faculty of Science and Technology, Universitas Airlangga (FST Unair) and Petronas. The primary goal of the activity was to educate fishermen and local residents about the importance of maintaining the sustainability of coastal and mangrove areas. The event featured Prof. Zeev Bohbot, a senior lecturer from the KTH Royal Institute of Technology in Stockholm, Sweden, as the main speaker for the socialization session.

In May 2024, a community service event focused on mangrove planting was held in the Kalimireng mangrove zoning area of Manyar Sidomukti. This initiative involved planting 12 new mangrove species, including *Rhizophora stylosa*, *Rhizophora apiculata*, *Xylocarpus moluccensis*, *Bruguiera cylindrica*, *Acanthus ilicifolius*, *Acrostichum speciosum*, *Excoecaria agallocha*, and *Lumnitzera racemosa*. Prior to the planting, a session was conducted to educate participants on proper techniques for planting and caring for mangrove vegetation. The targets of this activity were the fishermen and local residents of Manyar Sidomukti Village. This collaborative effort involved Universitas Airlangga, Petronas, Manyar Sidomukti Village, POKMASWAS Kalimireng, POKDARWIS Kab. Gresik, and the Department of Marine Affairs and Fisheries of Gresik Regency. The goal of this community service was to increase both the number and variety of mangroves in the conservation area and to enhance the community’s knowledge of effective mangrove planting and maintenance practices.

Training in Community-based Biomonitoring

To support biodiversity conservation and empower local communities, a specialized training session was held on Tuesday, May 28, 2024, at the Kalimireng Fishermen's Hall in Manyar Sidomukti. This initiative, a collaboration between FST Unair and Petronas, aimed to enhance the local community's expertise in monitoring, managing, and conserving biodiversity within the Petronas-managed conservation area. The training was conducted by three lecturers from FST Unair and included instruction on sampling techniques for flora and fauna around the mangrove conservation area, as well as methods for evaluating seawater quality through physical, chemical, biological, plankton, and benthos analyses.

The goal of the training was for both the fishermen and the Petronas field team to acquire a thorough understanding and practical skills in biodiversity monitoring and conservation techniques, reflecting the vital role local communities play in environmental management [22]. By equipping these individuals with advanced knowledge and hands-on experience, the training aimed to foster a sense of stewardship and enable them to actively contribute to the preservation of local ecosystems. Local communities, including fishermen, are often on the front lines of environmental changes and can provide valuable insights and observations about biodiversity [23]. Empowering them with skills in monitoring and conservation not only enhances their capacity to manage natural resources effectively, but also ensures that conservation efforts are more grounded and responsive to real-world conditions [24]. This collaborative approach helps bridge the gap between scientific research and community practice, leading to more sustainable and impactful environmental management [25].

Figure 5. Community-based biomonitoring training

IV. CONCLUSION

Field data analysis revealed the presence of 31 mangrove types from 19 families across all observation locations. This included 17 true mangrove species and 14 associated mangrove species. The mangrove community in Manyar Sidomukti exhibited a higher diversity index (H’ = 0.42 – 0.68) compared to Randuboto (H’ = 0 – 0.082), though both areas fall into the low diversity category with H’ <1. In terms of bird species, Randuboto had a greater number (40 species) than Manyar Sidomukti (37 species). However, the Shannon-Wiener diversity index for birds was higher in Manyar Sidomukti (H’ = 3.33) than in Randuboto (H’ = 2.80). These findings suggest that mangrove populations require additional support to enhance their resilience, whereas bird populations appear to be relatively resilient to environmental changes. Efforts to bolster this include mangrove reforestation, community service and development, and training in community-based biomonitoring.

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Hydropedagogical Literary Perspective on the Brantas River Myth in Java, Indonesia

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ABSTRACT: This study on the myths of the Brantas River is conducted using a literature hydropedagogy perspective. The research aims to dissect the literary aspects of the myth by applying the concept of water studies. This qualitative research uses data in the form of mythological narratives about the Brantas River that are prevalent in the Kediri community, collected through interviews with local residents. The data is analyzed through various literatures using the hydropedagogy perspective developed based on the concept "Learning from Water" by Prof. Dr. Suwardi Endraswara, M.Hum. The origin of the Brantas River is described by Empu Bharada, who divided the Kediri Kingdom's territory by pouring water from a jug in the middle of the kingdom. The analysis reveals several Javanese philosophies related to water: (1) water always flows from higher to lower places, (2) water always fills empty spaces, and (3) water always flows to the estuary. Additionally, the term "kendhi" is derived from the phrase "kendhalining dhiri". A myth suggests that if a president crosses the Brantas River, they will lose their position or power. This belief is linked to the mystical nature of the Brantas River, often used for rituals and spiritual practices by ancestors. However, the validity of this belief depends on one's logic and religious values. Moreover, the study explores how individuals perceive myths as life guidelines or literary works that enhance cultural awareness and wisdom in facing life.

KEYWORDS: myth, river, hydropedagogy, water

I. INTRODUCTION

Literature is one of the arts of language and expression of thought, encompassing spontaneous expressions of deep feelings (Nasrimi, 2021). These expressions include views, ideas, feelings, thoughts, and all human mental activities. In literature, there is a surge of profound human emotions and moral truths with a touch of sanctity, broad perspectives, and captivating forms with building elements that create aesthetic value. Such literature is often found in the stories circulating within society.

Folk literature is part of the cultural heritage of a community, covering all aspects of life in a given society (Endraswara, 2018). Folk literature arises among people who are unfamiliar with writing, thus referred to as oral literature. Oral literature is based on the literary traditions passed down verbally within a region. It is delivered in the form of mantras, rhymes, proverbs, myths, and bedtime stories.

According to the Great Dictionary of the Indonesian Language (KBBI, 2011:749), a myth is a story of a nation's gods and heroes from ancient times, containing profound meanings expressed in a mystical manner. The Popular Scientific Dictionary defines a myth as related to primitive beliefs about the supernatural, arising from unscientific human efforts to explain the world or surrounding nature (Pius, 2001:475). The term "myth" comes from the Greek word "muthos," which means a story or something spoken by someone. Myths are stories about the origins of the world and extraordinary events that are believed to have truly occurred and contain mystical elements.

Myths are essentially religious in nature. The connection between myths and religious values lies in how individuals or specific groups still believe in and apply the principles of these myths in their lives (Endraswara, 2015:13). Myths provide a rationale for religious beliefs and practices. The topics discussed are closely related to human existence itself, addressing fundamental issues about our origins and everything in the world. Myths offer explanations and descriptions of an ordered universe and serve as a backdrop for regulated behavior (William, in Dananjaya, 1991:50).

Peurson (1992:28) describes myths as stories that provide guidelines and direction to a group or society. These stories can be conveyed through oral narration, but also through dances or puppet performances. The essence of these stories includes symbols reflecting primitive human experiences, symbols of good and evil, life and death, sin and purification, marriage and fertility, paradise and the afterlife. The content of myths tends to be denser than mere sequences of thrilling or entertaining events. In other words, myths are not just reports of past events or tales of gods and magical worlds but provide guidance for human behavior and serve as a form of wisdom. Through myths, people can engage in surrounding events and respond to natural forces (Peurson, 1993:37).

Some functions of myths include: (a) raising awareness of supernatural forces; myths are not information about these forces but methods for anticipating, studying, and relating to them; (b) providing assurance for the present; myths represent past events and offer advice and anticipation for the present; (c) expanding epistemological and ontological horizons about reality; myths provide an understanding of the world and its origins, but not in the manner of modern historical science. Simon (2006:45) explains that mythological space and time are contexts for discussing origins and purposes rather than factual space and time.

In Kediri District, many myths are prevalent, especially those concerning the Brantas River, which supposedly makes Indonesian presidents afraid to cross it. It is said that if a president enters Kediri District, they will be easily defeated by political opponents and lose their position. So, what is it about the Brantas River?

The Brantas River is a river flowing in East Java Province. It is the second-longest river on Java Island after the Bengawan Solo River. The Brantas River stretches approximately 320 km, flowing around an active volcano, Mount Kelud. Its catchment area is about 12,000 km², or a quarter of East Java Province (Handayani, 2001). The river's source is located at the foot of Mount Arjuno, in Sumber Brantas Village, Bumiaji District, Batu City. The Brantas River flows through nine districts: Malang, Blitar, Tulungagung, Trenggalek, Kediri, Nganjuk, Jombang, Mojokerto, and Surabaya.

Many myths about the Brantas River circulate within the community. Among them is the belief that if a president visits Kediri, they will lose their position, along with myths such as Bedug Seketi the White Crocodile, the Kingdom of the White Crocodile Queen, the river's water turning into blood, or even treasure at the river's bottom. These myths are intriguing to study.

This study of the Brantas River myths is conducted using a literature hydropedagogy perspective. Hydropedagogy is a relatively new concept, and literature specifically addressing water studies in literature is rare. This research aims to explore the literary aspects of the Brantas River myths through the lens of water science. Ontologically, hydropedagogy (hydropedagogy) is derived from the Greek word "hydro" meaning water and "pedagogy," which is the art or science of teaching or learning styles. Hydrology, in general, is a branch of geography studying the movement, distribution, and quality of water on Earth and water resources (Balai PSDA, 2017). The relationship between living beings and water is inseparable; life without water is ultimately unsustainable. Similarly, writers often use water as inspiration. Water in literary texts becomes a central focus for research using a hydropedagogy perspective. From the nature of water, even everything about water can be a lesson. Endraswara (2018:186) states that in Javanese local ethnic life, water contexts have various important properties. Based on the concept of water, myths or other oral literature function like water, serving as a means of generational learning.

Relevant previous research includes a study by Afif Andi Wibowo (2011) titled "Community Perception of the Three-Taste Water Myth in the Sunan Muria Area of Kudus Regency." This study aimed to understand how myths related to the three-taste water myth develop in society. The similarity between Wibowo's (2011) study and this research is the focus on myths. The difference is that while Wibowo (2011) studied the development and community perceptions of the three-taste water myth, this study investigates the myths related to the Brantas River from a literature hydropedagogy perspective.

Therefore, the research problem to be examined in this study is: What is the origin and the myth of the Brantas River from the perspective of literature hydropedagogy? This research is limited to myths surrounding the Brantas River in Kediri District. The expected benefits of this research are to expand knowledge related to multidisciplinary studies of Javanese literature, enrich literary studies related to the perspective of literature hydropedagogy, and enhance understanding of the myths in Kediri District, particularly those concerning the Brantas River. Hence, the title of this research is "Hydropedagogical Literary Perspective on the Brantas River Myth in Java, Indonesia"

II. **RESEARCH METHOD**

This study employs a qualitative research method. According to Moleong (2014:6), qualitative research aims to understand phenomena experienced by research subjects, such as actions, behaviors, perceptions, motivations, and views, described comprehensively using words and scientific language. The objective of qualitative research is to understand social phenomena. The data for this research consists of mythological stories about the Brantas River circulating in Kediri society, which are collected through interviews with local residents. The data is then analyzed using various literatures with a hydropedagogy perspective developed based on the concept of "Learning from Water," as proposed by Prof. Dr. Suwardi Endraswara, M.Hum (2018:183).

The findings are then interpreted, presented in a narrative form, and concluded. The next step involves validating the findings. The validity of the data in the research is determined using credibility criteria (degree of trustworthiness). This is done to ensure that the findings align with the facts in the field. Data validation is carried out through:

1. Enhancing Diligence and Precision
   Researchers increase diligence and precision by employing various techniques to ensure accurate and precise research results. This involves expanding knowledge on all aspects related to the research topic.
2. Data Triangulation
   Data triangulation is conducted to avoid critical errors during data collection. Triangulation can be done through various sources, techniques, and times to ensure the accuracy of the data obtained. In this study, triangulation is performed through source triangulation (validity test by seeking, understanding, and rechecking data sources before drawing conclusions).

III. RESULTS AND DISCUSSION

A. The Origin of the Brantas River from the Perspective of Literature Hydropedagogy

According to legend, there once was a great kingdom called Kahuripan, ruled by a king named Prabu Airlangga, who hailed from Bali. He was a prince from Bali. As Prabu Airlangga approached old age, he desired to become an ascetic and intended to pass the throne of Kahuripan to his only daughter, Sanggramawijaya. However, Sanggramawijaya refused her father's wishes; she did not want to become a queen and only wished to be an ascetic. She requested her father's permission to become an ascetic in the Selomangleng Cave at the foot of Mount Klotok, Mojoroto District, and changed her name to Dewi Kili Suci.

Prabu Airlangga then decided to pass the throne to his two sons from a concubine, Sri Samarawijaya and Mapanji Garasakan. The king was confused about choosing one of them to inherit the throne of Kahuripan. He sought a fair and best solution and sent Empu Bharada to Bali. Empu Bharada was instructed to request the throne from Prabu Airlangga's father in Bali for one of his sons. It turned out that Prabu Airlangga's father's throne in Bali had already been given to his brother, Anak Wungsu.

Upon returning from Bali, Empu Bharada informed Prabu Airlangga of the situation. Empu Bharada then suggested that Prabu Airlangga trust him to find a way to divide the kingdom into two equal parts. The next day, Empu Bharada flew with a jug of water. While flying over the center of the Kahuripan kingdom, he poured out the water from the jug. Miraculously, the land where the water fell immediately turned into a river. This river became large and its flow was very strong. This river is now known as the Brantas River.

The Kahuripan kingdom was thus divided into two parts, with the boundary being the river created by Empu Bharada. Prabu Airlangga then handed over the two parts of the kingdom to Sri Samarawijaya and Mapanji Garasakan. The eastern part of the kingdom was given to Mapanji Garasakan and named the Jenggala kingdom. The western part of the river was given to Sri Samarawijaya and named the Panjalu or Kediri kingdom, which is now Kediri City. Prabu Airlangga peacefully left Kahuripan to become an ascetic in Pucangan and changed his name to Resi Gentayu (cited from infokediriraya.com).

Based on this story, Empu Bharada poured the water jug while flying over the kingdom. According to Saputro (2011), water and water sources play a crucial role in life. He states that in Javanese cosmology, patirtan or water sources have significant meanings. Patirtan can be a water source, well, river, lake, sea, etc. Water and water sources are sources of life. Besides being used for daily life, water is also used by ancestors for various rituals, such as ritual bathing or tirta perwitasari in sacred relic purification. Given the importance of water sources, ancestors and Javanese society preserve them through rituals such as ruwatan and nyadran.

Saputro (2011) explains that water, as a source of life, has philosophical and local wisdom values that can guide life, including: (1) Water always flows from higher places to lower places, symbolizing that leaders should serve and be a source of welfare for their people; (2) Water always fills empty spaces, meaning that in life we should improve ourselves, fill our hearts and minds with good things like water, and benefit many people; and (3) Water always flows to the estuary, referring to the concept of “sangkan paraning dumadi,” which signifies that we will return to our creator.

In Javanese philosophy, there is a saying, “Dadia banyu, aja dadi watu!” (Be like water, not like stone!). While people might think that stone is stronger than water, Javanese believe otherwise. Despite its apparent weakness, water, which adjusts to its surroundings, possesses immense power. Drop by drop, water can wear down stone. This philosophical lesson suggests that we should adopt a gentle attitude like water in life. When facing problems, we should approach them patiently rather than with force. As Empu Bharada did, solving problems with water symbolizes a gentle approach. If Empu Bharada had thrown stones, the Brantas River would not exist.

Additionally, there is a saying “Ora ana banyu mili mandhuwur” (No water flows upward), which describes how Empu Bharada poured water from above. This aligns with the nature of water, always flowing from higher to lower places. Similarly, a leader should serve and be a source of welfare for their people. Another interpretation of the saying is that children generally follow their parents' traits.

In the story, Empu Bharada carries a jug, which is a container for water. The term "kendi" (jug) is derived from Sanskrit (Hindi), “kundika,” meaning ‘water container.’ Kundika is an attribute of Hindu deities Brahma and Shiva and is also associated with Avalokitesvara in Buddhism. Jugs were traditionally made from clay and fired, serving as containers for drinking water, medicines, or traditional herbal concoctions.

In Javanese philosophy, the jug symbolizes the source of life, with water inside representing the source of life for humans and nature. Jugs are used in Javanese rituals, such as in the ceremonial preparations for marriage, symbolizing hopes and prayers for a harmonious household.

B. The Meaning of ‘Kendi’ in Javanese Literature

In the development of Javanese literature, the word kendi is not only viewed as a term borrowed from Sanskrit but holds a deeper significance. The Javanese are known for their creativity in language. The practice of othak-athik gathuk - refining a word or phrase until it fits or makes sense - is a common method in Javanese linguistic and literary traditions. This process involves not just combining words but giving them more philosophical meanings. Such meanings attached to "something" are often used as symbolic language by the Javanese in communication, offering pepeling (warnings) or paweling (messages or advice) to others. In Javanese linguistics and literature, this practice is referred to as kerata basa. Kerata basa can be interpreted as an abbreviation of a sentence into a single word, which then conveys the meaning of the entire sentence.

The Javanese word kendi is often interpreted as kendhalining budhi, meaning "control over the heart and mind" (Muryanto, 2020). From the term kendi, the Javanese convey that the water put into the kendi is clean, and its outflow is also clean, pure, and purifying. Philosophically, humans should also be like this. If what they hear and learn is good, then what they speak and do should also be good.

In the past, kendi and lincak (a bamboo seat, similar to a small cot) were always placed in front of houses. Anyone passing by could drink water from the kendi and rest on the lincak. When the water in the kendi was depleted, it would be refilled daily. The purpose was to ease the journey for passersby, even if they were strangers. The kendi and lincak symbolized tolerance and sharing with others. Drs. Raden Mas Panji Ssrokartono (1877-1952), as cited by Susbandono (2022), described this attitude of providing drinking water in kendi and lincak as “sugih tanpa banda” (rich without wealth). This means that wealth is not solely measured by material possessions. Richness is not just about money, or being a person of high position with many connections, but rather being filled with compassion, sharing one’s possessions without expecting anything in return, recognizing that others might be facing greater difficulties than oneself.

C. The Curse of the Brantas River: If the President Crosses It, They Will Be Ousted

In Kediri Regency, East Java, there is a belief that the area should not be visited by Indonesian presidents. According to local myth, if an Indonesian president visits Kediri Regency, they will be ousted or lose their position. The locals also associate this curse with several places, such as Simpang Lima Gumul in Kediri, believed to be the center of the Kediri Kingdom. Another version links the curse to the Brantas River, which marks the boundary of the Kediri Kingdom, suggesting that if a king or currently, a president enters Kediri by crossing the Brantas River, they will be ousted.

It is believed that after visiting Kediri, several presidents were ousted. Presidents Sukarno, B.J. Habibie, and Abdurrahman Wahid (Gus Dur) are known to have been ousted after visiting Kediri. Is there a connection between this curse and the Brantas River, which marks the boundary of the Kediri Kingdom?

Tifani (2022) posits that the myth of the president being ousted if they visit Kediri is related to the history of the Kediri Kingdom. According to the Babat Kadhiri chronicles, there was a curse on the Kediri Kingdom during wartime. The curse states:

If Kediri’s troops attack the enemy first in their territory, they will always win the battle. However, if the enemy attacks the Kediri Kingdom's center first, they will achieve a resounding victory.

Perhaps due to this curse, presidents have avoided visiting Kediri. Presidents Soeharto, Megawati Soekarnoputri, Susilo Bambang Yudhoyono, and Joko Widodo have never visited Kediri. Some interpret that if a president dares to visit Kediri, their position becomes more vulnerable to political attacks or defeat.

However, few are aware that the Brantas River has historical significance for Majapahit kings. According to Purwadi (2021), Majapahit kings, since the era of Raden Wijaya in 1923, engaged in spiritual practices, including tapa ngeli at the Brantas River. This practice was also undertaken by the rulers of Medang, Kahuripan, Kediri, Jenggala, Daha, Singosari, and Majapahit. Through tapa ngeli, Javanese ancestors obtained supernatural powers.

Tapa ngeli is a form of ascetic practice involving floating or drifting in a river. According to Wirasandjaya (2019), in ancient times, this practice was done by floating on a raft in the river. Today, tapa ngeli is interpreted as surrendering to the will of the Creator. Drifting along the winding river symbolizes a natural wisdom language. In Javanese, there is a saying, “manut ilening banyu” (following the will of the water), reflecting the concept of surrender and acceptance of divine will.

For those practicing Kejawen (Javanese spirituality), Mount Arjuno and the Brantas River are considered sacred, often used in ancestral rituals. If the Brantas River is considered sacred, does it mean that individuals with bad intentions will face consequences? If so, does the myth that crossing the Brantas River into Kediri leads to being ousted suggest that the president harbors ill intentions? This ultimately relates to the interpretation of myths as part of oral literature. Oral literature can stimulate intelligence as it contains riddles that engage reasoning and logic (Endraswara, 2018:183), leading to greater cultural awareness and wisdom in handling life.

V. CONCLUSIONS

This research on the myth of the Brantas River is conducted using a hydropedagogical literary perspective. The study examines the literature of the myth through the lens of water science. The origin of the Brantas River is depicted by Empu Bharada, who divided the Kediri Kingdom by pouring water from a kendi right in the center of the kingdom. Upon examination, the origin story contains several Javanese expressions or philosophies related to water, namely: (1) water always flows from the source/higher place to a lower place, symbolizing that a leader should serve and be a source of welfare for their followers; (2) water always fills empty spaces, meaning in life we should continually improve ourselves, fill our souls and hearts with goodness, and benefit many people; and (3) water always flows to the estuary, referring to the concept of “sangkan paraning dumadi,” which means that we will return to our Creator. Furthermore, the term kendi (Javanese) is a kerata basa of the phrase kendhalining dhiri, meaning control over one’s heart and mind.

The myth that Kediri Regency in East Java is a place that Indonesian presidents should avoid is still believed by some people in Indonesia. Allegedly, if an Indonesian president crosses the Brantas River in Kediri Regency, they will be ousted or lose their position. This is linked to the Brantas River’s sacredness, as it has often been used for rituals and tapa ngeli by ancestors. However, whether this is true depends on individual logic and religious values. Additionally, it relates to how one views myths as guidelines for life or literary works that increase cultural awareness and wisdom in dealing with life.

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Frequency of Nutritional Megaloblastic Anemia among Students in Khartoum, Sudan

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ABSTRACT

Background: Megaloblastic anemia is a generative macrocytic anemia characterized by nuclear dysmaturity and the nucleus immature appearance in comparison to the cytoplasm due to a defect in DNA synthesis anemia is a rare ailment in children that is usually caused by a vitamin deficiency or gastrointestinal disorder

Objectives: The main objective of this study was to detect the frequency of nutritional megaloblastic anemia in male elementary-school children by measuring hemoglobin (Hb), red blood cell (RBC) count, hematocrit (HCT), and serum folate levels.

Methods: This study examined 300 male primary-school children in Khartoum, Sudan. A 2.5-ml of blood was drawn from each student and placed in an ethylene diamine tetra acetic acid (EDTA) vial to estimate the Hb level, RBC count, and HCT using an automated blood analyzer. Another 2.5 mL of blood were drawn from the same students into a plain container and examined for serum folate.

Results: The mean Hb was 12.7 g/dl (two standard deviations), the RBC count was 4.71012 cells/L, and the mean packed cell volume (PCV) was 37.2%, and the mean serum folate was 4.4 ng/L.

Conclusion: The blood parameters and serum folate were found to be within normal ranges. According to the findings, the nutritional status of the primary-school students was good, and megaloblastic anemia was not common. This type of research should be done on a frequent basis to assess children's nutritional health.

1. INTRODUCTION

Anemia is a condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet physiologic needs[1]. Approximately 3.6% of people with anemia have megaloblastic anemia (MA)[2]. Folate deficiency (FD) is common in many parts of the world, especially in low and middle-income countries. It has become increasingly rare in countries where certain food groups have been supplemented with folate, and folate fortification of food in developed countries has decreased the prevalence of FD to <1% of the population[3]. In countries where the food supplementation is not practiced, FD is more frequent. Over the last three decades, the prevalence of FD seems to have decreased from 70–75% to 2–10% according to various studies on children from different regions. However, the prevalence of FD varies among different communities with different eating habits and socioeconomic levels.

Nutritional anemia is a common public-health issue that is linked to a higher risk of morbidity and mortality, particularly in pregnant women and young children[4]. Vitamin B12 and folic acid are required as co-factors for nucleoprotein synthesis, are deficiencies of these vitamins are the most common causes of megaloblastic anemia in children[1,2]. Nutritional megaloblastic anemia develops between the ages of 3 and 18 months in children who are exclusively breastfed, which mainly results from the mothers' insufficient nutrition and low levels of vitamin B12 and folate in the breast milk[5]. The average age of onset is 60 years, and it is uncommon in children except in impoverished nations, where it is more common due to socioeconomic conditions and a lack of vitamin B12 in food[6].

Megaloblastic anemia is caused by a lack of DNA synthesis, which prevents nuclear division. There is no effect on cytoplasmic maturation is mostly reliant on RNA and protein production. This causes asynchronous maturation between the nucleus and cytoplasm of erythroblasts, which explains the megaloblasts' greater size[7]. Some of the other alterations are low hemoglobin and erythrocyte counts, increased mean corpuscular volume (MCV > 100 fl), increased mean corpuscular hemoglobin concentration (MCHC), thrombocytopenia, and a low reticulocyte count[8].

Low levels of vitamin B12 (VN = 191–663 pg/ml) or folic acid (VN = 4.6–18.7 ng/ml) in the blood confirm the diagnosis. Biochemical evaluation of megaloblastic anemia patients reveals elevated levels of lactate dehydrogenase (LDH), total bilirubin, and primarily indirect bilirubin (IBIL), which is common in individuals with significant mean corpuscular volume (MCV)[9]. All these signs point to megaloblastic anemia patients having a high rate of erythrocyte destruction. Some researchers believe that erythrocytes can be killed in the bone marrow before they mature and are discharged into the peripheral circulation.

2. MATERIALS AND METHODS

The nutritional condition of children was assessed using complete blood count (CBC) and serum levels of folic acid over a 4-month period. 300 children were examined. The age range was 6 to 14 years. They were recruited from 12 primary schools that were chosen based on their geographic and socioeconomic diversity. These included seven schools for males and five schools females. Each school provided between 25 and 30 blood samples.

The study was done with the cooperation of school officials and students' families. All participants were told about the study's goals and the importance of health in the future. A total of 2.5 ml of blood was obtained in ethylene diamine tetra acetic acid (EDTA) tubes for CBC analysis, and another 2.5 ml of blood was collected for serum folate.

A 2.5-mL sample of venous blood was collected and gently mixed in an EDTA container before being labeled with the student's number. A Sysmex automated blood analyzer was used to evaluate the blood samples for CBC within 4 hours. The other 2.5-mL sample of blood was drawn and placed in a simple container to clot, after which the serum was separated using a bench centrifuge machine at 2500 rpm for 10 minutes. An automated device was used to determine the amount of folate in the blood (TOSOH CORPORATION, AIA 600ii).

An immunoenzymetric (IEMA) or sandwich immunoassay, competitive binding (EIA) immunoassay, and two-step immunoenzymetric immunoassay can all be performed with the AIA-600 II. A two-step immunoenzymetric immunoassay and a competitive binding (ELISA) immunoassay were done using an immunoreaction test cup from the AIA-PACK reagent series after combining a patient sample, control, or calibrator with a diluent to start an antigen-antibody reaction. During the incubation time of the IEMA assay, antibodies bind to two different epitopes on the antigen being evaluated, forming a sandwich. During the incubation period of the EIA assay, antigen from the patient sample competes for a limited number of antibody-binding sites with enzyme-labeled antigen.

3. RESULTS

This study involved 300 male primary-school students. The mean hemoglobin (Hb), packed cell volume (PCV), MCV, mean corpuscular hemoglobin (MCH), MCHC, and red blood cell (RBC) count were 12.0 g/dl, 35.6%, 83.0fl, 27.0 pg, 32.3 g/dl, 32.2%, and 4.71012 cells/L, respectively (Table 1). The average serum concentration of folic acid was 6 ng/ml.

Table 1. Demographic characteristics

Gender, n (%)	Total n=200	Age, years (mean ± standard deviation)	
Male	120	9.3±4.6	
Female	80		

Table 2. Mean blood parameters

Blood parameter	Mean
Hb level (g/dl)	12.0
PCV (%)	35.6
RBCs count (10 4.7 6 /µl)	4.7
MCV (fl)	83.0
MCH (g/dl)	27.0
MCHC (pg)	32.5
TLC (10^3/µl)	7.0
Platelets Count ((10^3/µl)	320
Folic acid (ng/ml)	6

4. DISCUSSION

In general, megaloblastic anemia is a type of macrocytic anemia caused by a lack of vitamin B12 or folic acid[9]. Hematologic anomalies are linked to megaloblastic anemia. Hematologic signs of megaloblastic anemia include leukopenia, thrombocytopenia, pancytopenia, and macrocytosis[4,6]. In this investigation, we examined the connection between megaloblastic anemia and hematological state. The range and incidence of hematologic abnormalities in children with megaloblastic anemia are not well documented statistically[4,6,11,12]. Hematologic abnormalities including anemia have often been associated with megaloblastic anemia, while pancytopenia, leucopenia, and thrombocytopenia are less common[4,6].

Patients with megaloblastic anemia are still common in outpatient facilities in Sudan, and there are a few interesting facts to consider[10]. Folate is a carbon donor for the synthesis of pyrimidine and purine, which is required for the rapid development of erythroid cells. FD causes erythroid cell death and anemia due to impaired DNA synthesis[11]. Because there are few publications showing folate deficiency in school-aged children, one of the most afflicted groups, this study could help to provide information on the degree of the deficiency of folic acid.

Hb, PCV, RBC, MCV, MCH, MCHC, total leucocyte count (TLC), platelet count, and folic acid were all found to be within normal limits. Megaloblastic anemia is a rarely diagnosed anemia in children, although it is likely underdiagnosed. It has multiple causes, including autoimmune disease, poor socioeconomic conditions, protein-calorie malnutrition, vegetarian nutrition of the mother during pregnancy with a lack of substitution during pregnancy and breastfeeding, and maternal megaloblastic anemia[12].

Due to variances in study populations comprising adolescents and young people, there are no differences in folate values between the findings of this study and those of other investigations. These figures are also influenced by dietary status, and genetic factors such as polymorphisms fluctuate between countries and geographical areas. Folate supplementation, in addition to iron and folic acid substitution, should be supplied to all mothers during pregnancy and lactation, especially if the mother is vegetarian or has a low socioeconomic background[13]. In conclusion, folate insufficiency is not frequent among schoolchildren according to this research. This study showed that blood tests and serum folate levels are useful indications in the diagnosis of nutritional anemia.

STATEMENT ON DATA SHARING

The corresponding author will provide the datasets used or analyzed in the current study upon reasonable request.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The Department of Medical Laboratory Sciences at the Sudan University of Sciences and Technology in Khartoum, Sudan, granted ethical clearance. Before the commencement of data collection, informed, voluntary, written, and signed consent forms were obtained from each participant's. In order to protect the privacy and confidentiality of the respondents' information, their names were not written on the questionnaire. Informed consent was obtained on behalf of participants under the age of 18 years. Participants were told that the study was voluntary, that they may refuse to participate at any time, that they could ask any questions they wanted to, and that their answers would not be used against them. The Helsinki Declaration was followed in the conduct of this investigation.

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Artificial Intelligence Empowerment in Leadership: A Systematic Review of Positive Impacts and Applications

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ABSTRACT: The growth of Artificial Intelligence and the potential to empower leadership within various organizational contexts represent an emergent area of inquiry in this systematic review, with the lens focusing on the positive impacts and potentials of AI applications in augmenting and enhancing leadership practices. Based on PRISMA guidelines, the aim of the review is to identify most of the literature are journal articles, research studies, and any other relevant publications within the last 10 years that were published in English, with high importance attached to empirical studies and documented cases of AI implementation in leadership roles. Key themes will be how AI can help drive decision-making and how AI tools analyze organizational data and market trends to inform strategic choice. The paper covered the AI's applicability for personalized leadership development; in particular, how AI can be adopted to tailor learning experiences to individual leader requirements in the context of lifelong growth. Next, it suggested that an AI-enhanced tools may boost team performance through communication, workflow efficiency, and team collaboration. And the paper determined and analyzed the changing role of a leader in an AI-intense environment that still requires the very traits of human-centered leadership to ensure ethical handling and human oversight of the technological potential. From ongoing initiatives, the paper attempts to derive guidance and best practices applicable to school's organizational leadership, policy makers, and AI developers alike with the intention of contributing to better understanding AI's potential in support of leadership leading to more effective, ethical, and human-centered organizations.

KEYWORDS: Artificial Intelligence, Leadership, Systematic Review, Positive Impacts, Applications

1.0 INTRODUCTION

For the past couple of years, Artificial Intelligence (AI) has been highly transformational and emerges across sectors, offering unprecedented opportunities to enhance human capacity and even redefine legacy practices. The fast pace at which artificial intelligence is transforming and reshaping society is truly remarkable. Its impact is felt across various sectors, from healthcare, business, lifestyle, finance to transportation and apparently education, revolutionizing the way we live, work, and interact with the world around us (Heimans & Timms, 2024). In the setting of education, AI's potential greatly visible and observable to empower school leadership which is particularly promising, offering innovative solutions to long-standing challenges and paving the way for more data-driven, personalized, and effective learning environments (Frick et al., 2021). According Sharma et al. (2020), AI is rapidly changing the landscape of school organizational leadership. By automating tasks, supporting datadriven decisions, and personalizing employee experiences, AI empowers leaders to focus on strategic thinking and innovation. However, this shift demands new skills from school leaders, including data analysis and AI ethics, to ensure responsible AI implementation. Successfully integrating AI requires a balance of technological adoption and a human-centric approach, fostering trust and collaboration in this evolving work environment.

On the other hand, the emergence of artificial intelligence in the professional sphere has sprouted valid concerns about job displacement and a potential shift in the workforce landscape (Almeida et al., 2024). However, a growing body of research offers a more exquisite perspective, highlighting AI's capacity not to replace, but to empower leaders across various sectors (Hao et al., 2020). As the future approaches, and the role of AI in the workplace increases, it becomes vital to assess the impact of AI leadership on workplace outcomes. This perspective emphasizes AI's potential to augment, rather than to take over, human capabilities in leadership roles. AI excels at processing and analyzing massive datasets, identifying patterns and trends that might escape human observation. This analytical prowess can be harnessed by leaders to gain deeper insights into market trends, customer behavior, and organizational performance. By leveraging AI-powered analytics, school leaders can make more informed decisions, grounded in data rather than intuition alone. Furthermore, AI can contribute significantly to strategic planning. By forecasting potential outcomes based on historical data and predictive models, AI equips leaders with the foresight to anticipate challenges and capitalize on emerging opportunities. As defined by Milton and Al-Busaidi (2023), this proactive approach to strategic planning, informed by AI-driven insights, allows organizations to navigate a rapidly changing business environment with greater agility and resilience.

In the deeper context of education, the integration of artificial intelligence in education revolutionizes the landscape of learning and leadership. The work of Baker & Smith (2019), highlights its potential to empower school leaders at all levels of the education system – from teachers and administrators to policymakers and other stakeholders. One of the most significant impacts of AI in education is its ability to personalize the learning experience. AI-powered adaptive learning platforms can analyze student data, such as their learning pace, strengths, and weaknesses, to tailor content and instruction to their individual needs. This personalized approach not only enhances student engagement and motivation but also leads to improved learning outcomes.

Furthermore, AI can significantly reduce the administrative burden on teachers, freeing up their time for more valuable tasks like personalized instruction and mentorship. Automated grading and assessment tools can provide instant feedback to students and teachers, allowing for timely interventions and adjustments to teaching strategies. AI can also power teacher dashboards that provide real-time insights into student performance, enabling educators to make data-driven decisions about their teaching practices. Beyond the classroom, AI can revolutionize school leadership and policy-making. By analyzing vast datasets from various sources, AI can identify patterns and trends in student performance, school climate, and resource allocation. This data-driven approach empowers school leaders and policymakers to make informed and run decisions about resource allocation, curriculum development, and professional development for teachers, ultimately leading to a more equitable and effective education system. This transformative potential of AI in education aligns with Popenici and Kerr's (2017) definition of AI as "computing systems that are able to engage in human-like processes such as learning, adapting, synthesizing, self-correction, and use of data for complex processing tasks." By embracing AI's capacity to learn, adapt, and process information in a way that mimics human intelligence, educational leaders can unlock new levels of efficiency, effectiveness, and innovation, paving the way for a brighter future for learners of all ages.

This systematic review will look closer at possible trends in the changing landscape of school leadership in which artificial intelligence may no longer be a futuristic notion but one of the new realities that should empower school leadership in powerful ways Frick et al. (2021). By calling for improved attention to more specific positive impacts and diverse applications of AI in school organizational contexts, this review overshadows general discussions related to the potential of AI in order to provide a richer understanding of how the technology should be harnessed towards supporting better leadership practices in education. In this regard, the applications of AI could go from sources of data decision-making that offer information about student performance and trends at the school level to aid available for teachers, such as a platform that will enable their development across professions on a personalized basis and AI systems aimed at improving operations administration. These systems help the school leaders to extract time so that they can invest in school improvement and building a conducive environment for the learners at school. The discussion focuses attention on how these applied areas and their positive impacts in school leadership can provide a roadmap for the application of AI that empowers, rather than replaces, human leadership in educational settings.

2.0 METHODOLOGY

2.1 Research Design

This systematic review will follow the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines for conducting and reporting systematic reviews Tetzlaff et al. (2020). PRISMA represents a comprehensive checklist and flow diagram. These aids help to conduct transparent systematic reviews and metaanalyses. Following PRISMA guidelines will ensure that your review is thorough, reliable, and easily understandable for readers.

Utilizing PRISMA will guide you to avoid some common pitfalls in conducting systematic reviews, such as missing important studies, not appraising the risk of bias, or not synthesizing the available evidence correctly. This can be an all-comprehensive search strategy that will be ensued using relevant keywords, such as artificial intelligence, school leadership, positive effects, and applications within educational databases. Specifically, the review will cover journal articles and research studies published in the English language within the past 10 years, focusing on empirical studies and well-documented cases of AI implementation in the context of school leadership. The inclusion of studies will be based on predefined inclusion and exclusion criteria, and their quality will be assessed. The AI thematic analysis data extraction will focus on the following major themes: contextual factors around successful implementation. A thematic analysis approach will be utilized to synthesize the findings and identify the patterns that emanate across the studies so as to come up with a comprehensive overview pertaining to the possible empowerment that AI is set to bring forth within the given instance of attempts to empower school leadership and thereby to prompt directions for further research.

2.2 Data Gathering Procedure

The data gathering procedure in this systematic review is, therefore, a multi-step process designed in a manner that can help in comprehensive but unbiased data collection of relevant research. There are a number of very vital stages in the whole procedure, the first one being the formulation of a clear and focused research question that guides the entire review process. For example, this would be: "How does AI serve to empower leadership in organizational settings? What are the positive impacts and applications?" Along with, at this point, specific inclusion and exclusion criteria are established that determine what types of studies, publication dates, languages, and align with a review. This is followed by the scope decision and a thorough development of a search strategy. Relevant keywords and subject headings in the identification of literatures comprehensively portray issues of the topic. In this case, under this would be the facets of keywords identified for this study: "AI", "artificial intelligence", "leadership", "empowerment", and " Positive Impacts and Applications." This combines with subject headings specific to leadership and AI applications in databases. At this stage, it will be followed by systematic searching across databases that ensure good coverage of appropriate literature.
The screening and selection of the studies take place in the second step after the database searches. Generally, a two-step procedure is used to maximize the process for minimization of biases and maximization of consistency. To start with, irrelevant studies are excluded by screening the titles and abstracts that are screened separately with the predefined criteria. Then, full-text retrieval of the potentially eligible studies is carried out, followed by a second step that performs a more rigorous assessment. Data extraction then ensues using the finalized set of included studies. One develops a standardized data extraction form for consistency to ensure that similar critical information is captured from each study. This would entail characteristics of the study, design, AI tools and applications, leadership outcomes measured, and key findings. This, upon screening, is usually done in duplicate to enhance the accuracy and reliability of results. Finally, the extracted data is synthesized to give an overview of the findings. It can also consist of a qualitative synthesis in which the findings are summarized narratively and grouped under themes or categories.

2.3 Ethical Considerations

This systematic review was carried out with a high level of commitment to ethical practices in research, maintaining the integrity, transparency, and trustworthiness of its findings. The current study enforces ethical consideration in order to attain the scientific stringency and objectivity of the systematic review, even though it is based on existing studies. A comprehensive and transparent search strategy through relevant databases, specific keywords, and clearly defined inclusion and exclusion criteria. Attention and care in this approach reduce potential publication bias and ensure that a critical amount of all suitable studies will be considered. Risk of bias in the included studies was appraised rigorously, with established tools and criteria, for the methodological quality and to judge its potential influence on the overall results. Data extraction and synthesis were carried out objectively, following a preset protocol that did not lead to undue weighting or selective reporting in favor of some studies. Any potential competing interest, sources of funding, and affiliations that might be interested in carrying out the review process or in the interpretation of the results are also fully disclosed.The findings of this systematic review are, therefore, presented quite balanced and objective when appreciating the limitations of the primary studies, without overstatement or generalization.

3.0 RESULTS AND DISCUSSION

Table 1 below shows the research articles and studies included in the systematic literature review along with the date of publication, and the corresponding author/s.

Table 1. Research articles and studies included in the systematic review of literature

Research No.	***Author/s***	***Research Title***	***Date of Publication***
1	Almeida et al.,	My Boss, the Algorithm – AI Leadership Increases Turnover through Reduced Psychological Safety	2024
2	Baker, T., & Smith, L.	Educ-AI-tion rebooted? Exploring the future of artificial intelligence in schools and colleges.	2019

3	Callaway, E.	It will change everything: DeepMind's AI makes gigantic leap in solving protein structures.	2020
4	Frick et al.,	Maneuvering through the stormy seas of digital transformation: the impact of empowering leadership on the AI readiness of enterprises.	2021
5	Hao et al.,	The Influence Mechanism of Authentic Leadership in Artificial Intelligence Team on Employees' Performance.	2020
6	Heimans, J., & Timms, H.	Leading in a World Where AI Wields Power of Its Own.	2024
7	Milton, J., & Al-Busaidi, A.	New Role of Leadership in AI Era: Educational Sector	2023
8	Popenici, S. A., & Kerr, S.	Exploring the impact of artificial intelligence on teaching and learning in higher education.	2017
9	Quaquebeke, N V., & Gerpott, F H.	The Now, New, and Next of Digital Leadership: How Artificial Intelligence (AI) Will Take Over and Change Leadership as We Know It.	2023
10	Sharma, G. D., Yadav, A., Chopra, R &	Artificial Intelligence and Effective Governance: A Review, Critique and Research Agenda.	2020
11	Stewart, J., Loon, M., Nachmias, S. &	Introduction to Volume One: Future of Human Resource Development—Disruption Through Digitalisation.	2020
12	Tetzlaff, J., Page, M., Moher, D. &	The PRISMA 2020 Statement: Development of and Key Changes in an Updated Guideline for Reporting Systematic Reviews and Meta-analysis.	2020
13	Wright, C.	School Leadership: Data-driven leadership.	2024

The following section addresses key themes that have emerged from the systematic review regarding the positive impacts and applications of AI empowerment in leadership. The synthesis is structured around the identification of three core areas (Frick et al., 2021):

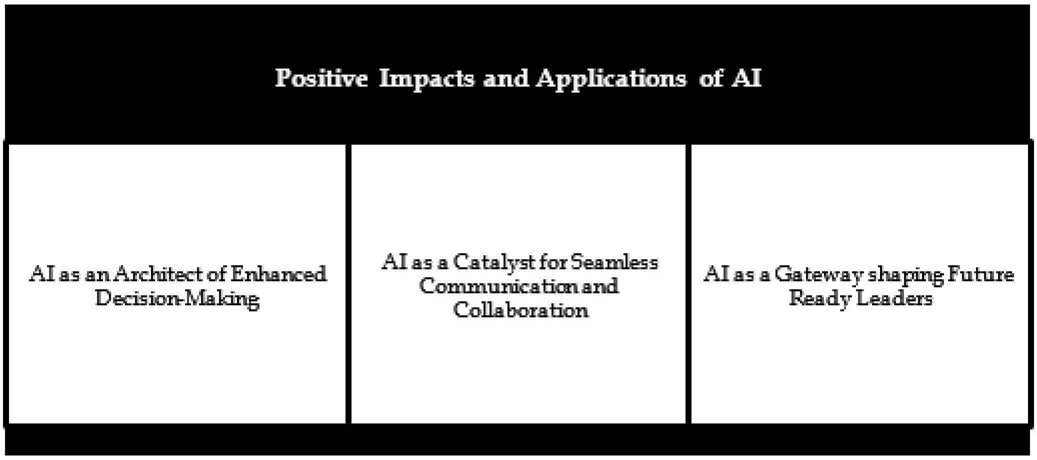

Figure 1. This figure represents the three core areas, showing how AI empowers leadership through enhanced decision-making, communication, collaboration, and leadership development.

Artificial Intelligence Empowerment in Leadership: A Systematic Review of Positive Impacts and Applications

AI as an Architect of Enhanced Decision-Making

The infusion of artificial intelligence into leadership practices touches the new frontier of improved decisionmaking, actually changing the way leaders address complex problems and manage uncertainties in the current business environment. No longer consigned to the sphere of science fiction, AI is rapidly becoming a symbiotic tool for modern-day leadership, as can be evidenced in terms of the emerging body of literature that further supports its inherent ability to comb large and complex data sets, identifying underlying patterns and trends that often elude the most seasoned human experts. That ability to discover hidden insights in data empowers leaders to make more informed, data-driven decisions on a wide variety of organizational activities, ranging from strategic planning and risk management to resource allocation and beyond.

Research by Frick et al. (2021), provides one compelling example of how the use of artificial intelligence could change the nature of decision-making. It illustrates how AI avails principal's actionable insights to make strategic decisions. This type of information-driven approach allows school leaders to predict possible shifts, appraise competitive threats, and make strategic choices based on empirical evidence, rather than intuition and experience alone—that is, grounds both very fallible and crucially in volatile or unpredictable markets—it allows for leadership to make better decisions for the future (Wright, 2024).

Equally, in studies relating to AI-driven risk management systems, top on the list would be their ability to identify threats and vulnerabilities—should one adopt an approach whereby organizations are advised to proactively come up with mitigation strategies. Leveraging the predictive capabilities of AI, school leaders can hence move from an activity of reactive risk management characterized by the response to crises as they emerge to a proactive one—anticipating and mitigating potential disruptions before they affect organizational performance. In this way, the key is the transformation from reaction to anticipation in the current velocity environment, where agility and foresight mean survival and success.

The real value proposition for AI in school leadership, though, is not that it is a question of human versus machine but one of augmentation of human judgment: AI provides the tools and insights that allow leaders to grapple with complexity, make sense of overwhelming volumes of data, and come to their conclusions with increased confidence and clarity. Realization of the full potential of AI-enabled leadership, however, is the result of combined effort of human ingenuity and artificial intelligence in a synergistic partnership.

AI as a Catalyst for Seamless Communication and Collaboration

Besides its deep influence on decision-making, the review underscores the transformational potential for leadership communication and collaboration Frick et al., (2021). AI is seen to enable tools for communication that assist in better and faster performance, breaking all the silos that are otherwise obstacles to any organization's learning and ensuring the smooth flow of information between towers at all levels within the organization Milton, J., & Al-Busaidi, A. (2023). This emanates from the pushing ability of AI to support the processes of streamlining communication and collaboration among team members.

In addition, it is demonstrated that AI-driven platforms of communication actually work in a number of huge areas. These range from optimizing the workflow and automation of activities, which are repetitive in nature, to connecting people according to the right area of expertise even above geographical zones (Frick et al., 2021). Eventually, it creates an organizational culture that is responsive and agile in nature, something that allows a school leader to communicate in a tough way with his team and other stakeholders. In response to challenges, AI removes the traditional communication barriers, meaning organizations become more agile and faster. Hao et al. (2020), demonstrates how AI does more than assist in communication; it proactively detects patterns of communication and dynamics among teams. Recognition of potential flare-ups or impending communication failure in advance permits AI to take mitigative actions that support a harmonious environment for work. This proactive approach toward resolution already saves organizations hours and hours of lost productivity. This, in turn, can very positively contribute toward a more conducive environment for cooperation.

AI as a Gateway shaping Future-Ready Leaders

It also highlights the application of AI in developing future-ready leadership skills, which are imperative for better maneuvering through every complexity associated with a future AI-driven world (Heimans & Timms, 2024). With automation now part of almost every other organizational function, mainly educational institutions, corporate and school leaders also need skills and knowledge that put them in a position to leverage the full potential of such technologies and lead effectively in an AI-powered environment. That's what AI-powered learning platforms would take care of.

Research indicates that AI can be used to personalize leadership development programs by adjusting the content and pacing in line with a learner's styles and preferences (Stewart et al., 2020). Such personalization will result in leaders learning any specific skills and knowledge relevant to their role, thus an experience that is much more targeted and effective. AI helps school organizations create custom learning journeys tailored to the unique development needs of individual school leaders, and so, not depending on general training programs. AI can also provide instant feedback regarding the behavior of an individual, as well as helping the concerned person to identify places that need improvement and make a decision concerning progress at that time (Quaquebeke & Gerpott, 2023). This data-driven approach to leadership development cultivates continuous learning and growth of leaders who are equipped for success in a fast-moving, technological world Callaway (2020). Imagine this: a leadership development program wherein, right there, the leader receives immediate feedback on his or her communication style, decision-making approach, or perhaps even his or her ability to delegate, able to change things right then and accelerate growth.

AI-enabled analytical capabilities have the potential to harness more personalized, effective, and inherently engaging leadership development programs. They also equip leaders with tools that could face the challenges of the future. It is a proactive solution for enhancing leadership development that will ensure an organization has a continuous pipeline of ready leaders able to navigate the complicated and ever-changing world driven by technology.

Table 2. Organized themes into distinct areas, providing concise descriptions and referencing relevant studies to support each point on the positive impacts and applications of artificial intelligence in leadership.

Core Areas	**Description**	**mple/Research Reference**
AI as an Architect of Enhanced Decision-Making	AI improves decision-making by helping executives make well-informed, data-driven choices by analyzing massive datasets to find patterns and trends.	AI's role in strategic decision-making (Frick et al., 2021)
	AI-driven risk management solutions shift from reactive crisis management to proactive threat identification and mitigation.	Predictive capabilities of AI in risk management (Frick et al., 2021)
AI as a Catalyst for Seamless Communication and Collaboration	AI optimizes communication tools and processes, improving an organization's agility and efficiency by tearing down barriers both geographically and functionally.	AI's impact on communication and collaboration (Frick et al., 2021)
	AI platforms will be able to pick up on communication patterns and dynamics, proactively solving emerging issues by all means possible to avoid destructive team environments and lower the amount of time wasted dealing with such communication barriers.	Proactive communication facilitation (Hao et al., 2020)
AI as a Gateway shaping Future-Ready Leaders	AI-powered learning platforms personalize leadership development programs, adjust content to varied learning styles, and meet specific needs.	Personalized leadership development (Stewart et al., 2020)
	AI furnishes real-time feedback and insight into leadership behaviors to make adjustments on the spot for continuous improvement in decision-making and managerial skills.	Instant feedback for leadership development (Quaquebeke & Gerpott, 2023)

4.0 CONCLUSION

The findings in these studies on the impact of AI on school leadership present a compelling narrative of transformation and adaptation. AI creeps into all organizational processes, so its effect on leadership practice is insurmountable. From improving decisions and interactions to enabling development by instilling future-ready skills, AI can bring changes in the very nature of leadership. With the power of AI, leaders will unlock new levels of efficiency, insight, and agility that will empower them to sail through the complexities of this increasingly technology-driven world in steering organizations onto a future rich with innovation and growth. However, this journey into the age of AI-driven leadership is not without its hitches. Principally, in the deployment of advances in AI, consideration of questions regarding bias, transparency, and accountability has to weigh seriously in to ensure responsible treatment. In this, leaders must proactively engage in discourse over the ethical dimensions surrounding AI in defining guidelines on its usage, ensuring that the systems and machines are developed and operated fairly and without bias. Neglecting ethical considerations in these areas may only serve to exacerbate existing inequalities and impair trust in AI-powered leadership.

Moreover, leaders will need to ensure open communication and the availability of workplaces where employees can reskill and upskill to avoid possible anxieties regarding job security and changes in work behaviors within an AI world. If such concerns are embraced early, leaders will create a more seamless and positive emergence into the future world of work that will be underpinned by AI, towards the ultimate culture of collaborative working with collective meaning. The key to all this is putting AI into a human-centric integration of leadership. This is where the secret and rationale lie in putting AI into human-centric integration. Therefore, accepting AI as the augmenting tool for ability up-surging of the human lot, creating a culture of lifelong learning, and ethics first is how the leaders will uncover AI's power for transformation, shaping the future wherein technology and human ingenuity should walk hand in hand. This fine balance between technological advancement and human values will be the determining factor in framing the coming contours of school leadership in the age of AI.

5.0 CONTRIBUTIONS OF AUTHORS

When doing a systematic review as a single author, one does everything from conceptualizing to reporting. This includes setting up the research question, proposing the scope and the basis for inclusion-exclusion criteria, doing the literature searching, screening and selecting the studies, extracting data, assessing the quality of the studies, synthesizing the findings, and drawing conclusions. Critical thinking, domain specialist expertise, and attention to detail in the execution of review will ensure that the process of review is impartial, thorough, and transparent. Conducting a systematic review single-handedly is an important piece of work in itself, but an author can thereby fully control the research process from beginning to end and guarantee a uniform and consistent approach throughout.

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7.0 CONFLICT OF INTERESTS

This systematic review was carried out without any funding from outside agencies, thereby proving the fact that there is no financial conflict. However, transparency dictates that other crucial areas of bias besides finances need to be disclosed. Although direct financial conflict of interest is absent, personal opinions on a few occasions held about AI's impact on leadership cannot be exempted and would have an impact, although remotely, on the conduction of research. The review, however, was conducted with the utmost rigor and objective methodologies.

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