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TABLE OF CONTENTS

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COUP D' ETAT: EFFECTS ON TEACHERS AND THE LEARNING PROCESS

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ABSTRACT

This study determined the effects of the coup to primary school teachers and the learning process in selected schools in IDP camps in Demoso Township, Karenni State, Myanmar. The descriptive- comparative research design and focus group discussion (FGD) were employed. The findings of the study are: teachers face challenges in preparing the instructional materials, in designing lessons and difficulty to consider such as curriculum characteristics, students characteristics and the availability of learning support materials in their lesson preparation. In the lesson implementation, teachers have not been implemented properly into learning due to the limited materials to use, students' different learning styles and unable to use different strategies and methods according to the students' needs and given circumstances. Lastly, teachers have challenges in lesson assessment in order to fulfill their teaching- learning objectives due to the time limitation and students' different learning styles.

Keywords: coup d'etat, teaching and learning process

INTRODUCTION

The third coup in Myanmar took place on 1 February 2021, and it has a significant impact on education, particularly the teaching-learning process. Since the coup, the civil war begins and people, including teachers and students have to flee to Internally Displaced Person (IDP) camps in order to be safe from the bullets, bombs and weapons. While education continues during times of civil war in IDP camps in Myanmar, this civil war has a negative, direct impact on education and its quality because and risk of violence, fear, and safety concerns. Schools are destroyed, converted into military training grounds or shelters for displaced families, and moreover it brings on teachers and students are put in danger of being killed, hurt, or kidnapped, and psychological anguish.

Despite these challenges, primary school teachers in Demoso Township, Karenni State, Myanmar, are attempting to carry on with teaching-learning for children in Internally Displaced People Camps. Because the teaching-learning process has the greatest influence on students' performance and it boosts their confidence, assists in knowledge retention, and causes them to adopt either a negative or positive attitude toward the teachers and the subject matter. In the teaching- learning process, lesson preparation, implementation, and assessment are the three keys, and they are a critical tool to use in the educational process of students.

Effective lesson preparation contributes to students' successful learning outcomes in a variety of ways. A lesson plan is the teacher's road map for what students need to learn and how it will be accom-

plished effectively during class time. A well-designed lesson plan helps teachers and students comprehend the objectives of a learning module and enables them to integrate the curriculum into engaging learning activities. Having a well- planned lesson allows teachers to enter the classroom with more confidence and maximizes the chances of having a meaningful learning experience with students. Furthermore, the quality of implementation plays a significant role in achieving results. Implementation is the process of carrying out a plan, which includes observing results and making adjustments as needed. Lastly, assessment is critical in the teaching-learning process. The purpose of assessment is to enhance students' learning through the systematic gathering and analysis of data.

Even in the classroom, teachers sometimes struggle to meet their teaching-learning objectives due to the students' struggles with subject comprehension, time limitations, classroom management and facilities, teachers' difficulties in designing activities/material, etc. However, primary school teachers in Demoso Township, Karenni State, Myanmar, are now teaching in war zones, and the researcher would like to know how teachers are finding it difficult to achieve their teaching-learning objectives in the aftermath of the military coup. The article first examines the history of the military coup of 2021, and education sector after the coup as backgrounds of the study.

STATEMENT OF THE PROBLEM

The aim of this study is to determine the effects of the coup to primary school teachers and learning process in selected schools in IDPs in Demoso Township, Karenni State, Myanmar.

This study seeks to address the following questions:

1. What is the profile of the respondents in terms of:
   1.1 Sex,
   1.2 Age,
   1.3 Grade level,
   1.4 Work experience,
   1.5 School

2. What is the assessment of the respondents on the effect of the coup to the teachers and learning processes, in terms of:
   2.1 lesson preparation;
   2.2 lesson implementation; and
   2.3 lesson assessment?

3. Is there significant difference in the responses of the respondents on the effect of the coup to the teachers and the learning process when they are grouped according to their profile?

3. How do teachers manage the challenges being brought about by the coup?\
4. Based on the results of the study, what guidelines may be proposed to address the effects of the coup in the teaching-learning process to the stakeholders.

METHODOLOGY

This study employed the descriptive- comparative research design and Focus Group Discussion (FGD) qualitative approach. The study instrument was self- created and the survey items were developed based on the analysis of related literature and other secondary source data, such as news articles and journals and the adviser and panelists who were specialists in the field of studies reviewed the questionnaire that was presented. The data gathered from the survey questionnaires were subjected to data analysis procedures such as frequency and percentage for the demographic profile of the respondents, descriptive statistics for relevant variables and T- test and analysis of Variance (ANOVA) for significant difference in the responses of the respondents when they are grouped according to their profile.

FINDINGS

Table 1. Summary of Demographic Profile of the respondents

Profile	Frequency	Percentage (%)
Gender		
Male	9	18
Female	41	82
Total	**50**	**100**
Age		
20- 30	11	22
31-40	17	34
41-50	14	28
51-60	8	16
Total	**50**	**100**
Grade Level		
Kindergarten	7	14
Grade-1	11	22
Grade-2	8	16
Grade-3	9	18
Grade-4	3	6
Grade- 5	12	24
Total	**50**	**100**
Work Experience		
1-10 years	16	32
11-20 years	17	34
21-30 years	14	28
31-40 years	3	6
Total	**50**	**100**
School		
School-1	1	2
School-2	2	4
School-3	5	10
School-4	4	8
School-5	6	12
School-6	9	18
School-7	5	10
School-8	4	8
School-9	3	6
School-10	2	4
School-11	3	6
School-12	**6**	12
Total	**50**	**100**

1.1 Sex: The table above showed that out of 50 respondents, 41 were females and 9 were males. It revealed that the number of females were more participated than males in this study.

1.2 Age: It was notable that most of the respondents were the age between 31- 40 with 34% and the lowest frequency of the respondents belonged to the age range between 51- 60 years old with 16%. The percentage indicates that there was no bias involved in the distribution of the questionnaires to the respondents. It was a true reflection of the researcher according to the distribution of questionnaires.

1.3 Grade- level: The data also manifested that the respondents were mostly from grade- 5 with 24% and lowest from grade- 4 with 6%. It showed that most of the respondents' teachers taught in grade -5.

1.4 Work Experience. The results showed that the majority of the respondents had work experience between 11-20 years with 34% and minority from work experience between 31-40 years. It meant that few respondents from work experience between 31-40 years were included.

1.5 School. The results showed that the lowest participation from school-1 with 2% and the highest participation from school-6 with 18%. It was a true reflection that the researcher chose randomly according to the researcher's selected schools.

Table 2. The effect of the coup to the teachers and learning processes, in terms of:

Indicators	Overall Mean	Interpretation	Rank
Lesson Preparation	2.88	Moderate Affect	1
Lesson Implementation	2.56	Moderate Affect	3
Lesson Assessment	2.81	Moderate Affect	2

2.1 Lesson Preparation

The effect of the coup to the teachers and learning process in terms of lesson preparation with the overall mean average of 2.88 and SD 0.61with interpretation "Agree/ Moderate Affect". The assessment among the teacher respondents were rated highly and unanimously among them.

2.2 Lesson Implementation

The effect of the coup to the teachers and learning process in terms of lesson implementation with the overall mean average of 2.56 and SD 0.63 with interpretation "Agree/ Moderate Affect". The school teachers and learning process was much affected as evident by its significant lowest score among the teacher respondents.

2.3 Lesson Assessment

The effect of the coup to the teachers and learning process in terms of lesson assessment with the overall mean average of 2.81 and SD 0.68 with interpretation "Agree/ Moderate Affect".

3. Significant differences in the responses of the respondents on the effect of the coup to the teachers and the learning process in terms of;

3.1 Sex

The overall result showed in the assessment of teachers on the effect of the coup revealed no significant difference in terms of sex.

3.2 Age

The overall result showed in the assessment of the respondents on the effect of the coup revealed no significant difference in terms of age.

3.3 Grade- level

The difference in the assessment of the respondents on the effect of the coup revealed a significant difference in terms of grade level.

3.4 Work Experience

The overall result showed in the assessment of the respondents on the effect of the coup revealed no significant difference in terms of work experience: an overall f- value of 1.429 and p value of 0.247 which accepted the null hypothesis.

3.5 School

The overall result showed in the assessment of the respondents on the effect of the coup revealed no significant difference in terms of schools, an overall f value of 1.786 and p value of 0.091 which is accepted the null hypothesis.

4. How teachers manage the challenges brought about by the coup

Firstly, the respondents discussed their lesson preparation experiences dealing with the obstacles brought on by the coup. According to the discussion about lesson preparation, teachers manage their challenges by cancelling the class when they are unable to prepare the lessons due to the fighting near their camps or schools. When life is at stake, teachers chose the best plan for their safety and children's safety by cancelling the classes. In terms of limited teaching materials for lesson preparation, they manage challenges by not preparing any activities for the lessons if the material is not available. One of the respondents stated that he manages the challenge of lesson preparation in terms of teaching strategies and methods by soliciting suggestions and ideas from his coworkers.

Secondly, respondents discussed their lesson implementation experiences dealing with the obstacles brought on by the coup. The respondents reflected that they cannot implement their lesson as they plan due to the given situation such as safety concern, less experience, students' struggle with the lessons, students' different learning styles, less interest of students in learning due to their bad experience and limited materials for teaching- learning. In addition, since teaching in the war is the first-time experience for the teachers, teachers have difficulty in adjusting with the environment and situation. However, teachers manage these challenges of lesson implementation by letting the first learners to help slow

learners or continuing the lessons the next day. Concerning the materials to use during the lessons, they apply the materials which can get easily from their environment or sometimes they just show the samples and pictures from the textbooks. Moreover, when they cannot continue the lessons due to the given situation, they do activities for students such as playing games, singing and dancing action songs to release their fear and anxiety.

Thirdly, respondents discussed their lesson assessment experiences dealing with the obstacles brought on by the coup. The respondents revealed that they used to assess only after the lessons because of time limitation and students' different learning styles. Even though they know they should use formative assessment during teaching, they cannot assess due time limitation and they worry about that they cannot finish their lessons day by day. Therefore, they manage these challenges by reteaching the lessons again or assess students' understanding by how they perform their activities such as monthly tests, group projects and homework. However, teachers try the best for their students in assessing students' outcomes to be effective in teaching- learning even though they face lots of challenges after the coup.

5. Proposed Guidelines

Based on the respondents' responses, the researcher proposed to the stakeholders the following guidelines for teachers in times of military coup for effective teaching- learning process:

Rational

Following the coup in Myanmar in 2021, the civil war began and both teachers and students across the country especially in Demoso Township, Karenni State, Myanmar have fled to internally displaced people camps (IDPs) because the situation in Demoso Township, Karenni State is the worst among other places in the country. Since the schools in IDPs are temporary, teachers have to teach in makeshift classrooms or in the church areas or near the fighting areas.

Finding from this study have significant implications for teachers in teaching- learning process particularly their lesson preparation, implementation and assessment while teaching in IDPs. Therefore, the results of this study could be a big help to reflect and consider the challenges in their teaching- learning process.

The objectives of this proposed guidelines are; 1) to reflect teachers' teaching- learning process in lesson preparation, implementation and assessment 2) to consider the suitable guidelines to be effective in teachers' teaching- learning process during the coup 3) to motivate to follow the proposed guidelines in their lesson preparation, implementation and assessment.

5.1 Lesson Preparation

- providing training for teachers that is relevant to their needs, the needs of their students and the needs of current situation.
- providing daily lesson log (DLL) for teachers: it helps teachers to prepare the lessons in advance for a week or a month.
- providing enough instructional materials to prepare the lesson ahead of time: it helps teachers to prepare the different activities to have fun and effective in students' learning.

Lesson implementation

- By providing trainings, the lessons are implemented by using the most relevant and practical strategies. To deliver instruction, teachers shall employ and combine a variety of teaching strategies considering the situation, the ongoing military coup.
- Teachers are highly encouraging to consider the learners' diversity by using the most relevant and practical strategies to meet the needs of the students in the classroom.
- Using teaching- learning materials in lesson plays an important role for effective lesson implementation. To create, innovate and present the materials that can get easily form their environments, provide teachers with trainings from the experts how to create teaching- learning materials by using the recycle things around their environment.

Lesson assessment

- Assessments are done through formative and summative; to meet the objectives, teachers use various learning assessments considering the students' different learning styles.
- Teachers are encouraged to use formative assessment to clarify their goals and objectives for each day and every lesson. Instead of worrying about the time

- limitation in teaching assessment, teachers are encouraged to use formative assessments to quickly adjust their lessons or teaching techniques to ensure students stay on track.
- Moreover, teachers are encouraged to use summative assessment to analyze students' learning, knowledge, proficiency, or success at the conclusion of an instructional period, such as a lesson or a unit.

Lesson Engagement

To be effective in teaching- learning process, students' engagement in lesson is important because if students are engaged with the subject matters, they will be motivated to learn in the classroom. Since students in Demoso Township, Karenni State, Myanmar are studying during the civil war, teachers need to consider about lesson engagement for students.

- The experience of learning during the coup have difficulties for students and teachers might need to encourage students to become more active participants in collaborative learning and teaching by using relevant and practical teaching strategies.
- Teachers are encouraged to create different activities that provide students with a diverse range of engagement activities. It can be difficult to keep children engaged when they are struggling with the subject matter or activities especially this time in Myanmar. Celebrating their progress is one way to keep them engaged in the activities. This will boost their confidence and inspire them to keep trying.
- Teachers are encouraged to create a comfortable learning environment which can develop students' engagement in the lessons. If students are comfortable with the learning environment, they can get motivation that leads to wonderful learning outcomes.

CONCLUSIONS

Based on the indicating findings, the following conclusions were drawn from the results of the study:

1. It was found that teachers have struggles in their lesson preparation after the coup. They face challenges in preparing the instructional materials, in designing lessons and difficulty to consider such as curriculum characteristics, students characteristics and the availability of learning support materials in their lesson preparation.
2. In the lesson implementation, teachers have not been implemented properly into learning due to the limited materials to use, students' different learning styles and unable to use different strategies and methods according to the students' needs and given circumstances.
3. Lastly, teachers have challenges in lesson assessment in order to fulfill their teaching- learning objectives due to the time limitation and students' different learning styles. However, we can clearly see that teachers really need to use formative assessment during implementing the lessons.
4. However, teachers take their profession as a mission for their students after the coup. Even though they face challenges in their teaching- learning process: lesson preparation, implementation and assessment, they try to manage their challenges as much as they can. Furthermore, we can clearly see their profession as a mission for their students no matter what they are experiencing after the coup.

RECOMMENDATIONS

Based on the findings and conclusion of the study, the following recommendations may be considered:

1. To be an effective and a successful lesson preparation, teachers need to consider strategies/ methods according to students' different learning styles. Moreover, teachers need to prepare different learning activities to have fun and effective in students' learning.
2. By using different strategies/ methods, learning materials and activities, teachers should implement their lessons practically.
3. Next, to be a successful assessment, teachers should use formative and summative assessment to know the students' understanding and learning outcomes.

4. Importantly, the stakeholders must implement as the researcher proposed the needs to provide on daily lesson preparation, implementation and assessment guidelines for teachers in this time of the military coup for effective teaching- learning process.
5. Since this study is only focused on primary school teachers who are teaching in selected IDP schools in Demoso Township, Karenni State, Myanmar, it is recommended that further studies be carried out on teachers from other IDP schools and Townships in Myanmar.
6. The researcher suggests that research scholars and institution could explore the impact of the military coup on students' learning attainment as well as the role of parents in their children learning.

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SPECIES PREVALENCE OF ENTEROBACTERIACEAE ON IRRIGATION WATER IN LA TRINIDAD, BENGUET

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ABSTRACT

Irrigation water has been a major player in providing one of the requirements in the production of various crops around the world but at the same time, it has the potential to be a direct source of contamination and a vehicle for spreading localized contamination in the fields, facilities or transportation environments on the production of fresh produce crops. This study was conducted to determine the prevalence of Enterobacteriaceae species in the irrigation water of strawberry farms in La Trinidad, Benguet. Modified multiple tube fermentation techniques was used such as MPN test, morphological characterization, biochemical tests, and molecular characterization. Results showed that 2 out 3 sampling points exceeded the allowable limit for fecal coliform count of 1,907 CFU/100ml and 743 CFU/100ml. Based on the IMVIC tests, the 2 strong lactose fermenting colonies are Escherichia coli and Enterobacter species. The results of the biochemical tests conformed with the results of the 16s rRNA sequencing. The results showed that indeed, the isolates are Escherichia coli and Enterobacter species specifically Enterobacter kobei.

Keywords: Enterobacteriaceae, coliform, fecal coliform, E. coli, E.

INTRODUCTION

Irrigation water plays an important role in providing one of the requirements in the production of various crops around the world but at the same time, it has the potential to be a direct source of contamination and a vehicle for spreading localized contamination in the fields, facilities or transportation environments on the production of fresh produce crops (Garcia et al., 2015; Malakar et al., 2019). Agricultural water has been pointed out as one of the major risk factors in the contamination of fresh produce, specifically crops that are eaten raw like leafy vegetables, lettuce, and strawberries (Biohaz, 2014). Incidence of foodborne pathogens on fruit and vegetables can be much higher in developing countries, particularly in countries in which irrigation with untreated or insufficiently treated wastewater is common. Pathogenic bacteria that are usually detected from contaminated irrigation water include *Campylobacter spp., Clostridium botulinum, Clostridium perfringens, enterotoxigenic Bacillus cereus, Escherichia coli* O157:H7 and other Shiga toxin–producing *E. coli, Listeria monocytogenes, Salmonella* spp*., Shigella* spp*.,* enterotoxigenic *Staphylococcus aureus, Vibrio cholerae*, and *Yersinia enterocolitica* (Gurtler & Gibson, 2022).

In the strawberry farms of La Trinidad, Benguet, sources of irrigation water come from water pumps, creeks, river, and some farmers rely on rainfall. However, as urbanization increases in the municipality and nearby areas, water sources are being contaminated caused by human activities (Sare et al., 2021). In 2020 census alone, the total population of the municipality was 137,404 with an increase of 6.41% from the 2015 census of 129,133 and expected to increase every year by 1.32% which means water sources are always subjected to contamination everyday by means of inclusion of wastewater coming from residential and commercial areas and subsequently being used by local farmers (Phil Atlas, 2023). The importance of this study is to provide benchmark data on the current microbiological status of irrigation used in the farms which can be used as reference/basis for policy making and provisions of management strategies.

STATEMENT OF THE OBJECTIVE

This study sought to isolate, detect, and identify species of Enterobacteriaceae based on morphology, biochemical, and molecular characterization.

MATERIALS AND METHODS

Study site

The study site is located within the Benguet State University owned and managed strawberry farms of La Trinidad, Benguet. Three sampling points were established which include sampling point 1 (SP1) is located at 16.457° Latitude 120.585° Longitude, sampling point 2 (SP2) is located at 16.456° Latitude 120.583° Longitude and sampling point 3 (SP3) is located at 16.454° Longitude 120.585° Longitude. The strawberry farm is approximately 20 hectares in area which mostly utilized for production of different agricultural crops such as strawberries and lettuce.

Figure 1. Map showing the sampling points of the study with the strawberry farms.

Sample collection

A sterile polyethylene (PET) bottles were used for the collection of water samples. The water collection was done early in the morning The PET bottle was dipped in the water to be rinsed by the water then it was dipped again and filled with the sample until it reached the cap. The bottle was sealed properly and put inside an ice box to maintain its temperature and was transported back to the research laboratory of the Biology Department, Benguet State University for laboratory analyses. In each identified sampling points, there are replicates collected. In total, there are 9 water samples analyzed.

Laboratory analyses

Modified multiple tube fermentation technique

In determining the coliform level of collected water samples, a modified Multiple Tube Fermentation Technique was used (Figure 2). This method is for the determination of the presence of a member of the coliform group in groundwater and surface water. The coliform group, as analyzed in this procedure, is defined as all aerobic and facultative anaerobic, gram-negative, non-spore-forming, rod-shaped bacteria that ferment lactose with gas formation within 48 hours at 35°C (Brandao et al., 2010).

Most probable number test. The Most Probable Number (MPN) test was used to estimate the concentration of viable microorganisms in a sample by replicating liquid broth growth in ten-fold dilutions. In each sample, one set of fermentation tubes, with inverted Durham tubes, composed of 5 tubes containing 5 ml of double-strength lactose broth (DSLB), 5 tubes containing 9 ml of single-strength lactose broth (SSLB), and 5 tubes containing 9.9 ml of SSLB, were sterilized in an autoclave at 15 psi (121°C) for 15 minutes.

After sterilizing, the sets were cooled to room temperature before being used. Water samples were mixed well before being added to the lactose broth. From one sample, 10 ml was aspirated and transferred to five tubes containing 5 ml of DSLB. Also, from the same sample, 1 ml was added to 5 tubes containing 9 ml of SSLB, then 0.1 ml to 5 tubes containing 9.9 ml of SSLB. After which, the tubes were incubated at 37 °C for 24 hours. After 24 hours of incubation, the tubes were monitored for gas production and bacterial growth. Negative tubes were re-incubated for up to 48 hours to rule out false negative results. The number of tubes that showed positive results were counted and compared to a standard chart, and the number of bacteria was estimated.

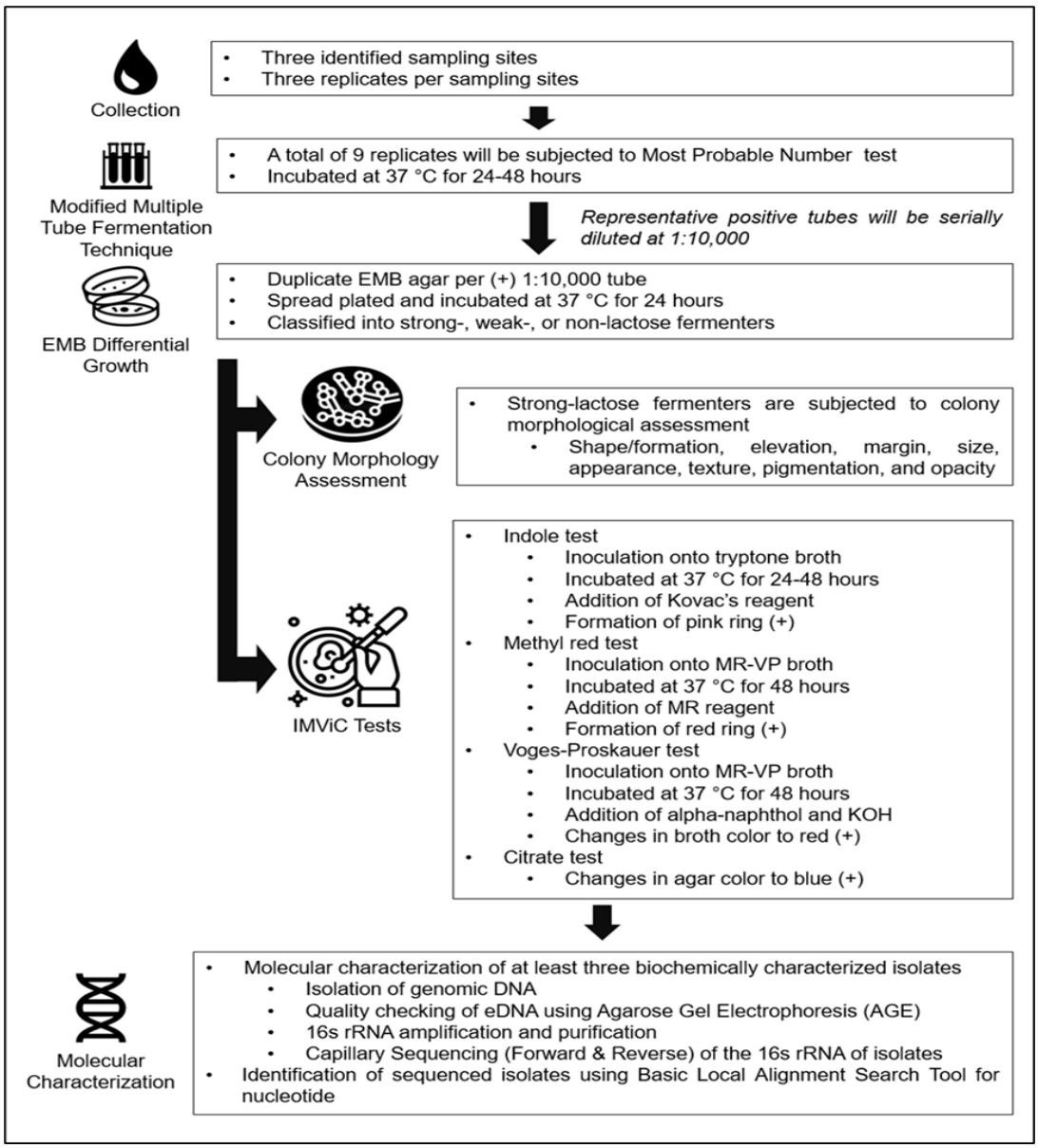

Figure 2. Flow chart of the methods used in the study

Eosin Methylene Blue agar differential growth. The positive tubes that exhibited gas production and growth were serially diluted to 1:10,000 (10-4). The serially diluted tubes were then spreaded onto sterile EMB agar plates for the differentiation of lactose fermenters. EMB agar is a selective, differential agar medium used for the isolation of gram-negative rods (LibreTexts, 2021). EMB contains lactose and sucrose, but it is the lactose that is key to the medium. The

EMB agar plates were incubated at 37 °C for 24 hours. After which, the colonies that grew on the surface of the agar were classified based on their capacity to ferment lactose. Lactose - fermenting bacteria (*E. coli*) produce acid from lactose use, and the combination of the dyes (which serve as pH indicators in this medium) produces color variations in the colonies because of the acidity. Strong acidity produces a deep purple colony with a green metallic sheen, whereas less acidity may produce a brown-pink colony. Non-lactose fermenters appear translucent or pink.

Colony morphological assessment. All colonies classified as strong-lactose fermenters were characterized by their colony morphology in terms of form and shape, elevation, margin, size, appearance, texture, pigmentation, and opacity.

Indole – acid - acetylmethylcarbinol production and citrate utilization. In characterizing the biochemical properties of the strong-lactose fermenters, the indole, methyl red, Voges- Proskauer, and citrate tests, or IMViC tests, was utilized. The IMViC test is a series of four different biochemical tests used in identifying and differentiating bacteria, especially the members of the Enterobacteriaceae. Though it can be (and is) used for the identification of any type of bacteria, it is mainly used for identifying Gram-negative bacteria. It is the key to identifying and differentiating members of the Enterobacteriaceae family (Dahal, 2022).

Indole test. The sample colony was inoculated in tryptone broth and incubated for 24 hours at 37 °C. Following incubation, a few drops of Kovac's reagent were added. The formation of a red or pink-colored ring at the top is taken as positive and recorded. Negative tubes were re-incubated for up to 48 hours to rule out false negative results.

Methyl red test. This test is conducted to determine the ability of an organism to produce and maintain stable acid end products from glucose fermentation. Some bacteria produce large amounts of acids from glucose fermentation that overcome the buffering action of the system. Methyl red is a pH indicator that remains red at a pH of 4.4 or less. The bacterium to be tested is inoculated into MR- VP broth and incubated at 37 °C for 48 hours. Over the 48 hours, the mixed-acid-producing organism must produce sufficient acid to overcome the phosphate buffer and remain acid. The pH of the medium is tested by adding 5 drops of MR reagent. The development of the red color is taken as positive. MR-harmful organisms produce a yellow color.

Voges-Proskauer test. The VP test detects butylene glycol producers. Acetyl- methyl carbinol (acetoin) is an intermediate in the production of butylene glycol. In this test, two reagents, 40% KOH and alpha-naphthol, were added to the test broth after incubation and exposed to atmospheric oxygen. If acetoin is present, it is oxidized in the presence of air and KOH to diacetyl. Diacetyl then reacts with the guanidine components of peptone in alpha- naphthol to produce a red color. The role of alpha-naphthol is that of a catalyst and a color intensifier. The bacteria tested were inoculated into MR-VP broth and incubated for at least 48 hours at 37 °C. A 0.6 ml of alpha-naphthol was added to the test broth and shaken. A 0.2 ml of 40% KOH was added to the broth and shaken. The tube was allowed to stand for 15 minutes. The appearance of red was taken as a positive test. The negative tubes were held for one hour since maximum color development occurs within one hour after adding reagents.

Citrate test. This test detects the ability of an organism to utilize citrate as the sole source of carbon and energy. The utilization of citrate involves the enzyme citritase, which breaks down citrate to oxaloacetate and acetate. Oxaloacetate is further broken down into pyruvate and CO2. Production of Na2CO3 and NH3 from sodium citrate and ammonium salt, respectively, results in alkaline pH. This results in a change of the medium's color from green to blue. In this test, bacterial colonies were picked up using a wire loop, inoculated into Simmon's citrate agar slope, and incubated overnight at 37 °C. If the organism can utilize citrate, the medium changes its color from green to blue.

The combination of results from IMViC test were used to identify species under Enterobacteriaceae present on the collected irrigation water. The table below (Table 1) will be used to identify the species based on the results of their biochemical properties.

Table 1. Response of few species under Enterobacteriaceae to IMViC tests.

Bacterium	I	MR	VP	C
Escherichiacoli	+	+	-	-
Enterobactercloacae	-	-	+	+
Enterobacter aerogenes	-	-	+	+
Klebsiella oxytoca	+	-	+	+

Molecular Characterization of Biochemically Characterized Strong Lactose Fermenters

A total of two biochemically characterized, strong lactose fermenters was subjected to 16s rRNA sequencing. 16S ribosomal RNA (rRNA) sequencing is a common amplicon sequencing method used to identify and compare bacteria present within a given sample (Tringe & Hugenholtz, 2008). The extraction of bacterial genomic DNA (gDNA) was carried out using an extraction kit following the manufacturer's protocol (Qiagen Extraction Kit). After the gDNA is extracted, the extracted DNA (eDNA) was then be subjected to quality checking using agarose gel electrophoresis (AGE), in which nucleic acid fragments are separated based on their sizes (Yilmaz et al., 2012). The fragments of eDNA were amplified and purified, after which the eDNA was subjected to capillary sequencing, in which the DNA fragments in the samples, each of varying length and containing numerous copies of genetic data, are chemically labeled with fluorescent material. The fragments are then passed through an array of narrow, gel-filled capillaries where an electric field is applied in a process known as electrophoresis. The array is then irradiated by a laser, by which the fluorescence in the DNA fragments is detected. The resultant data is then analyzed by a computer connected to the device.

Treatment of Data

All the data gathered was tabulated using the Microsoft Office programs Excel and Word. In the MPN test, the resulting values were compared to standard statistical tables for MPN. The MPN values were subjected to descriptive statistics such as averaging or means. The means were compared to determine if they conform to the standard value for Class B Classification of Fresh Surface Waters of the DENR Administrative Order 2016-08.

RESULTS AND DISCUSSION

Most probable number counts

Varied MPN counts were recorded from different sampling points with values ranging from 743 CFU/100ml to 1,907 CFU/100ml. From the three sampling points, SP 1 has the highest MPN count with an average of 1,907 CFU/100ml followed by SP 3 with 743 CFU/100ml while SP 2 have the lowest MPN count of 109 CFU/100ml (Figure 3). The high MPN count of SP 1 and SP 3 may indicate that the water has been contaminated with fecal materials. As observed, the water in SP 1 is a flowing black murky water and with foul odor. The water runs through an approximately 2- meter-wide concrete canal which serve as a water conduit of household wastewater as well as source of irrigation by farmers in the area. This is supported by the presence of black water hoses dipped in the water and connected to individual irrigation system of farms in the area. The usage of this fecal contaminated water poses a health risk to people specially to crops that are being eaten raw by tourist or consumers coming into the farm. Aside from the wastewater running in the canal, possible sources of fecal contamination are the using of animal manure specifically chicken dung by farmers that serve as additional soil fertilizer. In the case of SP 3, same with SP 1, the water was also murky with foul odor but stagnant which makes it more suitable for bacteria to multiply exponentially and contaminate the surrounding area.

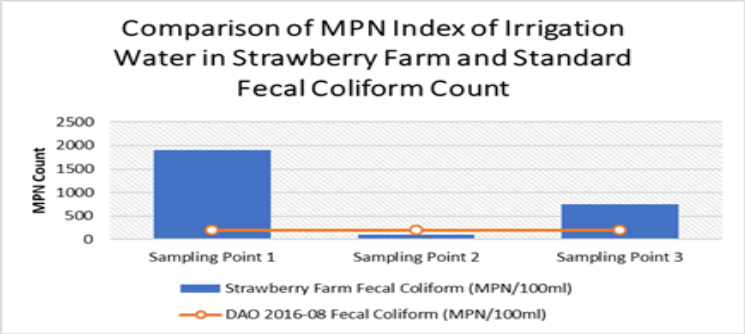

Figure 3. MPN counts of the three sampling points with comparison to DAO 2016-08

Both SP 1 and SP 3 have passed the fecal coliform standards set by the DENR Administrative Order 2016-08 for freshwater system used for irrigation (Class C). The limit for Class C fecal coliform is set to 200 CFU/100ml. This means that the water should not be used as irrigation for agricultural purposes. Because if used, there is a high risk of bacterial contamination of farm produce.

EMB differential growth

Positive tubes from the MPN test were serially diluted to 1:10,000 (10-4) and streaked on Eosin Methylene Blue (EMB) agar to detect and distinguish strong-lactose fermenters from weak- and non-lactose fermenting colonies.

Table 2. Number of bacterial colonies detected from water samples inoculated on EMB agar

Samples	Distinctcolonies	[1]Strong-Lactose FermentingColonies	[2]Weak-Lactose Fermenting Colonies	[3]Non-Lactose FermentingColonies
SP1R1	277	192	83	2
SP1R2	654	467	187	0
SP1R3	160	65	95	0
SP2R1	67	4	11	52
SP2R2	15	0	9	6
SP2R3	57	3	24	30
SP3R1	714	646	68	0
SP3R2	544	527	17	0
SP3R3	510	391	119	0

[1]Strong acid-producing bacteria include *Escherichia coli, Enterobacter* species
[2]Weak lactose fermenting bacteria include *Citrobacter freundii, Klebsiella spp., Klebsiella oxytoca, Klebsiella pneumoniae, Pantoea agglomerans*
[3]Non-lactose fermenting bacteria include *Pseudomonas spp., Proteus spp., Proteus vulgaris, Genus Shigella, Salmonella spp., Serratia spp.*

All the sampling points exhibited positive result with the exemption of SP1R2 with no *E. coli* or *Enterobacter* species detected but in general, SP2 is contaminated with *E. coli* or *Enterobacter* species but in minimal number in replicate 1 and replicate 3 with 4 and 3 colonies, respectively. Based on the results, SP3 have the highest *E. coli* or *Enterobacter* species count with an average of 589 colonies. The high *E. coli* or Enterobacter species count can be attributed to the stagnant state of the water during the collection which means the bacteria is only there and without means of movement from external factors, as the wastewater accumulate, the bacterial population also increases. Unlike in SP1, with 364 colonies, in which there is a flow of wastewater in the canal that means the bacterial population does not stay in one place which affected the number of bacteria during the sample collection. The water samples from the three sampling points contained weak lactose fermenting members of *Enterobacteriaceae*. Non-lactose fermenting members were present at lower frequencies from water samples in SP1 and SP3 but high colony count in SP2.

Colony Morphology

Only the strong-lactose fermenting colonies were subjected to morphological characterization. The two colonies exhibited pigmentation of dark purple (Colony #1) and dark purple with green metallic sheen (Colony #2) which is the diagnostic characteristics of *E. coli* (Table 3). Colony #1 is characterized as irregular in shape with raised colony elevation.

Also, their margin is undulate or with wavy in appearance. While Colony #2, they are circular in shape with convex elevation. The formation of a convex elevation in bacterial colonies is influenced by several factors, including the growth rate of the bacteria, the viscosity and nutrient content of the agar, and the production of extracellular matrix or biofilm. Also, their margin appeared to be entire. Moreover, both colonies exhibited glistening appearance, smooth texture and opaque.

Indole, Methyl Red, Voges-Proskauer, and Citrate Utilization (IMVIC)

In order to further identify the growths from the EMB agar, the IMVIC tests were carried out on strong lactose fermenting distinct colonies. IMVIC is a biochemical series of tests that determine specific reactions using culture media and chemical reagents to identify bacteria. However, these biochemical tests still have limitations in identifying bacteria; thus, further analysis of the bacteria like molecular characterization. Based on the results of the tests, there are two significant species (Table 4) identified which are *E. coli* and *Enterobacter aerogenes* / *Enterobacter kobei*.

Table 3. Morphological characterization of strong lactose-fermenting colonies

Samples	Colony Number	Shape	Elevation	Margin	Appearance	Texture	Pigmentation	Opacity
SP1R1	1	Irregular	Raised	Undulate	Glistening	Smooth	*	Opaque
SP1R2	1	Irregular	Raised	Undulate	Glistening	Smooth	*	Opaque
	2	Circular	Convex	Entire	Glistening	Smooth	**	Opaque
SP1R3	1	Irregular	Raised	Undulate	Glistening	Smooth	*	Opaque
SP2R1	1	Irregular	Raised	Undulate	Glistening	Smooth	*	Opaque
SP2R2	NO STRONG LACTOSE FERMENTING COLONIES							
SP2R3	1	Irregular	Raised	Undulate	Glistening	Smooth	*	Opaque
SP3R1	1	Irregular	Raised	Undulate	Glistening	Smooth	*	Opaque
	2	Circular	Convex	Entire	Glistening	Smooth	**	Opaque
SP3R2	1	Irregular	Raised	Undulate	Glistening	Smooth	*	Opaque
	2	Circular	Convex	Entire	Glistening	Smooth	**	Opaque
SP3R3	1	Irregular	Raised	Undulate	Glistening	Smooth	*	Opaque
	2	Circular	Convex	Entire	Glistening	Smooth	**	Opaque

Table 4. IMVIC tests of the two strong lactose fermenting colonies

Colony Number	Bacteria	I	MR	VP	C
1	*E. aerogenes/E. kobei*	-	-	+	+
2	*E. coli*	+	+	-	-

*Dark purple
**Dark purple with green metallic sheen

Based on the IMVIC tests, two bacteria were identified based on their reactions with the different tests. Colony number 1 tested both negative in indole and methyl red tests while tested both positive in Voges-Proskauer test and citrate utilization. Following the results of the tests, the colony number 1 is said to be *Enterobacter aerogenes* / *Enterobacter kobei*. On the other hand, colony number 2 tested both positive in indole and methyl red tests and tested both negative in Voges-Proskauer test and citrate utilization. The result combinations:

+,+,-,- is a typical reaction of E. coli to IMVIC.

Molecular Characterization of Biochemically Characterized Strong Lactose Fermenters

The two morphologically characterized and biochemically identified colonies were subjected to molecular characterization. The bacterial genomic DNAs (gDNA) have passed the quality checking and all amplicons were of good quality with single and intense band for each isolate with ~1500bp size target. The length of a complete 16s rRNA is ~1550bp.

The 16s rRNA gene sequencing analysis of the 2 isolates revealed that they belonged to the Enterobacteriaceae. The results of the biochemical tests of the isolates conformed with the sequencing results. The percent identity of the isolates to the NCBI gene sequences ranges from 96 to 98%. The percent identity describes how similar are the isolates' sequences to pre-deposited bacterial 16s rRNA gene sequences or how many characters in compared sequences are identical. Whereas the query cover percent describes how much of the isolates' sequences are covered in the pre- deposited (target) sequences in the NCBI database.

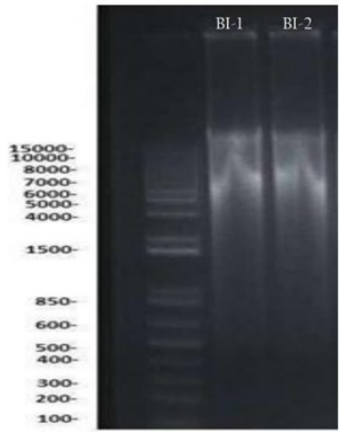

Figure 4. Agarose gel electrophoresis of 2 isolates.

Table 5. Identification of bacterial isolates using BLASTn (forward primer)

Isolate	Bacteria	% Identity	% Query Cover	Accession
BI-1	*Enterobacter kobei*	86	100	CP050073.1
BI-2	*Escherichia coli*	100	75	CP035320.1

Enterobacter kobei. It is a type of bacteria that belongs to the *Enterobacter genus*. It is commonly found in soil and water, and it can also be present in irrigation water (Naseem et al., 2022). In terms of its impact on irrigation water, *Enterobacter kobei* is generally considered to be a non-pathogenic bacterium, which means that it is not likely to cause disease in humans or animals. However, it is important to note that the presence of any bacteria in irrigation water can have a few different effects, depending on the specific circumstances. For example, if *Enterobacter kobei* is present in large quantities in irrigation water, it could potentially contribute to the growth of other bacteria or lead to biofilm formation in irrigation systems. This could, in turn, lead to clogging of irrigation lines or other problems that could affect the efficiency of the irrigation system. To minimize the potential impact of *Enterobacter kobei* in irrigation water, it is important to maintain good water quality and hygiene practices. This can include regular testing of water sources, ensuring that irrigation systems are properly cleaned and maintained, and taking steps to minimize the risk of contamination from other sources (such as animals or human activities).

Escherichia coli. It is a type of bacteria that is commonly found in the intestines of humans and animals. Most strains of *E. coli* are harmless and are beneficial to humans because they produce essential vitamins and help digest food. The presence of *E. coli* in irrigation water can be a cause for concern, as certain strains of the bacteria can cause serious illness in humans if ingested through contaminated water or food. The primary source of E. coli contamination in irrigation water is usually fecal matter from animals or humans, which can contain the bacteria. If *E. coli* is present in irrigation water, it can potentially contaminate crops that are irrigated with that water, increasing the risk of foodborne illness for anyone who consumes those crops (Holvoet et al., 2013). This can be particularly concerning for fresh produce that is consumed raw, such as lettuce, spinach, or tomatoes. To minimize the risk of E. coli contamination in irrigation water, it is important to maintain good water quality and hygiene practices.

CONCLUSIONS

In conclusion, the prevalence of Enterobacteriaceae in irrigation water from a strawberry farm in La Trinidad, Benguet highlights the importance of monitoring water quality for agricultural purposes. The study found that several species of Enterobacteriaceae, including *Escherichia coli* and *Enterobacter kobei*, were present in the irrigation water samples. This is a cause for concern, as certain strains of these bacteria can cause illness in humans if consumed through contaminated water or food.

The findings emphasize the need for farmers and other stakeholders in the agricultural industry to take proactive steps to minimize the risk of bacterial contamination in irrigation water. This can include regular testing of water sources, proper cleaning, and maintenance of irrigation systems, and implementing best practices for water management and hygiene.

Overall, this study highlights the potential impact of bacterial contamination in irrigation water on crop safety and food security. By taking steps to minimize the risk of contamination, farmers and other stakeholders can help ensure that the crops they produce are safe and healthy for consumption.

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THE TEACHING OF INDUSTRIAL ARTS IN THE DIVISION OF BATANGAS PROVINCE

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ABSTRACT

The study assessed the level of competencies of Grade 8 students in selected industrial art areas with the end goal of proposing supplementary learning materials. The study utilized descriptive qualitative-quantitative methods of research. A researcher-made questionnaire was the main data gathering instrument, complemented by a focus group discussion and interview. The subjects of this study were 81 industrial arts teachers from the four congressional districts in the Division of Batangas Province. In analysing quantitative data, statistical tools used were frequency count, weighted mean, and Pearson r. The study revealed that the majority of the Industrial Arts students as assessed by the IA teachers were moderately competent in terms of the competencies included in shield metal arc welding (SMAW), electrical installation and maintenance (EIM), and electronic products assembly and servicing (EPAS). The teaching strategies were also moderately utilized by the teachers in teaching industrial arts. There was a significant relationship between the selected Industrial Arts areas Hands-on activities and practical application were still considered the effective instructional delivery in teaching industrial arts. Finally, the supplementary materials, which were self-learning modules, could strengthen the learning competencies that were not fully met by the learners. The study recommended that the crafted supplementary materials be presented to the TLE supervisors for review and enhancement, after which they could be used in public junior secondary schools in the province.

Keywords: Industrial Arts, SMAW, EIM, EPAS, Supplementary Materials

INTRODUCTION

Education is one of the key components of the continuous progress and development of every nation. Education provides stability in life and can never be taken away. This will make them more productive and innovative members of society. To attain these objectives, quality education is very essential. In 2016, the Philippine educational system implemented the K–12 Enhanced Basic Education Curriculum, which was mandated by Republic Act No. 10533. It gave importance to the Technology and Livelihood Education (TLE) subject during high school, with the learner even obtaining a certificate of competency required by industries.

In Grades 7 and 8, TLE subjects are exploratory, which means that the learner is given the opportunity to learn five basic competencies, which are the use of tools and equipment, mensuration and calculation, maintenance of tools and equipment, interpretation of plans and drawings, and occupational health and safety in the workplace (DepED Curriculum Guide, 2012). To deliver quality instruction to the learners, the best learning modality was chosen wisely, considering the differences in the learners' abilities and needs. Such adjustments were made to successfully achieve the goal of continuous learning despite the educational disruption. Various distance learning modalities were used to encourage the learners to engage themselves in discovering and enhancing their abilities at home despite the limited learning resources, specifically for performance tasks.

Modular distance learning provides opportunities for open learning (Tugade, 2016). Modules are essentially self-contained and self-instructional packages that allow the learner to proceed in his or her studies according to his or her capacities and abilities. A well-designed module can significantly contribute to the effectiveness of the teachers and can enhance student learning. Hence, this kind of instructional material induces learning with minimal teacher lecture direction and supervision (Osadebe, 2013).

However, it was observed that there are challenges in teaching the Industrial Arts subject most especially in the new setting of teaching- learning process. Learners seemingly are having a hard time adapting and adjusting with this learning scenario. The education system is now in forefront to adapt the challenging changes. With the changes in the form of restructuring, education reform, reorganization or development, the aim is to increase the quality of education and to improve the quality of modern life.

The study by Haider (2018) revealed that there are existing challenges to using modular distance learning. These include the readiness of the learners for distance learning, the delivery and retrieval of curriculum packets, pupil achievement levels, and support services. This is the same scenario at the various schools in the country.

Hence, the need for supplementary activities has been found beneficial to enhance students' skills and competencies in several areas in Industrial Arts. This includes Shield Metal Arc Welding (SMAW), Electrical Installation and Maintenance (EIM), and Electronic Products Assembly and Servicing (EPAS). It could enhance students' skills and competencies needed in the industry, given the fact that they are the ones who will create their own knowledge and understanding about the objectives and concepts of each topic. The overall purpose of the study was to determine the level of competency of Grade 8 students. It also identified the utilization of teachers' strategies in selected industrial art areas. Based on the results, supplementary learning activities were crafted to help the teachers provide appropriate and effective teaching strategies to enhance the students' competencies.

OBJECTIVES OF THE STUDY

This study determined the level of competencies of Grade 8 students and the utilization of teachers' strategies in selected industrial art areas with the end goal of proposing supplementary learning materials. Specifically, this study aimed to:

1. Assess the level of competencies of Grade 8 students on the following Industrial Arts areas
   1.1 shield metal arc welding (SMAW)
   1.2 electrical installation and maintenance (EIM)
   1.3 electronic products assembly and servicing (EPAS)
2. Ascertain the extent of utilization of teaching strategies in the aforementioned variables
3. Relate the assessment on level the level of competencies of Grade 8 students and on the extent of utilization of teaching strategies
4. Determine the instructional delivery relative to learning task and learning tools
5. Prepare supplementary materials in Industrial Arts

METHODOLOGY

This research used a descriptive qualitative-quantitative method of research, with questionnaires, focus group discussions, and interviews as instruments for gathering quantitative and qualitative data. This method of research was utilized in order to determine the areas of industrial arts that need learning modules among public secondary schools in the division of Batangas.

The questionnaire served as the main tool for gathering information and were subjected to pilot testing and reliability testing. The data that was gathered was subjected to statistical treatment and was analysed and interpreted according to the statistical treatment needed. Focused group discussion was conducted to determine instructional delivery relative to learning tasks and learning tools. The participants were industrial arts teachers from various schools in the Division of Batangas.

FINDINGS

1. Level of competencies of Grade 8 students in Industrial Arts

One of the most important aspects of this Industrial Arts is helping the learners in identifying the challenges involved with working with materials and in conducting small-scale project management. Consequently, this will lead the teachers to analyze such challenge and determine the appropriate solution for it.

1.2 Electrical Installation and Maintenance.

The result shows that the majority of the students are moderately competent in storing the tools and materials in a proper place in accordance with manufacturer specifications or standard operating procedures. This indicates that the students have the knowledge to keep the tools and materials appropriately. It is worthy of note that the Industrial Arts subject helps the learners acquire the necessary knowledge and skills in terms of working. This result supports the idea of Garcia (2014) that these subject builds mastery of understanding information and the acquisition of correct work standards, skills, and competencies suitable for lifelong learning.

As future workers, it is necessary to develop such communication skills. This is related to the discussion of TESDA (2011) on the expected competencies that the students must acquire in Industrial Arts. One of these is to receive and respond to workplace communication. This refers to the knowledge, skills, and attitudes required to receive, respond, and act on verbal and written communication. This includes the preparation of a borrower's list of tools and materials.

Table 1: Level of Competencies of Grade 8 Students in Shielded Metal Arc Welding

Shielded Metal Arc Welding	W.M.	V.I.
store the tools and materials in proper place in accordance with manufacturer specifications or standard operating procedure	3.47	MC
observe safety work habits in the workplace	3.42	MC
remove unnecessary things in the workplace to avoid accidents	3.42	MC
observe safety protocols inside the workplace	3.38	MC
identify the necessary tool, materials and equipment according to plans	3.37	MC
maintain tools and equipment by using lubricants	3.33	MC
prepare borrowers list of tools and materials	3.28	MC
clean weld surfaces using steel brush and file	3.27	MC
measure the dimensions of a given specific object	3.25	MC
prepare functional action plan for an identified hazard	3.18	MC
interpret the given drawing and sketches	3.18	MC
determine welding materials based on technical drawings	3.15	MC
perform good and strong tuck weld	3.12	MC
determine the best technique to weld	3.10	MC
cut metal using oxyacetylene based on the given measurement	3.00	MC
Composite mean	**3.26**	**MC**

*Legend: *MC – Moderately Competent, VI-Verbal Interpretation, * WM-Weighted Mean*

In addition, Grade 8 students are considered moderately competent in Shielded Metal Arc Welding with a composite mean of 3.26. This is a good indication that the Industrial Arts subject is equipping the students with all expected competencies, but it must be enhanced further for them to acquire the necessary expertise. Gregorio (2016) explains that Industrial Arts Instruction provides vocational expertise and develops critical thinking among students; its main objective in the school is the students' potentials, competencies, and skills in making projects and hands-on activities inside and outside of the classroom.

1.2 Electrical Installation and Maintenance. Lessons on electricity include inspecting, testing, and repairing electrical equipment as necessary to prevent problems that could lead to a loss of power or an electrical fire. One of the areas in Industrial Arts is Electrical Installation and Maintenance.

Table 2: Level of Competencies of Grade 8 Students in Electrical Installation and Maintenance

Electrical Installation and Maintenance	W.M.	V.I.
store tools and equipment in their proper places	3.62	HC
observe health and safety periodic preventive maintenance of electrical tools and equipment	3.48	MC
use appropriate measuring devices/tools for specific tasks	3.48	MC
identify necessary tools, materials/equipment according to blueprints of electrical plans, diagrams and circuits	3.48	MC
select appropriate electrical measuring tools and instruments	3.45	MC
check the condition of tools and equipment before and after use	3.38	MC
prepare accurate inventory reports of tools and equipment	3.38	MC
show proper handling of drilling tools	3.38	MC
analyze electrical components/materials based on electrical signs, symbols and data	3.35	MC
prepare electrical installation materials and tools for specific task	3.33	MC
choose the right tools to be used based on the blueprints of electrical plan	3.33	MC
prepare tools and materials to construct electrical plan	3.30	MC
lubricate tools and materials after use	3.30	MC
read and interpret blueprints of electrical plans, diagrams and circuits	3.18	MC
trouble shoot simple electric circuits	3.10	MC
Composite mean	**3.37**	**MC**

Legend: *MC – Moderately Competent, VI-Verbal Interpretation, * WM-Weighted Mean

Reflected in the table, the majority of the students are highly competent in storing tools and equipment in their proper places. This means that these learners are aware of the basic etiquette of working, which is organizing things appropriately. Through this subject, they are able to develop the proper values in working, which will help them become successful in any life's endeavor. This finding adheres to the idea of Hermosa (2015) that the goal of practical activities in any industrial art areas is to improve learners' abilities in making or producing meaningful outputs that are useful in their everyday life. Improving the work from what they have experienced helps them create better practical works.

Generally, the students are moderately competent in Electrical Installation and Monitoring, with a composite mean of 3.37. This indicates that they have already acquired the necessary skills and competencies in this area of the Industrial Arts subject; however, it must still be further enhanced. One way of achieving this is by providing them with appropriate supplementary materials that will equip them with more advanced skills. During the interview, the interviewee shared that teaching EIM in this situation has become a challenge. To provide continuous learning to the learners, learning activity sheets were provided that contain topics related to the competencies to be achieved. Along with that, there are activities that encourage learners to perform tasks similarly to the actual hands-on activities to be accomplished, but it is only different in a way that the materials to be used are representations of each material needed, and also, it ensures that the learners are safe while working at home. Moreover, DepEd Order No. 12, s. 2020 discusses that the preparation of supplementary learning materials is crucial to provide learners with high-quality content. It requires learners to stay motivated and engaged in learning in the long run. It is not a one-and-done experience; instead, it needs constant improvement so that the shelf life of even the best learning can extend from a few months to over years.

1.3. Electronic Products Assembly and Servicing

Industrial education also includes training in assembling electronic products. The Electronic Products Assembly and Servicing Qualification consists of competencies that a person must possess to assemble electronic products, prepare printed circuit boards (PCB) modules, and install and service consumer and industrial electronic products and systems.

The students are moderately competent in applying creativity/innovation to develop electronic products acceptable in the market and in performing basic calculations needed in work tasks. However, it was ranked as third in the least among the competencies, indicating that teachers must help their students in this area. It is very important that the learners have the knowledge and skills in innovation and modernization, particularly in developing electronic products acceptable in the market and in performing basic calculations.

Table 3: Level of Competencies of Grade 8 Students in Electronic Products Assembly and Servicing (EPAS)

Electronic Products Assembly and Servicing	W.M.	V.I.
clean measuring instruments before and after using in accordance to the specific rule of the manufacturer	3.43	MC
observe safety rules including the proper use of PPE inside the laboratory shop	3.43	MC
remove unnecessary things in the workplace to avoid accidents	3.43	MC
keep proper label of tools and materials according to its purpose	3.42	MC
follow shop rules to maintain safe working environment	3.40	MC
handle the measuring instruments carefully	3.37	MC
accomplish the form needed in receiving tools and materials	3.33	MC
prepare tools and materials needed in basic repair of cellphone, washing machine, radio, electric fan etc.	3.30	MC
apply creativity/innovation to develop electronic products acceptable in the market	3.23	MC
perform basic calculation needed in work tasks	3.23	MC
select appropriate measuring instrument in repairing cellphone, washing machine, radio, electric fan etc.	3.22	MC
create a smart plan of action that ensures success of his/her business/career choice related to EPAS	3.18	MC
Composite mean	**3.33**	**MC**

Legend: *MC – Moderately Competent, VI-Verbal Interpretation, * WM-Weighted Mean

As mentioned by Volk (2020), makerspace facilities in schools are now being innovated as a way to encourage students in real-world problem-solving and exploration with real tools, materials, and processes. This is also aligned with the conclusion that facilitators of knowledge must instruct learners to provide uniformity in instructional content and the act of the students and establish an organized workplace and sequential procedures in instruction that may improve the quality of instruction and the achievements of the students.

In conclusion, students exhibit moderate competence in the Electronic Products Assembly and Servicing competencies. This highlights the significant support provided by the Industrial Arts subject in enabling learners to acquire essential skills and competencies in this field. However, there is a need for further improvement and development. One effective strategy involves providing tailored supplementary learning materials that align with specific competencies, emphasizing the qualitative nature of competencies, which are crucial for success in courses or chosen career fields. Tatlonghari (2014) underscores the qualitative aspects of competency, emphasizing the importance of skills, behaviors, and knowledge for success.

2. Extent of utilization of strategies in teaching Industrial Arts.

Using the appropriate teaching methods and strategies will result in an effective teaching-learning process. The table illustrates that demonstration teaching or modeled teaching is highly utilized in the teaching of Industrial Arts subjects. This outcome indicates that it is the most prevalent and effective method in Technology and Livelihood Education (TLE), facilitating the essential teaching-learning processes of the subject. This approach provides both teachers and learners with opportunities to apply the acquired knowledge in their daily lives. Hermosa (2015) emphasized that the objective of practical activities in industrial arts is to enhance learners' abilities in creating meaningful and useful outputs for their everyday.

Alvarez (2020) mentioned that gearing towards providing the basis for faculty development and program enhancement is as follows: before the start, administration should initiate conducting proper orientation to both teachers and students, implement collaborative planning where teachers are suggested to design and work on providing group activities, and maximize the use of the Learning Management System (LMS) by having the freedom to utilize the resources by providing supplementary learning resources and/or activities beyond the minimum standards for instruction and assessment purposes. authentic learning, which enables students to learn about concepts in a real-life environment, and parent and community engagement to allow learners to learn at their own paces were only moderately utilized in teaching industrial arts. This implies that these teaching methods were not commonly used by the teachers, probably because the learners were learning at home. The teachers cannot control the learning of their students, which makes the teaching-learning process very challenging. They are still looking for the best way to teach using the existing learning modality. Ervin (2019) explained that this current reshaped educational culture has yet again modified the learning context, leading to the innovation of a new blend in blended learning, one that is a mixture of online asynchronous with online synchronous,

utilizing videoconferencing and webinar tools such as Zoom. In response, educators continue to pursue information for effective instructional practices to engage students in the learning process.

Table 4: Extent of Utilization of Strategies in teaching Industrial Arts

Teaching Strategies	W.M.	V.I.
Demonstration teaching or modelled teaching	3.58	HU
Lecture and Discussion method as initial fuel and energy booster	3.57	HU
Cooperative Learning for active and maximum class participation	3.53	HU
Practical Assessment for the purpose of assessing learners' basic skills and competencies using measuring tools	3.53	HU
Project-based learning to which students spends time on single project to gain in-depth knowledge about the given task	3.52	HU
Series of guide questions to gear learners in specific topic such as the use of PPE	3.52	HU
Localization of learning resources specifically in dealing with materials used in welding	3.52	HU
Direct Instruction or Explicit Teaching in discussing basic concepts in electricity	3.50	HU
Authentic learning enables students learn about concepts in real-life environment	3.47	MU
Parent and Community Engagement to allow learners to learn on their own paces	3.47	MU
Instructional Video presentation in teaching different techniques in welding	3.42	MU
Use Google Meet, Zoom or OBS Studio to teach learners different techniques in lubricating tools and materials used in electricity	3.40	MU
Game-based Learning using online games on the proper selection of measuring tools	3.25	MU
Composite Mean	**3.48**	**MU**

Legend: * HU-Highly Utilized, MU – Moderately Utilized, VI-Verbal Interpretation, * WM-Weighted Mean

In relation to this, the study of Dotong et al. (2016) also illustrates some limitations of ICT integration in the Philippines, such as a shortage of ICT facilities, poor maintenance of available or existing ICT resources, and a lack of ICT budget. There are still areas in rural areas where a reliable supply of electricity and internet is miles away to achieve. Thus, it inhibits and affects the capability of teachers to become skillful in the use of ICT in blending with teaching and learning.

3. Relationship of assessment between level of competencies of Grade 8 students and the extent of utilization of teaching strategies

This table shows the correlation between the level of competencies of Grade 8 students in Electrical Installation and Maintenance (EIM), Shielded Metal Arc Welding (SMAW), and Electronic Products Assembly and Servicing (EPAS) and the extent of utilization of various teaching strategies.

Table 5: Correlation between the Assessment on the Level of Competencies of Grade 8 Students and on the Extent of Utilization of Teaching Strategies

	r - value	*p*-value	Decision on H0	Interpretation
EIM	0.749	.000	Reject	Significant
SMAW	0.817	.000	Reject	Significant
EPAS	0.758	.000	Reject	Significant

The table shows that there was significant relationship between the level of the students' competencies in Electrical Installation and Maintenance (EIM) and the extent of utilization of teaching strategies. This was confirmed by the computed r = 0.749 with a corresponding p- value of 0.000 indicated significant relationship. This suggests that the teaching strategies utilized by teachers significantly contribute to the acquisition of competencies by students. Students tend to learn more effectively when teachers employ appropriate teaching strategies, such as demonstration. As explained by Zablan (2020), it is crucial that teachers, during the demonstration of a process, provide cautionary guidance to students regarding steps in a skill where they commonly make mistakes or may overlook.

The table also illustrates a significant relationship between the students' competencies in Electronic Products Assembly and Servicing (EPAS) and the extent of utilization of various teaching strategies. This relationship is supported by the computed correlation coefficient (r) of 0.749 with $p < 0.01$. The result suggests that the students' learning and understanding of the various lessons in EPAS are influenced by the teaching strategies employed by their teachers. This aligns with Hermosa's (2015) notion that teachers are expected to be inventive and resourceful in their teaching to enhance student learning.

The development of cognitive skills depends on the student environment, teacher behavior, and motivation.

In conclusion, the teaching strategies employed by teachers have a significant impact on the learning outcomes of the students. Teachers need to be flexible and creative, using the most effective methods that cater to the learning needs and conditions of their students. Gregorio (2016) emphasized that Industrial Arts instruction aims to provide vocational expertise and develop critical thinking among students, focusing on unlocking students' potentials, competencies, and skills through hands-on activities. Teachers play a crucial role in guiding students to enhance their skills and competencies.

4. Instructional deliveries relative to learning task and learning tools in teaching Industrial Arts

In this study, the researcher conducted a focused group discussion, collecting data by posing relevant questions to participants regarding their experiences, opinions, and suggestions. The participants consisted of Industrial Arts teachers from different schools in the Division of Batangas. The gathered data and information were then comprehensively summarized.

Learning Tasks. To gain a deeper understanding of the actual teaching of the Industrial Arts subject, a Focus Group Discussion was conducted with selected Industrial Arts teachers as participants. The discussion addressed various issues and challenges related to the learning tasks and activities provided to the students.

It was found out that for the previous years, the competencies expected in various learning areas of Industrial Arts were not fully met.

> *"For the past 2 years, no, the competencies expected in EIM were not met. EIM requires performance tasks for example connection/ commissioning and also wiring which are classified as one of the procedures in wiring installation. During this pandemic, learners were not able to perform hands- on tasks due to unavailability of tools, equipment and materials at home." R1*

It was disclosed during the discussion that teaching the subject in the current situation posed a considerable challenge. Due to the hands-on nature of the subject, it demands activities that need close monitoring by the teachers. In order to ensure continuous learning for the students, learning activity sheets were distributed, encompassing topics related to the competencies to be achieved.

> *"Teaching EIM in this situation has become a challenge. To provide continuous learning to the learners, learning activity sheets were provided that contains the topics related to the competencies to be achieved. Along with that, are the activities that encouraged learners to perform tasks similarly to the actual hands- on activities to be accomplished but is only different in a way that the materials to be used are representation of each materials needed and also, provided that the learners are safe while working at home."R3*

Additionally, the activities included in the learning sheets encouraged learners to engage in tasks resembling the actual hands-on activities. However, there was a modification in a way that the materials used were representative of the required materials. It was also emphasized that these activities were designed to ensure the safety of learners while working at home.

This implies that, as Electrical Installation and Maintenance (EIM) involves performance tasks like connecting/commissioning and wiring, which are categorized as procedures in wiring installation, students encountered difficulty in completing the learning tasks. In the previous year, learners were unable to perform hands-on tasks due to the unavailability of tools, equipment, and materials. These factors contribute to the observation that the expected competencies were not fully met.

Additionally, the activities included in the learning sheets encouraged learners to engage in tasks resembling the actual hands-on activities. However, there was a modification in a way that the materials used were representative of the required materials. It was also emphasized that these activities were designed to ensure the safety of learners while working at home. Additionally, the activities included in the learning sheets encouraged learners to engage in tasks resembling the actual hands-on activities. However, there was a modification in a way that the materials used were representative of the required materials. It was also emphasized that these activities were designed to ensure the safety of learners while working at home.

Learning Tools. The importance of tools, equipment and facilities in delivering the learning task was also discussed. One of the main considerations in teaching Industrial Arts subject was on the learning tools that are being used by the teachers.

According to the participants, all of these are very essential in delivering the learning task, as they help learners participate actively in class. If those are provided, learners are encouraged to perform the task with curiosity and eagerness to learn. It gives learners the opportunity to develop their skills in doing the particular tasks assigned.

> *"Tools, equipment and facility are important in delivering the learning task for it will help learners to participate actively in class. If those are provided, learners will be encouraged to perform the task with curiosity and eagerness to learn. It will give learners the opportunity to develop their skills in doing the particular tasks assigned."R8*

This signifies that learning tools play a very critical role in teaching this subject. It may be because they identify the different ways and equipment that teachers use in teaching. It significantly affects students' learning and performance; hence, it must be given proper attention and consideration in preparing the lesson.

It is revealed that different strategies are applicable with ICT. This implies that teachers should choose tasks that involve class participation and interaction/communication with one another, such as providing interactive activities, online quizzes, or games related to the competency to be achieved. This will lead to a more interesting and effective teaching-learning experience.

Finally, preparation of supplementary teaching materials was also discussed within the group. Majority of the participants agreed that a learning module can be an effective learning material in addressing the learning gaps in teaching the Industrial Arts subject particularly in SMAW, EIM, and EPAS.

The preparation of supplementary teaching materials was also discussed within the group. Majority of the participants agreed that a learning module can be an effective learning material in addressing the learning gaps in teaching the Industrial Arts subject particularly in SMAW, EIM, and EPAS.

Various questions were raised to identify the different factors that must be considered in preparing a learning module. During the discussion, some important elements of a module were given and identified by the participants. One of the participants thoroughly explained about it.

> *"When preparing a module, there are several important elements that should be included to ensure its effectiveness and coherence like clearly defining learning objectives, have a content outline. Determine what particular instructional method and strategies that will be employed to facilitate learning. Design assessments or quizzes to evaluate learners' understanding and progress throughout the module."R7*

> *"As teachers we need to provide clear criteria and rubrics for grading or providing feedback to ensure consistency and fairness. Incorporate interactive and engaging activities that promote active learning and application of knowledge. These can include problem-solving exercises, case studies, simulations, role-playing scenarios, or collaborative projects. Provide clear and concise instructions for each learning activity or task. Clearly communicate the expectations, guidelines, and deadlines to help learners navigate the module effectively. The specific elements and their implementation may vary depending on the subject matter, target audience, and the delivery platform or learning management system being used."R2*

This response reflects that determining the topics to be included in crafting a module requires careful considerations of the learning goals, target audience, and the scope of the subject matter. Topics can be prioritized based on their relevance, importance, and sequencing. The logical flow and progression of concepts must also be considered. At the end, it was suggested that it will be better to start with foundational topics before moving on to more advanced or specialized areas. The teachers must choose topics that are engaging and relevant to the learners. The learners' backgrounds, interests, and real-world application of the subject matter must also be considered. This will help maintain the motivation and interest of the learners while answering the module.

Generally, the FGD results agree with the ideas of NASPA (2014) that educational institutions at present have to be very intentional in their efforts by identifying the most critical need areas, bringing together the appropriate stakeholders, strategically leveraging resources, and thinking creatively about how to serve students. Common responses of the participants were that they use a collaborative ap-

proach with different strategies. Given the challenging situations, participants in the FGD collectively expressed their concern in implementing the Blended Learning set-up. The study conducted by Tshabalala (2014) found that blended-based instruction has the potential to bring teaching and learning flexibility and promotes learning independence and opportunities for networked learning and accessibility for both teachers and students. This new blend is partially asynchronous online delivery and partly synchronous instruction.

5. Supplementary materials in Industrial Arts

In order to improve the performance of students in Industrial Arts, appropriate supplementary materials, such as Self-Learning Modules, must be provided. These learning materials should be interesting and accessible to the students, aiding them in enhancing their various competencies effectively. Industrial Arts education promotes lifelong learning patterns for living and working effectively in a changing technological environment. This implies that teachers must create an effective hands-on environment with technological tools, materials, and processes to transform concepts and ideas into goods and services.

One of the ultimate goals of teaching the Industrial Arts subject is to cultivate mastery among students in understanding information, acquiring correct work standards, and developing skills and competencies suitable for lifelong learning. As emphasized by Garcia (2014), learners are grounded in cognitive, affective, and psychomotor dimensions of individual growth. It is not merely a part of a course; rather, it encompasses knowledge and information on work ethics essential for making intelligent choices in an occupation and for training in education. This can be achieved by providing them with quality learning materials that are carefully planned and by continually engaging in worthwhile efforts to conduct studies to further enhance the students' competencies.

One crucial step toward achieving this goal is the creation of Self-Learning Modules tailored for learners, supplementing the main module provided by the school to bolster competencies that were not fully met. The findings of the study reveal that these modules emphasize significant activities and discussions, utilizing paper-and-pencil worksheets, incorporating technology like watching downloadable videos, and creating self-made content videos. Most importantly, 'hands-on' activities are integrated into these Self-Learning Modules, aiming to strengthen the competencies that learners may not have fully achieved.

CONCLUSIONS

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

1. The majority of the Grade 8 students were moderately competent in terms of the competencies included in Shielded Metal Arc Welding (SMAW), Electrical Installation and Maintenance (EIM), and Electronic Products Assembly and Servicing (EPAS).

2. The teaching strategies were moderately utilized by the teachers in teaching the Industrial Arts subject.

3. There was a significant relationship between Shielded Metal Arc Welding (SMAW), Electrical Installation and Maintenance (EIM), and Electronic Products Assembly and Servicing (EPAS) and the extent of utilization of teaching strategies variables tested.

4. The hands-on activities and practical applications were still the most effective instructional deliver ies relative to learning tasks and learning tools in the Industrial Arts subject.

5. The supplementary materials, which were Self-Learning Modules, aimed to strengthen the learning competencies that were not fully met by the learners.

RECOMMENDATIONS

The following recommendations are offered to help improve the teaching of the three component areas of Industrial Arts under study:

1. The crafted Self-Learning Modules may be presented to TLE supervisors for review and enhancement, after which they may be implemented in public junior secondary schools in the province.
2. The Industrial Arts teachers may further enhance their teaching of the competencies included in Shield Metal Arc Welding (SMAW), Electrical Installation and Maintenance (EIM), and Electronic Products Assembly and Servicing (EPAS) through the crafted supplementary materials.
3. Seminars, trainings, and workshops on teaching the competencies included in Shield Metal Arc Welding (SMAW), Electrical Installation and Maintenance (EIM), and Electronic Products Assembly and Servicing (EPAS) may be conceptualized and conducted for IA teachers.
4. Similar studies using the same set of variables may be conducted in junior high schools of other divisions.

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TOPONIMIKAL NA PAG-AARAL NG MGA BAYAN SA UNANG DISTRITO NG BOHOL
(TOPONYMICAL STUDY OF TOWNS NAME OF THE FIRST DISTRICT OF BOHOL)

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ABSTRACT

The primary objective of this study is to explore the folk narratives and myths surrounding the origins of the names of towns within the First District of Bohol province, Philippines. The research encompassed an investigation into towns such as Alburquerque, Antequera, Baclayon, Balilihan, Calape, Catigbian, Corella, Cortes, Dauis, Loon, Maribojoc, Panglao, Sikatuna, Tagbilaran, and Tubigon. The aim was to gauge the awareness levels among residents regarding the etymology of their town names. Both qualitative and quantitative analyses were employed, utilizing a custom questionnaire validated through Chronbach's Alpha Test, yielding excellent reliability. It was found out that town names often originated from various sources including the moral character of inhabitants, geographical features, local heroes, foreign locales, livelihood of the people, and plants native to the place. In conclusion, local folklore significantly influences cultural identity, fostering a connection to nature, safeguarding heritage, promoting community values, and preserving historical and belief systems.

INTRODUKSIYON

Ang Bohol ay sagana sa mga kuwentong-bayan. Ang mga kuwentong-bayan sa lalawigan na ito ay naglalarawan ng mga aktibidad ng komunidad, mga pagtitipon ng pamayanan, at mga ritwal na binabahagi. Ito ay bahagi ng espesyal na kultura ng probinsya.

Ang pagtitipon ng mga kuwentong-bayan at iba pang uri ng panitikan ay nagpapalalim sa ating pagunawa sa ating panitikan na nagpapakita ng ating kultural na identidad (Lauder, et.al, , 2015). Ito ay isang bahagi ng ating Boholano na kultura.

Ang Bohol ay may likas na katangian, at ang mga taong naninirahan dito, pati na rin ang lipunan at kultura na kanilang binuo, ay ilan lamang sa mga salik na nakaimpluwensya sa uri ng mga kwentong-bayan na nabuo sa tiyak na panahon ng kanilang buhay at pati na rin sa antas ng pag-unlad ng kanilang kultura (Light, 2014).

Sa kabuuan, ang mga Boholano ay mayroong likas na pagkahilig sa pagkukuwento ng mga buhay, bagay, pamumuhay, lipunan, pamahalaan, at iba't ibang karanasang nauugnay sa iba't ibang uri ng damdamin na karaniwang ipinapakita sa kanilang pagpapahalaga sa kanilang lugar. Manipestasyon ito ng realidad ng buhay at maging ng kaluwalhatian ng diwa, damdamin at personal na karanasan ng isang tao (Rose-Redwood, et al, 2010).

Ang kahalagahan ng mga kwentong-bayan sa isang tiyak na lugar ay nagpapakita ng kabuuan ng kultura ng nasabing lugar (Herman, 1999), at ang kultura ay nagrerefleksyon sa buhay ng mga taong naninirahan doon (Ainiala, 2016). Ngunit sa paglipas ng panahon, unti-unti nang nawawala ang interes ng mga tao sa mga kwentong-bayan (Higman & Hudson, 2009). Marahil ay dulot ito ng ating pagkahumaling sa modernong teknolohiya at iba pang aspeto ng Lipunan (Aldrin, 2016). Sa mabilis na pagbabago ng panahon, mahirap na nating balikan at maunawaan ang ating mga pinagmulan bilang mga indibidwal. (Jepson, 2011). Lubos na nag-aalala ang mga mananaliksik sa aspektong ito dahil unti-unti nang

nawawala ang ating pagkakakilanlan bilang mga Boholano. Hindi na natin napapahalagahan ang kultural na aspeto lalo na ang mga kwentong-bayan na itinuturing na salamin ng ating buhay (Cowell, 2004).

Interesado ang mananaliksik ng mga kuwento ng pinagmulan ng pangalan ng mga bayan sa Unang Distrito ng Bohol. Layunin ng pag-aaral na suriin ang mga kwentong-bayan na ito upang alamin ang mga kuwento ng buhay ng mga ninuno at maunawaan ang mga pinaniniwalaang pinagmulan ng mga katawagang ito. Hangad ng pagsasaliksik na mapreserba ang mga natuklasang kwentong-bayan na maaaring ipamahagi sa mga susunod na henerasyon at maipakilala sa mga mag-aaral sa Bohol upang mapaigting ang kanilang pambansang identidad at kamalayan. Makatutulong din ito sa mga guro sa kanilang pagtuturo sa loob ng silid-aralan at magbibigay ng mas malalim at kawili-wiling partisipasyon at interaksiyon sa mga mag-aaral dahil ito'y mga kwento mula sa kanilang sariling lugar. Bukod dito, magiging malaking ambag ang pananaliksik na ito sa larangan ng panitikang panlalawigan at magsisilbing mahalagang sanggunian ng mga guro tungkol sa mga kwentong panlalawigan. Sa pamamagitan nito, mabibigyang-diin ang pagpapahalaga sa sariling panitikan na nagbubuo sa pagiging makabayan ng bawat mamamayan.

ANG SULIRANIN

Paglalahad ng Suliranin

Ang pangunahing layunin ng pag-aaral na ito ang makalap at masuri ang pagpapahalaga at kaalaman ng mga mamamayan sa mga kwento ukol sa pinagmulan ng pangalan ng mga piling bayan ng Bohol. Titiyakin ng mananaliksik na matugunan at masagot ang mga sumusunod na katanungan:

1. Ano ang pinagmulan ng pangalan ng mga bayan sa Unang Distrito ng Bohol?
2. Ano ang antas ng kaalaman ng mga respondente ukol sa pinagmulan ng pangalan ng kanilang bayan?
3. Saan hinango ang pangalan ng mga bayan sa Unang Distrito ng Bohol?

METODOLOHIYA

Disenyo ng Pananaliksik

Ginagamitan ang pag-aaral na ito ng kwalitatibo at kwantitatibong pamamaraan. Ginamitan din ang pananaliksik ng pamaraang deskriptibo o palarawan mula sa mga nakalap na mga kwentong-bayan sa mga piling bayan ng Bohol. Bumuo ang mananaliksik ng talatanungan upang makuha ang impormasyon tungkol sa bayan nila. Ginagamit din ng mananaliksik ang mga kwentong nakalap mula sa mga pag-aaral ng mga guro noong 1990s sa mga bayan ng Alburquerque, Antequera, Baclayon, Balilihan, Calape, Catigbian, Corella, Cortes, Dauis, Loon, Maribojoc, Panglao, Sikatuna, Tagbilaran, at Tubigon. Ang mga nakuhang datos ay nilikom para sa kompilasyon at dokumentasyon. Ang mga natitipong kwentong-bayan ang siyang ginagamit upang maisasagawa ang kritikal na pagsusuri sa mga datos ng pag-aaral at bubuo ng isang kwentong bayan na kakatawan sa isang bayan ng Bohol.

Paraan ng Pananaliksik

Ang pag-aaral ay ginagamitan ng talatanungan at ibinigay sa mga respondente sa mga nabanggit na mga bayan. Ginamit din ang mga kwentong nakalap ay mula sa mga aklat na naipalimbag ng mga guro at Pandistritong Tagamasid sa taong 1990 na nakalagay ngayon ang mga aklat na ito sa Bohol Provincial Library. At upang mapatunayan ang katumpakan ng mga kwentong ito ay nagbibigay ng talatanungan sa mga respondente ng mga nabanggit na bayan. Pagkatapos ay sinuri ang mga nakalap na datos.

Respondente ng Pananaliksik

Ang mga repondente ng pananaliksik na ito ay mga piling mag-aaral at guro ng piling pampublikong pansekondaryang paaralan ng Alburquerque, Antequera, Baclayon, Balilihan, Calape, Catigbian, Corella, Cortes, Dauis, Loon, Maribojoc, Panglao, Sikatuna, Tagbilaran, at Tubigon.

Pumili ang mananaliksik ng 28-30 respondente sa bawat piling bayan ng Bohol sa pamamagitan ng “snowball sampling” kung saan nagtakda ang mananaliksik ng mga kriterya sa pagpili ng magiging kalahok. Sa kabataaang may edad 20 pababa ay may 150 respondente, sa mga mga may edad 21-40 ay

may 150 respondente, at sa may edad 41 pataas ay may 150 respondente sa kabuuang 450 respondente ang pananaliksik na ito.

Lugar ng Pananaliksik

Isinasagawa ng mananaliksik ang pag-aaral na ito sa siyam na piling bayan ng Bohol. Ang mga bayang ito ay ang Alburquerque, Antequera, Baclayon, Balilihan, Calape, Catigbian, Corella, Cortes, Dauis, Loon, Maribojoc, Panglao, Sikatuna, Tagbilaran, at Tubigon. Ang pinagkunan ng datos ay mula sa nabanggit na mga bayan ng naturang probinsya. Ang unang Distrito ng probinsya ng Bohol ay may 15 na bayan at ito ay ang mga sumusunod Alburquerque, Antequera, Baclayon, Balilihan, Calape, Catigbian, Corella, Cortes, Dauis, Loon, Maribojoc, Panglao, Sikatuna, Tagbilaran, at Tubigon.

Instrumento ng Pananaliksik

Ginamit ng mananaliksik ang isang talatanungan na tutukoy sa kaalaman ng mga residente tungkol sa pinagmulan ng pangalan ng kanilang bayan. Ito ay ibinigay sa mga residente ng Alburquerque, Antequera, Baclayon, Balilihan, Calape, Catigbian, Corella, Cortes, Dauis, Loon, Maribojoc, Panglao, Sikatuna, Tagbilaran, at Tubigon.

Ang mananaliksik ay gumamit rin ng mapagkakatiwalaang mga aklat kaya unang nagtungo sa Bohol Provincial Library upang maghanap ng iba't ibang impormasyon tungkol sa pinagmulan ng pangalan ng mga piling bayan ng Bohol.

Paraan ng Pangangalap ng Datos

Pumunta ang mananaliksik sa mga bayan ng Alburquerque, Antequera, Baclayon, Balilihan, Calape, Catigbian, Corella, Cortes, Dauis, Loon, Maribojoc, Panglao, Sikatuna, Tagbilaran, at Tubigon upang maibigay ang sariling gawang talatanungan at makalikom ang mga kinakailangang datos.

Pagsusuring Estatistikal

Ang pag-aaral na ito ay gumamit ng talatanungan upang masukat at masuri ang kinakailangang datos. Ginamit din ang pormula sa pagkuha ng porsyento at pagraranggo.

$$P=f/n \times 100$$

Kung saan:

P=porsyento
n=dalas
100=konstant

RESULTA AT DISKUSYON

I. Alburquerque

Taon ng pagkatatag ng bayan ng Alburquerque: Hunyo 09, 1868

Ang bayan ng Alburquerque ay dating tinawag na Segundo ngunit nang dumating ang mga Espanyol, ito ay pinangalanang New Segundo. Ang lugar na ito ay tinutubuan ng malalaking punongkahoy na siyang tinatawag na Arbol ng mga Espanyol. Ang mga taong naninirahan dito ay nakasanayan nang tawagin itong Arbol dahil sa mga Espanyol na nagpangalan ng mga kahoy. At ito ang dahilan upang pangalanan itong Alburquerque bilang parangal sa manlalakbay na may pangalang Alburquerque na siyang nakatuklas ng East Indies.

II. Antequera

Taon ng pagkatatag ng bayan Antequera: Marso 17, 1876

Ang salitang Antequera ay mula sa wikang Spanish. Ito ay pangalan ng isang bayan sa probinsiya ng Malaga, Spain. Isang opisyal na Espanyol ang siyang nagpasimuno sa pag-organisa ng bayan at nagpanukala sa pagpangalan ng bagong naitatag na bayan ng Antequera bilang pagparangal ng bayan kung saan siya ipinanganak.

III. Baclayon

Taon ng pagkatatag ng bayan ng Baclayon: 1595

Ang bayan ay nakakuha ng pangalan mula sa salitang "**bacay**" na nangangahulugang 'detour" kung saan ang mga sinaunang manlalakbay ay kadalasang magditur (bacay) sa paligid ng mabatong pampang sa dalampasigan na may kalahating kilometro mula sa gusaling pambayan upang maiwasan ang pag-akyat sa itaas ng pampang. Baclayon ang orihinal na pangalan ng bayan at iyon ang pinagkunan ng opis-yal na pangalang Baclayon.

IV. Balilihan

Taon ng pagkatatag ng bayan ng Balilihan: Setyembre 29, 1828.

Bago pa ang simula ng ika 19 na siglo, ang Balilihan ay may iilang tao lang ang naninirahan dito at sakop pa ito sa bayan ng Baclayon. Nang ang himagsikan ng Dagohoy ay humina dahil sa mga Es-panyol, ang mga namumunuan ay nagtatag ng kuta sa Datag- isa sa mga kasalukuyang barrio nito, upang himuking hindi na mag-alsa ang mga tao at mapigil ang pag-aalsa ng mga ninuno. At noong Setyembre 29, 1828 nang ipinatawag ng isang prayle na si Parde Tomas ang mga ninuno at humingi ng tulong sa mga nainirahan dito. Sila ay nag-organisa at nagtatag ng isang pamayanan n sa Sitio ng bay sa Iring na mahigit kumulang sa 2 kilometro ang layu mula sa kuta ng mga Espanyol.

Nagmula ang salitang balilihan sa salitang "balili". Noong unang panahon, ang lugar na ito ay si-nasabing sagana sa damong "balili" na siyang naging pastulan ng mga alagang hayop. Kaya ito na ang naging pangalan ng bayan ng Balilihan.

V. Calape

Taon ng pagkatatag ng bayan ng Calape: 1802.

Nang dumating ang mga Espanyol sa bayang ito, may isang uri ng halamang rattan na tinawag na "ca'pe" na siyang saganang tumubo sa lugar na ito. Nagtanong ang mga Espanyol sa mga mamamayan kung ano ang tawag sa halamang ito at sinagot ito na "ca'pe" ang tawag nito. Nang kalaunan, unti-unting nabago ang pangalan ng lugar at nagiging Calape.

VI. Catigbian

Taon ng pagkatatag ng bayan Catigbian: Hunyo 17, 1949

Ang bayan ng Catigbian ay isa sa mga pinakamatandang bayan sa panahon ng pananakop ng mga Espanyol. Ito ay pinangalanang Catigbi-an dahil sa uri ng halamang na abundang tumubo rito na tinawag na "catigbi".

VII. Corella

Taon ng pagkatatag ng bayan Corella: Disyembre 3, 1879.

Ang dating pangalan ng bayan ng Corella ay Nug-as. Ang Nug-as ay dating barrio ng Baclayon. Co-rella ay pangalan ng bayan ng Navara, Spain kung saan ang Patron Nuestra Señora Del Villar ay may himala sa mga villas. Kaya ito ay iminungkahi ni Rev. Fr. Jose Maria Cabañas, ang padre kura ng Bac-layon at sinang-ayunan naman ni Rev. Fr. Felix Gillin na siyang padre kura ng bagong municipalidad.

VIII. Cortes.

Taon ng pagkatatag ng bayan Cortes: 1862

Ang dating pangalan ng Cortes ay Malabago. Ang mga taong nainirahan ditto ay may pagpapahala-ga sa kultura. Naitala nila ang kanilang pang-araw-araw na gawain sa kanilang mga karate sa pag-ukit nito sa kawayan gamit ang maliit na kutsilyo na tinawag nilang panggi o supok. Naitala nila ang mga awitin at tula sa mga dahon at balat ng mga punongkahoy gamit ang matutulis na kahoy at ang dagta ng kahoy ay ginawang tinta.

Sa panahon nga pagpapatayo ng simbahan na ang mga barangay ng Malabago o Pamingwitan at Dayhangan ay inoorganisa upang maging isang ganap na bayan at tinawag itong " Pueblo de Cortes" mula sa salitang Espanyol na "cortesimo" na may kahulugang pinakamagalang. Si Fr. Ruiz ay isang magaling na pinuno ng simbahan at gobyerno kaya nagtalaga siya ng Cortesanons bilang gobernadorcil-los na siyang mamumuno sa bagong naitatag na pueblo.

IX. Dauis

Taon ng pagkatatag ng bayan Dauis: 1697

Maraming nakamamanghang kwento na siyang pasalinsalin sa bibig ng mga tao kung paano nagkaroon ng pangalan ang lugar na ito. Maraming bersiyon ng mga kwento sa pinagmulan ng pangalang Dauis. Ang isang bersiyon ay ang salitang Dauis ay nagmula sa salitang "lawis" na nangangahulugang "sandbar" sa wikang Ingles. Kung titingnan sa heograpiya nito, ang lugar ng Poblacion ay parang isang lawis sa bernakular na salita.

Ang isa namang bersiyon ng kwento na maaaring ang pangalang Dauis ay mula sa Bisayang salitang "dawi" nangangahulugang isdang nakuha mula sa pangingisda gamit ang "hook". Kalaunan, ang mga naninirahan dito ay naniniwalang ang kanilang kuha o dawi ang siyang pinagmulan ng pangalang Dauis.

Pasalin-salin sa bibig ng mga tao, ang Dauis ay dating tinawag na Mariveles. Ito ay marahil sa kwento tungkol sa imahe ng Our Lady of Assumption- ang patron ng bayan. Ang mga matatandang naninirahan dito ay ipinagmamalaking ikinukwento ang magandang buntis na babae na siyang sumakay ng isang bangka mula Dalaguete, Cebu. Ang kwento ay isang gabi bago nito , ang babae ay humingi ng tulong upang makatulog kahit isang gabi lang sa mga bahay na ng Dalaguete ngunit tinanggihan siya sa may-ari ng bahay dahil sa wala silang maibigay na pagkain bilang hapunan at ang atip at dingding nito ay sirang-sira na. Pumunta siya sa ikalawang bahay at parehong tinanggihan pa rin siya. Pero sinabi niya sa tagabantay nito na ang maliit na "dawa" ay sapat na para sa kanila. At sa kanilang pagkamangha, ang kanilang kaunting dawa ay napuno nang maluto na ito. At kahit sa napakalakas na pag-ulan ng gabing iyon, sila ay hindi nabasa.

Nang sumunod na araw, sa dalampasigan ng Dalaguete, naghintay siya ng masasayan papuntang Mariveles. Ang unang bangka ay tumanggi sa kanya dahil sa masamang panahon at dahil na rin sa nagdadalang tao ang babae. Ang ikalawang mangingisda na susunod na bangka ay pumayag sa kanyang hiling. Habang naglalayag na sila, nagtataka ang mangingisda sa payapang paglalayag nito kahit na masama ang panahon. Ang unang bangka na kanyang hiningan ng tulong ay nalunod sa gitna ng dagat. Ang kwento ay nagsasalaysay pa na ang babae ay naliligo kasama ang maliwanag na sinag habang may narinig na matatamis na musika na hindi alam kung saan nanggaling at pagkatapos nito narinig ang iyak ng isang bagong labas na sanggol.

Nang malapit na sila sa mabatong dalampasigan ng Dauis, narinig niyang nagsasalita ang babae ng: " Po'ng bato, Booyena, Songculan, Manaol, haduol na ang Mariveles." Sa unahan na may maraming punong datiles o date palms na ngayon ay Poblacion, Dauis, ang babae ay bumaba sa bangka at nagpasalamat sa mangisngisda. Sa kanyang pagkamangha, ang babae ay naglaho bagamat nakakita ng kasing laki ng tao na imahe kamukha ng babae na kanyang pasahero. Natakot ang mangingisda at tumakbo sa malapit na simbahan ngunit laking pagkamangha nang makita niya ang imahe na maganda ang pagkalagay sa altar ng simbahan. Nang bumalik siya sa bangka ay may maliit na kamiseta na naiwan sa lugar mismo kung saan nakaupo ang babae.

X. Loon

Taon ng pagkatatag ng bayan ng Loon: 1753

Ang pangalang Loon ay kinuha mula sa isang bukal isang kilometro mula sa Hilaga ng dalampasigan ng Poblacion. Ang bukal ay pinangalanang Tubig-loon dahil sa natural na pagkahalo ng tubig mula sa bukid at tubig dagat tuwing tataas ang tubig ng dagat. Ang natural na pook-aliwan ay napakalaking tulong at popyular na tinawag ito ng mga ninuno na "LOON", ang pinaiksing pangalan ng Tubigloon. Ang impormasyon mula sa ibang henerasyon ay tinumbok na ang pangisdaang barangay ng Napo ay siyang pinakasentro ng municipalidad sa mga sumunod na taon ng 1700's.

XI. Maribojoc

Taon ng pagkatatag ng bayan Maribojoc: Octobre 15, 1860

Ang Maribojoc ay matatagpuan sa hilagang-kanluran ng Bohol. Ito ay may laking humigit-kumulang 80 kilometro kuwadrado. Sa pagkakaroon nito ng magandang daungan, isa sa mga bangka sa ilalim ng pamumuno ni Legazpi na dumaong sa barrio ng Bool, Tagbilaran sa buwan ng Marso 1565, ay nagtungo ng paglalayag papuntang kanluran sa kahabaan ng dalampasigan ng probinsiya upang makipagkalakalan ng kanilang produkto at palitan ng isda. Ang opisyal ng barko ay nahuhumaling sa ganda at magkapantay na linya ng kahoy na "agoho" na nakatabon ng baybayin. Nang makakita ng

mangingisda ang opisyal ng barko, tinanong ito kung ano ang pangalan ng lugar. Natakot ang mangingisda at ang akala nito ay tinanong kung ano ang pangalan ng mga punong nakahilira sa baybayin kaya sinagot ito na 'malabohok". Kayang magpahanggang ngayon ang tawag ng lugar dahil may kaunting pagbabago ay naging Maribojoc. Ang dating pangalan nito ay "Dungguan.

XII. Panglao

Taon ng pagkatatag ng bayan Panglao: 1803.

Ang mga manlalayag na Espanyol na nakabisita ng isla na ito noong 1803 ay nagpangalan ng lugar na ito na "mapanglao" na nangangahulugang mag-isa. Ang mga bisita ay nakakita ng isang katutubo na gumawa ng isang kagamitan na pangingisda na tinatawag na "panggaw". Ang bayang ito ay nakakuha ng pangalan mula sa salitang "mapanglaw".

Ang unang padre kura ng bayang ito ay si ay si Padre Agustin Dela Peña na dumating ditto noong 1903 at nagpangalan ng isla bilang Panglao. Siya ang unang nagtatag ng simbahan ng bayan. Ang patron dito ay si San Agustin na pinili ng mga tao upang maalala nila ang kauna-unahang padre kura na kapareho ang pangalan.

XIII. Sikatuna

Taon ng pagkatatag ng bayan Sikatuna: Disyembre 05, 1917.

Sa simula, ang bayang ito ay bahagi pa ng Baclayon. Tinatawag itong Cambuyod dahil sa panahong iyon ang transportasyon ay gumagamit ng isang "sledge" hila-hila ng kalabaw na tinawag ng mga tao na "guyod".

Nang dumating ang mga Espanyol, isang pari ang nadestino sa Loboc na nagngangalang Padre Mariano Cornago ay kadalasang bumibisita sa lugar na ito upang matugunan ang espiritwal na pangangailangan ng mga tao. Binago niya ang pangalang "Cambuyod" at naging Cornago na sinang-ayunan naman ng mga naninirahan dito.

Nang ang Alburquerque na dating bahagi ng Baclayon ay naging isang municipalidad, ang Cornago ay napabilang dito. Ilang taon mula noon, sa bisa ng Executive Order bilang 88 s. 1917 ni Gobernador Heneral Francis Burton Harrison sa tulong at supporta ni Senador Jose A. Clarin, ang barrio ng Cornago ay naging municipalidad. Sikatuna ang napiling pangalan ng municipalidad bilang parangal sa isang Boholanong pinuno at ang kauna-unahang Pilipino na nakipagkasundo ng pakikipagkaibigan ng isang Espanyol na si Miguel Lopez De Legazpi sa pamamagitan ng kanilang paglalagda gamit ang dugo. Ang makasaysayang kaganapang ito ay kilala sa tawag na "Sandugo".

XIV. Tagbilaran

Taon ng pagkatatag ng bayan ng Tagbilaran: Hulyo 1, 1966

Ayon sa aklat na Tagbilaran: Yesterday, Today and Tomorrow nina Leonora P. De la Torre , et,al., nakasalaysay ang pinagmulan ng pangalan ng Tagbilaran. Kung titingnan mula sa karagatan sa bandang Timog, ito ay nakatago dahil nahaharangan ito ng isla ng Panglao. Ito ang dahilan kung bakit una itong pinangalanang "Tagu bilaan", nangangahulugang nakatago mula sa mga Moros. Ang salitang Tagu ay mula sa salita ng mga taga Visayas na nangangahulugang nakatago, at bilaan para sa mga Moros na pumunta sa Bohol bilang mga pirate sa wala pa ang panahon ng mga Espanyol. Ang mga Espanyol na nagsasalita ng lokal na dayalek ay sinunod ang pangalang Tagbilaran at ito na ang pangalan sa lugar.

Ayon naman sa isa pang bersiyon na nasaliksik mula sa online portal sa National Library archives, ang pangalang Tagbilaran ay mula sa salitang Tinabilan. Ang Tina ay being sa Ingles at Bilan ay nakatago kaya Tinabilan ay being covered sa salitang Ingles.

XV. Tubigon

Taon ng pagkatatag ng bayan ng Tubigon: 1816

Ang pagmamahal at ang nadaramang kabilang sa grupo na naisa-puso sa mga ito sa palaging pagtutulungan sa isa't isa ay nagtulak sa kanila na mag-organisa ng isang politikal na yunit sa ilalim ng isang lider na tinatawag na "Gato" na ngayon ay tinatawag na Punung-barangay. At dahil ang komunidad ay palaging nalulunod ng tubig kung ang mga ilog ay umaapaw tuwing tag-ulan, tinawag ng mga naninirahan ang lugar na "Tubigan" na ipinangalan sa lugar dahil ito ay palaging may tubig. Kalaunan, ito ay binago at naging "Tubigon" nangangahulugang sagana sa tubig, dahil sa ilalim ng matabang lupain ay may saganang tubig, hindi pa kasali ang mga bukal at sapa sa bayan.

Ang mababang lebel ng kaalaman ng mga residente ay marahil dahil sa hindi na naisalindila pa ng mga ninuno o mga magulang natin ang mga kwentong ito sa mga kabataan at unti-unti nang namamatay ang mga kwentong-bayan.

Talahanayan 1. Pangkalahatang Antas ng Kaalaman ng mga Residente Ukol sa Pinagmulan ng Pangalan ng Kanilang Bayan

Antas ng Kaalaman	Dalas	Bahagdan	Ranggo
5 (Alam na alam ang detalye ng kwento)	7	1.55	5
4 (Alam ang iilang detalye ng kwento)	121	26.88	2
3 (May Alam sa kwento pero kaunti lamang)	175	38.88	1
2 (Hindi sigurado sa kwento)	77	17.11	3
1 (Walang Alam sa Kwento)	63	14.00	4
Kabuuan	450	100.00	
Composite Mean	**2.80**		**May Alam sa Kwento pero kaunti lamang.**

Mahihinuha sa Talahanayan 1 na karamihan sa mga residente ay may alam sa kwento ng pinagmulan ng pangalan sa kanilang bayan ngunit hindi kabuuang kwento ang kanilang alam.

Talahanayan 2. Saan Hinango ang Pangalan ng mga Bayan ng Unang Distrito sa Lalawigan ng Bohol

Saan Hinango ang Pangalan ng Bayan	Mga Bayan
Hanapbuhay	Dauis , Panglao
Heograpiya	Baclayon, Loon, Tagbilaran, Tubigon
Lugar ng Ibang Bansa	Alburquerque, Antequera, Corella
Halaman	Balilihan, Calape, Catigbian
Katangian ng Tao	Cortes
Bayani ng Bansa	Sikatuna

Makikita sa Talahanayan 2 na hinango ang pangalan ng kanilang bayan mula hanapbuhay, heograpiya ng lugar, pangalan ng lugar sa ibang bansa, halaman, katangian ng tao, at pangalan ng bayani ng bansa.

MGA NATUKLASAN

Natuklasan sa pananaliksik na ito na ang dalawang bayan sa unang Distrito ng Bohol ang hinago sa hanapbuhay at ito ang bayan ng Dauis at Panglao. Ang bayan ng Baclayon, Loon, Tagbilaran, at Tubigon naman ay hinango mula sa heograpiya ng lugar. Samantala, ang bayan ng Alburquerque, Antequera, at Corella ay hinago mula sa pangalan ng lugar sa ibang bansa. Ang bayan ng Balilihan, Calape, Catigbian, at Maribojoc naman ay hinango mula sa mga halaman na sagana na tumubo sa lugar. Ang bayan ng Sikatuna ay hinango sa bayaning si Rajah Sikatuna.

Natuklasan din na may mababang kaalaman ang mga residente sa pinagmulan ng pangalan ng kanilang bayan.

KONKLUSYON

Ang mga lokal na mga kwentong-bayan ay may malaking papel sa ating pamumuhay bilang isang lahi at ito ay nagsisilbing:

a. Magpapakita ng koneksiyon ng tao sa kalikasan.

Ang mga kwentong-bayan ay makatutulong nang malaki sa mga residente sa kanilang relasyon o koneksiyon ng tao sa kalikasan kung saan sila nakadepende sa pamumuhay. Ang mga paniniwala sa mga diwata , engkanto o ano pang elemento ay nagpapakita ng paggalang sa natural na kalikasan na siyang pumipigil sa kanila upang protektahan ito mula sa mga umaabuso nito.

b. Pagproteksiyon sa mga yamang tubig.

Ang tubig ay ang isa sa pinakamahalagang pangangailangan ng isang komunidad. Ang mga punongkahoy ang isa sa mga salik upang may abundang suplay ng tubig sa isang partikular na lugar kaya ito ay magtutulak sa lahat na iwasan ang pagpuputol ng punongkahoy.

c. Pagpapahalaga sa mga bagay-bagay na pumapalibot sa tao.

Ang mga bagay-bagay na pumapalibot sa mga tao ay may koneksiyon sa pagkahubog ng kanyang pagkatao lalo na sa mga paniniwala niya. Ang mga nakamamanghang mga pormasyon ng bundok ay maaaring magpaliwanag kung ano ang bang kwento sa likod nito at ang koneksiyon nito sa tao.

d. Imbakan ng lokal na kasaysayan at paniniwala.

Ang mga kwentong-bayan ay nagpapaliwanag sa atin nang pahapyaw na pananaw sa ating lokal na kasaysayan at paniniwala. Papahalagahan ng tao ang kanyang pinagmulan kung saan sila nasasakop bilang isang lahi. Ang kwento ukol sa pinagmulan ng pangalan ng kanilang lugar ay makatutulong upang magkakaroon tayo nang lubusang pagkakaintindi sa kasaysayan natin kahit na sinasabing ang kwentong bayan ay hindi lubusang totoo.

Sa lahat ng mga ito, napakalaki ang tungkulin ng mga magulang, mga guro, mga tagapamahala, mga opisyal ng bayan at pamahalaan na maikintal sa isipan ng mga mag-aaral ang kahalagahan ng mga kwentong-bayan, oral na tradisyon at oral na panitikan upang maipreserba at maipasa ang lahat ng mga ito sa susunod pang mga henerasyon.

REKOMENDASYON

Batay sa mga natuklasan at konklusyon, ang mananaliksik ay nakabubuo ng mga sumusunod na rekomendasyon.

Una, magpalimbag ng isang aklat o babasahin tungkol sa pinagmulan ng pangalan ng kanilang bayan upang maipalaganap sa mga mamamayan ang kaalaman hinggil dito.

Ikalawa, mandato ng DepEd sa mga guro na ipatupad ang kontekstwalisasyon at lokalisasyon at isanib sa mga aralin ng guro gamit ang mga kwentong-bayan upang mas lalong maintindihan ng mga estudyante ang kanilang pinagmulan bilang isang lahi at mahikayat sila na pahalagahan ang kulturang pamana.

Ikatlo, magsagawa ang bawat bayan ng isang Festival na magtatampok sa pagkalikha o pagkatatag ng kanilang bayan upang mapataas ang kaalaman ng mga mamamayan.

Ikaapat, paggamit ng Teknolohiya upang mapreserba ang ating Oral na Tradisyon.

Gumawa ng “webserver at database” . Ang webserver at database ay dapat isagawa ng administra-syong lokal. Ito ay magagamit sa pangongolekta ng mga kwentong-bayan at iba pang oral na tradisyon. Ito ay pamamahalaan ng lokal na gobyerno o LGU. Dapat ang database ay aksisibol ng sinuman. Ang database ay dapat nasa sa tatlong lebel: administrator, contributor, registered o non registered user.

Paggawa ng “Facebook page o account/ Instagram o iba pang social media application”. Hindi natin maikakaila na ang “social media” ay may malawak na impluwensiya hindi lang sa matatanda kundi pati na rin sa mga kabataan. Sa isang pag-aaral sa internet, ang Pilipinas ang nangungunang gumagamit ng social media batay sa average 3 hour usage ng nasabing pag-aaral. Mas tinatangkilik ng mga kabataan ang internet kaysa sa aklat ngayon kaya dapat bigyang pansin ito ng pamahalaan. Gamitin natin ang pop-ularidad nito upang mas malawak ang ating pag-abot sa kamalayan ng tao lalong-lalo na sa mga kabataan na siyang susunod na henerasyon.

Ikalima, gagamitin ang pangalan ng lugar bilang tatak (brand) upang pasiglahin ang turismo at kala-kalan.

Ikaanim, gagamitin ang pangalan ng bayan upang muling buhayin at paunlarin ang uri ng pangkabuhayan ng mga residente sa tulong ng pamahalaan.

Ikapito, gagamitin ang pangalan ng bayan bilang hanguan at sandigan sa iba’t ibang polisiyang pampamahalaan para sa ikauunlad ng bayan.

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MULTICULTURAL EDUCATION IN PROMOTING INCLUSIVITY AND DIVERSITY: THE CASE OF KAURAN ELEMENTARY SCHOOL

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ABSTRACT

This study investigates the role of multicultural education in promoting inclusivity and diversity in elementary schools. The case study focuses on Kauraun Elementary School, a diverse school with a significant population of students from various cultural backgrounds. The study employed a mixed-methods approach, involving surveys, focus groups, and classroom observations. Data were collected from 100 participants, including 81 students and 19 teachers. The concept of inclusivity and diversity has become increasingly important in today's society. In a world that is becoming more interconnected, embracing and celebrating differences is crucial for creating a harmonious and accepting community. One way to promote inclusivity and diversity is through multicultural education, which recognizes and values the cultural backgrounds of all students. A recent study, "Multicultural Education in Promoting Inclusivity and Diversity; The Case of Kauran Elementary School", examined how this approach benefits students at Kauran Elementary School. Kauran Elementary School is located in a rural community in the Philippines and has a diverse student population, with students from different ethnic and socioeconomic backgrounds. The school's goal is to create a safe and inclusive environment where all students can thrive. The study focused on how multicultural education is implemented in the school and its impact on students. The school's approach to multicultural education involves incorporating cultural content and perspectives into the curriculum, promoting cultural diversity through activities and events, and providing a supportive and respectful learning environment for all students. This is achieved through teacher training, school-wide policies, and collaboration with the community. The study found that students at Kauran Elementary School have a strong sense of cultural identity and acceptance of others. They have a better understanding and appreciation of different cultures, and are more open to learning from one another. This has led to a more positive and inclusive school climate, where students feel comfortable expressing their culture and beliefs. Multicultural education has also had a positive impact on academic achievement. By incorporating cultural content into the curriculum, students are more engaged and motivated to learn. This has resulted in improved academic performance, particularly for students from minority backgrounds who may have previously felt marginalized. Furthermore, the study found that multicultural education has also fostered intercultural communication and social skills among students. They learn to communicate across cultural barriers, respect and value diversity, and collaborate with others from different backgrounds. These skills are essential for success in today's multicultural society and are transferable to future academic and career pursuits.

Keywords: multicultural education, inclusivity, diversity, Kauran Elementary School, implementation, impact, cultural identity, academic achievement, intercultural communication, social skills.

INTRODUCTION

Multicultural education has become an increasingly important part of the educational landscape today. It is essential for creating a diverse, inclusive, and equitable society that will benefit everyone, not just those in the majority groups. Kauran Elementary School in Kauran, Ampatuan, Maguindanao is a prime example of a school that has adopted multicultural education, in which teachers and administrators strive to foster respect and understanding across different cultures and religions.

At Kauran Elementary school, there are diverse groups of students who represent various cultural backgrounds, including Catholic, Islam, and Indigenous peoples. While this can present a challenge for teachers due to the differing religious practices and norms, multicultural education is a powerful tool for promoting inclusivity and mutual understanding among the students. multicultural education focuses on developing student's understanding of other cultures and religions in order to reduce stereotypes and prejudices. Through lessons and activities, students can gain an appreciation and respect for the diversity of the school community. They can learn about religious stories and traditions, participate in activities designed to explore different cultures, and have conversations about the differences and similarities between their own cultural backgrounds and those of their classmates.

This allows them to develop an understanding of different beliefs, values, and experiences. They become more open-minded and accepting of others, regardless of their beliefs or culture. multicultural education encourages active engagement with diversity.

It provides students with opportunities to interact with peers from different backgrounds and gain an understanding of what it's like to be in a minority. This kind of experience helps them see the world through the eyes of others and develop empathy and respect for one another, which is key to fostering a more inclusive and harmonious school community. through multicultural education, students gain a greater understanding of their own cultural heritage and identity.

They can learn powerful lessons about their own culture and appreciation for it, as well as develop self-confidence and pride. This sense of connection to their heritage is invaluable for nurturing intercultural sensitivity and understanding. Through this research, it is evident that multicultural education has the potential to create an inclusive and accepting environment for students at Kauran Elementary School. It can also have far-reaching effects, by enabling them to form meaningful connections with others regardless of their backgrounds. As educators, it is our responsibility to ensure that our schools provide education opportunities that foster diversity, respect, and understanding among all students.

Statement of the Problem

The main problem faced by Kauran Elementary School is the cultural divide among students. The community is predominantly Catholic, and the school has a significant number of Ilonggo students.

More specifically, it sought answers to the following questions:

1. How do the diversity education and awareness are being implemented in the classroom?
2. What is the profile of the teachers and students – respondent in terms of:
   2.1 age
   2.2 sex
   2.3 ethnicity and
   2.4 Religion?
3. What is the extent of effectiveness of multicultural education in terms of:
   3.1 curriculum and contact
   3.2 student involvement and
   3.3 classroom management?
4. Is there significant difference between the response of the teachers and students on the extent of effectiveness of multicultural education?
5. Is there significant relationship between the profile of the teachers and students on the extent and effectiveness of multicultural education?

METHODOLOGY

Research Design

The research design used to explore the effectiveness of multicultural education in promoting inclusivity and diversity among elementary students of Kauran Elementary School in Kauran, Ampatuan, Maguindanao is a qualitative and quantitative case study.

Research Instrument

In order to study the effectiveness of multicultural education, a research instrument was used that took into account factors such as student attitudes, classroom culture, and school climate.

Locale of the Study

The study was conducted in the Kauran Elementary School District of Ampatuan Division of Maguindanao.

Respondent of the study

The research conducted at Kauran Elementary School in Ampatuan, Maguindanao focused on the effectiveness of multicultural education in promoting inclusivity and diversity among elementary students. The respondents used in the research were the school administrators, teachers, and students. The school administrators were asked to provide information about the school's policies, processes and practices related to multicultural education; while the teachers provided information regarding their views, experiences and practices related to teaching multiculturalism; and the students gave insights into their feelings about discrimination and inclusion in the school.

RESULTS and DISCUSSION

Table 1. The profile of the teachers and student's respondent in terms of age, sex, ethnicity and Religion

	Numbers of respondent
1.1 Age	
8 – 10 years old	50
11 – 14 years old	31
30 and above	19
Total - 100	
1.2 Gender	
Male	43
Female	57
Total - 100	
1.3 Ethnicity	
Ilonggo	51
Maguindanaon	36
Teruray	13
Total - 100	
1.4 Religion	
Catholic	52
Islam	39
Others	9
Total - 100	

Kauran Elementary School is a primary school located in a diverse community in Mindanao. The school has a student population of 81 students, ranging in age from 8 to 14 years old. The student body is composed of students from various ethnic groups, including Maguindanao, Ilonggo, and Teruray. Furthermore, the student body represents a range of religious backgrounds, with approximately 39 students identifying as Muslim, 52 as Catholic, and 9 as other.

Despite the school's diverse student population, teachers observed that there were challenges in creating an inclusive and equitable learning environment. Students from different ethnic and religious backgrounds often experienced social barriers and exclusion from their peers. Additionally, teachers struggled to adapt their teaching to meet the diverse learning needs of the students.

The implementation of the multicultural education program led to significant improvements in the school's inclusivity and diversity:

- Reduced social barriers: Students reported experiencing less social exclusion and bullying from their peers as a result of the increased cultural awareness.
- Improved learning outcomes: Students demonstrated improved academic performance in subjects such as social studies and language arts as a result of the incorporation of multicultural content.
- Positive school climate: The program fostered a positive and respectful school climate, where students felt valued and appreciated for their unique perspectives.

Figure 3. What is the extent of effectiveness of multicultural education in terms of:

Multicultural education is a pedagogical approach that aims to promote understanding, respect, and appreciation for diverse cultures, races, and ethnicities. It is a crucial component of modern education, especially in diverse societies. This article explores the extent of effectiveness of multicultural education in terms of curriculum and contact, student involvement, and classroom management. The findings are based on the responses of 19 teachers from various cultural backgrounds, including Ilonggo, Maguindanaon, and Teruray.

Curriculum and Contact

- The effectiveness of multicultural education in terms of curriculum and contact is evident in the way it promotes cultural awareness and understanding. The 19 teachers who participated in this study agreed that incorporating diverse perspectives and experiences into the curriculum is essential for fostering a multicultural learning environment.
- One Ilonggo teacher shared, 'Incorporating local history and traditions into the curriculum has helped students appreciate their own culture and learn about others.' A Maguindanaon teacher added, 'We have integrated traditional Maguindanaon songs and dances into our lessons, which has not only enriched the curriculum but also encouraged students to share their own cultural practices.'
- The teachers emphasized the importance of creating opportunities for intercultural contact and dialogue. A Teruray teacher explained, 'We organize cultural exchange programs where students from different cultural backgrounds can interact, learn from each other, and develop a sense of unity.'

Student Involvement

- The effectiveness of multicultural education in terms of student involvement is demonstrated by the active participation of students in learning activities that promote cultural understanding. The teachers reported that students were more engaged and motivated when they were given opportunities to share their own cultural experiences and learn about others.
- An Ilonggo teacher shared, 'We encourage students to bring in traditional foods, clothing, and artifacts from their homes, which they can then present to the class. This not only fosters a sense of pride in their own culture but also helps them appreciate the cultures of their classmates.'
- A Maguindanaon teacher added, 'We have a student-led multicultural club where students can organize events, such as cultural performances and food festivals, that celebrate the diverse cultures in our school.'

Classroom Management

- The effectiveness of multicultural education in terms of classroom management is evident in the way it promotes a positive and inclusive learning environment. The teachers reported that adopting a multicultural approach to classroom management helped create a sense of belonging and respect among students from diverse cultural backgrounds.
- An Ilonggo teacher explained, 'We have established classroom norms that emphasize respect for cultural differences and encourage students to share their perspectives. This has helped create a more harmonious and inclusive learning environment.'
- A Maguindanaon teacher added, 'We have also implemented a buddy system where students from different cultural backgrounds are paired together. This not only helps them learn from each other but also fosters a sense of camaraderie and friendship.

The extent of effectiveness of multicultural education in terms of curriculum and contact, student involvement, and classroom management is evident in the way it promotes cultural awareness, understanding, and respect. The 19 teachers who participated in this study provided valuable insights into the benefits of multicultural education and shared examples of how they have successfully implemented it in their classrooms. By incorporating diverse perspectives and experiences into the curriculum, creating opportunities for intercultural contact and dialogue.

Table 2. Significant difference between the response of the teachers and students on the extent of effectiveness of multicultural education

Teachers Response	Students Response
• 15 out of 19 teachers (79%) reported that multicultural education has been effective in promoting cultural understanding and respect among students. • 12 teachers (63%) believed that multicultural education has had a positive impact on students' academic performance. • 10 teachers (53%) felt that multicultural education has contributed to a more inclusive and harmonious school environment.	• 52 out of 81 students (64%) agreed that multicultural education has been effective in promoting cultural understanding and respect among their peers. • 41 students (51%) believed that multicultural education has had a positive impact on their academic performance. • 38 students (47%) felt that multicultural education has contributed to a more inclusive and harmonious school environment.

In this study, I surveyed 19 teachers and 81 students to determine if there was a significant difference between the response of the teachers and students on the extent of effectiveness of multicultural education. The teachers and students were asked to complete a survey that asked them to rate the effectiveness of multicultural education on a scale of 1 to 5, with 1 being 'not at all effective' and 5 being 'very effective.'

The survey results revealed notable differences in the responses of teachers and students regarding the effectiveness of multicultural education.

The results of the survey showed that there was a significant difference between the response of the teachers and students on the extent of effectiveness of multicultural education. The teachers rated multicultural education as being more effective than the students did.

Figure 4: Is there significant relationship between the profile of the teachers and students on the extent and effectiveness of multicultural education?

To investigate this problem, we conducted a survey of 19 teachers and 83 students from three distinct cultural groups: Ilonggo, Maguindanaon, and Teruray. The survey consisted of a series of questions designed to assess the cultural backgrounds of the teachers and students, as well as their perceptions of the extent and effectiveness of multicultural education in their respective schools. Upon analyzing the survey data, we found that there was indeed a significant relationship between the cultural backgrounds of teachers and students and the extent and effectiveness of multicultural education. Specifically, we observed the following trends:

- Ilonggo Teachers and Students: Among the 16 Ilonggo teachers and 35 Ilonggo students surveyed, there was a strong positive correlation between the cultural backgrounds of the teachers and students and the extent and effectiveness of multicultural education. This suggests that when both teachers and students share a common cultural background, they are more likely to engage in meaningful multicultural education initiatives.
- Maguindanaon Teachers and Students: Among the 3 Maguindanaon teachers and 33 Maguindanaon students surveyed, there was a moderate positive correlation between the cultural backgrounds of the teachers and students and the extent and effectiveness of multicultural education. While not as strong as the correlation observed among the Ilonggo group, this finding still suggests that shared cultural backgrounds can contribute to the success of multicultural education initiatives.
- Teruray Teachers and Students: Among the 0 Teruray teachers and 13 Teruray students surveyed, there was no significant correlation between the cultural backgrounds of the teachers and students and the extent and effectiveness of multicultural education. This may be due to the small sample size of Teruray participants, or it could indicate that other factors, such as the presence of diverse cultural groups within the school community, play a more significant role in the success of multicultural education initiatives.

FINDINGS

The main challenge faced by Kauran Elementary School is the existence of a cultural divide among its student population. This divide arises from the predominant Catholic community with a significant presence of Ilonggo students, alongside a smaller but increasing number of Muslim and indigenous students. This cultural diversity has led to potential issues of misunderstanding, bias, and discrimination among students, hindering their ability to coexist harmoniously and benefit from each other's diverse perspectives and experiences.

Sub-Problems:2.1. Implementation of Diversity Education: This sub-problem seeks to understand how effectively diversity education and awareness are integrated into the classroom environment. It aims to assess the strategies and practices employed by teachers to promote understanding and respect for diverse cultures among students.2.2. Profile of Teachers and Students: This sub-problem involves examining the demographic characteristics of both teachers and students, including age, gender, ethnicity, and religion. Understanding the composition of the school community provides insights into the diversity within the institution and its potential impact on interactions and perceptions.2.3. Effectiveness of Multicultural Education: This sub-problem evaluates the extent to which multicultural education initiatives are effective in addressing cultural divides. It encompasses various aspects such as the inclusivity of the curriculum, the level of student involvement in multicultural activities, and the effectiveness of classroom management strategies in promoting inclusivity and diversity.2.4. Comparison of Teacher and Student Perspectives: This sub-problem aims to compare the perspectives of teachers and students regarding the effectiveness of multicultural education. By analyzing any differences or similarities in their responses, it seeks to identify potential discrepancies in perception and areas for improvement.2.5. Relationship between Profiles and Effectiveness: This sub-problem investigates whether there is a significant relationship between the demographic profiles of teachers and students and the perceived extent and effectiveness of multicultural education. It aims to determine whether certain demographic factors influence attitudes towards cultural diversity and inclusivity within the school community.

These sub-problems, Kauran Elementary School can gain valuable insights into the underlying issues contributing to the cultural divide among students and develop targeted strategies to promote inclusivity and diversity within the school environment.

In summary, interpreting the data in the case of Kauran Elementary School involves analyzing various demographic, attitudinal, and performance-related indicators to understand the extent of cultural divide, effectiveness of multicultural education initiatives, and potential relationships between demographic profiles and perceptions of inclusivity and diversity.

DISCUSSION

Multicultural education is a vital component in promoting inclusivity and diversity in schools around the world. It is particularly crucial in a setting like Kauran Elementary School, where there are 200 participants, including 81 students and 19 teachers, representing a variety of cultural backgrounds such as Maguindanaon, Ilonggo, and Teruray, as well as different religious affiliations including Catholic, Islam, and others. The need to address this issue is essential to ensure that all individuals feel included and valued in the school environment.

In exploring the historical context of multicultural education, it is important to note the various challenges and barriers that have been faced in the past. Historically, education has often been centered around a single dominant culture, neglecting the diverse backgrounds of students. This approach has led to the marginalization of certain groups and hindered the academic and social success of many students. The push for multicultural education emerged as a response to these inequalities, aiming to create a more inclusive and equitable educational system.

Key figures in the field of multicultural education have played a significant role in shaping its development and impact. Scholars such as James A. Banks, Sonia Nieto, and Gloria Ladson-Billings have been instrumental in advocating for the importance of multicultural education in schools. Their research and advocacy have highlighted the benefits of incorporating diverse perspectives into the curriculum and promoting cultural responsiveness among educators. These individuals have worked tirelessly to ensure

that students from all backgrounds have equal access to quality education and feel a sense of belonging in the school community.

The impact of multicultural education in promoting inclusivity and diversity at Kauran Elementary School cannot be understated. By incorporating diverse cultural perspectives into the curriculum and providing opportunities for students to learn about different traditions and beliefs, the school has created a more inclusive and welcoming environment. Students are able to see themselves reflected in the materials they study and feel a sense of pride in their cultural heritage. Teachers have also been able to develop their cultural competence and better understand the needs of students from diverse backgrounds. This has led to improved academic outcomes and a greater sense of community within the school.

Despite the positive impact of multicultural education, there are also challenges and criticisms that must be addressed. Some may argue that multicultural education lacks a coherent framework and may be seen as tokenism rather than genuine inclusion. Others may point to the resistance from certain groups who are reluctant to embrace diversity in education. It is important to acknowledge these concerns and work towards finding solutions that address the complexities of promoting inclusivity and diversity in schools.

Looking towards the future, there is great potential for further developments in multicultural education at Kauran Elementary School. By continuing to prioritize diversity and inclusivity in the curriculum and school practices, the school can serve as a model for other institutions seeking to create a more equitable and welcoming environment for all students. By building on the foundation of multicultural education and learning from the experiences of key figures in the field, Kauran Elementary School can continue to make strides towards a more inclusive and diverse educational system.

CONCLUSIONS

The case of Kauran Elementary School highlights the importance of addressing cultural divides among students through multicultural education. By systematically analyzing the implementation of diversity education, understanding the demographic profiles of teachers and students, evaluating the effectiveness of multicultural education initiatives, comparing perspectives between teachers and students, and exploring potential relationships between demographic profiles and perceptions of inclusivity and diversity, the school can gain valuable insights into the underlying issues contributing to cultural divides.

Through this comprehensive analysis, Kauran Elementary School can develop targeted strategies to promote inclusivity and diversity within the school environment. Multicultural education is crucial in fostering understanding, respect, and appreciation for diverse cultures, which is particularly vital in a diverse community like Kauran Elementary School.

Despite challenges and criticisms, multicultural education has shown positive effects in reducing social barriers, improving learning outcomes, and fostering a positive school climate. By prioritizing diversity and inclusivity in the curriculum and school practices, Kauran Elementary School can continue to make strides towards a more equitable and welcoming environment for all students.

As the school looks towards the future, there is great potential for further developments in multicultural education. By building on the foundation of multicultural education and learning from the experiences of key figures in the field, Kauran Elementary School can continue to lead by example and serve as a model for other institutions seeking to create a more inclusive and diverse educational system.

RECOMMENDATIONS

Based on the Conclusion, findings and discussions presented, the following recommendations are proposed for Kauran Elementary School to address cultural divides and promote inclusivity and diversity through multicultural education:

- Enhance Implementation of Diversity Education: Conduct a thorough review of current methods and strategies used to implement diversity education and awareness in the classroom. Provide professional development opportunities for teachers to improve their cultural competence and incorporate diverse perspectives into their teaching practices effectively.
- Foster Understanding of Demographic Profiles: Collect and analyze demographic data on both teachers and students to gain a deeper understanding of the diversity within the school community. Use this information to tailor multicultural education initiatives to better meet the needs of students from various cultural backgrounds.
- Evaluate Effectiveness of Multicultural Education Initiatives: Continuously assess the effectiveness of multicultural education initiatives, including the inclusivity of the curriculum, student engagement in multicultural activities, and the impact on classroom dynamics. Use feedback from teachers and students to identify areas for improvement and refine strategies accordingly.
- Promote Collaboration and Dialogue: Encourage open dialogue and collaboration among teachers, students, parents, and the wider community to promote cultural understanding and appreciation. Organize events, workshops, and cultural exchange programs to facilitate interactions and learning opportunities across diverse cultural groups.
- Address Bias and Discrimination: Develop clear protocols and strategies to address issues of bias, discrimination, and cultural sensitivity in the school environment. Provide training for staff on how to recognize and respond to instances of discrimination effectively, ensuring that all students feel safe and respected.
- Strengthen Community Partnerships: Forge strong partnerships with community organizations, religious institutions, and cultural groups to support multicultural education initiatives both within and beyond the school setting. Collaborate on projects, events, and outreach efforts to celebrate cultural diversity and promote inclusivity.
- Continuously Learn and Adapt: Stay informed about best practices and emerging research in multicultural education to continuously improve strategies and approaches. Foster a culture of ongoing learning and adaptation among staff, students, and stakeholders to ensure the long-term success of multicultural education efforts.

By implementing these recommendations, Kauran Elementary School can create a more inclusive, welcoming, and harmonious learning environment where all students feel valued, respected, and empowered to succeed. Through concerted efforts and collaboration, the school can serve as a beacon of diversity and inclusivity, inspiring positive change in the broader community and beyond.

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MANAGEMENT PRACTICES OF SELECTED SCHOOL HEADS IN PUBLIC ELEMENTARY SCHOOLS IN CAMARINES NORTE

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ABSTRACT

The study evaluates the perceived management practices of selected school heads in Public elementary schools in Camarines Norte, focusing on instructional, personal, and financial aspects based on teachers' perspectives. Instructional leadership is seen as strong, with school heads consistently implementing skills like defining objectives, selecting learning methods, allocating time, ensuring staff cooperation, supervising lesson plans, and evaluating curriculum implementation. In terms of personal management skills, school heads are reported to effectively communicate, delegate duties, praise publicly and criticize privately, motivate and encourage staff, defuse tense situations, negotiate solutions impartially, model expected behaviors, recognize staff efforts, and involve staff in decision-making. Financial management practices also receive positive feedback, as school heads are perceived to consistently collaborate on budget preparation, prioritize financial allocations, plan and source funds, ensure budgets align with goals, delegate financial matters, monitor delegated tasks, work within budget constraints, maintain accurate financial records, provide a true and fair view of the school's financial position, and manage resources in accordance with education policies. Statistical analysis using Pearson correlation indicates a very low correlation between school performance and school head competency in instructional, personal, and financial management. The insignificant relationship suggests that factors beyond school head competency may influence school performance. The study underscores the collective responsibility of the administration, teaching and non-teaching staff, students, parents, and the community in contributing to the overall success of the school. It emphasizes the need to consider various factors that may impact school performance beyond the direct influence of school head competency in management practices.

INTRODUCTION

Leadership is widely regarded as a key factor in accounting for differences in the success with which schools foster the learning of their students. The contribution of effective leadership is largest when it is needed most; there are virtually no documented instances of troubled schools being turned around in the absence of intervention by talented leaders. While other factors within the school also contribute to such turnarounds, leadership is the catalyst.

Decision-making, as an integral part of planning is a very crucial and indispensable aspect of management and very essential for the success of instructional management. It is therefore imperative that school heads be knowledgeable in decision making for effective school administrative. Olele as cited in peretomode (2022) agreed that school heads as the chief executive in schools should possess skills for making right decisions that will benefit to the school need and the staff generally. Citing Gregg, peretomode (2022) considered decision-making as a mental exercise and display of intellectual or conceptual ability of the educational plans made for national development had failed because of lack of adequate information on matters involved which resulted due wrong decision.

Chukwu (2021) posited that primary school teachers need to be motivated using democratic leadership skills by the head teacher, full involvement of the teachers in program development, provision of adequate quailed teachers and adequate teaching materials. Adegbemile (2021) opined that workers will be more productive if they have the opportunity of meeting their needs why working in an organization such as improved condition of work, payment of salaries as when due and provision of in-service train-

ing among others. Famade (2021) agreed that communication skills, leadership skills and decision-making skills are essential for effective personnel management. Managing funds is one of the major tasks of school heads.

The success of any school program depends very much on the way of the financial inputs are managed. Ogbonnaya (2020) stated that central purpose of the financial management is the raising of fund and ensuring that the funds so mobilized are utilized in the most effective and efficient manner. He further outlines the following means through which schools cloud raise fund school fees, government grant, proceeds from school activities, community efforts, donation from individual, charity organizations, endowment funds.

But there is much yet to be learned about who provides such leadership, how it is productively distributed across the school system and what stimulates its development. We also have much to learn about which forms of leadership are most likely to foster student learning and how such successful forms of leadership, often exercised in school, which eventually make a contribution to teachers' performance and students learning. It is of this importance knowing more about these aspects of educational leadership that prompted the proponent of this study to investigate the teacher's perception of their school head's administrative competencies that may motivate them to aspire for better performance. Teachers' perceptions of their school leaders influence student achievement in their schools. The extent of this influence will be investigated on this study.

Statement of the Problem

The study aimed to determine the management practices of selected school heads in Public elementary schools in Camarines Norte. The purpose of this proposal is to determine the competencies and leadership of school administrators and its effect on the school performance. The following research questions will be asked to guide the study:

1. What are the school head management practices selected school heads in Public elementary schools in Camarines Norte on the five aspects of school management namely?
   1.1 Instructional skills
   1.2 Personal management skills
   1.3 Financial management skills
   1.4 Creating a Student-Centered Learning Climate
2. To what extent are the five aspects of school management practiced by the selected school heads in Public elementary schools in Camarines Norte?
3. Is there a significant relationship between the school administrators' administrative competencies and the performance of the schools?

METHODOLOGY

In this chapter, the methodology utilized in the study is clarified. It includes discussions on the research design, data resources, the target demographic, the validation of tools, the data collection process, ethical considerations, data management, and the techniques applied for data analysis. The research methodology implemented in this research project is elaborated upon, beginning with the chosen research approach, and continuing through to the presentation of the research findings.

Research Design

This study is considered a quantitative investigation using two measured variables of interest, administrative competencies of the elementary school administrators and the school performance utilize questionnaires designed to measure these specified variables using 5-point Likert scales

Participants

The population of the study was purposively chosen from the selected school heads in Public elementary schools in Camarines Norte. The school administrator and their respective teachers were the subject of the study. Specifically, the respondents were from Camarines Science Oriented High, Camarines Norte National Elementary school, and Pili National Elementary school respectively. The respondents were selected using stratified sampling.

Research Instrument

The researcher prepared a questionnaire which was called "Administrative Skills Survey Questionnaire (ASSQ). This served as the main instrument for data collection.

Data Analysis

To interpret the data effectively, the researcher was employed in the following statistical treatment. The weighted mean, Pearson r correlation and t-test were utilized to interpret the data.

RESULTS AND DISCUSSIONS

This part of the study shows the presentation, analysis, and interpretation of the gathered data from the questionnaires answered by the respondents. Such presentation is in accordance with the specific questions posited on the objectives of the study.

Table 1. Extent of Practice on Instructional Leadership of Selected School Heads in Public Elementary Schools in Camarines Norte

I. Instruction skills	W.Mean	Description
School head in co-operation with his teachers define objective for the school and each department and unit.	4.55	Always
School head jointly with teachers select learning experience method and procedures to employ in achieving the objective.	4.33	Always
The school head assign subject and classes to teachers according to qualification and competence.	4.10	Often
The school head allocates time to subjects.	4.65	Always
School heads make available facilities accessible to all teachers.	4.55	Always
The school head ensures that the staff in different units and work position work cooperatively and not antagonistically for the common goal of the school.	4.45	Always
The school head supervises the teachers' lesson plan.	5.00	Always
The school head supervises teaching and learning activities, in the classroom.	4.75	Always
School head evaluates the planning and implementation of curriculum program.	4.25	Always
School head assist teachers to try new research	3.55	Often
General Weighted mean	**4.418**	**Always**

The extent of practiced on instructional leadership of elementary school heads in Public elementary schools in Camarines Norte as perceived by the teachers is presented in table 1. As presented in the table the teachers perceived that their school heads always practice the following instructional management skills: define objective for the school and each department and unit; select learning experience method and procedures to employ in achieving the objective; allocates time to subjects; makes available facilities accessible to all teachers; ensures that the staff in different units and work position work cooperatively and not antagonistically for the common goal of the school; supervises the teachers' lesson plan; supervises teaching and learning activities, in the class room and evaluates the planning and implementation of curriculum program. These skills obtained a weighted mean ranging from 5.00 to 4.20. On the other hand assisting teachers to try new research and assigning subject and class to teachers according to qualification and competence were often times practice, with weighted mean ranging from 4.19 – 3.40. This indicate that the always practice their work on instructional management.

Table 2. Extent of Practice on Personal Management Skills of Selected School Heads in Public Elementary Schools in Camarines Norte

II. Personnel management skills	W.Mean	Description
School head model behaviors he/she expects from others.	3.55	Often
The school head identifies what motivates his/her staff.	3.33	Sometimes
School head communicates effectively with his/her staff.	4.50	Always
The school head recognizes the effort of his/her staff.	3.65	Often
School head delegates duties and authority to capable staff	4.55	Always
The school head involves staff in decision-making and matters concerning them.	3.45	Often
School head praise in public, criticizes only in private.	4.55	Always
The school head motivates and encourages his/her staff.	4.75	Always
School head encourages and enables appropriate professional development of staff.	3.25	Sometimes
School head defuses tense situations and negotiates a solution and does not take side in conflict resolution.	4.55	Always
General Weighted Mean	**4.01**	**Often Practice**

Table 2 presents the extent of practice on personal management skills of of selected school heads in public elementary schools in Camarines Norte as perceived by the teachers. As shown in the table, school head always communicates effectively with his/her staff; delegates duties and authority to capable staff; praise their subordinate in public, criticizes only in private; motivates, encourage his/her staff and School head defuses tense situations and negotiates a solution and does not take side in conflict resolution. These five items obtained a rating ranging from 5.00 to 4.20.

Table 3. Extent of Practice on Financial Management Skills of Selected School Heads in Public Elementary Schools in Camarines Norte

III. Financial management skills	W. Mean	Description
The school head, jointly with the management staff and heads of departments and units, prepares the budget for the school.	4.30	Always
School head priorities financial allocation according to needs	4.30	Always
School head plans and sources for funds for school improvement.	4.40	Always
School head ensures that budget reflect agreed goals and objectives.	4.65	Always
School head delegates the mechanism of financial matters to capable staff	4.65	Always
The school head keeps close checks on financial matters delegated to staff.	4.45	Always
School head works within the constraints of the school budget	4.75	Always
School head keeps accurate financial information about the school.	4.75	Always
School heads give true and fair view of the financial position of the school.	4.25	Always
The school head manages school resources in accordance with DepEd policies and accounting and auditing rules and regulations and other pertinent guidelines.	4.85	Always
Total	**4.535**	**Always**

Table 3 presents the extent of practice on financial management skills of Elementary school heads in Public elementary schools in Camarines Norte as perceived by the teachers. As presented in the table the school heads in Public elementary schools in Camarines Norte always practice the 10 items under this category as follows: the school head jointly with the management staff and heads of departments and units, prepares budget for the school; priorities financial allocation according to needs; plans and sources for funds for school improvement.; ensures that budget reflect agreed goals and objectives; delegates the mechanism of financial matters to capable staff; keeps close check on financial matters delegated to staff; works within the constraints of the school budget; keeps accurate financial information about the school; give true and fair view of the financial position of the school; and manages school resources in accordance with DepEd policies and accounting and auditing rules and regulations and other pertinent guidelines. These 10 items obtained a weighted mean ranging from 5.00 to 4.20.

Table 4. Relationship Between the School head Management Competencies and the Performance of the Schools

Sources of Data	School Performance (Mean)		School head Competency Mean		r	Interpretation
	Mean	D	Mean	D		
Public elementary schools in Camarines Norte						
Instruction leadership	4.00	VS	3.75	VS	.28	Not significant
Personal Management	4.00	VS	3.36	VS	.18	Not significant
Financial management	4.00	VS	3.53	VS	.15	Not significant

Table 4 presented the result of the statistical analysis using Pearson Product Moment Correlation or Pearson r on the school performance and the school head competency relative to management practices. As presented in the table, Public elementary schools in Camarines Norte has a school performance mean score of 4.00 for the three categories namely instruction, personal management and finance. This means that the school has a very satisfactory performance with respect to these three categories. While the school head management competency was also very satisfactory with a mean of 3.75 for instruction, 3.36 for personal management and 3.53 for financial management. The computed r of.28 for instruction;.18 for personal management and.15 for financial management indicated a very low correlation, hence the school performance have insignificant relationship. There might be others intervening factor that may enhance it relationship. Performance revealed on other school even if they have a low school performance it was not affected by the management competency of the school head.

CONCLUSION

Based on the findings of the study. It can be inferred from the result of the Pearson r, that school performance is not related to the competency of the school head management practices. There was a combination of several factors that make a school successful.

RECOMMENDATIONS

Based on the findings and conclusion of the study the following are recommended

1. The individual school head can help their subordinate to plan and manage their own continuous professional development and to create professional learning communities to enhance their knowledge and skills. In this way it can help them in the school performance.
2. Knowing what constitutes good school leadership and Putting it into effect will have a deeper understanding of what strong instructional leadership looks like. Educators and policymakers at all levels would do well to remember that the crux of the school head's job is not, to sit at the apex and attend to administrative tasks, but to work collaboratively and unleash potential.
3. Further study on other factors is recommended.

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CHALLENGES, MOTIVATION, AND JOB SATISFACTION OF JOB ORDER PERSONNEL IN THE PROVINCIAL OFFICE OF DEPARTMENT OF AGRARIAN REFORM- EASTERN SAMAR

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ABSTRACT

This study aimed to determine the level of motivation among job order personnel in the Provincial Office of DAR Eastern Samar, based on Herzberg's Two-Factor Theory. The motivating factors, including performance, recognition, responsibility, advancement, and growth, were examined, along with the hygiene factors of policies and rules, supervision, work condition, salary, and co-worker relation. Along with the identified challenges faced by job order personnel, a program is proposed for the job order personnel of the Provincial Office of DAR Eastern Samar. The study revealed that job order personnel's motivation was high, with all the motivators and hygiene factors agreeing. Both motivators and hygiene factors are strong contributors to job satisfaction beyond salary. Hence, respondents demonstrated a high level of job satisfaction as well. Challenges faced by job order personnel included lack of fair treatment, delayed salary, inadequate safety equipment, socialization activities, accommodation, and infrequent supervision. In conclusion, the findings highlight the importance of understanding the demographic profile, motivation, job satisfaction, and challenges faced by job order personnel. To address these factors, a program is developed that the Provincial Office of DAR Eastern Samar and other organizations can implement, which focuses on strategies to improve job satisfaction, address challenges, and create a more supportive and fulfilling work environment for job order personnel.

Keywords: Herzberg's Two-Factor Theory, motivators, hygiene factors, job order personnel, Provincial Office of DAR Eastern Samar

INTRODUCTION

Workers come to work with different levels of expectation. This expectation may differ both in terms of quality and intensity. On the basis of work experiences, people expect to receive rewards from the job that drives them to strive better. This refers to motivation that comes in two forms- intrinsic and extrinsic motivation (Ryan & Deci, 2000). When something is done because it is inherently interesting or delightful, this is referred to as intrinsic motivation. Extrinsic motivation is when a person acts in a way that results in distinct outcomes.

A study by Villena (2018) which involved job order and contract of service personnel in the Philippines revealed that they have different motivations for applying for permanent work, despite their qualifications. They also believe that their entitlement to social security benefits is voluntary, their services are essential for public service, and they view themselves as "job orders." The study suggests programs to assist these workers in obtaining productive regular employment, considering their social protection benefits and government recognition of their contributions.

These circumstances of job order personnel in the country are worthy of continuous research. The main goal is to continually offer decent jobs to many people, improve their work conditions and increase their motivation and satisfaction at work. Despite the fact that there are no local theories on Filipino motivation, there is a growing body of research in the Philippine workplace on motivation. Filipino worker as someone who values job security, good pay, and opportunities for growth when choosing a prospec-

tive employer. The employment of job order/ contract of service in the country has been an ever-growing reality in the Philippines.

Personnel's motivation will be based on Herzberg's two-factor theory (also called dual factor theory, or Motivators-Hygiene theory). Two factors are motivation factors (motivators) and hygiene factors. Motivation factors include work advancement, work itself, possibility of growth, responsibility, recognition, and achievement. Hygiene factors consist of interpersonal relationships, salary, policies and administration, supervision and working conditions.

In addition to motivation and job satisfaction, the study will also assess the challenges encountered by the respondents. These problems or challenges are based on the ILO Report (2016) on the insecurities that NSE encounters in terms of Employment Security; Earnings; Hours; Occupational safety and health; Social security; Training; and Representation and fundamental rights. This will justify the need for a program that will help them improve their work conditions and increase their motivation so they can work efficiently and effectively.

This quantitative study, which is grounded in the aforementioned premise, attempted to assess the level of motivation and job satisfaction of job order personnel at the Provincial Office of DAR Eastern Samar. The study will also look at how the job order personnel's levels of motivation and job satisfaction differed. It also looked at how the motivation and job satisfaction of the job order personnel related to their profile. The key outcome of this study will be the creation of interventions that managers may use to integrate and improve those elements and produce an atmosphere that is productive for the job order personnel. The study included 306 respondents who are currently employed at the Provincial Office of DAR Eastern Samar. The researcher used a self-made questionnaire which is made up of three parts: their personal profile, level of motivation and job satisfaction, and challenges encountered. They will all be crucial in meeting the objectives of the study.

This study which will use Herzberg's two-factor theory of motivation (1968) is the first to be done among Job Order personnel working in a DAR provincial office. This will explain the factors that contribute to their motivation and job satisfaction amidst challenges being encountered. While the International Labor Organization' report on non-standard employment (2016) will form the basis for identifying problems encountered at the workplace.

OBJECTIVES OF THE STUDY

This study assessed the level of motivation and job satisfaction among Job Order personnel in the Provincial Office of DAR Eastern Samar with the end view of proposing a training program.

1. What is the level of motivation of job order personnel in the Provincial Office of DAR Eastern Samar based on the two- factor theory of Herzberg, as to:
   1.1. Motivators, and
   1.2. Hygiene Factors
2. What are the challenges encountered by the job order personnel in the Provincial Office of DAR Eastern Samar?
3. Based on the results of the study, what training development programs can be proposed?

METHODS AND MATERIALS

This quantitative study used the inferential and descriptive-correlational design. The participants of this study were the job order personnel from the Provincial Office of DAR Eastern Samar who had valid contracts since January 2023. From the population of one thousand twohundred ninety-four (1,294), samples were selected using the Raosoft formula with a margin of error of 5% and confidence level of 95%. Purposive sampling was used to enable the researcher to select respondents among the employees of the identified Provincial Office who are most appropriate in the study. This technique was set parameters in selecting the respondents. Specifically, job order personnel of the Provincial Office of DAR Eastern Samar who have existing valid contracts since January 2023 until the time of data collection.

Moreover, a self-constructed questionnaire was used in collecting data in this study. The questionnaire is composed of statements from which the respondents choose a number for each item corresponding to their answers from a 5-point Likert scale indicating their perspectives in terms of their motivation, and problems encountered at work.

RESULTS AND DISCUSSIONS

Table 1.1. Level of Motivation of Job Order Personnel in the Provincial Office of DAR Eastern Samar in Terms of Motivators (Performance Achievement)

Items	Weighted Mean	Interpretation	Rank
The work encourages job order personnel to put out his/her best performance.	4.48	Strongly Agree	1
There is a sense of fulfillment being felt by the job order personnel.	4.40	Strongly Agree	2
The work gives job order personnel a sense of pride.	4.35	Strongly Agree	3
Composite Mean	**4.41**	**Strongly Agree**	

It can be seen that most of the respondents had agree/strongly agree remarks with all the statements concerning performance and achievement, as evident in the weighted means. The highest weighted mean of 4.48 is observed in statement 1 (The work encourages job order personnel to put out his/her best performance.), while the lowest weighted mean of 4.35 is observed in statement 3 (The work gives job order personnel a sense of pride.). The overall weighted mean is 4.41 implying that the respondents have a strongly agree remark with all the statements in their level of motivation in terms of their performance and achievement.

Table 1.2. Level of Motivation of Job Order Personnel in the Provincial Office of DAR Eastern Samar in Terms of Motivators (Recognition)

Items	Weighted Mean	Interpretation	Rank
The worker receives positive feedback for a work that is done successfully.	4.35	Strongly Agree	1
The worker gets non- monetary gifts or benefits for an excellent performance of work.	4.25	Strongly Agree	3
The worker is recognized for an excellent result of the evaluation report.	4.30	Strongly Agree	2
Composite Mean	**4.30**	**Strongly Agree**	

Taking this into account, the results infers that the Provincial Office of DAR Eastern Samar has been effectively recognizing their job order employees through various approach, which results to their positive perception presented above.

Table 1.3. Level of Motivation of Job Order Personnel in the Provincial Office of DAR Eastern Samar in Terms of Motivators (Responsibility)

Items	Weighted Mean	Interpretation	Rank
1. Job order can accomplish work within the given deadline.	4.54	Strongly Agree	1
2. Job order personnel can decide on work-related matters.	4.36	Strongly Agree	3
3. Job order personnel can accomplish work with minimal supervision.	4.42	Strongly Agree	2
Composite Mean	**4.44**	**Strongly Agree**	

As regards job order personnel's responsibility, it can be seen that most of the respondents had agree/strongly agree remarks with all the statements concerning responsibility, as evident in the computed weighted means as seen in the table. The highest weighted mean of 4.54 is observed in statement 1 (Job order can accomplish work within the given deadline.), while the lowest weighted mean of 4.36 is observed in statement 2 (Job order personnel can decide on work-related matters.). The overall weighted mean is 4.44 implying that the respondents have a strongly agree remark with all the statements in their level of motivation in terms of responsibility.

Table 1.4. Level of Motivation of Job Order Personnel in the Provincial Office of DAR Eastern Samar in Terms of Motivators (Advancement)

Items	Weighted Mean	Interpretation	Rank
1. There is opportunity for development and professional growth for job order personnel.	4.85	Strongly Agree	1
2. There is encouragement and support given by the organization to attend professional development training and seminars.	4.47	Strongly Agree	2
3. There is provision of support to pursue further studies in the form of leaves and modified work arrangements.	4.03	Strongly Agree	3
Composite Mean	**4.45**	**Strongly Agree**	

In terms of advancement, most of the respondents had agree/strongly agree remarks with all the statements concerning advancement, as evident in the weighted means found in the table. The highest weighted mean of 4.85 is observed in statement 1 (There is opportunity for development and professional growth for job order personnel.), while the lowest weighted mean of 4.03 is observed in statement 3 (There is provision of support to pursue further studies in the form of leaves and modified work arrangements.). The overall weighted mean is 4.45 implying that the respondents have a strongly agree remark with all the statements in their level of motivation in terms of advancement.

Table 1.5. Level of Motivation of Job Order Personnel in the Provincial Office of DAR Eastern Samar in Terms of Motivators (Growth)

Items	Weighted Mean	Interpretation	Rank
The work is challenging but provides opportunities to learn.	4.38	Strongly Agree	1
There is opportunity to develop in other aspects - socially, emotionally, and mentally.	4.25	Strongly Agree	3
The work provides opportunities for more promising employment.	4.30	Strongly Agree	2
Composite Mean	**4.31**	**Strongly Agree**	

In terms of job order personnel's growth, most of the respondents had agree/strongly agree remarks with all the statements concerning growth, as shown by the computed weighted mean stated in the table

The highest weighted mean of 4.38 is observed in statement 1 (The work is challenging but provides opportunities to learn.), while the lowest weighted mean of 4.25 is observed in statement 2 (There is opportunity to develop in other aspects - socially, emotionally and mentally.). The overall weighted mean is 4.31 implying that the respondents have a strongly agree remark with all the statements in their level of motivation in terms of growth.

Table 2.1. Level of Motivation of Job Order Personnel in the Provincial Office of DAR Eastern Samar in Terms of Hygiene Factors (Policies and Rules)

Items	Weighted Mean	Interpretation	Rank
The policies and rules are in accordance with the Department of Labor and Employment (DOLE) and the Civil Service Commission (CSC).	4.52	Strongly Agree	1
Strict implementation of policies and rules is observed in the organization.	4.45	Strongly Agree	2
Penalties for work-related offenses, which are clearly explained and understood by job order personnel, are given according to the law.	4.26	Strongly Agree	3
Composite Mean	**4.41**	**Strongly Agree**	

It can be seen that all of the respondents had strongly agree remarks with all the statements concerning policies and rules, as shown by the computed weighted means displayed. The highest weighted mean of 4.52 is observed in statement 1, while the lowest weighted mean of 4.26 is observed in statement 3. The overall weighted mean is 4.41 implying that the respondents have a strongly agree remark with all the statements in their level of motivation in terms of policies and rules.

Table 2.2. Level of Motivation of Job Order Personnel in the Provincial Office of DAR Eastern Samar in Terms of Hygiene Factors (Leadership or Supervision)

Items	Weighted Mean	Interpretation	Rank
The worker gets support from his immediate superior.	4.72	Strongly Agree	1
The superior shows sympathy and empathy with the workers.	4.67	Strongly Agree	2
The superior is very hands-on in his work and ensures that all workers are performing their duties.	4.32	Strongly Agree	3
Composite Mean	**4.57**	**Strongly Agree**	

As cited in Table 2.2, in terms of supervision, respondents had strongly agreed remarks with all the statements concerning supervision, as given by the weighted means stated in the table. The highest weighted mean of 4.72 is observed in statement 1 (The worker gets support from his immediate superior.), while the lowest weighted mean of 4.32 is observed in statement 3 (The superior is very hands-on in his work and ensures that all workers are performing their duties.). The overall weighted mean is 4.57 implying that the respondents have a strongly agree remark with all the statements in their level of motivation in terms of supervision.

Table 2.3. Level of Motivation of Job Order Personnel in the Provincial Office of DAR Eastern Samar in Terms of Hygiene Factors (Work Condition)

Items	Weighted Mean	Interpretation	Rank
The working hours for job order personnel are reasonable.	4.49	Strongly Agree	1
Job order personnel are never asked to work beyond the agreed working hours.	4.36	Strongly Agree	3
The workplace is safe, clean, and enjoyable.	4.41	Strongly Agree	2
Composite Mean	**4.42**	**Strongly Agree**	

Meanwhile as seen in Table 2.3, in the aspect of work condition, most of the respondents had agree/ strongly agree remarks with all the statements concerning work condition, as evident in the computed weighted means. The highest weighted mean of 4.49 is observed in statement 1 (The working hours for job order personnel are reasonable.), while the lowest weighted mean of 4.36 is observed in statement 2 (Job order personnel are never asked to work beyond the agreed working hours.). The overall weighted mean is 4.42 implying that the respondents have a strongly agree remark with all the statements in their level of motivation in terms of work condition.

Table 2.4. Level of Motivation of Job Order Personnel in the Provincial Office of DAR Eastern Samar in Terms of Hygiene Factors (Salary)

Items	Weighted Mean	Interpretation	Rank
Salary is satisfactory in relation to the job.	4.21	Strongly Agree	2
The worker earns the same as other job order personnel in a similar job.	4.20	Strongly Agree	3
Salary increases are based on law.	4.22	Strongly Agree	1
Composite Mean	**4.21**	**Strongly Agree**	

In terms of salary, respondents had agreed remarks with all the statements concerning salary, as evident in the weighted means relayed in the table.. The highest weighted mean of 4.22 is observed in statement 3 (*Salary increases are based on law*.), whereas the lowest weighted mean of 4.20 is observed in statement 2 (*The worker earns the same as other job order personnel in a similar job*.). The overall weighted mean is 4.21 implying that the respondents have an agree remark with all the statements in their level of motivation in terms of salary.

Table 2.5. Level of Motivation of Job Order Personnel in the Provincial Office of DAR Eastern Samar in Terms of Hygiene Factors (Co-Worker Relation)

Items	Weighted Mean	Interpretation	Rank
There is an opportunity to mix with others and communicate on all aspects of work.	4.42	Strongly Agree	2
The worker can depend on my coworkers for support and guidance.	4.36	Strongly Agree	3
The worker get along well with my coworkers, both regular and job order status.	4.51	Strongly Agree	1
Composite Mean	**4.43**	**Strongly Agree**	

In terms of co-worker relation, the respondents had strongly agreed remarks with all the statements concerning co-worker relation, as evident in the weighted means seen in the table. The highest weighted mean of 4.51 is observed in statement 3 (The worker gets along well with my coworkers, both regular and job order status.), while the lowest weighted mean of 4.36 is observed in statement 2 (The worker can depend on my coworkers for support and guidance.). The overall weighted mean is 4.43 implying that the respondents have a strongly agree remark with all the statements in their level of motivation in terms of co-worker relation.

Table 3. Challenges Encountered by the Job Order Personnel in the Provincial Office of DAR Eastern Samar

Challenges Encountered	F	P	R
Employment Security			
Lack of fair treatment among workers is observed in the workplace.	35	11.4	1
There is a lack of valid and clear employee evaluation procedures.	23	7.5	2
Employee's evaluation is not conducted in a fair, just, and timely manner.	19	6.2	3
Earnings			
Salary is not based on the approved rate of the Department of Labor and Employment (DOLE), and National Wages Productivity Commission (NWPC).	17	5.6	3
There is no provision for benefits such as bonuses and other additional pay.	23	7.5	2
Salary is not given or received on a timely manner.	34	11.1	1
Occupational Safety and Health			
The workplace is not clean, safe, and conducive for workers.	12	3.9	3
There is a lack of provision of safety equipment and facilities for workers.	25	8.2	1
There is a lack of provision of alcohol, face mask, and clean comfort rooms to ensure that health protocols are observed.	18	5.9	2
Social Security			
There is a lack of provision of security of tenure.	38	12.4	3
There is a lack of assurance of job stability.	49	16.0	2
There is a lack of provision of emergency funds and sickness benefits.	80	26.1	1
Trainings			
There is a lack of socialization activities or team building activities that promote social development.	47	15.4	1
Employees' orientation is not done on a regular basis to update the job order personnel of the opportunities for advancement.	35	11.4	2
Training programs for job order employees are not conducted regularly.	34	11.1	3
Representation and Other Fundamental Rights			
There is a lack of open communication between the superior and the job order personnel to discuss work-related matters.	15	4.9	2
Superiors do not encourage job order personnel to voice out their opinions.	11	3.6	3
The Human Resource Department Office seldom accommodates and addresses work-related problems of job order personnel.	21	6.9	1
Leadership or Supervision			
The superior does not embody a fair, objective and responsible leader.	16	5.2	3
The superior seldom sees or monitors the overall performance of the workers.	19	6.2	1
The superior seldom promotes healthy relationships among the workers.	18	5.9	2

Legend: F = Frequency P = Percentage R = Rank

Table 3 presents the frequency count of the challenges encountered by the respondents. It was divided into 7 sections: employment security, earnings, occupational safety and health, social security, training, representation and other fundamental rights, and leadership or supervision.

The employment security frequency range is from 19 - 35. The highest frequency count is observed in statement 1 (Lack of fair treatment among workers is observed in the workplace.), followed by statement 2 (There is a lack of valid and clear employee evaluation procedure.), and statement 3 (Employee's evaluation is not conducted in a fair, just and timely manner.), with frequency counts 35, 23, and 19, respectively.

The earnings frequency range is from 17 - 34. The highest frequency count is observed in statement 3 (Salary is not given or received on a timely manner.), followed by statement 2 (There is no provision of benefits such as bonuses and other additional pay.), and statement 1 (Salary is not based on the approved rate of the Department of Labor and Employment (DOLE), and National Wages Productivity Commission (NWPC).), with frequency counts 34, 23, and 17, respectively.

The occupational safety and health frequency range is from 12 - 25. The highest frequency count is observed in statement 2 (There is a lack of provision of safety equipment and facilities for workers.), followed by statement 3 (There is a lack of provision of alcohol, face mask and clean comfort rooms to ensure that health protocols are observed.), and statement 1 (The workplace is not clean, safe and conducive for workers.), with frequency counts 25, 18, and 18, respectively.

Moreover, the social security frequency range is from 38 - 80. The highest frequency count is observed in statement 3 (There is a lack of provision of emergency funds and sickness benefits.), followed by statement 2 (There is a lack of assurance of job stability.), and statement 1 (There is a lack of provision of security of tenure.), with frequency counts 80, 49, and 38, respectively.

The trainings frequency range is from 34 - 47. The highest frequency count is observed in statement 1 (There is a lack of socialization activities or team building activities that promote social development.), followed by statement 2 (Employees' orientation is not done on a regular basis to update the job order personnel of the opportunities for advancement.), and statement 3 (Training programs for job order employees are not conducted regularly.), with frequency counts 47, 35, and 34, respectively.

The representation and other fundamental rights frequency range are from 11 - 21. The highest frequency count is observed in statement 3 (The Human Resource Department Office seldom accommodates and addresses work-related problems of job order personnel.), followed by statement 1 (There is a lack of open communication between the superior and the job order personnel to discuss work-related matters.), and statement 2 (Superiors do not encourage job order personnel to voice out their opinions.), with frequency counts 21, 15, and 11, respectively.

The leadership or supervision frequency range is from 16 - 19. The highest frequency count is observed in statement 2 (The superior seldom sees or monitors the overall performance of the workers.), followed by statement 3 (The superior seldom promotes healthy relationships among the workers.), and statement 1 (The superior does not embody a fair, objective and responsible leader.), with frequency counts 19, 18, and 16, respectively.

Proposed Program for the Job Order Personnel in the Provincial Office of DAR Eastern Samar

Job order personnel play a vital role in an organization, and it is essential to address the challenges they encounter to ensure their satisfaction, well-being, and professional growth. Based on the findings from the data analysis, which highlighted various areas of concern for job order personnel, the researcher has developed a comprehensive program aimed at elevating motivation, improving job satisfaction, and enhancing work conditions for this group of employees. This program aims to address the specific needs and challenges identified among job order personnel in the Provincial Office of DAR Eastern Samar. By focusing on enhancing motivation factors, improving hygiene factors, addressing profile-related concerns, and overcoming challenges, the program seeks to create a supportive and empowering work environment for job order personnel. Implementing these initiatives will contribute to increased job satisfaction, enhanced motivation, and overall well-being among job order personnel, ultimately leading to improved organizational performance and success. Also, it takes into account the insights provided by previous research and expert opinions.

Table 4. Proposed Program for the Job Order Personnel in the Provincial Office of DAR Eastern Samar

Proposed Title: Enhanced Work Experience Program for Job Order Personnel: Fostering Motivation, Fairness, and Growth
Rationale The Enhanced Work Experience Program for Job Order Personnel aims to address the challenges faced by Job Order personnel in the Provincial Office of DAR Eastern Samar. The program focuses on promoting fair treatment, ensuring fair and timely earnings, enhancing occupational safety and health, strengthening social security measures, providing training and development opportunities, ensuring representation and fundamental rights, and enhancing leadership and supervision. These initiatives will not only improve the work environment for the Job Order personnel in the Provincial Office of DAR Eastern Samar, but also contribute to their overall satisfaction, well-being, and professional growth.
Program Description The program consists of various components that target specific areas of improvement for Job Order personnel. These components include Performance and Achievement Enhancement, Recognition and Rewards, Responsibility Empowerment, Advancement Opportunities, Growth and Development Support, Policy and Procedure Development, Workplace Improvement, Social Security Measures, Training and Development Initiatives, Representation and Fundamental Rights, and Leadership and Supervision Enhancement. Each component has specific objectives and activities designed to address the challenges and enhance the work experience of Job Order personnel.
Target Population The program is designed for the Job Order personnel in the Provincial Office of DAR Eastern Samar. This includes individuals employed on a contractual basis, such as project-based workers, temporary staff, and casual employees. The program aims to benefit Job Order personnel across different departments and roles within the organization.

Program Components	Program Objectives	Specific Activities
Performance and Achievement Enhancement	Foster continuous improvement: Develop initiatives to further enhance the performance and achievement of Job Order personnel, enabling them to consistently excel in their assigned tasks and responsibilities.	Implement performance feedback mechanisms to provide timely and constructive feedback, helping job order personnel identify areas of improvement and build upon their strengths. Provide relevant training and development programs to enhance their skills and competencies, aligning with their job responsibilities. Establish mentorship programs to facilitate knowledge sharing and learning from experienced professionals.
Recognition and Rewards	Promote a culture of recognition: Implement mechanisms that recognize and appreciate the efforts and contributions of Job Order personnel, encouraging a sense of value and satisfaction in their work.	Establish a recognition program that acknowledges exceptional performance, going beyond monetary rewards to include public recognition, certificates, or awards. Encourage peer-to-peer recognition, fostering a supportive and appreciative work environment. Incorporate regular celebrations or events to appreciate the efforts and achievements of Job Order personnel.
Responsibility Empowerment	Enhance responsibility and ownership: Empower Job Order personnel by providing opportunities for increased responsibility and autonomy, enabling them to take ownership of their tasks and projects.	Assign job order personnel with increased responsibility and autonomy in their tasks, allowing them to take ownership and make decisions within their areas of expertise. Provide opportunities for involvement in cross-functional projects, encouraging collaboration and diverse skill development.
Advancement Opportunities	Facilitate professional advancement: Create pathways for career growth and advancement within the organization, providing Job Order personnel with opportunities to expand their skills and responsibilities.	Create a clear career progression framework for job order personnel, outlining the criteria and requirements for advancement to higher-level positions. Offer relevant training programs and educational support to enable job order personnel to acquire new skills and qualifications necessary for advancement.
Growth and Development Support	Support personal and professional growth: Design programs that facilitate the personal and professional development of Job Order personnel, ensuring their long-term growth and fulfillment.	Establish a mentorship or coaching program to provide guidance and support in the personal and professional growth of job order personnel. Organize workshops, seminars, or webinars to enhance their knowledge and skills in areas beyond their immediate job responsibilities. Encourage job order personnel to pursue professional certifications or further education, offering financial assistance or flexible schedules to facilitate their growth.
Policy and Procedure Development	Promote fair treatment and evaluation procedures: Establish policies and procedures that ensure fair treatment among workers and implement a valid and clear employee evaluation process that is conducted in a fair, just, and timely manner.	Review and update policies to ensure fair treatment and employee evaluation procedures. Establish guidelines for salary alignment with DOLE and NWPC rates. Develop protocols for timely salary disbursement and provision of benefits.
	Ensure fair and timely earnings: Align salaries with the approved rates of the Department of Labor and Employment (DOLE) and the National Wages Productivity Commission (NWPC). Provide benefits such as bonuses and additional pay, ensuring that salaries are given and received on time.	

Workplace Improvement	Enhance occupational safety and health: Create a clean, safe, and conducive workplace environment for Job Order personnel. Provide necessary safety equipment, facilities, and hygiene resources, such as alcohol, face masks, and clean comfort rooms, to ensure the observation of health protocols.	Conduct regular inspections and address any issues related to workplace cleanliness, safety, and comfort. Provide safety equipment and facilities necessary for Job Order personnel. Ensure the availability of hygiene resources to comply with health protocols.
Social Security Measures	Strengthen social security measures: Advocate for the provision of security of tenure and job stability for job order personnel. Establish systems for emergency funds and sickness benefits to provide support during challenging times.	Advocate for the provision of security of tenure and job stability. Establish emergency funds and sickness benefits programs. Facilitate access to social security resources for job order personnel.
Training and Development Initiatives	Promote training and development opportunities: Organize socialization activities and team-building events to foster social development among Job Order personnel. Conduct regular orientations to update them on advancement opportunities and provide regular training programs to enhance their skills and knowledge.	Organize socialization activities and team-building events. Conduct regular orientations and training programs for professional growth. Collaborate with relevant departments to provide relevant and useful training opportunities.
Representation and Fundamental Rights	Ensure representation and fundamental rights: Encourage open communication between superiors and Job Order personnel, fostering an environment where they can voice their opinions and discuss work-related matters. Strengthen the role of the Human Resource Department in accommodating and addressing the problems of Job Order personnel.	Encourage open communication channels between superiors and Job Order personnel. Promote an inclusive environment where opinions and concerns are valued. Strengthen the role of the Human Resource Department in addressing work-related problems.
Leadership and Supervision Enhancement	Enhance leadership and supervision: Promote fair, objective, and responsible leadership among superiors. Establish mechanisms for monitoring the overall performance of workers and encourage the promotion of healthy relationships among team members.	Provide leadership training for superiors to ensure fair and responsible leadership. Establish mechanisms for monitoring and evaluating the overall performance of Job Order personnel. Foster a culture of mutual respect and healthy relationships among team members.

Program Implementation Strategies

1. Establish a dedicated program management team responsible for overseeing the implementation of each program component.
2. Develop a detailed implementation plan with specific timelines, roles, and responsibilities for each activity.
3. Collaborate with relevant stakeholders, including department heads, supervisors, and Human Resources, to gain their support and involvement in implementing the program.
4. Conduct training sessions to ensure that all stakeholders understand the program objectives, activities, and their roles in supporting the program.
5. Establish communication channels to disseminate program information, updates, and feedback mechanisms to Job Order personnel.
6. Allocate resources, including financial, human, and material resources, to support the implementation of the program.
7. Regularly monitor the progress of program implementation, identify any challenges or issues, and take corrective actions as necessary.

Foster a culture of accountability, transparency, and continuous improvement throughout the implementation process.

Program Evaluation

The program will be evaluated using a comprehensive framework to assess its effectiveness and impact. The evaluation will involve measuring key performance indicators related to job satisfaction, employee engagement, professional growth, fairness, and occupational safety and health. Data will be collected through surveys, interviews, and performance evaluations. The evaluation findings will be used to make data-driven decisions, identify areas for improvement, and ensure the program's ongoing effectiveness.

Sustainability Plan

To ensure the sustainability of the program, a robust plan will be implemented. This plan includes securing necessary funding and resources for the program's implementation and continuation. Efforts will be made to integrate the program into existing organizational structures and systems, ensuring its long-term integration and support. Collaboration with relevant stakeholders, such as the Human Resource Department, will be fostered to maintain ongoing support and address the needs of Job Order personnel.

CONCLUSIONS

The findings provide valuable insights into the demographic profile, motivation, job satisfaction, and challenges faced by job order personnel. Understanding these factors is essential for organizations to tailor strategies and policies that address the specific needs and concerns of this workforce, leading to improved job satisfaction and a more conducive work environment.

1. In regard the level of motivation, respondents have a "high" level, since all the motivating factors gained a remark of strongly agree while salary is the only hygienic factor with a remark of agree.
2. There is a high level of job satisfaction among the job order personnel. This is backed up by the high level of motivators and hygiene factors. The motivating factors for job order personnel were found to be strong contributors to their job satisfaction. All motivators are strong contributor in the respondents' job satisfaction, while salary, classified as a hygienic factor, is remarked as "contributor". This indicates that while salary is important, other factors such as recognition, responsibility, advancement, and growth contribute significantly to job satisfaction.
3. The challenges encountered by job order personnel include lack of fair treatment, delayed salary, inadequate safety equipment and facilities, lack of socialization activities, lack of accommodation for work-related problems, and infrequent supervision. These challenges highlight areas that require attention and improvement to enhance the work experience of job order personnel.

RECOMMENDATIONS

In light with these conclusions, this study recommends the following:

1. Local government agencies should implement appropriate measure to promote gender equality in the workforce, such as initiatives and programs that provide equal career opportunities for both genders, and to overcome social and cultural barriers.
2. Invest in continuous professional development for job order workers that can help enhance and ensure that their skills and knowledge are aligned with the evolving needs of the organization, which can also provide them the possibility of transitioning to permanent positions.
3. Establish a system of recognition programs through regularly evaluating performance and providing positive feedback and acknowledgement, which includes non-monetary benefits such as public acknowledgement or certificate of appreciation, to encourage continuous development.
4. Review and evaluate the current compensation system for job order personnel to ensure that salaries are fair, commensurate with their skills and contributions, and provide them with stability during times of crises.
5. Align all the policies and regulation on the approved guidelines provided by the Department of Labor and Employment (DOLE), Civil Service Commission (CSC), and National Wages Productivity Commission (NWPC).
6. Future researchers can extend their in-depth studies regarding this present topic by using only one type of research design, which is qualitative approach. This would allow participants to formulate their own perceptions and craft broad ideas about the world of job order employment through answering open-ended questions.

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PARENTAL INVOLVEMENT ON LEARNER DISCIPLINE IN K-12 EDUCATION IN LUMANIAG ELEMENTARY SCHOOL: BASIS FOR A SCHOOL DEVELOPMENT PLAN

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ABSTRACT

This study aimed to assess the impact of parental involvement on learner discipline within the context of Lumaniag Elementary School's K-12 education setting. Employing a quantitative methodology with a descriptive-correlational approach, the research utilized a survey tool to gauge the influence of parental involvement on learner discipline. The study concentrated on Grade 1 students and aimed to include a representative sample of 43 learners and their parents from the entire Grade 1 student population. To ensure survey reliability and validity, rigorous validation procedures, including face validation for Grade 1 students, were conducted. The survey instrument demonstrated high reliability, with a Cronbach alpha score of 0.820, indicating its suitability for the study. Findings revealed that parents demonstrated a high level of collaboration with teachers to address behavioral issues and support positive behavior reinforcement. Similarly, learners reported a strong parental presence in school events and parent-teacher meetings, contributing to their behavioral development. Additionally, parents actively engaged in setting academic goals and monitoring cognitive progress, with learners acknowledging their parents' support in these aspects. Regarding personal development, parents displayed awareness of their children's interests and actively participated in extracurricular activities, fostering meaningful conversations with their children. Moreover, parents were instrumental in monitoring study schedules and supporting adherence to school disciplinary policies, contributing to efficient learner discipline. Statistical analysis revealed significant correlations between parental involvement and learner discipline, particularly in behavioral and cognitive domains. These findings underscored the importance of parental engagement in shaping learner discipline within the K-12 education context. Recommendations for enhancing parental involvement were proposed based on the study's outcomes, aiming to strengthen collaboration between parents and educators for improved learner outcomes.

Keywords: parental involvement, learner discipline, k-12 education

INTRODUCTION

The K-12 education system represents the fundamental building blocks of a society's future. It was within these formative years that students not only acquired academic knowledge but also cultivated essential life skills and values that served as the cornerstone of their future success. These factors play a significant role in shaping the discipline of learners within the global K-12 education system, ultimately influencing their personal and academic development.

Parental involvement in education was a global concern, recognized as a critical factor in shaping the academic and disciplinary outcomes of students. As societies strive to enhance educational systems and address challenges in K-12 education, the role of parents in fostering learner discipline has gained prominence on the global stage. The collaboration between parents and schools was increasingly acknowledged as a powerful force in shaping positive behaviors and academic success. This global perspective emphasizes the need for a holistic understanding of parental involvement and its impact on learner discipline, transcending national boundaries.

The issue of learner discipline was a critical one. It extends beyond the mere adherence to rules and regulations within educational institutions; it encompasses the development of self-control, respect for authority, and the ability to function effectively in a social and academic environment. Learner discipline was not only a crucial aspect of a student's academic journey but also an integral component of their overall character development.

Parental involvement was an essential facet of the educational landscape that has a substantial impact on learner discipline. Teachers, as educators and mentors, hold a unique position of authority and influence over their students. Their attitudes, teaching approaches, classroom management techniques, and interactions with students all contribute to the establishment of a conducive learning environment and the cultivation of learner discipline.

Simultaneously, parents play an indispensable role in their children's educational journey. Their involvement goes beyond mere school participation; it encompasses active engagement in their child's learning process, homework, and extracurricular activities (Aladsani et al., 2022). Parental involvement was widely acknowledged as a significant catalyst for positive student outcomes, including learner discipline. Understanding the complex interplay on parental involvement was not merely an academic exercise; it holds profound implications for the effective functioning of the K-12 education system. This has the potential to reinforce or challenge learner discipline, and thus, it was imperative to delve into the dynamics of this relationship.

In the Philippine context, where the K-12 education system has been implemented to align with international standards, the role of parental involvement in learner discipline becomes a pivotal aspect of the educational landscape. Lumaniaq Elementary School, situated within the Philippine educational framework, serves as a microcosm for exploring the intricate dynamics of parental involvement in shaping learner discipline. As the Philippines endeavors to provide quality education to its diverse population, understanding the nuanced ways in which parents contribute to the development of discipline in students was crucial for effective educational interventions and policy decisions.

The Philippine K-12 education system, implemented in 2013, sought to equip students with the necessary skills and competencies for a rapidly changing world (Alampay & Garcia, 2019). In this dynamic educational landscape, the role of parents in instilling discipline becomes paramount. Lumaniaq Elementary School, within this national framework, offers a specific context to explore how parental involvement influences learner discipline, reflecting the broader Philippine commitment to educational excellence.

At the global level, research indicated that when parents actively participate in their children's education, it positively impacts academic achievement and behavior. This global perspective underscored the universality of the link between parental involvement and learner discipline. Factors such as communication between parents and teachers, parental expectations, and involvement in school activities were recognized as influential components shaping student discipline on a global scale.

In the Philippines, where familial ties and community support were deeply ingrained in the cultural fabric, understanding how these aspects contribute to learner discipline was essential (Cancino, 2022). Lumaniaq Elementary School, as a local educational institution, was embedded within the rich tapestry of Filipino values and traditions. Exploring the ways in which parental involvement aligns with these cultural nuances provides insights into effective strategies for promoting positive learner discipline within the Philippine educational context.

The significance of this study goes beyond academic curiosity. The findings have practical implications for various stakeholders within the education system. For educators and school administrators, this research can offer valuable insights into the impact of their teaching styles and approaches on learner discipline, guiding them to adopt effective strategies that enhance discipline within the school environment. Challenges in parental involvement on learner discipline included limited communication between parents and schools, leading to inconsistent behavior management. Socioeconomic factors and time constraints also hindered parents' ability to participate actively. Addressing these challenges required fostering open communication, providing resources, and promoting collaboration between educators and families to reinforce positive behavior at school and home. (Ortan et al, 2021).

Policy makers and educational authorities can draw upon the findings to inform and shape educational policies and strategies aimed at enhancing learner discipline within the K-12 education system. By understanding how parental involvement influence learner discipline, they can develop initiatives that

foster a collaborative and supportive environment for both educators and parents to contribute effectively to the development of well-rounded and disciplined learners (Bell, 2020).

The investigation into parental involvement in learner discipline at Lumaniaq Elementary School was rooted in the recognition of the profound impact parents wield in shaping the educational journey of their children. In the context of the K-12 education system, where a holistic approach to student development was paramount, understanding the dynamics of parental engagement becomes crucial. This study aimed to illuminate the specific ways in which parents contribute to learner discipline within the unique setting of Lumaniaq Elementary School. By delving into the local nuances and cultural context, the research seeks to unravel the multifaceted role parents play in instilling discipline, exploring communication channels, expectations, and involvement in school activities. The findings aspire not only to enrich the academic discourse on parental involvement but also to provide actionable insights for educators and policymakers at Lumaniaq Elementary School, fostering a collaborative environment for the holistic development of students within the K-12 education framework.

Statement of the Problem

The study aimed to determine the influence of parental involvement on learner discipline in k-12 education in Lumaniag Elementary School. Specifically, this study seeks answering the following questions:

1. What is the degree of parental involvement as assessed by the parents and learners in terms of:
   1.1 behavior;
   1.2 cognitive; and
   1.3 personal?
2. What is the efficiency level of learning discipline of the learners as assessed by their parents and themselves?
3. Is there any significant difference between the assessment of parents and learners on parental involvement and learning discipline?
4. Is there any significant relationship between the assessment of parents and learners on parental involvement and learning discipline?
5. What action plan should be proposed to enhance parental involvement?

METHODOLOGY

In this chapter, the research provides a comprehensive explanation of the methodology used in this study, which includes the research design, data sources, study population, instrumentation and its validation, data collection procedures, ethical considerations, data handling, and the analysis techniques applied.

Research Design

This study utilized a quantitative methodology with a descriptive-correlational approach.

Participants

The study focused its analysis on grade 1 students presently enrolled at Lumaniag Elementary School. The study aims to include a maximum of 43 learners and their parents from the entire population of Grade 1 students in the school. It was crucial to emphasize that accurately determining the population size hinges on obtaining formal approval for the researcher's request.

Research Instrument

The research employed researcher-designed questionnaires, custom-tailored to evaluate the influence of parental involvement on learner discipline in the context of Lumaniag Elementary School. This survey was vital for comprehending the intricacies of how parental involvement can positively influence learning discipline within a specific context.

Procedure

Upon securing approval from the principal of Lumaniag Elementary School, the researcher initiated the data gathering process according to a predetermined schedule. Initially, survey questionnaires were distributed during scheduled sessions, each lasting 15 to 20 minutes, ensuring careful completion by participants. A noteworthy aspect was the encouragement for participants to seek clarification on any questionnaire inquiries, aligning with the methodology's emphasis on participant engagement and understanding.

Following the completion of the questionnaire, immediate data collection commenced, aiming to capture participants' responses while their thoughts remain fresh. The seamless transition from the questionnaire phase to data collection underscores the research methodology's commitment to ensuring a comprehensive and accurate compilation of participant responses.

This method of research was characterized by a systematic and structured approach to data collection and analysis. It placed a strong emphasis on precise measurements and statistical analysis to draw valid and reliable conclusions. In this context, the described method underscores the commitment to meticulous data collection within the framework of quantitative research.

This approach highlighted the active role of the researcher in conducting face-to-face survey sessions, which in turn, ensures a structured and systematic approach to data collection. The immediate transition from survey completion to data collection captures participants' responses while they were still fresh, thus enhancing the reliability of the data. The researcher's personal involvement fosters an environment that encourages participant engagement and offers support when needed, aligning with the precision and statistical focus characteristic of quantitative research.

Data Analysis

To interpret the data effectively, the researcher employed the following statistical treatments. The weighted mean, ranking, T-test, and Pearson's r were utilized to interpret the data.

RESULTS AND DISCUSSIONS

This part reported the presentation, analysis, and interpretation of the gathered data from the questionnaires answered by the respondents that are in accordance with the specific questions posited on the objectives of the study.

Table 1. Degree of Parental Involvement as Assessed by Parents and Learners in Terms of Behavior

Items	Parents			Learners		
	WM	VI	R	WM	VI	R
Parents…						
actively reinforce positive behavior in their child's daily activities.	4.47	A	5	4.00	O	4
consistently address and discuss any behavioral concerns with their child.	4.58	A	3	3.95	O	5
attend school events and parent-teacher meetings to stay informed about their child's behavior in school.	4.56	A	4	4.41	A	1
actively engage in discussions with their child about the importance of good behavior.	4.77	A	2	4.12	O	3
collaborate with teachers to address and improve any behavioral issues their child may have.	4.88	A	1	4.19	O	2
Composite Mean	**4.65**	**A**		**4.13**	**O**	

Legend: A = Always
O = Often
R = Rank

WM = Weighted Mean
VI = Verbal Interpretation

As given in Table 1, the parent-respondents affirmed that they always collaborate with teachers to address and improve any behavioral issues their child may have which made the highest weighted mean of 4.88 and the highest rank of 1. This reflected a proactive approach to supporting the child's development and well-being, as both parties work together to identify and address behavioral concerns.

Table 2. Degree of Parental Involvement as Assessed by Parents and Learners in Terms of Cognitive

Items	Parents			Learners		
	WM	VI	R	WM	VI	R
Parents…						
provide educational materials, such as books and educational games, to support their child's cognitive development.	4.42	A	5	4.40	A	5
encourage their child to explore and learn beyond the standard school curriculum.	4.53	A	4	4.50	A	4
help their child set academic goals and monitor their cognitive progress regularly.	4.65	A	1	4.60	A	1
actively discuss with their child the subjects they are currently studying in school.	4.58	A	2	4.56	A	2
engage in cognitive activities with their child to enhance their learning experience.	4.56	A	3	4.53	A	3
Composite Mean	**4.55**	**A**		**4.52**	**A**	

Legend: A = Always
O = Often
R = Rank
WM = Weighted Mean
VI = Verbal Interpretation

As revealed in Table 2, the parent-respondents affirmed that they always help their child set academic goals and monitor their cognitive progress regularly which made the highest weighted mean of 4.65 and the highest rank of 1. This involvement not only encouraged the child to take ownership of their learning but also fosters a sense of responsibility and accountability.

Table 3. Degree of Parental Involvement as Assessed by Parents and Learners in Terms of Personal

Items	Parents			Learners		
	WM	VI	R	WM	VI	R
Parents…						
are aware of their child's friends and their social interactions.	4.60	A	3	4.39	A	3
actively support and participate in extracurricular activities their child is involved in.	4.48	A	5	4.36	A	4
encourage their child to express their thoughts and opinions freely, fostering personal development.	4.64	A	2	4.45	A	2
are aware of their child's personal interests and hobbies.	4.81	A	1	4.59	A	1
actively engage in meaningful conversations with their child about their personal experiences.	4.52	A	4	4.34	A	5
Composite Mean	**4.61**	**A**		**4.43**	**A**	

Legend: A = Always
O = Often
R = Rank
WM = Weighted Mean
VI = Verbal Interpretation

As reflected in Table 3, the parent-respondents replied that they are always aware of their child's personal interests and hobbies which got the highest weighted mean of 4.81 and the highest rank of 1. The findings revealed that parent-respondents consistently exhibit a keen awareness of their child's personal interests and hobbies. This consistent awareness underscored their proactive engagement in understanding and supporting their child's individuality and overall well-being. By remaining attuned to their child's preferences and passions, parents demonstrated a commitment to nurturing holistic development and fostering a sense of identity and self-expression.

Table 4. Efficiency Level of Learning Discipline of Learners as Assessed by the Parents and Themselves

Items	Parents			Learners		
	WM	VI	R	WM	VI	R
The children consistently follow routines for studying and completing assignments.	4.31	A	7	4.52	A	5.5
The parents believe that their children manage their time effectively for school-related tasks.	4.22	A	8	4.45	A	8
The children take personal responsibility for their academic performances.	4.38	A	4	4.52	A	5.5
The parents are well-informed about the school's disciplinary policies and communicate them to their children.	4.59	A	2	4.88	A	1
The children consistently demonstrate self-control and behave appropriately in various situations.	4.20	A	9	4.31	A	9
The parents collaborate with teachers to reinforce discipline strategies at home.	4.34	A	6	4.48	A	7

The parents monitor and support their children in adhering to their study schedules and completing assignments.	4.62	A	1	4.86	A	2
The children manage well their distractions and focus more on their school-related tasks.	3.97	O	10	4.21	A	10
The parents are aware on the consequences outlined in the school's disciplinary policies, and effectively communicate them to their children.	4.50	A	3	4.69	A	3
The children exhibit responsibilities for their actions and behaviors both inside and outside the school environment.	4.36	A	5	4.62	A	4
Composite Mean	**4.34**	**A**		**4.54**	**A**	

Legend: A = Always
O = Often
R = Rank
WM = Weighted Mean
VI = Verbal Interpretation

As discussed in Table 4, the parent-respondents answered that they always monitor and support their children in adhering to their study schedules and completing assignments which yielded highest weighted mean of 4.62 and the highest rank of 1. The findings indicated that parents consistently play an active role in monitoring and supporting their children's academic endeavors. Specifically, they are consistently engaged in overseeing their children's study schedules and ensuring the completion of assignments.

Table 5. Difference Between the Assessment of Parents and Learners on Parental Involvement and Learning Discipline

Variables	t-value	p- value	Decision	Interpretation
Parental Involvement and Learning Discipline				
Behavioral	3.24	0.00171	Reject Ho	Highly Significant
Cognitive	0.57	0.57020	Failed to Reject Ho	Not Significant
Personal	2.14	0.03526	Reject Ho	Significant
Learning Discipline	2.10	0.03873	Reject Ho	Significant

As gleaned in Table 5, when the assessment of the parents and learners on parental involvement were compared to their learning discipline, the computed t-value of 3.24 for behavioral has a corresponding p-value of less than 0.01, thus rejecting the hypothesis. In addition, the computed t-values of 2.14 for personal, and 2.10 for learning discipline have corresponding p-values of less than 0.05, thus rejecting the hypothesis. On the other hand, the computed t-value of 0.57 for cognitive has a corresponding p-value of more than 0.05, thus failing to reject the hypothesis.

Table 6. Relationship Between the Assessment of Parents and Learners on Learning Discipline and Parental Involvement

Variables	r-value	p- value	Decision	Interpretation
Assessment of Parents and Learners on Learning Discipline and Parental Involvement				
Behavioral	0.42	0.00006	Reject Ho	Highly Significant
Cognitive	0.32	0.00267	Reject Ho	Highly Significant
Personal	0.22	0.04182	Reject Ho	Significant

As presented in Table 6, when the assessment of the parent and learner respondents regarding learning discipline were compared to their parental involvement, the computed r-values of 0.42 for behavioral, and 0.32 for cognitive have corresponding p-values of less than 0.01, thus rejecting the hypothesis. Furthermore, the computed r-value of 0.22 for personal has a corresponding p-value of more than 0.05, thus failing to reject the hypothesis.

Proposed Action Plan to Enhance Parental Involvement

Table 7. School Development Plan

PROGRAM	OBJECTIVES	OUTPUT
Parent Education Programs	To empower parents with knowledge and skills in positive parenting techniques, effective communication, and understanding child development stages.	Workshops and seminars conducted to educate parents on topics related to child development and positive parenting techniques.
Collaborative Partnerships	To foster collaboration and open dialogue between parents and educators in addressing behavioral concerns, setting academic goals, and supporting overall child well-being.	Regular parent-teacher meetings, newsletters, and workshops established to facilitate communication and collaboration between parents and educators.
Teacher Training	To equip teachers with comprehensive training on fostering parental involvement, understanding diverse family dynamics, and implementing effective strategies for promoting positive child development.	Professional development sessions organized for teachers to enhance their skills in engaging parents, understanding family dynamics, and promoting positive child development.
Encouraging Parental Engagement	To encourage active participation of parents in school events, volunteering opportunities, and decision-making processes to enhance parental involvement and support positive child development.	Parent engagement initiatives implemented to encourage parents to attend school events, volunteer in classrooms, and participate in decision-making processes within the school community.
Student Empowerment	To empower students to take an active role in their own development by promoting self-reflection, goal-setting, and self-advocacy skills.	Student-led initiatives and activities introduced to foster self-reflection, goal-setting, and self-advocacy skills among students.

Table 7 outlined a school development plan to enhance parental involvement and support positive child development. Programs included parent education to empower them with parenting skills, collaborative partnerships fostering communication between parents and educators, and teacher training on parental involvement. Initiatives encouraged parental engagement in school activities and decision-making. Additionally, student empowerment initiatives aimed to develop self-reflection and goal-setting skills. These efforts sought to create a supportive environment where parents, teachers, and students collaborated to promote children's well-being and academic success.

CONCLUSIONS

Based on the findings presented in the study, it was evident that parental involvement played a crucial and multifaceted role in shaping various aspects of children's development and academic success. The holistic approach to supporting the child's development, which considered both home and school environments, allowed for collaborative efforts between parents and teachers to address behavioral issues and promote positive outcomes for the child. This collaborative effort leveraged the unique perspectives and insights of both parents and teachers, thereby maximizing the likelihood of success in addressing behavioral concerns and fostering a supportive learning environment.

Furthermore, the practice of actively reinforcing positive behavior underscored the importance of positive parenting techniques in promoting healthy development and well-being. Parents who engaged in this practice not only contributed to the creation of a positive atmosphere at home but also reinforced the importance of positive behavior in various settings, including school. Additionally, the dedication of parents to actively participate in school events and parent-teacher meetings reflected their commitment to their child's education and the importance they placed on staying informed and involved in their child's schooling journey. By participating in these activities, parents demonstrated their support for the school community and their willingness to collaborate with educators to ensure their child's success.

Moreover, the willingness of parents to address and discuss behavioral concerns directly with their child reflected a proactive and supportive parenting approach. By engaging in open communication, parents created an environment where their child felt comfortable expressing themselves and seeking guidance when needed. This approach fostered mutual respect between parents and children and promoted a sense of accountability for one's actions. Furthermore, it contributed to the development of strong parent

-child relationships based on trust and understanding, which were essential for supporting children's socio-emotional development and overall well-being.

In terms of cognitive development, the study highlighted the importance of parental involvement in setting academic goals and monitoring cognitive progress. Parents who actively engaged in these activities demonstrated their commitment to their child's academic success and provided valuable support and encouragement along the way. By working collaboratively with their child to set goals and track progress, parents empowered their child to take ownership of their learning and develop important skills such as self-discipline and time management. This involvement not only enhanced academic achievement but also fostered a love for learning and a growth mindset that benefited the child throughout their education and beyond.

Additionally, the findings suggested that parental involvement extended beyond academic matters to encompass personal interests and hobbies. Parents who actively engaged with their child's interests created a supportive and enriching environment where their child felt valued and encouraged to pursue their passions. By participating in their child's extracurricular activities and engaging in meaningful conversations about their personal experiences, parents strengthened their bond with their child and provided invaluable support for their social and emotional development.

On contrary, although the study highlighted the crucial role of parental engagement in shaping children's development and academic success, the study lacked an exploration of potential challenges hindering parental involvement, such as work schedules or socio-economic status. Addressing these barriers could have enhanced recommendations for promoting effective parental engagement in K-12 education, ensuring holistic support for children's growth and well-being.

Overall, whether parents were always or often involved in their child's behavioral, cognitive, and personal development, both levels of involvement reflected a strong commitment to nurturing their child's growth and well-being. This consistent involvement created a supportive and nurturing environment where the child felt valued, supported, and empowered to reach their full potential. By fostering strong parent-child relationships, promoting positive parenting techniques, and collaborating with educators, schools could create a culture of partnership and support that benefited children academically, emotionally, and socially.

RECOMMENDATIONS

Based on the findings presented in the study, several recommendations can be made to further enhance parental involvement and support positive child development within educational settings.

First, it is essential for the educational institutions, along with the Department of Education (Dep Ed) to promote parent education programs that focus on positive parenting techniques, effective communication strategies, and understanding child development stages. These programs empower parents with the knowledge and skills needed to support their child's socio-emotional, cognitive, and behavioral development.

Second, fostering collaborative partnerships between parents and educators through regular communication channels, such as parent-teacher meetings, newsletters, and workshops, is crucial. Encouraging open dialogue and collaboration can help address behavioral concerns, set academic goals, and support the overall well-being of the child.

Third, offering comprehensive training and professional development opportunities for teachers on fostering parental involvement, understanding diverse family dynamics, and implementing effective strategies for promoting positive child development is essential. Teachers play a crucial role in facilitating partnerships with parents and should be equipped with the necessary skills and knowledge to do so effectively.

Moreover, encouraging parents to actively engage in their child's education by attending school events, volunteering in the classroom, and participating in decision-making processes is vital. Recognizing and appreciating the contributions of involved parents and creating opportunities for them to share their insights and experiences with other parents and educators can further enhance collaboration.

Lastly, empowering students to take an active role in their own development by encouraging self-reflection, goal-setting, and self-advocacy skills is crucial. Providing opportunities for students to en-

gage in meaningful conversations with their parents about their academic progress, personal interests, and goals for the future can foster a sense of ownership over their learning journey.

By implementing these recommendations, educational institutions can create a supportive and collaborative environment where parents, teachers, and students work together to promote positive child development and academic success.

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EDUCATIONAL LEADERSHIP APPROACHES BETWEEN URBAN AND RURAL SCHOOLS: A COMPARATIVE STUDY

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ABSTRACT

The study endeavors to conduct a comprehensive review of the existing literature on educational leadership, drawing upon a diverse array of theoretical frameworks, empirical studies, and best practices to elucidate the multifaceted nature of leadership with educational contexts. By synthesizing and critically evaluating the extent literature, seek to lay the foundation for anuanced understanding of the complexities, challenges, and opportunities inherent in leadership practice. The study aims to identify and compare the predominant leadership styles and approaches employed in urban and rural schools. This study aims to explore and compare different leadership approaches between urban and rural educational settings with a focus on understanding the contextual factors influencing leadership styles and their implications for student outcomes. This will include quantitative surveys to gather comprehensive data from educational in urban and rural schools. This study followed a quantitative, non-experimental study. A total school heads both from urban and rural schools which is 10 from urban and 10 from rural making a total sum of 20 school heads. Teachers from schools are also part pf the study with 150 teachers per selected school making a total of 300 teachers as respondents of the study. The researcher will use stratified proportional sampling procedure in selecting the respondents of the study. The researcher will use stratified proportional sampling procedure in selecting the respondents of the study. The survey questionnaire is the primary research instrument it serves as a vehicle for qualifying the perceptions, attitudes, and behaviors of educational leaders across a range of leadership domains. Drawing upon established scales and constructs, such as the Multifactor Leadership Questionnaire (MLQ), our survey instrument offers a standardized framework for assessing leadership styles, practices, and effectiveness, thereby enabling comparisons between urban and rural school settings. Furthermore, that the findings underscore the significance of demographic analysis in informing strategic decision making process within educational institutions. By recognizing and addressing potential leadership gaps, schools can ensure continuity to the enhancement of educational outcomes at the fulfillment of institutional missions.

Keywords: Transactional Leadership, Transformational Leadership, Teacher Leader, Team Leader, Servant Leadership, Visionary Leaderhip and Empowerment

INTRODUCTION

All school leaders are not created to be exactly alike because there is not simply one style that is best for educational leadership. There are any varying styles that are appropriate in different situations or with diverse groups of people. There are also many different positions in education that require leadership. It is not only principals that require leadership skills. Positions such as teacher leaders, team leaders, instructional coaches, and more benefit from these skills. All of these positions require leadership skills, but the styles could be very different depending on the individual and the situation. If asked, most educators would tell you that the principal is the "leader" of their school. This is very true, and a principal's influence over the school climate is immense. Good leaders empower and train others to become leaders. Whatever the leadership style of a school leader, the ultimate goal is the same; a school leader helps teachers and students achieve and perform to the best of their abilities. There are undoubtedly many different ways to reach that goal; however, that is the desired outcome for anyone in an education

leadership position. readers create clear structures and requirements. For example, employees are presented with straightforward job descriptions and expectations. Transactional leadership centers on rewards and punishments, and these are made very clear from the beginning. This leader allocates work, and the subordinate is solely responsible for it. Failure results in punishment while success results in rewards. The transformational leader works to transform an organization through enthusiasm, energy, and having an excellent vision for the future. A transformational leader cares about employees and wants them to succeed. After this type of leader develops the organization's vision, it then becomes the leader's goal to sell that vision to others. Leadership has a significant impact on the school because the style sets the tone for the entire building. For example, the democratic style of leadership is certainly conducive to educational leadership because it is a style in which the leader emphasizes collaboration. Collaboration is crucial in the education realm. On the other hand, a transformational leader is one that inspires those they lead to grasp the vision for the organization, in this case, a school, and feel empowered to seek to bring that vision to fruition. Administration who implements this style of leadership infuse their school with energy and enthusiasm.

Finally, there is perhaps no greater call to servant hood than that of a servant school leader. School leaders serve the students, parents, and teachers of their school community by constantly seeking ways to improve the educational experience for all. An effective educational leader gives selflessly of their time and resources to do what is best for the students. If done well, it is a job that demands much of the person blessed with the responsibility to lead. Because of the considerable impact of leadership has on a school, it is critically important to determine what effective school leadership is and how to implement it. Trying to pin down what makes a school leader effective can be challenging. However, by studying the characteristics and behaviors of consistently effective school leaders, one can observe certain commonalities that reveal effective characteristics. Educational leadership approaches must be tailored to the distinct contexts of urban and rural areas, each presenting unique challenges and opportunities. In urban settings, leaders grapple with diverse student populations, complex community dynamics, and resource disparities among schools. Urban leaders must engage with a wide range of stakeholders, including businesses, nonprofits, and local government agencies, to address community needs and promote equity in resource allocation. Additionally, they must prioritize cultural competence and diversity initiatives to create inclusive learning environments reflective of the urban population's demographics. Conversely, in rural areas, leaders face challenges related to limited funding, sparse infrastructure, and difficulty recruiting and retaining qualified educators. They must leverage community engagement to support educational initiatives and overcome infrastructural limitations, such as limited internet connectivity and access to technology resources. Educational leaders in both urban and rural areas must prioritize equitable resource allocation, technology integration, and teacher recruitment and retention strategies to ensure all students have access to high-quality education, regardless of their geographic location. By understanding and addressing the unique needs of urban and rural communities, educational leaders can foster positive learning environments and promote student success and well-being. Educational leadership approaches in urban and rural areas necessitate nuanced considerations due to the distinctive contexts and challenges each environment presents. In urban settings, leaders contend with diverse student demographics, complex socioeconomic dynamics, and resource disparities among schools. They must engage with a multitude of stakeholders, ranging from community organizations to local government agencies, to address the multifaceted needs of urban communities and promote equitable access to resources and opportunities. Additionally, urban leaders must prioritize culturally responsive practices to create inclusive learning environments that celebrate the diversity of their student population. Conversely, in rural areas, leaders confront issues such as limited funding, sparse infrastructure, and difficulty attracting and retaining qualified educators.

Statement of the Problem

Educational Leadership Approaches Between Urban and Rural Schools: A Comparative Study. The researcher formulated the following questions:

1. What is the demographic profile of the respondents in terms of:
   1.1 Age
   1.2 Sex
   1.3 School category, and
   1.4 Years in Leadership?

2. What is the leadership approaches of selected urban and rural public schools as assessed by the school heads and teaching in terms of:

   2.1 Servant Leadership
   2.2 Transactional Leadership
   2.3 Emotional Leadership, and
   2.4 Transformational Leadership?

3. Is there a significant difference among the leadership approaches of the urban and rural public secondary schools in the 4th Congressional District of Quezon?

3. Is there a significant relationship between the profile of the respondents from the urban and public secondary schools and the leadership approaches?

METHODOLOGY

Research Design

This study aims to explore and compare different leadership approaches between urban and rural educational settings, with a focus on understanding the contextual factors influencing leadership styles and their implications for student outcomes. A mixed-methods approach was employed to capture the breadth and depth of leadership practices. This include quantitative surveys to gather comprehensive data from educational leaders in urban and rural schools.

Participants

The study was conducted in the Fourth District of Quezon. It composed of the municipalities of Lopez, Gumaca, Atimonan, Alabat, Perez, Quezon Quezon, Plaridel, Calauag, Guinayangan, and Tagkawayan. A total school heads both from urban & rural schools which is 10 from urban and 10 from rural making a total sum of 20 school heads. Teachers from schools are also part of the study with 150 teachers per selected school making a total of 300 teachers as respondents of the study.

Research Instrument

The primary research instrument, the survey questionnaire, served as a vehicle for quantifying the perceptions, attitudes, and behaviors of educational leaders across a range of leadership domains. Drawing upon established scales and constructs, such as the Multifactor Leadership Questionnaire (MLQ), our survey instrument offers a standardized framework for assessing leadership styles, practices, and effectiveness, thereby enabling comparisons between urban and rural school settings.

Data Analysis

Data Analysis section serves as the analytical core of this research endeavor, where the collected data is subjected to rigorous examination and interpretation to derive meaningful insights and address the research objectives. In this section, embark on a journey to delve deep into the dataset, employing a range of analytical techniques and tools to uncover patterns, trends, and relationships inherent within the data. The objective is to extract, organize, and interpret the wealth of information contained within the dataset, uncovering patterns, trends, and associations that offer valuable insights into the phenomenon under investigation.

RESULTS AND DISCUSSION

This chapter present analyzed, and interpreted the data gathered using appropriated statistical tools. This presentation is sorted with the specific questions presented on the rationale of this study. The data were presented in the tabular form.

Table 1. Leadership Approaches of Selected Urban and Rural Public Schools as Assessed by the School Heads in Terms of Servant Leadership

Indicators	Rural		Urban		Total	
	WAM	VI	WAM	VI	WAM	VI
1. Seek help from my colleagues if I have a work-related problem.	4.50	SA	4.70	SA	4.60	SA
2.Emphasize the importance of giving back to the community.	4.60	SA	4.70	SA	4.65	SA
3. Give others the responsibility to make important decisions about their jobs.	4.60	SA	4.70	SA	4.65	SA
4. Encourage others to handle important work decisions on their own.	4.60	SA	4.90	SA	4.75	SA
5. make sure that my colleagues reach their career goals.	4.70	SA	3.60	A	4.15	A
6. prioritize equity and inclusion in my leadership.	5.00	SA	4.10	A	4.55	SA
7. demonstrate empathy and understanding towards my subordinates.	5.00	SA	4.80	SA	4.90	SA
8. emphasize the importance of the well-being and personal and career development of my colleagues.	5.00	SA	4.60	SA	4.80	SA
9. foster positive organizational leadership with humility and am willing to admit mistakes or shortcomings	5.00	SA	4.80	SA	4.90	SA
10. promote collaboration and teamwork among my colleagues and subordinates.	5.00	SA	4.70	SA	4.85	SA
Overall WAM	**4.80**	**SA**	**4.56**	**SA**	**4.68**	**SA**

Legend:
4.50 – 5.00 - Strongly Agree (SA)
3.50 – 4.49 - Agree (A)
2.50 – 3.49 - Moderately Agree (MA)
1.50 – 2.49 - Disagree (DA)
1.00 – 1.49 - Strongly Disagree (SDA)

The table presents an evaluation of leadership methods, with a specific emphasis on servant leadership, as perceived by school administrators in chosen urban and rural public schools. The indicators encompass multiple dimensions of servant leadership, including the inclination to seek assistance, the emphasis on community engagement, the empowerment of others, the cultivation of career advancement, the promotion of fairness and inclusivity, the demonstration of empathy, and the prioritization of well-being. In general, both urban and rural school administrators strongly concur with the bulk of the servant leadership qualities, with the highest level of agreement observed in indicators pertaining to empathy, collaboration, humility, and prioritizing well-being.

Table 2. Leadership Approaches of Selected Urban and Rural Public Schools as Assessed by the School Heads in Terms of Transactional Leadership

Indicators	Rural		Urban		Total	
	WAM	VI	WAM	VI	WAM	VI
Clearly define roles, tasks, and expectations for the organization/ team.	5.00	SA	4.70	SA	4.85	SA
Contribute to a structured and efficient work environment.	5.00	SA	4.50	SA	4.75	SA
Make decisions in consultation with my colleagues to make rapport as a team.	5.00	SA	4.70	SA	4.85	SA
Express clear expectations to achieve performance goals.	4.70	SA	4.60	SA	4.65	SA
Welcome others to constantly challenge my ideas and strategies.	4.90	SA	4.70	SA	4.80	SA
Maintain order and stability within the organization.	5.00	SA	4.80	SA	4.90	SA
Provide clear guidance and direction to employees when tasks or projects are unclear.	5.00	SA	4.60	SA	4.80	SA
Foster a sense of responsibility for my actions and their results.	5.00	SA	4.70	SA	4.85	SA
Exhibit fairness and consistency in decision-making.	5.00	SA	4.80	SA	4.90	SA
Intervene to address performance issues or deviations from established standards.	4.60	SA	4.70	SA	4.65	SA
Overall WAM	**4.92**	**SA**	**4.68**	**SA**	**4.80**	**SA**

The table presents an evaluation of leadership methods, with a specific emphasis on transactional leadership, as perceived by school principals in chosen urban and rural public schools. Transactional leadership prioritizes the establishment of clear organizational structures, well-defined roles, and explicit work expectations. It also emphasizes the achievement of performance goals and the maintenance of order within the organization. In general, both urban and rural school administrators show strong agreement with most of the indicators of transactional leadership. There is particularly high agreement in indicators related to defining roles and expectations, giving clear guidance, promoting responsibility, and ensuring fairness and consistency in decision-making.

Table 3. Leadership Approaches of Selected Urban and Rural Public Schools as Assessed by the School Heads in Terms of Emotional Leadership

Indicators	Rural		Urban		Total	
	WAM	VI	WAM	VI	WAM	VI
1. Know when to speak about personal problems to others.	4.80	SA	4.7	SA	**4.75**	SA
2. Expect that I will do well on most things I try.	4.70	SA	4.7	SA	**4.70**	SA
3. Re-evaluate what is important and non-important based on the major events in my life.	4.80	SA	4.7	SA	**4.75**	SA
4. See new possibilities from the challenges I encounter in the workplace.	4.90	SA	4.9	SA	**4.90**	SA
5. Share my emotions openly with others.	4.70	SA	3.6	A	**4.15**	A
6. Recognize and effectively manage my emotions and the emotions of my colleagues.	4.90	SA	4.1	A	**4.50**	SA
7. Inspire and motivate through own enthusiasm and passion.	4.90	SA	4.8	SA	**4.85**	SA
8.Manage conflicts and disagreements by considering the emotions of all involved parties.	5.00	SA	4.6	SA	**4.80**	SA
9. Build strong relationships among the team.	4.90	SA	4.8	SA	**4.85**	SA
10. Create a culture of resilience and adaptability in the face of challenges.	4.90	SA	4.7	SA	**4.80**	SA
Overall WAM	**4.85**	**SA**	**4.56**	**SA**	**4.71**	**SA**

Emotional leadership focuses on the capacity to identify, comprehend, and skillfully control emotions, whether they are one's own or others', in order to inspire, encourage, and establish robust relationships inside the business. In general, both urban and rural school administrators strongly concur with the majority of the emotional leadership indicators. There is particularly high agreement in indicators pertaining to the recognition and management of emotions, inspiring and motivating others, conflict management, building strong relationships, and fostering resilience and adaptability. The significant consensus among school principals in urban and rural areas indicates a strong focus on emotional intelligence and its impact on successful leadership. Emotional leadership skills, such as the ability to recognize and control emotions, openly communicating thoughts and feelings, and developing strong relationships, are considered essential for creating a pleasant and supportive organizational environment. These practices also contribute to boosting employee morale and engagement, as well as encouraging overall organizational performance.

Table 4. Leadership Approaches of Selected Urban and Rural Public Schools as Assessed by the School Heads in Terms of Transactional Leadership

Indicators	Rural		Urban		Total	
	WAM	VI	WAM	VI	WAM	VI
1. Retain the authority in making final decisions within my project or team.	4.50	SA	4.60	SA	**4.55**	SA
2. Try to include one or more team members in determining what to do and how to do things, yet the final decision-making is on me.	4.70	SA	4.60	SA	**4.65**	SA
3. Create a strategy to keep a project or process running on schedule amidst challenges.	4.90	SA	1.60	S	**3.25**	A
4. Do not consider suggestions made by my team members.	1.30	SDA	4.50	SA	**2.90**	
5. Seek the approval of each member and/or majority of my team for any major decisions I must make.	4.80	SA	4.70	SA	**4.75**	SA
6. Encourage my colleagues to have continuous learning and development.	5.00	SA	4.80	SA	**4.90**	SA
7. Act as a role model and exemplify the values and behaviors they expect from others.	5.00	SA	4.90	SA	**4.95**	SA
8. Create a supportive and nurturing environment for personal and professional growth.	5.00	SA	4.80	SA	**4.90**	SA
9. Promote collaboration and teamwork among my subordinates.	5.00	SA	5.00	SA	**5.00**	SA
10. Motivate and inspire team members to achieve common goals.	4.60	SA	4.90	SA	**4.75**	SA
Overall WAM	**4.48**	**A**	**4.44**	**A**	**4.46**	**A**

Table 4 displays an evaluation of leadership methods, with a specific emphasis on transactional leadership, as observed by school principals in chosen urban and rural public schools. Transactional leadership prioritizes the establishment of explicit frameworks, well-defined responsibilities, and specific performance objectives, while also emphasizing the maintenance of organizational order. In general, both urban and rural school administrators express consensus on most of the transactional leadership indicators. There is notably strong agreement on indicators related to fostering a nurturing environment for development, encouraging collaboration, and seeking team consensus for significant decisions.

Table 5. Leadership Approaches of Selected Urban and Rural Public Schools as Assessed by the Teachers in Terms of Servant Leadership

Indicators	Rural		Urban		Total	
	WAM	VI	WAM	VI	WAM	VI
1. Seek help from my colleagues if I have a work-related problem.	4.18	**A**	4.24	**A**	**4.21**	A
2. Emphasize the importance of giving back to the community.	4.18	**A**	4.13	**A**	**4.16**	A
Give others the responsibility to make important decisions about their jobs.	4.26	**A**	4.23	**A**	**4.24**	A
4. Encourage others to handle important work decisions on their own.	4.18	**A**	4.15	**A**	**4.16**	A
5. Make sure that my colleagues reach their career goals.	4.12	**A**	4.09	**A**	**4.10**	A
6. Prioritize equity and inclusion in my leadership.	4.13		4.07	**A**	**4.10**	A
7. Demonstrate empathy and understanding towards my subordinates.	4.14	**A**	4.21	**A**	**4.17**	A
8. Emphasize the importance of the well-being and personal and career development of my colleagues.	4.17	**A**	4.08	**A**	**4.13**	A
9. Foster positive organizational leadership with humility and am willing to admit mistakes or shortcomings	4.19	**A**	4.20	**A**	**4.20**	A
10. Promote collaboration and teamwork among my colleagues and subordinates.	4.13	**A**	4.23	**A**	**4.18**	A
Overall WAM	**4.17**	**A**	**4.16**	**A**	**4.17**	**A**

Servant leadership places great emphasis on the significance of providing service to others, enabling colleagues to take charge of their own work, promoting cooperation, and giving priority to their overall welfare and growth. In general, both urban and rural teachers show a high level of agreement with most of the servant leadership indicators. Specifically, they strongly agree with indicators related to requesting assistance, delegating responsibility, showing empathy, and fostering teamwork.

Table 6. Leadership Approaches of Selected Urban and Rural Public Schools as Assessed by the Teachers in Terms of Transactional Leadership

Indicators	Rural	Urban	Total			
	WAM	VI	WAM	VI	WAM	VI
1. Clearly define roles, tasks, and expectations for the organization/team.	4.11	A	4.23	A	**4.17**	A
2. Contribute to a structured and efficient work environment.	4.15	A	4.18	A	**4.16**	A
3. Make decisions in consultation with my colleagues to make rapport as a team.	4.26	A	4.23	A	**4.24**	A
4. Express clear expectations to achieve performance goals.	4.21	A	4.20	A	**4.20**	A
5. Welcome others to constantly challenge my ideas and strategies.	4.17	A	4.22	A	**4.20**	A
6. Maintain order and stability within the organization.	4.08	A	4.16	A	**4.12**	A
7. Provide clear guidance and direction to employees when tasks or projects are unclear.	4.20	A	4.18	A	**4.19**	A
8. Foster a sense of responsibility for my actions and their results.	4.15	A	4.18	A	**4.16**	A
9. Exhibit fairness and consistency in decision-making.	4.23	A	4.12	A	**4.17**	A
10.Intervene to address performance issues or deviations from established standards.	4.19	A	4.18	A	**4.19**	A
Overall WAM	4.17	A	4.19	A	4.18	A

The table displays the ratings given by teachers in urban and rural public schools to their principals' leadership style in relation to transactional leadership, using a scale ranging from 1 (indicating strong disagreement) to 5 (indicating strong agreement). In general, teachers in both urban and rural schools

reached a consensus (with an average score ranging from 3.50 to 4.49) that their principals demonstrated transactional leadership practices. There were no discernible disparities in the mean scores between urban and rural schools (4.17 vs 4.19).The schools commonly use a transactional leadership style, where instructors generally support their administrators' emphasis on explicit expectations, organization, and performance evaluation.

Table 7. Leadership Approaches of Selected Urban and Rural Public Schools as Assessed by the Teachers in Terms of Emotional Leadership

Indicators	Rural		Urban		Total	
	WAM	VI	WAM	VI	WAM	VI
1. Know when to speak about personal problems to others.	4.10	A	4.12	A	**4.11**	A
2. Expect that I will do well on most things I try.	4.17	A	4.15	A	**4.16**	A
3. Re-evaluate what is important and non-important based on the major events in my life.	4.07	A	4.13	A	**4.10**	A
4. See new possibilities from the challenges I encounter in the workplace.	4.16	A	4.11	A	**4.13**	A
5. Share my emotions openly with others.	4.19	A	4.25	A	**4.22**	A
6. Recognize and effectively manage my emotions and the emotions of my colleagues.	4.15	A	4.25	A	**4.20**	A
7. Inspire and motivate through own enthusiasm and passion.	4.10	A	4.14	A	**4.12**	A
8. Manage conflicts and disagreements by considering the emotions of all involved parties.	4.28	A	4.22	A	**4.25**	A
9. Build strong relationships among the team.	4.31	A	4.23	A	**4.27**	A
10. Create a culture of resilience and adaptability in the face of challenges.	4.22	A	4.22	A	**4.22**	A
Overall WAM	**4.18**	**A**	**4.18**	**A**	**4.18**	**A**

Table 7 presents an evaluation of leadership approaches, focusing on emotional leadership, as perceived by teachers in selected urban and rural public schools. Emotional leadership involves recognizing, understanding, and effectively managing emotions to inspire, motivate, and build strong relationships within the organization. Overall, both urban and rural teachers agree with the majority of the emotional leadership indicators, with particularly high agreement levels observed in indicators related to managing conflicts, building relationships, and creating a culture of resilience. The high agreement levels across both urban and rural teachers indicate a shared recognition of the importance of emotional intelligence in leadership. Teachers value leaders who can effectively manage emotions, inspire through enthusiasm, and build strong relationships, as these qualities contribute to a positive and supportive work environment.

Table 8. Leadership Approaches of Selected Urban and Rural Public Schools as Assessed by the Teachers in Terms of Transactional Leadership

Indicators	Rural		Urban		Total	
	WAM	VI	WAM	VI	WAM	VI
1. Retain the authority in making final decisions within my project or team.	4.10	A	4.15	A	**4.12**	A
2. Try to include one or more team members in determining what to do and how to do things, yet the final decision-making is on me.	4.19	A	4.15	A	**4.17**	A
3. Create a strategy to keep a project or process running on schedule amidst challenges.	4.12	A	4.19	A	**4.16**	A
4. Do not consider suggestions made by my team members.	4.21	A	4.14	A	**4.18**	A
5. Seek the approval of each member and/or majority of my team for any major decisions I must make.	4.09	A	4.17	A	**4.13**	A
6. Encourage my colleagues to have continuous learning and development.	4.14	A	4.23	A	**4.18**	A
7. Act as a role model and exemplify the values and behaviors they expect from others.	4.21	A	4.30	A	**4.25**	A
8. Create a supportive and nurturing environment for personal and professional growth.	4.21	A	4.17	A	**4.19**	A
9. Promote collaboration and teamwork among my subordinates.	4.14	A	4.23	A	**4.19**	A
10. Motivate and inspire team members to achieve common goals.	4.13	A	4.03	A	**4.08**	A
Overall WAM	**4.15**	**A**	**4.18**	**A**	**4.17**	**A**

The table displays the ratings given by teachers in urban and rural public schools to their principals' leadership style in relation to transactional leadership, using a scale ranging from 1 (indicating strong disagreement) to 5 (indicating strong agreement). The table presents conflicting results about transactional leadership styles.Teachers concur that principals possess the power to make decisions (4.10-4.15), while also making an effort to involve them (4.12-4.19).

Table 9. Differences in Selected Approaches of School Heads in Rural and Urban Schools

Variables	School Type	sd	t value	p value	Decision	Impression at 0.05 Level of Significance
Servant Leadership	Rural	.39721	.798	.043	Reject Ho	Significant
	Urban	.17920				
Transactional Leadership	Rural	.18738	2.496	.022	Reject Ho	Significant
	Urban	.23944				
Emotional Leadership	Rural	.18409	3.137	.006	Reject Ho	Significant
	Urban	.22706				
Transformational Leadership	Rural	.24855	.396	.697	Failed to Reject Ho	Not Significant
	Urban	.20111				

Significant when p =< 0.05

Table 9 depicts notable disparities in chosen leadership methodologies among school administrators in rural and urban educational institutions. The data indicates that rural school administrators have much greater degrees of servant, transactional, and emotional leadership in comparison to their metropolitan counterparts. This implies that leaders in rural schools may give importance to characteristics that resemble those of a servant, such as providing support to colleagues and promoting collaboration. Additionally, they may exhibit emotional intelligence and skillfully handle conflicts. key findings suggest that leadership development and training programs for school heads, especially in urban settings, should focus on improving key leadership abilities.

Table 10. Differences in Selected Approaches in Terms of Age

Variables	df	F value	P value	Decision	Impression at 0.05 Level of Significance
Servant Leadership	*4,15*	*1.724*	*.019*	Reject Ho	Significant
Transactional Leadership	*4,15*	*1.617*	*.222*	Failed to Reject Ho	Not Significant
Emotional Leadership	*4,15*	*6.641*	*.003*	Reject Ho	Significant
Transformational Leadership	*4,15*	*1.476*	*.002*	Reject Ho	Significant

Significant when p =< 0.05

This table compares various leadership styles based on age. Four leadership styles—Servant Leadership, Transactional Leadership, Emotional Leadership, and Transformational Leadership—are examined. The statistical tests reveal that age significantly influences Servant, Emotional, and Transformational Leadership, while Transactional Leadership remains unaffected. These findings have implications for leadership development programs and team dynamics, emphasizing the importance of considering age-related preferences in leadership training. Servant Leadership: The p-value is 0.019, which is less than 0.05. Therefore, we reject the null hypothesis. Age has a significant effect on Servant Leadership. Transactional Leadership: The p-value is 0.222, which is greater than 0.05. failed to reject the null hypothesis. Age does not significantly impact Transactional Leadership. Emotional Leadership: The p-value is 0.003, indicating that rejects the null hypothesis. Age influences Emotional Leadership significantly. Transformational Leadership: The p-value is 0.002, leading to reject the null hypothesis. Age plays a significant role in Transformational Leadership.

CONCLUSIONS

Based on the results of the study, the following conclusions are drawn:

1. The findings underscore the significance of demographic analysis in informing strategic decision-making processes within educational institutions.
2. The equal representation of male and female school heads, coupled with the consistent gender distribution between rural and urban areas, underscores the progress toward gender equality in educational leadership.
3. The equitable distribution of respondents by school type underscores the importance of considering context-specific factors in educational leadership research and policymaking. By embracing diversity and inclusivity, stakeholders can work collaboratively to address the multifaceted challenges facing schools in different settings and strive toward achieving equitable and high-quality education for all students, irrespective of their geographical location or socio-economic background.
4. The critical role of long-term leadership in shaping the trajectory of educational institutions.
5. The symmetrical frequency distribution of teachers between rural and urban schools underscores the importance of considering diverse perspectives and experiences within the education system.
6. The evaluation of transactional leadership methods among urban and rural school administrators highlights its perceived effectiveness in improving organizational efficiency and goal attainment.
7. The evaluation of emotional leadership among urban and rural school administrators emphasizes the importance of emotional intelligence in effective leadership.
8. The evaluation of servant leadership among urban and rural teachers emphasizes the importance of promoting service, empowerment, and collaboration within educational settings.
9. There is room for improvement in promoting constructive criticism and fostering a more flexible and innovative organizational culture within educational institutions.
10. The evaluation of emotional leadership among urban and rural teachers underscores the significance of emotional intelligence in leadership and its impact on creating positive work environments.

RECOMMENDATIONS

The following recommendations are hereby offered:

1. Propose strategies for identifying and developing future leaders within these age groups to ensure continuity and effectiveness in educational leadership.
2. To examine the experiences and perspectives of male and female school heads in rural and urban settings, this will contribute to the development of gender-inclusive leadership practices in educational institutions.
3. Recognizing the unique characteristics and needs of both rural and urban schools, this help inform the development of targeted interventions and policies to enhance leadership capacity and educational outcomes in both contexts.
4. To analyze the similarities and differences in leadership experience between rural and urban schools, this will provide insights that can inform leadership practices and organizational outcomes in both contexts that will benefit the education system.
5. To examine these age distribution patterns, this will help to provide insights into how educational institutions can effectively organize their workforce, educate professionals, and understand the dynamics of their institutions.
6. The researcher recommends by examining the experiences and perspectives of female and male teachers in rural and urban settings, this will provide insights into gender dynamics in the teaching profession and inform strategies for promoting gender equity in education.
7. The researcher recommends by recognizing the unique characteristics and needs of both rural and urban schools, this will help contribute to the development of more effective and equitable educational policies and practices.
8. The researcher recommends by conducting a comparative analysis of tenure patterns in rural and urban schools, this will help to provide insights into effective strategies for retaining and supporting teachers throughout their careers.

9. To explore differences, this will help to provide insights into how servant leadership can be effectively implemented in diverse educational contexts to promote positive outcomes for students, educators, and communities.
10. The researcher recommends by exploring these differences, this will help to provide insights into how transactional leadership can be effectively implemented in diverse educational contexts to improve organizational efficiency and achieve performance goals.

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PHYSICS EDUCATION TECHNOLOGY (PHET) REALITY SIMULATIONS AND SPATIAL INTELLIGENCE TO SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS LEARNING OUTCOMES IN SELECTED HIGH SCHOOL STUDENTS IN MABINI DISTRICT

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ABSTRACT

Amidst the dynamic landscape of education, the integration of innovative technologies emerged as a transformative force in shaping the future of learning. This study investigated the use of PhET reality simulations, in conjunction with a focus on spatial intelligence, to enhance STEM learning outcomes in selected public high schools in Mabini, Batangas. The study employed descriptive-correlational research techniques. Quantitative methodology was adopted to quantify and visually represent the collected data, utilizing a custom-designed survey tool to assess the variables. Findings revealed that PhET reality simulations were perceived as highly beneficial in understanding complex STEM concepts, with students acknowledging their interactivity as a significant factor. Moreover, the duration of exposure to PhET simulations was deemed appropriate for learning, contributing positively to students' educational experiences. Additionally, respondents demonstrated strong spatial intelligence, particularly in grasping mathematical concepts, albeit exhibiting varying degrees of proficiency in understanding complex spatial relationships. Spatial intelligence was recognized as a crucial element in STEM learning. The study revealed significant correlations between the level of PhET reality simulations and demographic factors like age and grade level, as well as spatial intelligence. However, there were no substantial correlations found with sex. Notably, certain aspects of spatial intelligence, particularly visualization skills, showed significant correlations with the level of PhET reality simulations. This underscores the potential for further exploration in this area. The findings emphasized the importance of integrating innovative technologies like PhET simulations and focusing on spatial intelligence to enhance STEM learning outcomes. Tailored interventions were recommended to optimize student learning experiences, aiming to create more effective and engaging learning environments in public high schools.

Keywords: physics education technology (PhET) reality simulations, spatial intelligence, science, technology, engineering, and mathematics (STEM)

INTRODUCTION

In the ever-evolving landscape of education, the integration of innovative technologies has become a pivotal force in shaping the future of learning. One such groundbreaking approach was the use of Physics Education Technology (PhET) reality simulations, coupled with a focus on spatial intelligence, to enhance Science, Technology, Engineering, and Mathematics (STEM) learning outcomes. PhET simulations were designed to engage students actively, fostering a deeper understanding of scientific principles (Riantoni et al., 2020). With a global reputation for their effectiveness, these simulations have been integrated into educational curricula worldwide, aiming to make abstract physics concepts tangible and accessible.

In a rapidly advancing global society, STEM education was at the forefront of preparing students for the challenges of the 21st century. Nations worldwide were investing in cutting-edge technologies to foster a deeper understanding of scientific principles. PhET reality simulations, developed by the Uni-

versity of Colorado Boulder, have gained international acclaim for their interactive and immersive approach to learning physics concepts (Syifa et al., 2023). As technology transcends geographical boundaries, understanding its global impact provides a valuable context for evaluating its efficacy in local educational settings.

Within the Philippines, an archipelago with a rich cultural and educational heritage, the integration of technology in education was a strategic imperative. The Department of Education (DepEd) has been actively promoting STEM education to equip Filipino students with the skills necessary for a technology -driven future (Antonio & Castro, 2023). Exploring the utilization of PhET reality simulations in the local context becomes particularly significant in aligning educational strategies with national development goals. This study endeavors to contribute to the ongoing discourse on educational reform in the Philippines by examining the effectiveness of these innovative tools in enhancing STEM learning outcomes. DepEd has been steering educational reforms to equip students with the skills demanded by an increasingly technological world. The nation recognizes the pivotal role of STEM education in achieving this goal, prompting efforts to leverage innovative tools like PhET simulations (Candido et al., 2022). As the nation moves towards a K-12 curriculum and emphasizes a competency-based approach, the incorporation of advanced educational technologies becomes imperative to meet the evolving needs of students and align with global educational standards.

Moving further to Mabini District, this study narrows its focus to the local dynamics shaping education in the region. Mabini District, with its unique socio-economic and cultural attributes, serves as a microcosm of the broader Philippine educational landscape. Understanding the specific challenges and opportunities faced by students and educators in Mabini District adds a nuanced layer to the assessment of PhET reality simulations and spatial intelligence as tools for improving STEM education. The findings from this local perspective can offer valuable insights for educational practitioners and policymakers seeking to tailor interventions to the specific needs of communities within the Philippines.

As the study embarked on this exploration of the intersection between PhET reality simulations, spatial intelligence, and STEM learning outcomes in the Mabini District, the study seeked to bridge the gap between global educational trends, national initiatives, and the localized realities that shape the educational experience of high school students in this district.

In navigating the educational landscape of Mabini District, several challenges stand out, each requiring careful consideration for the successful integration of Physics Education Technology (PhET) reality simulations and spatial intelligence into high school curricula. Foremost among these challenges were resource constraints, a pervasive issue shared with many other Philippine regions. The district grapples with limitations in accessing modern technology, such as computers and high-speed internet, which may be distributed unevenly across schools. The implementation of PhET simulations hinges on a robust technological infrastructure, presenting the formidable challenge of ensuring equitable access to these resources throughout the district to prevent the emergence of a digital divide among students and to foster the inclusivity of the educational intervention.

Moreover, the readiness and training of educators become a critical factor in the successful adoption of PhET simulations (Passos & Araújo, 2021). In Mabini District, a significant number of teachers may lack comprehensive training in incorporating technology into their teaching methodologies. Overcoming this obstacle necessitates the establishment of targeted professional development programs aimed at enhancing the digital literacy and pedagogical skills of teachers. Continuous support mechanisms must be in place to address concerns and queries as educators navigate the complexities of implementing PhET simulations in their classrooms.

The cultural diversity of Mabini District introduces another layer of complexity. The approach to education must be sensitive to and inclusive of local values, requiring potential adaptations of PhET simulations to ensure cultural relevance and resonance with the lived experiences of students. Additionally, the varied learning styles prevalent in the district pose a challenge in assessing the effectiveness of PhET simulations in catering to these diverse preferences. Striking the right balance in tailoring the technology to suit the local context without compromising its educational efficacy becomes a pivotal aspect of addressing this challenge.

The conventional methods of assessment may fall short in gauging the impact of PhET simulations on spatial intelligence and STEM learning outcomes. Developing robust assessment strategies that align with the interactive and exploratory nature of these simulations was imperative. Crafting meaningful metrics to measure not only theoretical understanding but also practical application and critical thinking

skills presents a distinct challenge in evaluating the holistic impact of PhET simulations on high school students in Mabini District. In sum, these multifaceted challenges underscore the need for a comprehensive and contextually tailored approach to the integration of PhET simulations and spatial intelligence in the local educational landscape.

The research was rooted in a commitment to advancing STEM learning outcomes in the face of specific challenges. Mabini District, like many regions in the Philippines, contends with resource limitations and diverse learning environments. Understanding the potential impact of PhET simulations in such a context was crucial to ensuring equitable access and inclusivity. Furthermore, the readiness of educators in leveraging these innovative tools becomes paramount for successful implementation.

The exploration of cultural relevance acknowledges the unique characteristics of Mabini District, emphasizing the need for educational strategies that align with local values and learning styles. This study aims to provide insights that extend beyond a global or national perspective, delving into the intricate dynamics of a specific community. The assessment of PhET simulations' impact on spatial intelligence and STEM learning outcomes adds depth to educational research, addressing the evolving needs of students in an increasingly technology-driven world. By focusing on Mabini District, this research seeks to contribute valuable data and recommendations that can inform localized educational policies, fostering a more effective and inclusive approach to STEM education in the Philippines.

Statement of the Problem

The study aimed to determine the level of PhET reality simulations and spatial intelligence to STEM learning outcomes in selected public high schools in Mabini, Batangas. Specifically, this study pursues to answer the following questions:

1.What was the profile of the respondents in terms of:
   1.1 age;
   1.2 sex;
   1.3 grade level?
2.What was the level of PhET reality simulations of the respondents in terms of:
   2.1interactivity; and
   2.2 duration of exposure?
3.What was the level of spatial intelligence of the respondents in terms of:
   3.1 visualization skills; and
   3.2 reasoning abilities?
4. Is there any significant relationship between:
   4.1 profile of the respondents and the level of PhET reality simulations;
   4.2 profile of the respondents and the level of spatial intelligence; and
   4.3 level of PhET reality simulations and the level of spatial intelligence?
5.What plan of action should be proposed to improve the learning outcomes of the students?

METHODOLOGY

In this chapter, the methodology utilized in the study was clarified. It includes discussions on the research design, data resources, the target demographic, the validation of tools, the data collection process, ethical considerations, data management, and the techniques applied for data analysis.

Research Design

The researcher utilized descriptive-correlational research techniques, incorporating a survey tool to assess how PhET reality simulations and spatial intelligence impact STEM learning outcomes in chosen high schools in Mabini, Batangas. The study opted for quantitative methodology with the goal of quantifying and visually representing the data collected from the study participants.

Participants

The study focused on STEM students currently enrolled in specific public high schools in Mabini, Batangas. Using Raosoft's formula, with a confidence level of 95% and 5% margin of error, the research has effectively determined an appropriate sample size of 227 students from the estimated population of 830 STEM students in selected public high schools in Mabini, Batangas.

Research Instrument

In this research, the investigation has designed a unique self-made questionnaire for the purpose of measuring how PhET reality simulations and spatial intelligence impact STEM learning outcomes. This survey holds a significant role in offering a comprehensive understanding of how PhET reality simulations and spatial intelligence can positively influence STEM learning outcomes in a specific setting.

Data Analysis

To interpret the data effectively, the researcher employed the following statistical treatments. The weighted mean, ranking, and Pearson's r were utilized to interpret the data.

RESULTS AND DISCUSSIONS

This part of the study provided the presentation, analysis, and interpretation of the gathered data from the questionnaires answered by the respondents in accordance with the specific questions posited on the objectives of the study.

Table 1. Level of Physics Education Technology Reality Simulations in Terms of Interactivity

Items	Weighted Mean	Interpretation	Rank
1. The PHET simulations in my classes are engaging and interactive.	4.52	Always	2
2. I find the PHET simulations helpful in understanding complex concepts.	4.57	Always	1
3. The interactivity of PHET simulations enhances my interest in subjects.	4.43	Always	5
4. PHET simulations make learning more enjoyable.	4.44	Always	4
5. The interactivity of PHET simulations helps me retain knowledge.	4.45	Always	3
Composite Mean	**4.48**	**Always**	

As stated in Table 1, the respondents responded that they always find the PHET simulations helpful in understanding complex concepts which made the highest weighted mean of 4.57 and the highest rank of 1. The findings indicated that they perceive these simulations as effective tools for enhancing their understanding of difficult or abstract ideas. PHET simulations likely provide visual or interactive representations that aid in conceptualizing challenging topics, making them easier to grasp and internalize. According to Tsivitanidou et al. (2021), immersive virtual reality in inquiry-based physics education improves conceptual learning gains and perceptions, with high-attitude students outperforming low-attitude peers.

Table 2. Level of Physics Education Technology Reality Simulations in Terms of Duration of Exposure

Items	Weighted Mean	Interpretation	Rank
1. I believe PHET simulations are a valuable addition to my education.	4.42	Always	4.5
2. The duration of exposure to PHET simulations was appropriate for learning.	4.56	Always	1
The duration of exposure to PHET simulations was sufficient for me to grasp the content.	4.43	Always	3
PHET simulations have improved my understanding of topics.	4.52	Always	2
PHET simulations motivate me to learn more.	4.44	Always	4.5
Composite Mean	**4.47**	**Always**	

As gleaned in Table 2, the respondents answered that the duration of exposure to PHET simulations was always appropriate for learning which yielded the highest weighted mean of 4.56 and the highest rank of 1. The results suggested that they consistently find the amount of time spent using PHET simulations to be suitable and effective for their learning needs.

Table 3. Level of Spatial Intelligence in Terms of Visualization Skills

Items	Weighted Mean	Interpretation	Rank
1. I have a strong ability to mentally visualize 3D objects and spaces.	4.51	Always	2
2. I can easily grasp mathematical concepts in STEM.	4.55	Always	1
3. I find it easy to understand complex spatial relationships.	4.39	Always	5
4. I can accurately visualize how objects relate to each other in space.	4.43	Always	4
5. Visualizing complex structures in STEM was a strength of mine.	4.45	Always	3
Composite Mean	**4.47**	**Always**	

The results indicated that the respondents consistently find it effortless to comprehend complex spatial relationships. This finding suggested a high degree of consistency in their ability to understand spatial concepts, implying that they rarely encounter difficulty in interpreting and visualizing spatial arrangements and configurations. Wijaya et al. (2019) stated that high school students with higher visual-spatial intelligence levels can better understand geometry concepts and problem-solve effectively.

Table 4. Level of Spatial Intelligence in Terms of Reasoning Abilities

Items	Weighted Mean	Interpretation	Rank
1. Spatial intelligence plays a significant role in my STEM related learning.	4.52	Always	1
2. My reasoning abilities help me excel in STEM related subjects.	4.45	Always	4
3. My spatial reasoning skills are well-developed and aid in solving problems.	4.41	Always	5
I excel in solving problems that involve spatial reasoning.	4.49	Always	3
My reasoning intelligence positively influences my STEM related performance.	4.50	Always	2
Composite Mean	**4.47**	**Always**	

As reflected in Table 4, the respondents agreed that spatial intelligence always plays a significant role in their STEM related learning which obtained the highest weighted mean of 4.52 and the highest rank of 1. The results indicated that the respondents acknowledge the consistent and significant role of spatial intelligence in their learning related to STEM. Also, the findings emphasized the continuous and pervasive influence of this cognitive ability in their understanding and application of STEM concepts.

Table 5. Relationship Between the Level of PhET Reality Simulations and Level of Spatial Intelligence

Variables	r-value	p-value	Decision	Interpretation
Level of PhET Reality Simulations Versus Level of Spatial Intelligence				
Interactivity versus:				
Visualization Skills	0.31	1.91E-6	Reject Ho	Highly Significant
Reasoning Abilities	0.24	0.00026	Reject Ho	Highly Significant
Duration Exposure:				
Visualization Skills	0.43	0.00000	Reject Ho	Highly Significant
Reasoning Abilities	0.09	0.17662	Failed to Reject Ho	Not Significant

As discussed in the above results presented in Table 5, when the responses of the respondents on the level of PhET Reality Simulations in terms of interactivity were compared to their level of spatial intelligence, the computed r-values of 0.31 for visualization skills and 0.21 for reasoning abilities have corresponding p-values of less than 0.01, thus, rejecting the hypothesis.

Table 6. Relationship Between the Profile of the Respondents and the Level of PhET Reality Simulations, as well as Level of Spatial Intelligence

Variables	r-value	p-value	Decision	Interpretation
Age:				
Interactivity	0.29	8.96E-6	Reject Ho	Highly Significant
Duration Exposure	0.09	0.17662	Failed to Reject Ho	Not Significant
Visualization Skills	0.30	4.20E-6	Reject Ho	Highly Significant
Reasoning Abilities	0.20	0.00247	Reject Ho	Highly Significant
Sex:				
Interactivity	0.01	0.88089	Failed to Reject Ho	Not Significant
Duration Exposure	0.04	0.54879	Failed to Reject Ho	Not Significant
Visualization Skills	0.04	0.54879	Failed to Reject Ho	Not Significant
Reasoning Abilities	0.09	0.17662	Failed to Reject Ho	Not Significant
Grade Level:				
Interactivity	0.19	0.00497	Reject Ho	Highly Significant
Duration Exposure	0.22	0.00085	Reject Ho	Highly Significant
Visualization Skills	0.17	0.01029	Reject Ho	Significant
Reasoning Abilities	0.14	0.03503	Reject Ho	Significant

As given in Table 6, when the Level of PhET Reality Simulations of the respondents were compared to their ages, the computed r-value of 0.29 for interactivity has a corresponding p-value of less than 0.01, thus rejecting the hypothesis. Meanwhile, the computed r-value of 0.09 for duration exposure has a corresponding p-value of more than 0.05, thus failing to reject the hypothesis.

Table 7. Proposed Action Plan

PROGRAM	DESCRIPTION	OBJECTIVES	TARGET OUTPUT
Interactive Simulation Integration	This program aims to integrate interactive simulations, such as PHET simulations, into STEM curricula across educational institutions.	Enhance student engagement and understanding of STEM concepts through interactive learning experiences. Provide educators with the necessary skills and resources to effectively integrate interactive simulations into their teaching practices.	Curriculum mapping outlining where and how interactive simulations will be integrated into existing STEM curricula. Training materials and workshops for educators on how to use interactive simulations effectively. Incorporation of interactive simulations into lesson plans and teaching materials across STEM disciplines.
Exposure Duration Optimization	This program focuses on optimizing the duration of exposure to interactive simulations to maximize learning outcomes.	Identify best practices for structuring exposure duration to interactive simulations. Develop guidelines and resources for educators to implement structured learning experiences.	Guidelines and resources outlining best practices for structuring exposure duration to interactive simulations. Training sessions for educators on how to implement structured learning experiences effectively. Evaluation reports assessing the impact of exposure duration optimization on student engagement and learning outcomes.
Spatial Intelligence Promotion	This program aims to promote spatial intelligence among students through the implementation of spatially oriented teaching strategies.	Enhance student spatial reasoning skills and ability to visualize and manipulate spatial information. Equip educators with the knowledge and resources to implement spatially oriented teaching strategies effectively.	Toolkit of spatially oriented teaching strategies and resources for educators. Training sessions and workshops for educators on how to integrate spatially oriented teaching strategies into their lesson plans. Assessment tools to measure the impact of spatial intelligence promotion initiatives on student learning outcomes.
Inclusive Education Implementation	This program focuses on adopting inclusive educational practices that address demographic factors such as age and gender in curriculum design and implementation.	Ensure equitable access to educational resources and opportunities for all students. Create learning environments that celebrate diversity and promote inclusivity. Address potential biases and stereotypes related to age and gender in educational practices.	Guidelines and resources for educators on how to design inclusive learning experiences. Training sessions and workshops on diversity, equity, and inclusion for educators. Assessment tools to evaluate the effectiveness of inclusive education initiatives on student engagement and learning outcomes.
Educator Professional Development	This program aims to provide educators with ongoing professional development opportunities to enhance their understanding and implementation of educational technologies.	Equip educators with the skills and knowledge necessary to effectively integrate interactive technologies and teaching strategies into their practices. Foster collaboration and knowledge-sharing among educators, instructional designers, and technology developers.	Professional development workshops and training sessions on interactive technologies and teaching strategies. Collaboration platforms and communities of practice for educators. Evaluation reports assessing the impact of professional development programs on educator competencies and student learning outcomes.

Table 7 presented a comprehensive action plan for enhancing STEM education through interactive simulations, optimized exposure duration, spatial intelligence promotion, inclusive practices, and educator professional development. Each program targeted specific objectives, such as improving student engagement, fostering inclusivity, and enhancing educator competencies. Through curriculum integration, guideline development, and training sessions, the plan aimed to equip educators with the tools and knowledge to create inclusive learning environments and effectively utilize interactive technologies. Evaluation reports assessed the impact of these initiatives on student learning outcomes, ensuring continuous improvement and innovation in STEM education practices.

CONCLUSIONS

The study's findings revealed a nuanced understanding of the relationship between physics education technology reality simulations, spatial intelligence to science, technology, engineering, and mathematics learning outcomes in selected high school students in Mabini district. The positive perception of PHET simulations among respondents underscored their effectiveness in engaging learners and deepening their understanding of physics concepts. This emphasized the importance of integrating interactive simulations into educational curricula to bridge the gap between theory and practice, ultimately promoting deeper learning and retention.

Moreover, the study highlighted the significance of optimal exposure duration to maximize the benefits of interactive simulations while avoiding cognitive overload. Educators were encouraged to strive to strike a balance between engagement and fatigue by designing learning experiences that incorporated intermittent breaks and scaffolded activities.

Spatial intelligence emerged as a crucial factor influencing academic success, particularly in STEM fields where the ability to visualize and manipulate spatial information was essential. The study's findings suggested that respondents possessed strong spatial reasoning skills, which positively impacted their performance in subjects like mathematics, engineering, and design. Educators could leverage this insight by incorporating spatially oriented teaching strategies to enhance student learning and comprehension.

While the study extensively discusses the benefits and positive perceptions of PHET simulations, the weakest aspect might be the limited exploration of potential challenges or barriers associated with implementing physics education technology (PHET) reality simulations in high school classrooms, in which it overlooks potential obstacles such as access to technology, technical issues, or differences in student engagement levels. Without addressing these challenges, the conclusions lack depth and may not fully capture the practical implications and limitations of integrating PHET simulations into science education, thus limiting the study's comprehensiveness and applicability.

Furthermore, the study shed light on demographic factors such as age and gender, emphasizing the importance of inclusive educational practices that catered to the diverse needs and preferences of all learners. By acknowledging age-related differences in perception and addressing potential gender biases in spatial intelligence, educators could create learning environments that empowered students of all backgrounds to excel academically. This promoted equity and diversity in STEM fields and fostered a more inclusive and supportive learning community.

In summary, the study underscored the transformative potential of interactive educational technologies like PHET simulations in enhancing student engagement, spatial intelligence, and learning outcomes. By integrating these tools into educational practices and adopting inclusive teaching strategies, educators could cultivate a generation of critical thinkers and problem solvers equipped to tackle the challenges of the 21st century.

RECOMMENDATIONS

Based on the conclusions drawn from the study, several recommendations can be made to enhance educational practices and support student learning.

Firstly, the Department of Education, along with the educational institutions should prioritize the integration of interactive simulations, such as PHET simulations, into curricula across STEM disci-

plines. These simulations can serve as valuable supplements to traditional teaching methods, providing students with hands-on learning experiences that deepen their understanding of complex concepts.

Also, educators should carefully consider the duration of exposure to interactive simulations to maximize learning outcomes. Implementing structured learning experiences with intermittent breaks and scaffolded activities can help maintain student engagement and prevent cognitive overload.

Moreover, given the importance of spatial intelligence in STEM fields, educators and school administrators should incorporate spatially oriented teaching strategies to enhance student spatial reasoning skills. This can include the use of visual aids, hands-on activities, and problem-solving tasks that encourage students to visualize and manipulate spatial information.

Also, Dep Ed and the educational institutions must prioritize inclusivity by addressing demographic factors such as age and gender in curriculum design and implementation. Tailoring educational interventions to accommodate diverse learning needs and preferences ensures equitable access to educational resources for all students.

Furthermore, educators should receive ongoing professional development opportunities to enhance their understanding and implementation of interactive educational technologies and spatially oriented teaching strategies. This will enable them to effectively integrate these tools into their teaching practices and support student learning effectively.

Lastly, encourage collaboration among educators, instructional designers, and technology developers to create innovative educational resources that leverage interactive simulations and promote spatial intelligence. Collaborative efforts can lead to the development of tailored learning experiences that meet the diverse needs of students across different academic levels and disciplines.

By implementing these recommendations, educational institutions can create inclusive learning environments that empower students to develop critical thinking skills, enhance spatial intelligence, and succeed in STEM-related fields and beyond.

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MEDIA CONSUMPTION HABITS AS CORRELATES TO MEDIA LITERACY ON SELECTED HIGH SCHOOL STUDENTS IN APOLINARIO MABINI NATIONAL HIGH SCHOOL

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ABSTRACT

In today's digital era marked by information overload, understanding the relationship between media consumption habits and media literacy among high school students was paramount. This study delves into the landscape of media literacy in Apolinario Mabini National High School, aiming to shed light on the influence of media consumption habits. Utilizing descriptive-correlational research techniques, data was gathered through a custom-designed survey tool administered to 125 high school students. The survey instrument demonstrated high reliability (Cronbach's alpha = .897) and effectively captured respondents' media consumption patterns and levels of media literacy. Analysis revealed that students predominantly spend significant time on streaming platforms, indicating high media exposure, while engagement with traditional news sources like newspapers was notably low. Additionally, the study found that while students displayed a tendency to fact-check news articles, their ability to recognize media bias and propaganda techniques varied. Correlation analysis indicated significant relationships between the frequency of media consumption and both media consumption habits and media literacy levels. Specifically, higher media consumption correlated with more developed media consumption habits and greater media literacy. The findings underscored the importance of addressing media literacy education in high schools, particularly in enhancing students' critical thinking skills and awareness of media biases. Based on these results, interventions tailored to bolster media literacy among students were recommended, emphasizing the cultivation of critical analysis skills, and promoting awareness of media biases and misinformation. Such interventions hold promise in equipping students with the necessary tools to navigate the complexities of the modern media landscape effectively.

Keywords: media consumption habits, media literacy, high school students

INTRODUCTION

In an age dominated by digital media and information overload, the relationship between media consumption habits and media literacy among high school students has garnered increasing attention. Media literacy, encompassing the ability to critically analyze, evaluate, and interpret the vast array of media messages encountered daily, was considered a crucial skill in the 21st century. As high school students navigate the ever-evolving landscape of media, understanding their media consumption habits and their correlation with levels of media literacy was essential for educators, parents, and policymakers seeking to empower the next generation.

By approaching the topic from a global perspective, it became evident that media consumption was a universal phenomenon that transcends cultural and geographic boundaries. The advent of the internet, social media platforms, and the widespread availability of digital content has reshaped the way information was disseminated and consumed globally. Understanding the global context allows us to identify overarching trends and challenges that affect media literacy, laying the groundwork for a nuanced exploration of the phenomenon at the local level.

Media consumption habits among high school students have transformed dramatically over the past decade. The proliferation of smartphones, social media platforms, and streaming services has led to a constant and often fragmented engagement with media (Polizzi, 2020). Students now have unprecedented access to information, entertainment, and communication, shaping not only their perspectives but also their ways of learning and socializing. It was within this context that the study embarked on a comprehensive examination of media consumption habits and their connection to media literacy.

In the Philippines, the dynamic interplay between traditional and digital media was particularly pronounced. The archipelago, with its diverse cultural landscape and linguistic variations, presents a unique backdrop for examining media consumption habits. Filipinos, especially the youth, navigate a media environment characterized by a blend of local, international, and online content (Camiling, 2019). The influence of Western media, alongside the rich tapestry of local narratives, shapes the media preferences and habits of high school students. Furthermore, the Philippines' socio-economic disparities may contribute to variations in access to media and, subsequently, differences in media literacy levels among students. This study sought to unravel the complexities of media consumption within the Philippine context, shedding light on the factors that mold the media literacy landscape among high school students in Apolinario Mabini National High School.

In the rapidly evolving digital landscape of the 21st century, media consumption habits play a central role in shaping the perspectives, beliefs, and critical thinking abilities of high school students (Liu et al., 2020). The relationship between these habits and media literacy was of paramount importance, particularly in the context of selected high school students in Apolinario Mabini National High School. Media literacy, which encompasses the skills to critically evaluate, analyze, and navigate the deluge of media messages, was crucial for empowering students to make informed decisions and engage in meaningful discourse. This study sought to explore the media consumption habits of high school students in Apolinario Mabini National High School, and their correlation with their levels of media literacy.

Narrowing our focus to the local perspective, Apolinario Mabini National High School serves as a microcosm reflecting the intricate dynamics of media consumption within a specific community. Local nuances, socio-economic factors, and educational environments play pivotal roles in shaping the media habits of high school students in this district. The community's unique characteristics, whether influenced by geographic location, cultural traditions, or economic conditions, contribute to a distinct media landscape that necessitates a targeted analysis.

Understanding the media consumption habits of high school students in Apolinario Mabini National High School was the first objective of this research. the study aimed to delve into the types of media they engage with, the frequency of their consumption, and the purposes behind their media choices. It was crucial to comprehend how students select, access, and interact with media in the context of Mabini's unique cultural and geographical setting. The diversity of their media habits, influenced by personal preferences, peer dynamics, family background, and regional factors, forms the backdrop for understanding their media literacy levels.

The study faced several critical challenges, specifically on a global scale, the rapidly evolving nature of media platforms and content poses a challenge in capturing the current landscape comprehensively. The ubiquitous influence of international media, coupled with the dynamic nature of digital platforms, necessitates a continuous adaptation of research methodologies to stay relevant (Abi-Jaoude et al., 2020).

In the Philippine context, the diverse socio-economic landscape and cultural intricacies introduce complexities in understanding and categorizing media consumption patterns. Economic disparities may contribute to varying levels of access to media resources, affecting the homogeneity of media literacy levels among students (Baterna et al., 2020). Additionally, the influence of Western media vis-à-vis local narratives adds another layer of complexity to deciphering the factors influencing media habits among Filipino high school students.

At the local level, within Apolinario Mabini National High School, the research may confront challenges related to data collection and community engagement. Privacy concerns limited technological infrastructure, and potential resistance to external scrutiny may impact the willingness of participants to share candid information about their media consumption habits. Addressing these challenges was imperative for ensuring the accuracy and applicability of the study's findings in developing targeted interventions for media literacy enhancement in the local high school setting.

The study was motivated by the rapidly evolving global media landscape. Recognizing the universal impact of digital connectivity, the research aims to understand the intricate relationship between media habits and literacy skills among youth. In the Philippines, with its diverse cultural and economic landscape, the study addressed the unique interplay between local and international media, considering socio -economic disparities and linguistic diversity. At the local level, within Apolinario Mabini National High School, the research acknowledges the district's role as a microcosm of broader societal dynamics, seeking to unravel how specific factors, including economic conditions and cultural nuances, shape the media literacy landscape among students. The goal was not only to contribute to academic discourse but also to inform targeted interventions and curriculum development that cater to the specific needs of high school students in Apolinario Mabini National High School, thus fostering enhanced media literacy within the local community.

Statement of the Problem

The study aimed to assess the influence of media consumption habits on the landscape of media literacy in Apolinario Mabini National High School. Specifically, this study pursues to answer the following questions:

1. What was the frequency of media consumption of the respondents?
2. What was the level of media consumption habits of the respondents in terms of:
   2.1 exposure; and
   2.2 media engagement?
3. What was the efficiency level of media literacy of the respondents in terms of:
   3.1 skills; and
   3.2 awareness.
4. Is there any significant relationship between:
   4.1 frequency of media consumption and the level of media consumption habits;
   4.2 frequency of media consumption and the efficiency level of media literacy; and
   4.3 level of media consumption habits and the efficiency level of media literacy?
5. What intervention should be proposed to enhance media literacy of the students?

METHODOLOGY

In this chapter, the methodology utilized in the study was clarified. It includes discussions on the research design, data resources, the target demographic, the validation of tools, the data collection process, ethical considerations, data management, and the techniques applied for data analysis.

Research Design

In the research, descriptive-correlational research techniques were utilized, incorporating a survey tool to assess the impact of media consumption habits on media literacy in Apolinario Mabini National High School. The selection of a quantitative method was motivated by the desire to quantify and visually represent the data collected from the study's participants.

Participants

This study focused on high school students currently enrolled in Apolinario Mabini National High School. Using Raosoft's formula, maximizing the confidence level of 95%, with a margin of error of 5%, the researcher successfully determined an appropriate sample size of 125 students from the total population of 151 junior high school students in Apolinario Mabini National High School.

Research Instrument

In this study, a custom-designed, self-made questionnaire created by the researcher was used to gauge the impact of media consumption habits as correlates on media literacy. This survey plays a crucial role in providing a comprehensive insight into how media consumption habits can have a positive influence on media literacy in a specific context.

Data Analysis

To interpret the data effectively, the researcher employed the following statistical treatments. The frequency, percentage, weighted mean, ranking, and Pearson's r were utilized to interpret the data.

RESULTS AND DISCUSSIONS

This part of the study provided the presentation, analysis, and interpretation of the gathered data from the questionnaires answered by the respondents in accordance with the specific questions posited on the objectives of the study.

Table 1. Profile of the Respondents

Profile	Frequency	Percentage	Rank
Less than 1 hour a day	12	9.60	6
1 - 3 hours	24	19.20	2.5
4 - 6 hours	26	20.80	1
7 - 9 hours	19	15.20	5
10 - 12 hours	20	16.00	4
More than 12 hours	24	19.20	2.5
Total	**125**	**100**	

As shown in Table 1, out of 125 total-respondents, 26 of them or 20.80% at rank 1 consumed 4 - 6 hours in using media while 12 or 9.60% at rank 6 were for less than 1 hour a day. This result suggested a considerable portion of the respondents were engaged in media consumption for extended periods, with a notable proportion spending between 4 to 6 hours daily.

Table 2. Level of Media Consumption Habits in Terms of Exposure

Items	Weighted Mean	Interpretation	Rank
1. I spend time on streaming platforms (e.g., YouTube, Netflix) to watch videos.	3.58	Often	1
2. I watch TV news programs to stay informed about current events.	3.11	Sometimes	2
3. I watch documentaries or educational programs on television or streaming platforms.	3.01	Sometimes	3
4. I listen to news on the radio as a source of information.	2.58	Rarely	4
5. I read newspapers (print or online) to gather information on various topics.	2.49	Rarely	5
Composite Mean	**2.95**	**Sometimes**	

As presented in Table 2, the respondents answered that they often spend time on streaming platforms (e.g., YouTube, Netflix) to watch videos which made the highest weighted mean of 3.58 and the highest rank of 1. The results suggested that a significant number of respondents prefer these platforms for watching videos. In other words, streaming platforms appear to be the most favored option among the respondents when it comes to watching video content.

Table 3. Level of Media Consumption Habits in Terms of Media Engagement

Items	Weighted Mean	Interpretation	Rank
1. I play video games that include news or current events as part of the gameplay.	2.62	Sometimes	4
2. I actively engage in discussions on social media about news and social issues.	2.94	Sometimes	2
3. I use mobile apps to stay updated with the latest news and events.	3.61	Often	1
4. I frequently share or repost news articles or stories on my social media profiles.	2.41	Rarely	5
5. I follow online forums and discussion boards to engage in conversations.	2.71	Sometimes	3
Composite Mean	**2.86**	**Sometimes**	

On the other hand, the said group of respondents rarely share or re-post news articles or stories on their social media profiles which obtained the least weighted mean of 2.41 and seated at rank 5. The results suggested that the respondents infrequently engage in the practice of sharing or reposting news articles or stories on their social media profiles. It implies that they were less inclined to share news content with their online networks, such as friends, family, or followers, through platforms like Facebook, Twitter, or Instagram. Zhang (2023) stated that new media attributes significantly influence user engagement, leading to transformative changes in news consumption and dissemination, with user engagement being a pivotal mediator.

The composite mean of 2.86 implied that the respondents sometimes consume media engagements. This finding suggested that the respondents engage with media content intermittently or on occasion. It implies that their media consumption habits were not consistent or regular, indicating variability in the frequency and duration of their media interactions.

Table 4. Efficiency Level of Media Literacy in Terms of Skills

Items	Weighted Mean	Interpretation	Rank
1. I actively fact-check news articles before accepting them as true.	3.68	Often	1
2. I can distinguish between credible and unreliable online sources.	3.29	Sometimes	2
3. I can recognize the use of propaganda techniques in media content.	2.88	Sometimes	5
4. I am familiar with the concept of media literacy and its importance.	3.25	Sometimes	3.5
5. I critically evaluate the accuracy of news articles and information I come across.	3.25	Sometimes	3.5
Composite Mean	**3.27**	**Sometimes**	

As written in table 4, the respondents affirmed that they often actively fact-check news articles before accepting them as true which garnered the highest weighted mean of 3.68 and the highest rank of 1. The findings indicated that the respondents frequently engage in the practice of actively fact-checking news articles before accepting them as true.

Table 5. Efficiency Level of Media Literacy in Terms of Awareness

Items	Weighted Mean	Interpretation	Rank
I am aware of the ethical considerations in media production and consumption.	3.38	Sometimes	4
I am aware of the role that media plays in shaping public opinions.	3.40	Often	3
I can identify and analyze different forms of media bias in news reporting.	2.99	Sometimes	5
I understand the effect of media on society and individual beliefs.	3.61	Often	2
I understand the potential influence of "fake news" on society.	3.85	Often	1
Composite Mean	**3.45**	**Often**	

As revealed in Table 5, the respondents answered that they often understand the potential influence of "fake news" on society which yielded the highest weighted mean of 3.85 and the highest rank of 1. The results suggested that they possess a level of awareness regarding the impact of misinformation and disinformation in media. This indicates that they recognize the significant role that false or misleading information can play in shaping public opinion, attitudes, and behaviors. According to Leaning (2019), integrating media and information literacy can enhance digital literacy by addressing their deficiencies and providing a more comprehensive approach to digital technology and communication practices.

However, the said group of respondents replied that they can identify and analyze different forms of media bias in news reporting with the least weighted mean of 2.99 and the least rank of 5. The findings suggested that the respondents possess a level of awareness and critical thinking skills when consuming news media. This indicates that they can recognize various types of bias that may exist within news content, such as political bias, ideological bias, sensationalism, or corporate influence.

Table 6. Relationship Between the Frequency of Media Consumption and Level of Media Consumption Habits, as Well as Efficiency Level of Media Literacy

Variables	r-value	p-value	Decision	Interpretation
Frequency of Media Consumption and Level of Media Consumption Habits				
Media Consumption Vs:				
Exposure	0.48	1.00E-8	Reject Ho	Highly Significant
Media Management	0.51	0.00000	Reject Ho	Highly Significant
Frequency of Media Consumption and Efficiency Level of Media Literacy				
Media Consumption Vs:				
Skills	0.63	0.00000	Reject Ho	Highly Significant
Awareness	0.52	0.00000	Reject Ho	Highly Significant

As stated in the above results shown in Table 6.1, when the frequency of media consumption of the respondents was compared to their level of media consumption habits, the computed r-values of 0.48 for physical exposure, and 0.51 for media management have corresponding p-values of less than 0.01, thus, rejecting the hypothesis.

These concluded that the frequency of media consumption of the respondents has high significant relationships to their level of media consumption habits in terms of physical exposure and media management. The findings implied that the amount of time spent consuming media correlates strongly with how individuals interact with media content and how they manage their media consumption habits. This suggested that as the frequency of media consumption increases or decreases, there was a corresponding change in individuals' media consumption habits related to physical exposure and media management. Habituation and sensitization in social media use can reduce exhaustion and increase dependency, shaping both opposing forces driving continued use decisions (Soror et al., 2021).

Moreover, when the frequency of media consumption of the respondents was compared to their efficiency level of media literacy, the computed r-values of 0.63 for skills, and 0.52 for awareness have corresponding p-values of less than 0.01, thus, rejecting the hypothesis.

Table 7. Relationship Between the Level of Media Consumption Habits and the Efficiency Level of Media Literacy

Variables	r-value	p-value	Decision	Interpretation
Level of Media Consumption Habits Versus Efficiency Level of Media Literacy				
Exposure:				
Skills	0.43	5.60E-07	Reject Ho	Highly Significant
Awareness	0.27	0.00233	Reject Ho	Highly Significant
Media Management:				
Skills	0.47	3.00E-08	Reject Ho	Highly Significant
Awareness	0.42	1.08E-06	Reject Ho	Highly Significant

As stated in the table, when the responses of the respondents on their level of media consumption habits in terms of exposure were compared to their efficiency level of media literacy, the computed r-values of 0.43 for skills and 0.27 for awareness have corresponding p-values of less than 0.01, thus rejecting the hypothesis.

These generalized that the responses of the respondents on their level of media consumption habits in terms of exposure have high significant relationships to their efficiency level of media literacy on the areas of skills and awareness. The findings suggested a strong correlation between respondents' reported media consumption habits, particularly their exposure to various forms of media, and their proficiency in media literacy skills and awareness. The high significant relationships observed indicated that how individuals engage with media influences their level of media literacy across different domains, including skills and awareness.

Lastly, when the responses of the respondents on their level of media consumption habits in terms of media management were compared to their efficiency level of media literacy, the computed r-values of 0.47 for skills and 0.42 for awareness have corresponding p-values of less than 0.01, thus rejecting the hypothesis.

These deduced that the responses of the respondents on their level of media consumption habits in terms of media management have high significant relationships to their efficiency level of media literacy

on the areas of skills and awareness. The findings highlighted a noteworthy connection between respondents' reported media consumption habits, particularly their approach to managing media usage, and their proficiency in media literacy skills and awareness.

Table 8. Intervention Plan

MEDIA LITERACY WORKSHOP	
Media Literacy Workshop was an interactive session designed to enhance high school students' critical thinking skills and knowledge of media literacy principles. These workshops provide practical tools and strategies for students to navigate the digital media landscape effectively, identify misinformation, and become responsible consumers and creators of media content.	
OBJECTIVES	**TARGET OUTPUT**
To educate students about the importance of media literacy in the digital age.	Increased awareness and understanding of media literacy concepts among workshop participants.
To equip students with critical thinking skills to evaluate media sources and content.	Improved critical thinking skills demonstrated through students' ability to analyze and evaluate media content.
To raise awareness about common tactics used in media manipulation and misinformation.	Development of practical strategies for identifying and combating misinformation in the digital media landscape.
To empower students to make informed decisions about media consumption and production.	Enhanced confidence and competence in navigating online platforms and engaging with media content responsibly.
To foster a culture of responsible digital citizenship among high school students.	Creation of media literacy resources or projects by students to share their knowledge and promote media literacy within their school community.

Shown on Table 8 was the proposed intervention plan based on the results of the study. The Media Literacy Workshop program aims to enhance high school students' critical thinking skills and understanding of media literacy principles. Through interactive sessions, students learn to evaluate media sources, identify misinformation, and engage responsibly with digital content. The objectives included raising awareness about media literacy, equipping students with analytical tools, and fostering responsible digital citizenship. The program's target output includes increased awareness and understanding of media literacy concepts, improved critical thinking skills, and the development of practical strategies for navigating the digital media landscape. Additionally, students were encouraged to create media literacy resources or projects to promote awareness within their school community.

CONCLUSIONS

Based on the findings of this study, it was evident that media consumption habits among the surveyed population varied significantly, reflecting diverse engagement levels and preferences within the digital landscape. The analysis of media consumption frequency provided valuable insights into the prevalence and extent of media engagement among respondents, highlighting the integral role of media in their daily lives.

Furthermore, the examination of media consumption habits in terms of exposure shed light on the popularity of streaming platforms as the preferred choice for accessing video content. This preference underscored the convenience and appeal of digital platforms in providing a wide array of entertainment and educational content. Additionally, the limited reliance on newspapers suggested a shifting trend away from traditional media sources in favor of digital alternatives.

Moreover, the investigation into media consumption habits in terms of media engagement revealed the respondents' inclination towards using mobile apps for news consumption, emphasizing the growing significance of digital technologies in accessing information. However, their passive approach to news dissemination on social media platforms suggested a nuanced understanding of media engagement and sharing behaviors.

Furthermore, the assessment of media literacy efficiency highlighted the respondents' proactive fact-checking practices and discernment in navigating media content. While moderate levels of awareness of persuasive tactics were observed, there remained room for enhancing media literacy skills, particularly in critically analyzing media messages and promoting responsible consumption habits.

Based on the results, the weakest finding of the study was the lack of in-depth analysis or specific strategies proposed for enhancing media literacy skills among the selected high school students. While the study highlighted varying media consumption habits and levels of media engagement, it did not pro-

vide concrete recommendations or interventions aimed at improving media literacy proficiency. Although the study acknowledged the importance of promoting critical thinking skills and responsible media consumption habits, it fell short in offering actionable steps or educational initiatives tailored to address the identified gaps in media literacy. Strengthening this aspect of the study by providing specific recommendations for enhancing media literacy skills could have enhanced its practical relevance and impact in empowering students to navigate the digital landscape effectively.

Overall, these findings underscored the complex interplay between media consumption habits and media literacy proficiency, emphasizing the importance of tailored interventions and educational initiatives to empower individuals to navigate the digital landscape effectively. By promoting critical thinking skills, fact-checking practices, and responsible media consumption habits, stakeholders could contribute to fostering a more informed and discerning media audience capable of navigating the challenges of the digital age.

RECOMMENDATIONS

Based on the conclusions drawn from the study, several recommendations can be proposed to address the observed trends in media consumption habits and media literacy proficiency in Apolinario Mabini National High School.

The Department of Education (Dep Ed) must mandate educational institutions and stakeholders should to prioritize the integration of media literacy education into curricula at all levels. This should include teaching students critical thinking skills, fact-checking practices, and strategies for discerning credible sources of information amidst the vast digital landscape.

Also, public awareness campaigns should be launched to promote responsible media consumption habits among the general population. These campaigns can emphasize the importance of verifying information before sharing it and encourage individuals to diversify their media sources to gain a balanced perspective.

Moreover, given the increasing reliance on digital platforms for accessing media content, initiatives aimed at enhancing digital literacy skills should be implemented. This can involve providing training on using digital tools effectively, navigating online platforms safely, and understanding privacy and security settings.

Also, collaboration between educational institutions, media organizations, and technology companies can facilitate the development of resources and tools to promote media literacy. This can include workshops, webinars, and educational materials designed to equip individuals with the skills needed to navigate the digital media landscape responsibly.

Furthermore, encouraging parental involvement in monitoring and guiding children's media consumption habits was crucial. Workshops and seminars can be organized to educate parents on the importance of media literacy and provide them with strategies for supporting their children in developing critical thinking skills.

Lastly, ongoing research and evaluation of media consumption trends and media literacy levels were essential to adapt strategies and interventions to evolving needs. Collaboration between researchers, educators, and policymakers can ensure that interventions were evidence-based and effectively address the challenges posed by media consumption in the digital age.

By implementing these recommendations, stakeholders can work towards fostering a more informed and responsible media audience capable of navigating the complexities of the digital landscape effectively. This, in turn, can contribute to promoting civic engagement, critical thinking, and informed decision-making among individuals in society.

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EFFICIENCY OF TECHNOLOGY INTEGRATION IN TEACHING MATHEMATICS IN PUBLIC HIGH SCHOOLS IN MABINI, BATANGAS: BASIS FOR AN ACTION PLAN

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ABSTRACT

The study delved into the intricate dynamics of technology integration in mathematics education within selected high schools in Mabini, Batangas. It aimed to provide a comprehensive understanding of how various factors, including the profile of respondents, the level of technology integration, and the efficiency of mathematics education through technology, interacted with each other. Through meticulous data collection and analysis, the research sought to uncover the nuanced relationships between these variables, shedding light on both the challenges and opportunities associated with technology integration in mathematics instruction. Employing descriptive-correlational research methodologies, the study engaged 171 teachers from public high schools in Mabini, Batangas. The selection of a quantitative approach facilitated the systematic quantification and visualization of the collected data, enabling a rigorous examination of the research questions at hand. This methodological choice was driven by the need to provide concrete empirical evidence to inform educational practices and policies effectively. The study emphasized the significant impact of technology integration on improving mathematics education, as reported by teachers. They highlighted the positive influence of digital resources and tools in enhancing student learning experiences, making mathematics more engaging and interactive. Additionally, teachers expressed confidence in the effectiveness of technology integration, emphasizing their ability to create stimulating lessons. They also recognized the importance of continuous professional development to stay updated with technology. However, the study revealed varied correlations between technology integration and demographic characteristics, suggesting a complex relationship that influences the adoption of technology in mathematics education. By elucidating the relationships between various factors and highlighting areas for improvement, the findings contribute to the ongoing efforts to optimize mathematics instruction through effective technology integration strategies.

Keywords: technology integration, mathematics, public high schools

INTRODUCTION

The integration of technology into education has precipitated a profound transformation in how students learn, and teachers instruct in the modern era. This shift has been especially conspicuous in the domain of mathematics, where innovative technological tools have the potential to globally revolutionize the teaching and learning processes. The convergence of technology and mathematics education represents a promising avenue for enhancing students' comprehension and engagement, particularly within the global context of high schools, which serve as the foundational stage for advanced mathematical concepts (Hill & Uribe-Florez, 2020). The modern era was undeniably characterized by digital dominance, with technology serving as an integral part of daily life. This prevalence of digital devices has led to a natural inclination towards technology among students. Harnessing this innate affinity for technology in the classroom holds the potential to be a powerful catalyst for improving mathematics education.

However, in this study, it was crucial to recognize that the integration of technology into education was not a one-size-fits-all endeavor. The specific challenges and opportunities presented by technology

integration can vary significantly, and not all schools have equal access to technology. Socioeconomic factors and infrastructural disparities play a pivotal role in determining the efficacy of technology-based learning (Barton & Dexter, 2020). Central to this research was the overarching goal of shedding light on the impact of technology integration on mathematics education in high schools. By conducting a thorough examination of the experiences, outcomes, and best practices of schools that have wholeheartedly embraced technology as an educational ally, this thesis seeks to contribute to the ongoing dialogue surrounding the enhancement of mathematics instruction.

In the Philippines, technology becomes increasingly ubiquitous, its role in shaping educational experiences has become more pronounced. This research offers insights into both challenges and opportunities. The unique socio-economic and infrastructural considerations of the Philippines contribute to a distinctive lens through which the impact of technology on education was assessed. This exploration encompasses not only the tangible tools and resources available but also the cultural and pedagogical adaptations necessary for successful integration. By examining the specific nuances of Mabini's educational landscape, this study seeks to contribute valuable perspectives on how technology can be optimally employed to bolster mathematics education in public high schools, fostering a holistic understanding of the efficiency of technology integration in the Philippine context.

The stage then shifts to the tranquil coastal town of Mabini, Batangas, where tradition and modernity coexist harmoniously. In this idyllic corner of the Philippines, a significant educational transformation was quietly but profoundly underway (Sasota et al., 2021). The integration of technology into education has not skipped Mabini; in fact, it has become a pivotal force shaping the educational landscape. In Mabini, as in many other parts of the world, the intersection of technology and mathematics education holds the promise of revolutionizing the way high school students in selected institutions learn, understand, and engage with the mathematical concepts that underpin their academic journey.

Integrating technology into mathematics education in public high schools faces several challenges. The digital divide, characterized by uneven access to technology and internet connectivity among students, may exacerbate educational inequalities (Sanusi et al., 2020). A shortage of trained educators proficient in utilizing technology, coupled with limited professional development opportunities, hinders the optimal integration of technological tools. Infrastructure limitations, such as insufficient resources in some schools, impede the implementation of interactive learning experiences. Resistance to change among educators and stakeholders, rooted in traditional teaching methods, poses a barrier to seamless technology integration. Cultural considerations demand adaptation of technology to align with local customs and preferences, ensuring cultural relevance and inclusivity. Balancing technological advancement with cultural sensitivity was crucial for successful implementation.

This research posits that it was through the judicious utilization of this innate proclivity for technology that the potential to improve mathematics education significantly can be unlocked. The investigation delves into the array of technological tools available to mathematics educators in Mabini, from interactive software and online resources to graphing calculators and immersive simulations. The primary aim was to unearth how these tools can be effectively harnessed to strengthen students' mathematical skills and deepen their understanding of mathematical concepts within the unique context of Mabini.

The ultimate objective of this research was to illuminate the impact of technology integration on mathematics education within the high schools of Mabini, Batangas. By thoroughly examining the experiences, outcomes, and best practices of schools that have embraced technology as an educational ally, this thesis aspires to make a meaningful contribution to the ongoing dialogue surrounding the enhancement of mathematics instruction. The vision was to play a part in shaping the future of high school education in this serene coastal town, ensuring that students in Mabini, and by extension, in similar communities worldwide, were equipped with the skills and knowledge they need to thrive in an ever-evolving world.

Statement of the Problem

The study aimed to determine the impact of technology integration in enhancing mathematics in selected high schools in Mabini, Batangas. Specifically, this study pursues to answer the following questions:

1. What is the profile of the respondents in terms of:
   1.1 age;
   1.2 sex;

1.3 civil status; and
1.4 educational attainment?
2. What is the level of technology integration of the respondents in terms of:
2.1 Digital Resources; and
2.2 Tools?
3. What is the efficiency level of mathematics education through technology integration of the respondents in terms of:
3.1 pedagogical style;
3.2 teacher skill; and
3.2 constant knowledge?
4. Is there any significant relationship between:
4.1 the profile of the respondents and the level of technology integration;
4.2 the profile of the respondents and the efficiency level of mathematics education through technology integration; and
4.3 the level of technology integration and the efficiency level of mathematics education through technology integration?
5. What action plan should be proposed to enhance the level of efficiency and utilization of technology in teaching Mathematics?

METHODOLOGY

This chapter elucidates the methodological approach employed in this study, encompassing the research design, data sources, study population, instrumentation and its validation, procedure for data collection, ethical considerations, treatment of data, and data analysis techniques employed.

Research Design

This research made use of descriptive-correlational research methodologies, incorporating a survey tool to assess the impact of technology integration on the improvement of mathematics education within specific high schools in Mabini, Batangas. The selection of a quantitative approach was motivated by the desire to quantify and visually represent the feedback obtained from the study's participants.

Participants

The research centered its analysis on teachers who were currently employed from the selected public high schools in Mabini, Batangas. Through the utilization of Raosoft's formula, with a confidence level of 95% and 5% margin of error, the study has effectively determined an appropriate sample size of 171 teachers from the estimated total population of 460 public high school teachers in Mabini, Batangas. This sample size was well-suited to meet the research's objectives.

Research Instrument

The research employed a researcher-designed questionnaire, custom-tailored to evaluate the impact of technology integration on the enhancement of mathematics education and learning. This survey was vital for comprehending the intricacies of how technology, when integrated into the learning process, can positively influence mathematics education within a specific context.

Procedure

The researcher must ensure approval from the principals and administrators of the selected institutions. Once approved, the researcher initiated the data gathering process according to a predetermined schedule. Initially, briefing and orientation conducted with the respondents to assure the correctness of data to be given. Subsequently, survey questionnaires were distributed during scheduled sessions, each lasting to 25 minutes, ensuring careful completion by participants. It was important to note that the researcher must accompany the respondents and guide them. Also, participants were encouraged to seek clarification on any questions that may arise during the survey process.

Following the questionnaire completion, data collection promptly commences. This immediacy in data collection aims to capture the responses of participants while their perspectives and impressions

were still fresh in their minds. By swiftly moving from the questionnaire to data collection, the research methodology seeks to ensure a comprehensive and accurate compilation of the participants' responses. The significance of this method lies in the researcher's active involvement in the data acquisition process. By personally administering the surveys, the researcher can provide necessary guidance and support to the participants, fostering an environment that encourages not only the efficient completion of the survey but also active participation.

Ethical Consideration

Within the context of the study, ethical considerations emerge as critical components that demand careful attention throughout the research process. As technology becomes integral to education, ensuring ethical standards becomes paramount. The study specifically underscored the ethical dimensions related to data privacy and security. With the collection of student data in technology-integrated classrooms, our research emphasizes the importance of obtaining informed consent and adhering to legal guidelines for safeguarding personal information. Moreover, the study addressed accessibility concerns, aiming to mitigate potential disparities in technology access among students in underserved communities. The digital divide was acknowledged, and alternative strategies were explored to ensure inclusive participation in technology-enhanced learning. Ethical guidelines were proposed to strike a balance between technology use and maintaining vital teacher-student relationships, crucial for overall student development. Additionally, the study considered the ethical implications of technology-related issues such as cyberbullying and potential addiction, emphasizing the need for guidelines promoting healthy technology use within and outside the classroom. By meticulously navigating these ethical considerations, our research contributes to the responsible and ethical integration of technology in mathematics education.

Data Analysis

To interpret the data effectively, the researcher employed the following statistical treatments. The frequency, percentage, weighted mean, ranking, and Pearson's r were utilized to interpret the data.

RESULTS AND DISCUSSIONS

This part of the study provided the presentation, analysis, and interpretation of the gathered data from the questionnaires answered by the respondents in accordance with the specific questions posited on the objectives of the study.

Table 1. Profile of the Respondents

Variables	Frequency	Percentage	Rank
Age:			
25 - 29 years old	10	33.33	2
30 - 34 years old	14	46.67	1
35 - 39 years old	6	20.00	3
Total	**30**	**100**	
Sex:			
Female	25	83.33	1
Male	5	16.67	2
Total	**30**	**100**	
Civil Status:			
Single	16	53.33	1
Married	14	46.67	2
Total	**30**	**100**	
Educational Attainment:			
Bachelor’s Degree	21	70.00	1
Master’s Degree	9	30.00	2
Total	**30**	**100**	

As gleaned in Table 1, out of 30 total-respondents, 14 of them or 46.67% at rank 1 came from the age range of 30 - 34 years old whereas six or 20.00% at rank 3 were from the age range of 35 - 39 years old.

In terms of the respondents' sexes, 25 or 83.33% at rank 1 were female seated at rank 1 while five or 16.67% at rank 2 were male.

For the respondents' civil statuses, single gained the highest frequency count of 16 or 53.33% at rank 1. Meanwhile, 14 or 46.67% at rank 2 were married.

On the part of the respondents' educational attainments, 21 or 70.00% at rank 1 were bachelor's degree while nine or 30.00% at rank 2 were master's degree.

Table 2. Level of Technology Integration in Terms of Digital Resources

Items	Weighted Mean	Interpretation	Rank
Digital resources are used in my Mathematics class.	4.37	Always	4
I have access to a variety of digital resources that enhance my Mathematics learning and teaching.	4.17	Often	5
Digital resources have improved my understanding of Mathematical concepts.	4.53	Always	2.5
I feel confident in using digital resources to support my Mathematics education.	4.53	Always	2.5
Digital resources make Mathematics more engaging and interactive.	4.70	Always	1
Composite Mean	**4.46**	**Always**	

As presented in Table 2, the respondents assessed that digital resources make Mathematics more engaging and interactive with the highest weighted mean of 4.70 and the highest rank of 1. This implied that the use of technology tools, such as interactive apps, simulations, or online platforms, adds value to the teaching and learning process in Mathematics.

Table 3. Level of Technology Integration in Terms of Tools

Items	Weighted Mean	Interpretation	Rank
Tools such as graphing calculators and software are commonly used in my classes.	4.03	Often	5
Technological tools help me solve mathematical problems more efficiently.	4.33	Always	3
I have the necessary skills to use mathematics-specific tools effectively.	4.20	Always	4
The integration of tools has positively impacted my mathematical skills.	4.53	Always	1
I prefer using technology tools for Mathematics over traditional methods.	4.50	Always	2
Composite Mean	**4.32**	**Always**	

As reflected in Table 3, the respondents perceived that the integration of tools has always positively impacted their mathematical skills which got the highest weighted mean of 4.53 and the highest rank of 1. This result suggested that the participants believe the use of various tools, such as digital resources and technology, has contributed to their improvement in mathematical proficiency.

Table 4. Efficiency Level of Mathematics Education Through Technology Integration in Terms of Pedagogical Style

Items	Weighted Mean	Interpretation	Rank
I believe that integrating technology enhances my pedagogical style of teaching.	4.40	Always	2
I adapt my teaching methods to incorporate technology in Mathematics lesson.	4.30	Always	4
I am confident in my ability to create engaging and effective lessons through the integration of technology.	4.17	Often	5
I think technology enhances student participation and interaction in Mathematics classes.	4.50	Always	1
I modify my instructional strategies to align with technological advancements in Mathematics education.	4.33	Always	3
Composite Mean	**4.34**	**Always**	

As revealed in Table 4, the respondents agreed that they always think technology enhances student participation and interaction in Mathematics classes which made the highest weighted mean of 4.50 and the highest rank of 1. This result suggested a shared perception among the respondents that integrating technology into Mathematics instruction positively impacts student engagement and interaction. The findings indicated a strong belief in the benefits of using technology to facilitate learning in Mathematics classrooms. In relation, according to Graham et al. (2021), South African mathematics teachers most effectively integrate data projectors as teaching aids, but professional development programs are needed to train teachers to make fundamental pedagogical shifts when integrating technology in their classrooms.

On the contrary, the said group of respondents replied that they are always confident in their ability to create engaging and effective lessons through the integration of technology with the least weighted mean of 4.17 and the least rank of 5. This indicated a shared belief among the respondents in their capacity to leverage technology to enhance the learning experience for their students.

Table 5. Efficiency Level of Mathematics Education Through Technology Integration in Terms of Teacher Skill

Items	Weighted Mean	Interpretation	Rank
I believe that my current level of technological skill aligns with the demands of integrating technology into Mathematics education.	4.20	Always	3
I seek professional development opportunities to enhance my knowledge of technology tools for Mathematics education.	4.17	Often	4
I collaborate with my colleagues to share best practices in integrating technology into Mathematics teaching.	4.23	Always	2
I receive support from my school administration for incorporating technology into my Mathematics lessons.	4.10	Often	5
I feel confident in my skills to effectively integrate technology into my lessons.	4.30	Always	1
Composite Mean	**4.20**	**Always**	

As gleaned in Table 5, the respondents answered that they always feel confident in their skills to effectively integrate technology into their lessons with the highest weighted mean of 4.30 and the highest rank of 1. This result indicated a strong sense of self-assurance among the respondents regarding their proficiency in leveraging technological tools and resources to enhance teaching and learning experiences. The findings suggested that they possess the necessary knowledge, skills, and competencies to incorporate technology seamlessly into their instructional practices. Baya'a et al (2019) stated that In-service mathematics teachers can integrate ICT in their teaching through mentoring but must consider students' formal procedural mathematical knowledge.

Table 6. Efficiency Level of Mathematics Education Through Technology Integration in Terms of Content Knowledge

Items	Weighted Mean	Interpretation	Rank
I am engaging in self-directed learning to stay abreast of the latest technological advancements in Mathematics education.	4.30	Always	3.5
I feel that continuous learning about new technologies positively influences my teaching effectiveness in Mathematics.	4.37	Always	2
I attend workshops or conferences focused on technology integration in Mathematics education.	4.13	Often	5
I incorporate feedback and insights from professional development opportunities into my Mathematics teaching practices.	4.30	Always	3.5
I updated my knowledge and skills related to technology integration in Mathematics education.	4.40	Always	1
Composite Mean	**4.30**	**Always**	

As stated in Table 6, the respondents affirmed that they always updated their knowledge and skills related to technology integration in Mathematics education which got the highest weighted mean of 4.40 and the highest rank of 1. This indicated their proactive approach to professional development, specifically in adapting to advancements in educational technology. By staying updated with the latest tools, techniques, and trends in technology integration, the results demonstrated a commitment to enhancing

their teaching practices and effectively leveraging technology to support Mathematics instruction. Integrating digital technology in mathematics learning improves students' conceptual understanding and develops their intuitive abilities, without replacing the role of intuition (Wahyuni et al., 2021).

Table 7.1. Relationship Between the Level of Technology Integration and the Efficiency Level of Mathematics Education Through Technology Integration

Variable	r-value	p-value	Decision	Interpretation
Level of Technology Integration and the Efficiency Level of Mathematics Education Through Technology Integration				
Digital Resources:				
Pedagogical Style	0.60	0.00046	Reject Ho	Highly Significant
Teacher Skill	0.58	0.00078	Reject Ho	Highly Significant
Content Knowledge	0.65	0.00010	Reject Ho	Highly Significant
Tools:				
Pedagogical Style	0.70	0.00002	Reject Ho	Highly Significant
Teacher Skill	0.75	1.83E-6	Reject Ho	Highly Significant
Content Knowledge	0.68	0.00004	Reject Ho	Highly Significant

As written in Table 7.1, when the responses of the respondents on the level of technology integration in terms of digital resources were compared to the efficiency level of Mathematics education through technology integration the computed r-values of 0.60 for pedagogical style, 0.58 for teacher skill, and 0.65 for content knowledge have corresponding p-values of less than 0.01, thus rejecting the hypothesis.

Table 7.2. Relationship Between the Profile of the Respondents and the Level of Technology Integration

Variable	r-value	p-value	Decision	Interpretation
Profile Versus Level of Technology Integration				
Age:				
Digital Resources	0.05	0.79302	Failed to Reject Ho	Not Significant
Tools	0.41	0.02444	Reject Ho	Significant
Sex:				
Digital Resources	0.02	0.91646	Failed to Reject Ho	Not Significant
Tools	0.38	0.03833	Reject Ho	Significant
Civil Status:				
Digital Resources	0.11	0.56282	Failed to Reject Ho	Not Significant
Tools	0.09	0.63624	Failed to Reject Ho	Not Significant
Educational Attainment:				
Digital Resources	0.05	0.79302	Failed to Reject Ho	Not Significant
Tools	0.01	0.95817	Failed to Reject Ho	Not Significant

As displayed in Table 7.2, when the responses of the respondents on the level of technology integration were compared based on their ages, the computed r-value of 0.41 for tools has a corresponding p-value of less than 0.05, thus rejecting the hypothesis. On the contrary, the computed r-value of 0.05 for digital resources has a corresponding p-value of more than 0.05, thus failing to reject the hypothesis.

Table 7.3. Relationship Between the Profile of the Respondents and the Efficiency Level of Mathematics Education Through Technology Integration

Variable	r-value	p-value	Decision	Interpretation
Profile Versus Level of Technology Integration				
Age:				
Pedagogical Style	0.01	0.95817	Failed to Reject Ho	Not Significant
Teacher Skill	0.19	0.31458	Failed to Reject Ho	Not Significant
Content Knowledge	0.05	0.79302	Failed to Reject Ho	Not Significant
Sex:				
Pedagogical Style	0.06	0.75280	Failed to Reject Ho	Not Significant
Teacher Skill	0.10	0.59905	Failed to Reject Ho	Not Significant
Content Knowledge	0.07	0.71320	Failed to Reject Ho	Not Significant
Civil Status:				
Pedagogical Style	0.06	0.75280	Failed to Reject Ho	Not Significant
Teacher Skill	0.12	0.52763	Failed to Reject Ho	Not Significant
Content Knowledge	0.19	0.31458	Failed to Reject Ho	Not Significant
Educational Attainment:				
Pedagogical Style	0.13	0.49353	Failed to Reject Ho	Not Significant
Teacher Skill	0.05	0.79302	Failed to Reject Ho	Not Significant
Content Knowledge	0.05	0.79302	Failed to Reject Ho	Not Significant

As reported in Table 7.3, when the responses of the respondents on efficiency level of Mathematics education through technology integration were compared to their ages, the computed r-values of 0.01 for pedagogical style, 0.19 for teacher skill, and 0.05 for content knowledge have corresponding p-values of more than 0.05, thus failing to reject the hypothesis.

Table 8. Proposed Action Plan

ACTION PLAN	OBJECTIVES	TARGET OUTPUT
Professional Development	- Equip mathematics educators with skills and resources for effective technology integration.	- Increased proficiency of teachers in integrating technology into mathematics instruction.
	- Provide hands-on training, workshops, and collaborative learning opportunities focused on technology integration in mathematics education.	- Enhanced teacher confidence and readiness to leverage technology in teaching mathematics.
	- Foster a culture of collaboration among mathematics educators to share best practices and support one another in technology integration efforts.	- Creation of professional learning communities or mentorship programs for ongoing support.
Diverse Digital Resources	- Provide access to a wide range of digital tools and resources to support diverse learning styles and preferences among students.	- Improved engagement and understanding among students through interactive digital resources.
	- Invest in graphing calculators, educational software, and online learning platforms for mathematics classrooms.	- Increased utilization of digital resources in mathematics instruction.
	- Ensure that digital resources cater to various learning needs and preferences of students.	- Enhanced accessibility and effectiveness of digital tools for student learning.
Collaborative Culture	- Foster collaboration among mathematics educators to share best practices, exchange ideas, and collectively problem-solve challenges.	- Establishment of a supportive network for educators to collaborate on technology integration.
	- Establish professional learning communities or mentorship programs to facilitate collaboration and support among teachers.	- Increased sharing of innovative teaching methods and successful technology integration strategies.
	- Provide opportunities for collaborative planning and reflection on technology integration efforts.	- Strengthened sense of community and mutual support among mathematics educators.
Innovative Teaching	- Encourage educators to explore innovative teaching methodologies that leverage technology to enhance mathematics instruction.	- Adoption of inquiry-based learning, project-based learning, and collaborative problem-solving activities.
	- Offer workshops and training sessions focused on integrating technology into mathematics instruction through innovative pedagogical approaches.	- Increased utilization of technology-enhanced teaching methods in mathematics classrooms.
	- Provide support and resources for educators to experiment with and implement innovative teaching strategies in their classrooms.	- Enhanced engagement and achievement among students through innovative mathematics instruction.
Ongoing Support & Evaluation	- Ensure continuous support and evaluation of technology integration efforts to identify areas for improvement and refinement.	- Regular assessment of the impact of technology integration initiatives on student learning outcomes.
	- Establish a system for collecting feedback from students, teachers, and stakeholders on technology integration in mathematics education.	- Data-driven insights to inform adjustments and enhancements to technology integration strategies.
	- Provide ongoing professional development opportunities and technical support to address identified needs and challenges.	- Improved effectiveness and sustainability of technology integration efforts in mathematics education.

Derived from the results of the study, table 8 presented the proposed action plan. The action plan comprises five programs aimed at enhancing technology integration in mathematics education. These programs focus on providing professional development for teachers, offering diverse digital resources, fostering a collaborative culture among educators, promoting innovative teaching methodologies, and ensuring ongoing support and evaluation. Objectives include increasing teacher proficiency in technology integration, enhancing student engagement through digital resources, establishing supportive networks for collaboration, fostering adoption of innovative teaching approaches, and continuously assessing the impact of technology integration efforts. The goal is to create a conducive environment for effective technology integration, ultimately improving student learning outcomes in mathematics.

CONCLUSIONS

The study delved into the intricate dynamics between technology integration and mathematics education, shedding light on the profound impact of digital resources on traditional instructional approaches. Through meticulous analysis, it became evident that technology served as a catalyst for transforming the educational landscape, particularly in the realm of mathematics. By harnessing digital tools and resources, educators were able to create dynamic and interactive learning environments that resonated with students, fostering deeper comprehension and retention of mathematical concepts. This paradigm shift represented a significant departure from conventional teaching methods, signaling a new era of innovation and engagement in mathematics education.

One of the key findings of the study revolved around the pivotal role of digital resources in augmenting traditional instruction. The integration of technology, ranging from graphing calculators to sophisticated software applications, offered students a multitude of avenues for exploring mathematical concepts. This diverse array of resources not only catered to different learning styles and preferences but also provided opportunities for personalized learning experiences. Through hands-on engagement with digital tools, students were able to actively construct their understanding of mathematical principles, leading to more profound insights and mastery of the subject matter.

Moreover, the study underscored the critical importance of teacher proficiency and readiness in leveraging technology effectively. Educators demonstrated a strong confidence in their ability to integrate technology into their pedagogical practices, reflecting a proactive approach to professional development and technological literacy. This confidence was nurtured through ongoing training, workshops, and collaborative learning experiences, which equipped teachers with the skills and resources needed to navigate the digital landscape adeptly. As a result, educators were empowered to innovate and adapt their teaching methods to meet the evolving needs of modern learners, ensuring that technology served as a catalyst for educational transformation rather than a mere supplement to traditional instruction.

While the study extensively explored the benefits and opportunities associated with technology integration, the weakest finding of the study might be the lack of specific data or analysis on the challenges or limitations faced by educators in integrating technology effectively into mathematics instruction in which it did not thoroughly examine potential barriers such as access to technology, technical difficulties, or resistance to change among teachers. Without addressing these challenges, the study's conclusions may not fully capture the complexities involved in technology integration in mathematics education, limiting the depth of understanding and the applicability of its findings in real-world educational contexts.

Furthermore, the study elucidated the symbiotic relationship between technology integration and mathematics education efficiency. Optimizing the use of digital resources not only enhanced pedagogical practices but also facilitated more seamless communication and collaboration among students. By leveraging technology to create interactive learning environments, educators were able to foster meaningful interaction and engagement during mathematics lessons, leading to improved learning outcomes and academic achievement. This emphasis on efficiency and effectiveness underscored the importance of strategic implementation and ongoing support for technology integration initiatives within educational institutions.

The study provided a comprehensive understanding of the multifaceted relationship between technology integration and mathematics education. Through its insights, it highlighted the transformative potential of digital resources in enhancing traditional instructional approaches, fostering engagement, and promoting academic achievement in mathematics. Moving forward, the findings of the study underscored the need for continued investment in professional development, technological infrastructure, and pedagogical innovation to ensure that technology continues to serve as a powerful tool for enhancing mathematics education in the digital age.

RECOMMENDATIONS

Based on the findings of the study on technology integration and mathematics education, several actionable recommendations can be proposed to enhance teaching practices and improve student learning outcomes.

Firstly, the Department of Education (Dep Ed), along with the educational institutions should prioritize comprehensive professional development programs tailored to mathematics educators, offering hands-on training, workshops, and collaborative learning opportunities focused on technology integration. By equipping teachers with the necessary skills and resources, institutions can ensure effective integration of technology into mathematics instruction.

Additionally, schools should invest in a wide range of digital tools and resources, such as graphing calculators, educational software, and online learning platforms, to support diverse learning styles and preferences among students. Fostering a culture of collaboration among mathematics educators is also essential, encouraging the sharing of best practices, the exchange of ideas, and collective problem-solving related to technology integration. Establishing professional learning communities or mentorship programs can facilitate collaboration and support among teachers.

Moreover, the Dep Ed must mandate educators to be encouraged to explore innovative teaching methodologies that leverage technology to enhance mathematics instruction, such as inquiry-based learning and collaborative problem-solving activities. Providing ongoing support, resources, and access to updated technology infrastructure is crucial for ensuring effective technology integration in mathematics education.

Finally, regular assessment and evaluation of the impact of technology integration initiatives on student learning outcomes and teacher effectiveness are essential for refining strategies and continuously improving technology integration efforts in mathematics education.

By implementing these recommendations, educational institutions can create an environment that empowers teachers to effectively integrate technology into mathematics instruction, ultimately enhancing student engagement, learning outcomes, and achievement in mathematics.

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