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"Showcasing Innovation on Educational Teachnology Research in the Digital Knowledge Experience"

The EARIST Research Journal seeks to further the discussion, advancement, and dissemination of research, planning, development and production concerns and knowledge along professional, scientific, technological, technical and vocational instruction and training in trades, business, arts, sciences and technology.

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FOREWORD

The Eulogio "Amang" Rodriguez Institute of Science and Technology takes pride in publishing Volume XXIII, No. 34, July – December 2023 of the EARIST Research Journal as it contributes to the attainment of EARIST's Mission, Vision, Goals, and Objectives through scholarly publications.

This volume is the output of researches conducted by EARIST faculty during the Academic Year 2023. This volume highlighted Twenty-Four (24) distinct researches in different fields, but most noteworthy, each individual research achievement.

The topics vary as shown in every page, but each is full of diverse stories confirming happenings in every college of the Institute. The office of research hopes to mirror the activities of our educators in assuming their task as researchers.

There are more challenges left in the various fields waiting for further scrutiny. We continue the never-ending cycle of the quest for new knowledge and further understanding of the issues at hand. The work remains unsolved. But unless we produce our own solutions to existing problems, the challenges will never be met.

The research work undertaken by faculty members and staff are included with the hope that these will contribute to the advancement of research activities of the institute and will serve as medium in the dissemination of research outputs to the community.

Dr. Jesus S. Paguigan
Director, Research Services

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EXPLORING BITTER GOURD AS A NUTRITIOUS AND INNOVATIVE BREAD SPREAD: A PROMISING ALTERNATIVE FOR HEALTH-CONSCIOUS CONSUMERS

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Benjamin G. Haboc
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INTRODUCTION

Ampalaya or bitter gourd is lower in calories, fats and carbohydrates that keep you full for longer. Hence, it has many benefits whose suffering diabetes and bad cholesterol that can boost your body's first line of defense against germs entering the body. These will be achieved by introducing it to the respondents by means of bread spread. This product will show the effect of bitter gourd spread in millennial whose love to try something new and for those people who are health conscious.

The researchers decided to make the different types of spread as more tasty and healthier that everyone will be benefit in it. Researchers made a spread out of Bitter Gourd or “Ampalaya”.

The research's objective is to present a naturally nutritious and convenient product, appealing to health-conscious individuals, by introducing a bitter gourd-based bread spread. Bitter gourd, primarily known for its fruit's medicinal uses, has been overshadowed by its bitter taste. This oversight has led us to neglect the numerous advantages associated with consuming bitter gourd spread.

To become useful to everyone, the researchers will make the bitter gourd as a main ingredient in making bread spread. The researchers will make sure that the bitter gourd spread taste delicious and suites for everyone especially to the kids and millennial.

LITERATURE

Science has established that bitter gourd possesses anti-diabetic properties, and the transformation of raw fruits into finished products during manufacturing may potentially diminish the plant's benefits. This research, conducted using Charantia as a tea in the study subjects, affirms that our product retains the health benefits of bitter gourd. When you consume Charantia, you can be confident that you are receiving the full goodness of Ampalaya.

Bitter gourd is backed by a wealth of scientific evidence as one of the most well-documented natural remedies for lowering blood sugar levels. Global research dating back to the 1960s highlights the key compounds in the plant, particularly polypeptide-P, which is a plant insulin known for its blood sugar-lowering effects. Many individuals with diabetes have long benefited from the insulin-like properties of bitter gourd, incorporating ampalaya into their daily diets either by consuming the vegetable or using it as a tea. With traditional use supported by modern scientific validation of its benefits, bitter gourd stands out as one of the most promising natural solutions for diabetes today, as reported in the Philippine Journal of Internal Medicine.

Bitter gourd fruits are typically consumed while they are still green because their taste becomes increasingly bitter and less palatable as they ripen. Removing the seeds can help reduce bitterness, and the skin remains soft and tender when cooked. Bitter gourd is also well-known for its documented ability to lower blood sugar levels. Besides being rich in fiber and essential nutrients like iron and potassium, the fruit contains several key compounds, notably charantin, vicine, and polypeptide-P, known as plant insulin. Numerous pre-clinical studies and limited clinical trials have linked these compounds to the fruit's beneficial effects on blood sugar regulation.

Various supplements for diabetes management have been developed using bitter gourd, including bitter gourd tea and capsules made from bitter gourd fruits. As diabetes continues to spread rapidly across different regions and social groups, bitter gourd is expected to offer diabetics a safe and natural alternative to help control their elevated sugar levels.

METHODS

In this study, the researchers employed a descriptive research design to explore the potential of bitter gourd in creating an alternative bread spread. Descriptive research entails gathering data to assess hypotheses or address questions related to the study's subject matter. The researchers drew data from multiple sources, including ongoing observations and customer feedback obtained through a survey questionnaire from the study participants.

The respondents are composed of two groups the first group are the ampalaya eaters and the second group are the non-ampalaya eaters of which both groups are the students of EARIST in Sampaloc, Manila.

This study proposes to know the acceptability of the bitter gourd as alternative bread spread.

The study made use of Survey Questionnaire as the main data collection tool to elicit responses in answers of the questions or problems. This study seeks to answer. These questionnaires are consisting of three (3) components: **Part I.** Identified the Respondents' Demographics. **Part II.** Assessed the Design, Development and Production of Bitter Gourd as Alternative Bread Spread. **Part III.** Identified the significant discrepancies encountered by the respondents and interview. It was done using the structured form to determine other important information which was not covered within the survey.

The study employed various statistical tools for interpreting results pertaining to specific sub-problems.

These tools include: **Frequency:** This statistic represents the actual responses to particular items or questions in the questionnaire, where respondents mark their choices. **Percentage:** Percentage was utilized as a descriptive statistic, providing insight into a portion of the whole.

FINDINGS OF THE STUDY

Regarding the extent of bread spread utilization: Respondents rated chocolate flavor as the most commonly used product, with a composite mean of 4.08, indicating the highest preference.

Concerning the types of bread spread produced: The majority of respondents favored chocolate flavor, while bitter gourd was the least preferred option among all flavors.

On the tools, materials, and procedures used in preparing bitter gourd bread spread: Respondents employed various tools and apparatuses, including a blender, plastic spoons, mixing bowl, measuring spoons, measuring cups, and glass containers. Materials such as bitter gourd, powdered sugar, condensed milk, and salt were sourced from the local environment. The preparation procedure involved cutting, mixing, soaking, boiling, and sterilizing.

Regarding the assessment of the quality and characteristics of bitter gourd bread spread: Respondents rated the taste, fresh aroma, and smooth texture of bitter gourd spread as "Very Satisfactory" with weighted mean values of 4.18, 4.24, and 4.24, respectively.

Concerning the significant differences in assessment between ampalaya eaters and non-ampalaya eaters: Analysis revealed that there is a significant difference in the interpretation of taste, aroma, and texture between these two groups. All p-values were found to be close to zero (p=.000) and lower than the 0.05 level of significance, providing sufficient evidence to reject the null hypothesis.

On the challenges encountered during the production of bitter gourd bread spread: The research identified ten problems faced during production, with low-quality bitter gourd being the most frequently encountered issue, followed by suitable packaging, lack of funds, pricing, and appeal. In contrast, issues such as lack of freshness, tastelessness, lack of appearance, brand representation, and seasonality were encountered to a lesser extent.

Regarding the acceptability of bitter gourd bread spread among ampalaya eaters and non-ampalaya eaters: Respondents found the price, taste, and overall product acceptability of bitter gourd bread spread to be at an acceptable level, as indicated by the general weighted mean values of 4.12, 4.08, and 4.10, respectively.

CONCLUSIONS

Bitter Gourd is not a viable alternative ingredient for creating a nutritious bread spread. People still prefer traditional bread spreads like chocolate, peanut butter, and cheese. However, there is potential for evolving taste preferences over time.

The quality of bitter gourd bread spread is primarily determined by its aroma, marketability, and appearance, as indicated by consumer responses.

A significant disparity exists between the two groups of respondents, providing ample evidence to reject the null hypothesis. This suggests that there are distinct variations in the perceptions of taste, aroma, and texture between the two groups.

The assessment of bitter gourd bread spread by respondents reveals differences in their evaluations of its price, packaging, and marketing.

Challenges encountered during and after the preparation of bitter gourd bread spread were effectively managed and resolved.

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PROID: IMPROVING PYTHON PROGRAMMING SKILLS THRU GAME-BASED MOBILE LEARNING APPLICATION

Jefferson A. Costales

INTRODUCTION

Learning has a big part in our life since it helps us understand everything quickly when we are child. Learning comes in different approaches. Now since we are adapting digital Curriculum there are tons of solutions and ways to apply to digital curriculum. Because sometimes, the educational system is changing in a slow phase, it doesn't mean that it is all negative. There are still positive outcomes coming from this because the fact that it also helps to avoid the unnecessary adaptation of different educational trends before the day that it will be implemented.

The only way to improve the learning method is to significantly change the systemic approach to curriculum. The big reason why the change takes so long is the learning materials that the traditional learning method has: the textbook. Every school has a local distributor of textbooks; those textbooks can help the students to learn new information and theories based on their curriculum; however, some distributors of textbooks in school are having a hard time distributing those books in a year, since textbooks can only use within a year and all of the information and theories in that textbooks are outdated on the present curriculum. Game-based learning is being designed to develop the learning skills of a person; it can be a helpful tool to teach new information about a specific topic and make the players more familiarized with a specific subject through playing the game.

Backtrack to the history, during the era of Greece and Roman Empire, there are a concept where they educate their tribe in strategic training, logic, language, and mathematics. Those ideas were applied or executed in games like Kalaha, Chess, and another form of game. According to the book of Homo Ludens (1938-Johan Huizinga), human beings' fundamental right is to engage in playing and that is one of the fundamental rights. However, those concepts being applied in the past decades are the foundation of Game Based-Learning (GBL) nowadays.

The way schools teach and adapt to digital learning, it can take the full capability to make the learning suitable to the student. Over the past few years', games have been used as a learning tool. Chess was used as a training ground to enhance visionary thinking that can help the players to learn, through playing the game. Games that are precisely designed will challenge the player while the difficulty of the game is still possible to win. Game-based learning ideas generally pertain to teaching curriculum. Students perform such actions to reach a certain goal, by doing those action experiences and consequences provide an urge to make it accurate, and the result will be active learning instead of passive learning.

In this study, the researchers aimed to create a game-based learning using android application that can help to be more familiarized in Python Programming Language. The researchers came up with this idea to make this game as a practice ground of the students to learn Python Programming Language using the syllabus of the specific programming subject to make this study more valid since the researchers are using syllabus as a basis. This study intended to use the Rabin-Karp algorithm to find the pattern or to find the similarities based on the correct code. Further this can help the users to check if their program is accurate. This study also used Heap's Algorithm to help the flow of the game more precise.

METHODS

Research Method

Using quantitative research, the researcher aimed to perform and gather observation through numerical data. To analyze statistical analysis, a set of questionnaires are given to respondents.

Research Survey Method

To obtain more scientific results, the researchers used stratified random data to current 3rd year college students, in Eulogio "Amang" Rodriguez Institute of Science and Technology who will be taking the "Application Development and Emerging Technologies" subject.

Research Questionnaire

Research questionnaire is an evaluation of 3rd year college students in Eulogio "Amang" Rodriguez Institute of Science and Technology who are taking the "Application Development and Emerging Technologies" subject that corresponds to the results of the gathered data.

Research Respondent

In order to validate this whole study, the researchers gathered two hundred fifty-six (256) students as their total population and one hundred fifty-six (156) respondents of the study "iProid: Improving Python Programming Skills thru Game-based Mobile Learning Application". The researchers' respondents are the current 3rd year College students who took the "Application Development and Emerging Technologies" subject.

Data Gathering

The researchers applied the following procedures in gathering data information from the respondents.

1. The researchers gathered' the total counts of the students in every section.

2. To get the number of respondents per section, researchers used the Slovin's Formula.

3. After getting the total respondents per section, the researchers asked permission from the students to answer the following questions.

4. The questionnaires were sent (online) through Google Forms for safety protocols amidst the COVID-19 Pandemic.

5. The researchers compiled the answered questionnaires.

Software Model

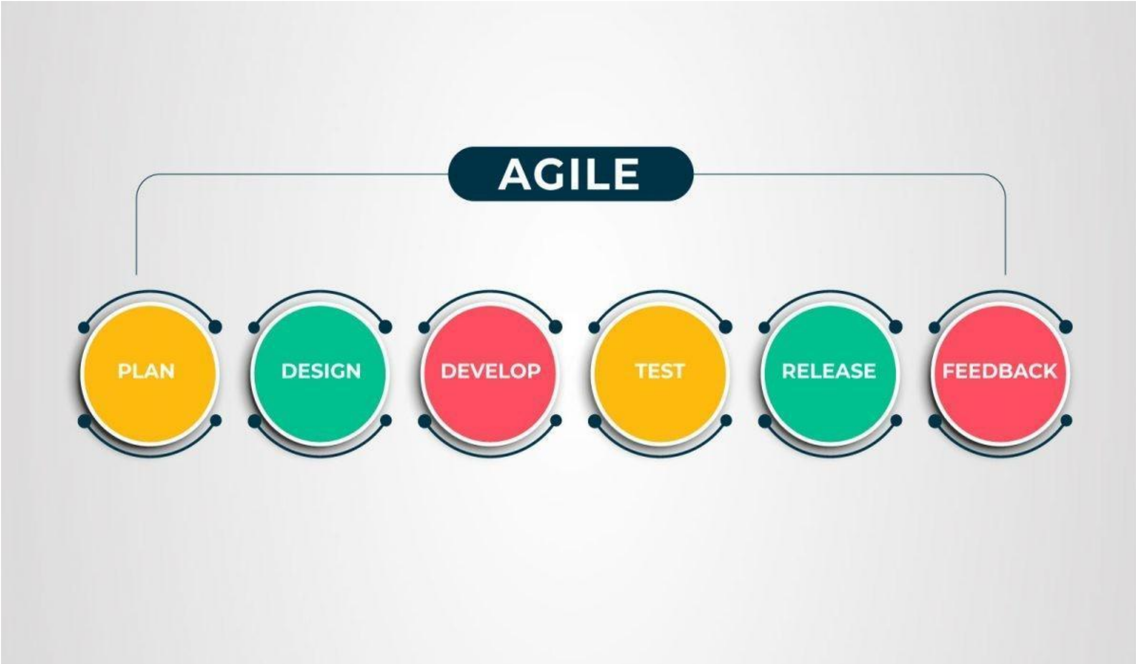

Figure 2: Agile Model

Figure 2 illustrates the use of Agile Model, thus known as being a versatile model, and is being referred to as a software development approach based on iterative development.

Plan. In this stage, the researchers created a story board that served as a guide in developing the concept of the game. After that, the researchers conducted a survey based on the problems being stated in this study and the data that have been gathered from the respondents served as a foundation to help the researchers. As such it can guide and support the statements of the researchers, about the effectiveness of game-based learning in improving the python programming skills of the user.

Design. After the planning phase, the researchers proceeded on designing the application. In this phase, all of the ideas that have been gathered were combined to guide the researcher in software development.

Develop. In this phase, the researcher used the provided syllabus to create a fictional storyboard that consisted of all the topics and lessons and were used as a concept in development of the game.

Test. In this phase, the researcher conducted an alpha test in order to find bugs and errors to fix them and a beta test to users to scale the effectiveness of the application and find the skill gap of the users who are exposed to the game and those who are not.

Release. This is the phase where the game has been finalized and thoroughly checked by the developers and carefully adjusted to meet the user's expectation.

Feedback. This is the phase where the user experience helps the developers in improving the game based on their preferences.

Statistical Treatment of Data

The following statistical tools were used in the interpretation of the results according to sub-problems. The following statistical tools were used in the study:

1. **Slovin's Formula.** Slovin's formula gives the researcher an idea of how large the sample size needs to be to ensure a reasonable accuracy of results.

The formula is:

$$n = \frac{N}{1 + Ne^2}$$

where:

n – sample size

N – population size

e – margin of error

2. **Frequency**. It is the actual response to a specific item/question in the questionnaire where the respondent ticks his choice

3. **Likert's scale** was used to evaluate the result and the equivalent is given.

Table 4
Range of Descriptive Interpretation

Scale	Range	Descriptive Interpretation
5	4.50 – 5.00	Strongly Agree (SA)
4	3.50 – 4.49	Agree (A)
3	2.50-3.49	Moderately Agree (MAD)
2	1.50-2.49	Disagree (DA)
1	1.0 - 1.49	Strongly Disagree (SDa)

4. **Ranking**. This was used to reinforce the percentage to show the proportional importance of an idea considered.

5. **Percentage**. This was used as descriptive statistics or something that describe a part of the whole.

The formula is:

$$\%f = \frac{f}{n} \times 100$$

where:

$\%f$ – relative frequency

f – frequency

n – number of observation or sample size

6. **Weighted mean**. It was used to denote the average response or perception of the respondents on the qualitative response. This was used to determine the status.

The weighted mean was used as follows:

Formula: $\underline{wx} = \frac{\sum \quad wx}{\sum \quad w}$

where:

$\underline{wx}$ – weighted mean

x – any particular value

n – number of observation or sample size

Σ – summation symbol means to "sum up"

7. **Independent Sample T-test.** The Independent Samples t –test is a statistical test used to determine if 2 groups are significantly different from each other on your variable of interest. The researchers are interested in investigating the difference of the assessment of user and expert in every features of the system. The formula is:

$$t = \frac{\underline{x_1} - \underline{x_2}}{\sqrt{\frac{{s_1}^2}{n_1} + \frac{{s_2}^2}{n_2}}}$$

where:

t = t value

$\underline{x_1}$ = mean of the 1st group

$\underline{x_2}$ = mean of the 2nd group

${s_1}^2$ = variance of the 1st group

${s_2}^2$ = variance of the 2nd group squared

n_1 = sample size (1st group)

n_2 = sample size (2nd group)

Table 5
Population of the Respondents

Year and Section	Population Size	Percent Share	Sample Size
BSCS 3A	46	18%	36
BSCS 3B	51	20%	40
BSCS 3C	42	16%	32
BSInfoTech 3A	67	26%	53
BSInfoTech 3B	50	20%	40
Total	**256**	**100%**	**201**

Table 6
Frequency of Respondents Who Use Mobile Phone for Academic Purposes

1. Do you use mobile phone for academic purposes?	No. of Respondents	Percentage	Rank
No	8	4.0	2
Yes	193	96.0	1
Total	**201**	**100%**	

It was interpreted from this table that there are one hundred ninety - three (193) respondents. 96% percent of users were using Smartphone or mobile phone for their academic purposes; while 8 respondents are not using Mobile phone for the same purpose.

Table 7
Spending Time of the Respondents Using Mobile Phone

2. How many hours do you spend on your mobile phone per day?	No. of Respondents	Percentage	Rank
1 - 3 hours	24	11.9	4
12 hours above	29	14.4	3
4 - 8 hours	90	44.8	1
8 - 12 hours	58	28.9	2
Total	**201**	**100%**	

As interpreted from this table 7 the highest percent of hours spend of the student is 4 to 8 hours with 90 respondents and a percentage of 44.8%. The 2nd to the highest hour spend of the student is 8 to 12 hours with 58 respondents and a percentage of 28.9% the 2nd to last hour spend by student is 12 hours above with a 29 respondent and a percentage of 14.4%. The least hour spend by student is 1 to 3 hours with 24 respondent and a percentage of 11.9%.

Table 8
Level of Assessment of Respondents on the Preliminary Stage on the Study iProid: Improving Python Programming Skills thru Game-based Mobile Learning Application

Question	Weighted Mean	Verbal Interpretation	Rank
1. Games can be considered to enhance a person strategic skill.	4.15	Agree	1
2. Game based learning can increase a student's motivation and focus when it comes to academic activities.	3.87	Agree	7
3. Using smart phones as a learning tool can produce a positive outcome in students' academic performance.	3.86	Agree	8
4. Game based learning can enhance your logical and technical skills to do better about the subject.	3.94	Agree	4.5
5. Game based learning can ease the pressure of a student.	3.88	Agree	6
6. Excessive usage of smartphones as a learning tool can trigger a gaming addiction.	3.94	Agree	4.5
7. Game based learning should be implemented in learning institutions.	3.97	Agree	3
8. Game based learning is an additional tool for improving python programming skills.	4.01	Agree	2

In rank 1, “Question 3” had a highest weighted mean of 4.15 and interpreted as “Agree”; in rank 2, “Question 10” had a weighted mean 4.01 interpreted as “Strongly Agree”; and in rank 3, “Question 9” had a weighted mean of 3.97. On the other hand, “Question 5” was the lowest with a weighted mean of 3.87 and interpreted as “Agree”.

RESULTS AND DISCUSSION

The researchers utilized two respondents of the survey which is the user or the beneficiary of the study and the industry experts. The survey is to evaluate the proposed system entitled “iProid: Improving Python Programming Skills thru Game-based Mobile Learning” based on the International Standardization Organization (ISO/IEC) 25010:2011 systems and software quality requirements and evaluation in terms of its functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability.

The data was tallied and verbally interpreted from two hundred one (201) users and ten (10) experts.

Table 9
Frequency of Respondents According to their Type

Type of Respondents	Frequency	Percentage	Rank
BSCS	119	56.4	1
BSIT	82	38.9	2
EXPERT OUTSIDE	10	4.7	3
Total	**211**	**100.0**	

Table 9 shows the profile of the respondents according to their type. There are two types of respondents, the user and the expert. Those in “user” got a frequency of 201 (95.3%) and were divided into year level: that is, the Bachelor of Science in Computer Science students got a frequency of 119 (56.4%),the Bachelor of Science in Information Technology students got 82 (38.9%),and lastly, the experts got a frequency of 10 (4.7%). The Expert were collected outside the institution to provide feedback in technical terms of the system that the researchers have developed.

Table 10
Level of Assessment of the Respondent in Functional Stability

Indicators	Expert		User		Composite		Rank
	WM	VI	WM	VI	WM	VI	
The set of functions covers all the specified tasks and user objectives. (Completeness)	4.30	SA	4.49	SA	4.48	SA	2
The system provides correct results with the needed degree of precision. (Correctness)	4.40	SA	4.51	SA	4.50	SA	1
The system is designed to facilitate accomplishment of specified tasks and objectives. (Appropriateness)	4.40	SA	4.41	SA	4.41	SA	3
Overall Mean	4.37	SA	4.47	SA	4.46	SA	

Scale	Numerical Valu	Verbal Interpretation
5	4.20-5.00	Strongly Agree (SA)
4	3.40-4.19	Agree (A)
3	2.60-3.39	Moderately Agree (MA)
2	1.80-2.59	Disagree
1	1.00-1.79	Strongly Disagree

Table 10 illustrates the level of assessment of the respondents in terms of the Functional Stability. The Functional Stability has three indicators namely, Completeness, Correctness, and Appropriateness. Completeness means the system is designed to cover all of the required tasks and user objectives. In terms of completeness, the experts show a result of 4.30 and interpreted as “Strongly Agree”. On the other hand, the users have a result of 4.49 which is also interpreted as “Strongly Agree”. Overall, the composite average is 4.48 and interpreted as “Strongly Agree”.

The second indicator in Functional Stability is correctness. The correctness is the technology that produces accurate results with the required precision. The result of the experts shows 4.40 while the “users” shows 4.51 which are both interpreted as “Strongly Agree”. Overall, the composite average is 4.50 and interpreted as “Strongly Agree”.

The last indicator is the appropriateness or the system is intended to make doing specific activities easier. The result shows that the experts evaluated these features as 4.40 and interpreted as “Strongly Agree”. Likewise, the users have 4.41 and interpreted as “Strongly Agree”. Overall, the assessment of respondents in Functional Stability is 4.41 and interpreted as “Strongly Agree”.

According to (Bermudez, 2004), they developed an application and used it as a game-based tool for teaching java programming. With the use of game, since this study used game as an approach, it can motivate the students to learn basic java programming language and it will help them to stay focused on the lesson. Based on the study of Bermudez, developing a game for learning basic java programming can overcome the struggles and difficulties of the students to learn programming. And based on the outcome of the functional stability, it shows that the precision of the objectives to the users is effective.

Table 11
Level of Assessment of Respondent in Performance Efficiency

Indicators	Expert		User		Composite		Rank
	WM	VI	WM	VI	WM	VI	
The system processes a request and returns a response (Time Behavior)	4.10	A	4.38	SA	4.36	SA	1
The system has the ability to remain working even with large number of accesses at the same time (Capacity)	4.50	SA	4.33	SA	4.34	SA	2
Overall Mean	**4.30**	**SA**	**4.36**	**SA**	**4.35**	**SA**	

Table 11 shows that level of assessment of the respondents in terms of the Performance Efficiency. The Performance Efficiency has two indicators which are Time Behavior and Capacity. Time Behavior is to measure the system’s processes a request and returns a response. In terms of Time Behavior, the experts show a result of 4.10 and interpreted as “Agree”. Meanwhile, the users have a result of 4.38 which is also interpreted as “Strongly Agree”. Overall, the composite average is 4.36 and interpreted as “Strongly Agree”.

And the last indicator in Performance Efficiency is Capacity. Capacity is the ability to remain working even with large number of accesses at the same time. The result of the experts shows 4.50 on the other hand the “users” shows 4.33 which are both interpreted as “Strongly Agree”. Overall, the composite average is 4.34 and interpreted as “Strongly Agree”.

Overall, the assessment of the users and experts in Performance Efficiency is 4.34 and interpreted as “Strongly Agree”.

Table 12
Level of Assessment of Respondent in Usability

Indicators	Expert		User		Composite		Rank
	WM	VI	WM	VI	WM	VI	
The system allows users to recognize if it is appropriate for their needs. (Recognizability).	4.60	SA	4.38	SA	4.39	SA	3
The system can be used by specified users to achieve specified goals of learning to use the system with effectiveness, efficiency, freedom from risk and satisfaction in a specified context of use. (Learnability).	4.60	SA	4.44	SA	4.45	SA	2
The system protects users against making errors. (User Error Protection).	4.40	SA	4.36	SA	4.36	SA	5
The system has user interface aesthetics. (Aesthetics).	4.30	SA	4.38	SA	4.37	A	4
The system has its accessibility (Accessibility).	4.40	SA	4.48	SA	4.48	SA	1
Overall Mean	**4.46**	**SA**	**4.41**	**SA**	**4.41**	**SA**	

As interpreted in table 12, it shows the level of assessment of the respondents in terms of the Usability. The Usability has five indicators which are Recognizability, Learnability, User Error Protection, Aesthetics, and Accessibility. The first in rank is Accessibility in terms of Accessibility, the experts show a result of 4.40 and interpreted as “Strongly Agree”. Meanwhile, the users have a result of 4.48 which is also interpreted as “Strongly Agree”. Overall, the composite average is 4.48 and interpreted as “Strongly Agree”.

It is followed by Learnability, The Learnability can be used by specified users to achieve specified goals of learning to use the system with effectiveness, efficiency, freedom from risk and satisfaction in a specified context of use. The result of the experts shows 4.60 on the other hand the “users” shows 4.44 which are both interpreted as “Strongly Agree”. Overall, the composite average is 4.45 and interpreted as “Strongly Agree”. And the third on rank is Recognizability.

The Recognizability of the system allows users to recognize if it is appropriate for their needs. The results of the “experts” shows 4.60 while the “users” shows 4.38 which are both interpreted as “Strongly Agree”. And the composite average is 4.39 and interpreted as “Strongly Agree”. Alongside with Aesthetics, the system has user interface aesthetics, which is in rank four. The results of the “experts” shows 4.30 while the “users” shows 4.38 which are both interpreted as “Strongly Agree”. And the composite average is 4.37 and interpreted as “Agree”. The last in rank is User Error Protection; it protects users against making errors. The result of the experts shows 4.40 while the “users” shows 4.36 which are both interpreted as “Strongly Agree”. Overall, the assessment of the users and experts in Usability is 4.36 and interpreted as “Strongly Agree”.

Based on Yarmouk University for College students on how mobile learning improved the self-motivated students(Akour et al., 2020). Traditional way of learning was achieved through social interaction between students and teachers. Knowledge that students acquired during the process of teaching and activities are being enhanced as well as the teachers. Skills are tested in mobile learning if there would have differences with the traditional way of teaching. The environmental factor is one of the main argument or subject because students are adjusting involuntarily depending on the tools and also the environment itself. Different style of teaching is the key factor on how student learn and adapt to a certain lesson. According to the study, the environment of learning is a big factor when it comes in learning and the study propose that how the mobile learning improved the students learning and when a student use the full extent of a learning tool it can be effective tool and use it to improve their skills.

Table 13
Level of Assessment of the Respondent in Reliability

Indicators	Expert		User		Composite		Rank
	WM	VI	WM	VI	WM	VI	
The system is available whenever it is requested (Availability).	4.40	SA	4.44	SA	4.44 4	SA	1

As interpreted in Table 13, Reliability has one indicator which is Availability. Availability means the system is available whenever it is requested. The experts show a result of 4.40 and interpreted as "Strongly Agree", While, the users have a result of 4.44 which is also interpreted as "Strongly Agree". Overall, the composite average is 4.444 and interpreted as "Strongly Agree".

As stated in the study of (Garcia, 2017). "Delivering Effective Digital Game-Based Learning: A Comparative Study Between Computer and Mobile as the Learning Framework for Preschooler" Mobile phone and Computer have both capabilities for game respiratory simply because it has both parts for gaming. Safety is also both recommended on Computer and Mobile Phone because it both went on quality control system before it was released to public. The Portability lies in mobile phone because it is "handy" and can be brought anywhere and anytime, while Computer has a massive amount of weight and consists of hardware parts that would bring hassle to anyone who would bring it from one place to another. And since the system is a mobile application it can be use whenever you want.

Table 14
Level of Assessment of the Respondent in Maintainability

Indicators	Expert		User		Composite		Rank
	WM	VI	WM	VI	WM	VI	
The system reduces dependencies between services and increase modifiability (Modifiability).	4.20	SA	4.4478	SA	4.44	SA	2
The system can be tested using tool for functional testing (Testability).	4.40	SA	4.4726	SA	4.47	SA	1
Overall Mean	**4.30**	**SA**	**4.4602**	**SA**	**4.45**	**SA**	

Table 14 shows the level of assessment of the respondents in terms of the Maintainability. The Maintainability has two indicators which are Testability which is ranked first and followed by Modifiability. Testability can be tested using tool for functional testing. In terms of Testability, the experts show a result of 4.40 and interpreted as "Strongly Agree". Meanwhile, the users have a result of 4.4726 which is also interpreted as "Strongly Agree". Overall, the composite average is 4.47 and interpreted as "Strongly Agree".

And the last indicator in Maintainability is Modifiability. Modifiability means the system reduces dependencies between services and increase modifiability. The result of the experts shows 4.20 while the "users" shows 4.4478 which are both interpreted as "Strongly Agree". In general, the composite average is 4.44 and interpreted as "Strongly Agree".

Overall, the assessment of the users and experts in Maintainability is 4.45 and interpreted as “Strongly Agree”

Table 15
Level of Assessment of Respondent in Portability

Indicators	Expert		User		Composite		Rank
	WM	VI	WM	VI	WM	VI	
The system can be successfully installed and/or uninstalled in a specified environment easily. (Installability).	4.10	A	4.38	SA	4.51	SA	2
The system can be easily replaced (Replaceability).	4.50	SA	4.33	SA	4.52	A	1
Overall Mean	4.30	SA	4.36	SA	4.51	A	

Table 15 illustrates the level of assessment of the respondents in terms of Portability. The Portability has two indicators namely, Installability and Replaceability. The first in rank is Replaceability means the system can be easily replaced. In terms of Replaceability, the experts show a result of 4.50 and for the users is 4.33 which are both interpreted as “Strongly Agree”. Overall, the composite average is 4.52 and interpreted as “Agree”.

The second indicator in Functional Stability is Installability. Installability means the system can be successfully installed and/or uninstalled in a specified environment easily. The result of the experts shows 4.10 which is interpreted as “Agree”, while the “users” shows 4.38 and interpreted as “Strongly Agree”. The composite average is 4.51 and interpreted as “Strongly Agree”.

Overall, the assessment of the users and experts in Portability is 4.51 and interpreted as “Agree”.

As stated in the study entitled “Delivering Effective Digital Game-Based Learning: A Comparative Study Between Computer and Mobile as the Learning Framework for Preschooler” (Garcia, 2017) Mobile phone is not recommended to have a storage because again, it has a built-in standard storage for mobile phone, while computer needs a separate one to operate and to be more convenient to the users. Computer is recommended to have connectivity specifically because it is not an automated device like a mobile phone that has an automatic connection depending on locations. Based on the study mobile phones are more convenient. You can easily install the application as long as you have a connection and you can easily uninstall it.

Table 16 indicates the analysis on the level of assessment between two types of respondents on the different system features of “iProid: Improving Python Programming Skills thru Game-based Mobile Learning”.

The $p-$values of all system features are greater than the level of significance $\alpha = 0.05$. This implies that there is no significant difference between the levels of assessment between the two groups. If the weighted means of the enumerated features is good, then both users and experts agree on that.

Table 16
Post Analysis on the Level of Assessment Between Two Types of Respondents on the Different System Features of "iProid: Improving Python Programming Skills thru Game-based Mobile Learning"

Variables	$t-$ value	df	$p-$ value	Interpretation	Decision
Functional Stability	-.648	209	.518	Not Significant	Fail to Reject Ho
Performance Efficiency	-.324	209	.746	Not Significant	Fail to Reject Ho
Usability	.340	209	.734	Not Significant	Fail to Reject Ho
Reliability	-.199	209	.842	Not Significant	Fail to Reject Ho
Maintainability	.671	-.975	209	Not Significant	Fail to Reject Ho
Portability	-.324	209	.746	Not Significant	Fail to Reject Ho

$n = 211, \alpha = 0.05$

CONCLUSION AND RECOMMENDATION

Conclusion

The researchers conclude that when it comes to assessment of functional stability, both of the respondents are ascent to the list of indicators in terms of Completeness, Correctness, and Appropriateness of the application. It can be presumed that the users and experts acknowledge that the application is reliable. It also concludes that with the Performance Efficiency of the application, experts and users strongly agreed that the application is responsive and it can work productively even though there are large numbers of accesses at the same time.

Based on the aforementioned, research studies found out that the usability of the application is precisely effective when it comes to the appropriate need of the users; achieve specific goals to learn while using the application, it is an effective tool to use in learning; and it can be a stress-free learning tool for the students. Furthermore, research studies have shown that the availability of the application is ensured based on the given results of the respondents. Therefore, it can be concluded that in terms of the maintainability for the application, both of the respondents, which are the users and experts, strongly agree that the modifiability and testability of the application is guaranteed.

Moreover, research studies concluded that in terms of portability, the application is dependable considering the developed application is for android phones, thus it can easily operate, more convenient, and less hassle.

Recommendations

Based on the results of the study, drawn from those derived conclusions, the following recommendations are suggested:

- The researchers recommend to the future developers to include some security features if they want to make the application more competitive.
- The researchers recommend to the respondents to use iProid to the full extent of the application to enhance knowledge in python.

- The researchers recommend to the future developers to add some different programming language and concepts from the application to make it a more source of knowledge.

- The researchers suggest to the future developers to create and update an application in different platforms since the developed application is deployed only for android.

Furthermore, the future researchers may add other concepts of the game, which they may apply to the different fields of the subjects of expertise or topics.

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CULINARY EXPLORATION OF SEAWEED PROTEOMIC BARS: PROMOTING RESPONSIBLE UTILIZATION AND CONSERVATION OF WEST PHILIPPINE SEAWEED RESOURCES

Dr. Shirley P. De Leon

INTRODUCTION

Background of the Study

The Republic of the Philippines is an archipelago located in Southeast Asia in the western Pacific Ocean. It is composed of more than 7,107 islands, a culturally rich and diverse country with a mix of challenges and opportunities, making it a unique and fascinating nation. Due to its vast coastline, tropical climate, and marine biodiversity [11], this country especially the West Philippine Sea had been home to rich seaweed resources of different varieties [30]. Ranked third in the world's seaweed production, behind China and Indonesia over 60 hectares of shallow coastal water are farmed including BARMM, MIMAROPA, and the Zamboanga Peninsula producing 1.49 million metric tons per year [25]. Seaweed, also known as macroalgae [4], [3], [20] is a type of marine plant that grows in aquatic environments such as oceans, seas, and other bodies of saltwater. They come in various shapes, sizes, and colors and can range from tiny, single-celled species to large, complex structures [25], Seaweeds are essential components of marine ecosystems [2] as they provide habitat, food, and shelter for various marine organisms [9]. They are a vital part of the marine ecosystem, contributing to biodiversity [22], nutrient cycling [33], and the health of the oceans [11], [12].

Uses of Seaweeds

Seaweeds are consumed in various cultures around the world [28]. They can be used as an ingredient in salads, soups, sushi, and other dishes [15] [19]. Different types of seaweeds provide unique flavors and textures to culinary creations [1], [19], [29], nori is used to wrap sushi, kombu is used to make dashi (Japanese broth), and wakame is used in soups and salads [24]. Its nutritional content [2], [26], [28] manifests richness in vitamins, minerals, and trace elements. They are particularly high in iodine, which is important for thyroid function. Seaweeds also contain protein [7], [10], [13], [16], [17], [22], [23], [35], [37], [38], dietary fiber, and antioxidants. They can contribute to a balanced diet and offer various health benefits [22]. An Agar [2], [21] is a gelatinous substance derived from certain seaweed species and is widely used in the food industry as [28] a gelling agent, stabilizer, and thickener. It's commonly used in desserts, confectionery, and canned foods while carrageenan, extracted from red seaweeds [9], is used as a thickening and stabilizing agent [2] in a range of products, including dairy products, processed meats, and various processed foods. [9] Alginates extracted from brown seaweeds are used in the food industry as thickeners and stabilizers, especially in products like ice cream and salad dressings. Seaweeds are also used in cosmetics and skincare products for their potential skin benefits. They are believed to hydrate, nourish, and detoxify the skin due to their rich mineral content and antioxidants. It can also be used as organic fertilizer or soil conditioner because it contains valuable nutrients that can enhance soil quality and promote plant growth. [32] It can be utilized also as bioremediation for its ability to absorb heavy metals and other pollutants from the environment which makes them useful in bioremediation efforts to clean up polluted water bodies. Some types of seaweeds can be used to produce biofuels [11], such as bioethanol and biodiesel [17], an advantage of not competing with food crops for resources like fresh water and arable land [6]. It is good for animal feed due to its nutrition, especially in aquaculture. They can supplement the diet of fish, shellfish, and other aquatic organisms. It could also address medicinal and health benefits like antioxidant and anti-inflammatory properties and extracts are used in dietary supplements and herbal remedies [3]. Seaweeds are also indispensable in industries. Alginate, carrageenan, and agar are used in food, pharmaceuticals, and other applications [11]. In the textile and paper industry, seaweed's natural fibers can be used in the production of textiles and paper, offering a more sustainable alternative to traditional materials [26]. These are just a few examples of the many uses of seaweed in human life. As research continues, more potential applications are being explored, ranging from sustainable packaging materials to water purification technologies.

Utilization of Seaweed as an Ingredient in Proteomic Bar

Seaweeds offer several advantages [14] as a food and nutrient source [4]. They have been consumed by various cultures for centuries [28] and are gaining popularity worldwide due to their nutritional benefits [2], [26]. Known for nutrient-dense foods that provide a wide range of vitamins and minerals, particularly high in iodine essential for thyroid function and metabolic health, also low in calories and fat, making them suitable for weight management, rich in dietary fiber, which can aid in digestion, promote gut health, and help maintain a feeling of fullness. A great contribution to an alternative protein [7], [8], that can contribute to a balanced diet, especially for vegetarians and vegans [26]. It is also an excellent source of minerals such as calcium, magnesium, potassium, and iron that were important for bone health, muscle function, and overall well-being. It also contains various antioxidants, including vitamins A and C, as well as compounds like polyphenols that help protect cells from oxidative stress, rich in omega-3 fatty acids, essential for heart and brain health [26]. Therefore, the uses of seaweed for human lives are encompassing as nutrients and the food itself.

The consumption of functional food [5], [29], products has gained significant attention due to their potential health benefits. Seaweeds, being a rich source of bioactive compounds, have emerged as promising ingredients for food product development [17], [18]. However, the application of seaweeds in the form of proteomic bars [10], [16], [13] remained unexplored [27]. It is in this light, that the researcher conducted this study. It aims to explore the culinary potential of seaweed proteomic bars while promoting responsible utilization and conservation of seaweed resources not only in the West Philippine Sea but all over the country. Presently, consumer preferences [1], lean towards wholesome foods crafted from natural, vegetable-based components. These verdant vegetables, often overlooked as primary constituents in various culinary preparations [1], have gained prominence, with Filipino traditional cuisine being a notable exception. Notably, even the leaves of the guyabano fruit are now being harnessed due to their recently unveiled medicinal attributes.

Considering the foregoing developments and trends in the food industry [6], the researcher decided to explore the utilization of seaweeds which were known to have nutritional properties in producing proteomic bars [16] that appeal to health-buff of all ages, especially health-conscious individuals. This endeavor hopes to introduce an innovative product [6] laden with nutritious benefits that would serve both the desires of the human palate [28] and the goal to live healthy lives [4]. In this study, Euchema or Guso, [3], and sea grapes or lato were used as the main ingredient in making Seaweed proteomic bars [23]. The inflow of information and experiences from different coastal farmers and marine experts promote the increased responsible utilization and conservation of marine biodiversity. The exploration of this innovative recipe will upshot additional food to the Filipino table as this study may potentially offer [29].

Framework of the Study

The study was patterned after Michal Halagarda's (2008) new food product development process [5], where the process was composed of aims to develop the product, subjection to organoleptic evaluation/ sensory analysis, and final product development or finished product.

It also utilizes Chiara Rinaldi's (2017) Sustainable Gastronomy Concept. The concept has emerged from the intersection of culinary innovation, environmental sustainability, and cultural awareness. This was aligned with the researcher's goal of creating a product that not only showcases the culinary potential and nutritional value of seaweeds but also highlights the importance of resource management and conservation.

Research Aims

This study sought to identify the acceptability results of "Culinary Exploration of Seaweed Proteomic Bars among its target respondents while Promoting Responsible Utilization and Conservation of West Philippine Seaweed Resources". Specifically, the study aimed to answer the following questions:

1. What are the ingredients and process of developing the Seaweed Proteomic Bar?

2. What is the assessment of Seaweed Proteomic Bar using organoleptic acceptability on four attributes such as taste, texture, aroma, appearance, and general acceptability?

3. Is there any significant difference in the assessments made by the three groups of respondents on the general acceptability?

4. Based on findings, what input for responsible utilization and conservation of seaweed resources?

METHODS AND MATERIALS

Research Design

The method of research employed in this study was the descriptive experimental design. The Seaweed proteomic bar recipe was the product of trial recipe formulations to determine the most acceptable result [7] which was subjected to organoleptic evaluation on taste, texture, aroma, appearance, and general acceptability using the standardized scorecard for sensory evaluation.

Research Participants

Sources of data were obtained from 90 respondents, all from Cavite province grouped into three. (30) consumers (30) Food experts such as Nutritionists, and health enthusiasts, and 30 Food Industry practitioners such as Chefs, cooks, asst. cooks, and pâtissiers. An online interview was done with the stakeholders of the Bureau of Fish and Aquatic Resources (BFAR) such as Fishermen, seaweed farmers, BFAR officials from four (4) different places in the Philippines including (1) Semirara Island, Caluya, Antique; (2) Dapa, Siargao Island, Surigao Del Norte; (3) Sta. Fe. Tablas Island, Romblon; and (4) Port Barton, San Vicente, Palawan, on how to promote responsible utilization and conservation of seaweed resources.

Raw Materials

The following ingredient is used to prepare Seaweed proteomic bars namely seaweed combinations such as Eucheuma (guso), Sea grapes (Lato), and spirulina powder were obtained from the local wet market while rolled oats, almond butter, honey, mixed dried fruits, and nuts were bought from the supermarket in the vicinity.

Flowchart of Preparing Seaweed Proteomic Bar

Figure 1 shows the step-by-step process of preparing Seaweed Proteomic Bar

Organoleptic Evaluation

With the help of the three groups of respondents, the scoring test was done.Taste; texture, aroma, and appearance were the attributes that were considered and the general acceptability on a scorecard with a five-point scale such as **5** – Highly Acceptable **4** – Acceptable **3** – Moderately Acceptable **2** – Least Acceptable **1** – Not acceptable

RESULTS AND DISCUSSIONS

Development of Seaweed Proteomic Bar

The Seaweed Proteomic Bar was conceptualized after searching and reading relevant literature. Numerous pilot testing and taste experimentations [7] on the different recipe formulations were conducted in order to come up with the standard recipe [12]. After a series of quantity manipulations and diligently recording the result of the trial, the standardized recipe for Seaweed proteomic bar was achieved and prepared.

Organoleptic Evaluation of Seaweed Proteomic Bar

Table 1
Organoleptic Evaluation of Seaweed Proteomic Bar

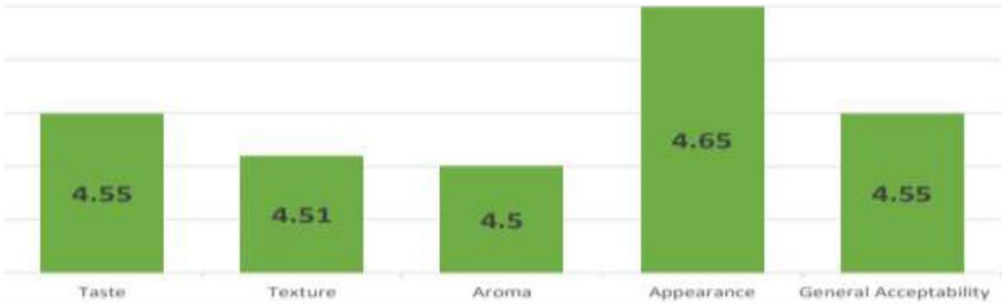

Table 1 shows an organoleptic evaluation of Seaweed Proteomic Bars. From the graph all the attributes can be seen, the taste got 4.55; texture got 4.51; aroma got 4.50, and appearance scored 4.65, all were interpreted as **"Highly Acceptable.** Whereas, the three groups of respondents unanimously gave the score on general acceptability a composite mean of 4.55 interpreted as **Highly Acceptable**.

Comparative Assessment on the General Acceptability of Seaweed Proteomic Bar

Table 2
Comparative Assessment of the General Acceptability

Variables	F-value	F-critical value	Decision	Interpretation
General Acceptability	3.52	3.55	Not Significant	Accept Ho

Table 2 manifests the comparative assessments of the three groups of respondents on the general acceptability of Seaweed Proteomic Bars was not significant, hence the null hypothesis was accepted. The respondents unanimously agreed on their assessments of General Acceptability.

On the promotion of responsible Utilization and Conservation of Seaweed resources

The result of the online interview from four (4) different group representatives of Bureau of Fisheries and Aquatic Resources (BFAR) personnel on how to promote responsible utilization and conservation of seaweed resources were as follows:

1. Spread awareness on good benefits and uses gained from seaweeds.

2. Conduct an Information dissemination drive on proper seaweed harvesting practices to everyone in the coastal community to reduce harm to our environment, particularly to our ocean and marine life.

3. Encourage stewardship and responsible use and protection of our seaweed resources.

4. Protect the coastal marine habitats.

5. Assess the different factors of the seaweed habitat requirement to identify the best suitable place for seaweed conservation in minimizing negative impacts.

6. Conduct coastal community engagement and participatory workshops on seaweed utilization and conservation.

7. Organize capacity building on alternative livelihoods on seaweed farming.

8. Encourage collaborations and partnerships among stakeholders from government agencies, industry, private entities, and educational and research institutions for the pooling of resources.

9. Conduct a study on developing biosecurity nurseries for local and global seed supplies and rehabilitation programs that can enhance the diversification of cultivated species suited to the Philippine Ocean atmosphere and temperature.

Summary

The creation of the Seaweed Proteomic Bar [40] emerged from a journey of experimental culinary exploration. Building upon a foundation of prior research conducted by various authors, this endeavor culminated in the development of a standardized recipe. This recipe, meticulously crafted by the researcher, underwent evaluation by a distinct group of respondents. These individuals were not only receptive to innovative culinary concepts involving infused ingredients and novel packaging but also held an affinity for reimagining a humble seaweed, traditionally familiar as a salad component from local wet markets. Stewardship mitigation is vital to protect and conserve our environmental resources, particularly seaweeds.

CONCLUSIONS AND RECOMMENDATIONS

Enriched by its remarkable protein content, the Seaweed Proteomic Bar heralds a novel addition to Filipino gastronomy. It can be consumed as a mere snack or a nutritionally potent option for health-conscious individuals. Moreover, its potential promise is to become a source of income, opening avenues for entrepreneurial exploration for the localities in the coastal area of the west Philippine Sea where seaweeds grow abundantly. In essence, the Seaweed Proteomic Bar exemplifies the fusion of tradition and innovation, an embodiment of how culinary experimentation, harnessed from previous research, can yield not only a unique gastronomic experience but also contribute to the nutritional landscape and economic prospects.

Furthermore, practicing responsible stewardship of marine and aquatic resources not only safeguards our environment but also directly protects our own lives.

- Adoption of the Seaweed proteomic bar concept is recommended.
- Consider entrepreneurial exploration on seaweed proteomic bar.
- The medicinal value of seaweed can be further tested for its efficacy and effectiveness through the help of other agencies to prove its veracity.
- Consider the implementation of recommendations derived from an interview with BFAR representatives.

HEIs particularly Research Development services may:
- Allocate funding for technical production.
- Encourage Translational research exploration in the future.
- Collaborate with marine local farmers for the cultivation of seaweed for further product development research.

Impact on Students
- Conduct a follow-up study on entrepreneurial feasibility with bigger respondents.
- Increased interest in studying least utilized edible vegetables and fruits.
- Apply experimental cookery principles to discover a new dish.
- Further study on the shelf-life, water activity, and moisture content of the developed products may be explored so as to increase their market potential.

Impact to Stakeholders
- Adopt developed technologies/recipes.
- Communicate the nutritional and medicinal benefits gained.
- Consider its possibility for entrepreneurial ventures.

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WEST PHILIPPINE SEAWEED RESOURCES FACIAL RECOGNITION AND TEMPERATURE SENSOR

Engr. Bernard C. Fabro

INTRODUCTION

The traditional methods of manual attendance monitoring are prone to errors, and it is difficult to keep track of all the students accurately. Numerous attendance management systems have their own limitations, making it essential to supplement existing research and improve usability.

The Classroom Attendance Monitoring System using Face Recognition and Infrared Temperature Sensors is an innovative approach aimed at modernizing and improving the existing classroom attendance system technique. This system uses the latest face recognition technology and an infrared temperature sensor to track attendance and check the real-time temperature of each student and a lock system that will respond based on the input sensors detected. This eliminates manual attendance monitoring and temperature checking and saves valuable time. The system not only improves attendance efficiently but also provides a higher level of security by ensuring that only authorized and healthy individuals are present in the classroom. The accuracy of the system is its primary advantage. The system utilizes a Webcam, providing video and image recognition capabilities. It can detect and identify students based on their facial traits, minimizing the inaccuracies associated with manual attendance tracking approaches. The infrared temperature sensor MLX90614 quickly checks a student's temperature without contact, enhancing security by detecting fever cases. The system is equipped with a lock mechanism to restrict entry for students not detected in face recognition or identified with high temperatures.

Another advantage of this system is its simplicity. The system is straightforward to use and can be integrated with existing classroom monitoring software. This means that teachers and students can access attendance records and temperature checks quickly and easily without having to learn new software or systems. Furthermore, this system can be integrated with an existing school's database, making it easily accessible to school administration and capable of generating reports and analyzing attendance trends over time.

RELATED WORKS

Both methods of taking attendance, calling out names, or handing around an attendance sheet take time, and the latter is more vulnerable to fraud. Alternative systems based on RFID, wireless, fingerprint, iris, and face identification have been tested and developed for this goal. Although these techniques have some advantages, the biggest drawback is the high cost of system installation.[1] One of these involves face recognition. The problem of fraudulent attendance and proxy can be resolved by utilizing this technique. There were some drawbacks to the old face recognition-based attendance system, such as light intensity and head posture issues. Therefore, a variety of strategies are utilized to address these challenges, including illumination invariant, the Viola and Jones algorithm, and principal component analysis. The two main processes in this system are face detection and face recognition.[2] The Automated Attendance System (AAS) uses face recognition technology to automatically determine if a pupil is present or absent in the classroom. In order to guarantee the student's presence during the exam sessions, it is also feasible to determine whether the student is sleeping or awake throughout the lecture. It is very dependable for the machine to recognize that all of the pupils are present in the classroom when their faces are captured on a high-definition display using video streaming technology. The feature-based strategy, also called local face, uses a recognition system to highlight the main characteristics of the face, such as the borders, ears, nose, mouth, and so on. In contrast, the approach focused on brightness, commonly known as the global face, a system for identifying all the components of the image. [3]

The attendance system, which is a management tool used to track staff attendance, has evolved into a more user-friendly system. Time clocks, inductive clocking, and biometric authentication systems are just a few examples of the various types of attendance systems. Biometric authentication is one of them, tracking attendance using fingerprints, facial recognition, etc. Without the need to carry a key, biometric identification is performed using the distinctive traits of each individual. Face recognition is superior to other biological characteristic approaches since it may be used without physical touch or additional actions. Face recognition eliminates the hassle of reaching out for identification, as opposed to fingerprint or palm recognition, and it also lessens the hygienic issue of numerous persons contacting the sensor. [4] Every school, college, and university maintain a record of each student's attendance. Faculty members are required to keep accurate attendance records. The manual approach of keeping attendance records is ineffective and takes more time to organize records and determine each student's average attendance. The need for a system to handle student record organization and average attendance calculation arises as a result.[5] Attendance is a standalone system that analyzes, tracks and grants real-time attendance using face recognition. It uses live camera feed snapshots to identify students and mark them as present in class. The system scales with concurrent classes and can be integrated with existing attendance-tracking software like Moodle. The face recognition algorithm runs at 10-minute intervals, reducing the computation and allowing students to leave class without losing attendance. Attendance is granted if students remain in class for a certain period. The system is fully automatic and requires no professor intervention or camera setup.[6]

Face recognition technology is replacing the practice of traditional attendance, in which teachers manually record each student's attendance. This system is utilized by several administrative agencies with almost no user effort. Every educational institution, including schools and colleges, used to take students' attendance into careful consideration. The most assistance will come from a facial recognition-based computerized attendance management system because it makes all difficulties with time, safety, and delegation very simple to handle. In essence, Haar Cascade is used to supplement these systems. It is frequently used for image analysis. Time is saved by using an attendance management system with face recognition, and security is improved by preventing bogus attendance.[7] The study focuses on improving attendance management in educational institutions by implementing a time-saving method using face recognition technology. Researchers used Raspberry Pi 3B+ as an SoC and Open-CV library functions. They stored student facial features in a database and captured real-time images. The program outputs attendance status based on confidence, and attendance data is tabulated and stored as a spreadsheet. This approach streamlines attendance management and alleviates challenges associated with manual tracking.[8]

The Real-Time Smart Class Attendance Monitoring and an alert system explored the application of face recognition systems in various fields, such as finding missing persons, enhancing security measures, and reducing touchpoints. Specifically, the proposed system for attendance marking in educational institutions and offices consists of four main steps: database creation, face detection, face recognition using Histogram Oriented Gradient and Deep Neural Networks, and attendance updating. The system operates by capturing live streaming video of the classroom, converting it into frames, and identifying faces using a Support Vector Machine. At the end of each class, the attendance data is automatically sent to the respective faculty via email.[9] Study on the implementation of face recognition in creating a fully automated attendance system with cloud integration. The cloud services provided useful attendance-related information, including attendance summary performance and data visualization in graphs and charts. The research aimed to develop an online student attendance database integrated with a face recognition system based on Raspberry Pi 3 Model B. A graphical user interface (GUI) was utilized for easy data analysis. The study utilized an open computer vision library and Python for the face recognition system, and SFTP was used to establish a connection to an internet server running on PHP and Nodes. The findings demonstrated that by integrating a face recognition system with a server, a real-time attendance system could be built and remotely monitored. [10]

METHODOLOGY

There are three functional components in this system. These are face recognition, temperature detector, and solenoid lock. A block diagram of a system is shown below:

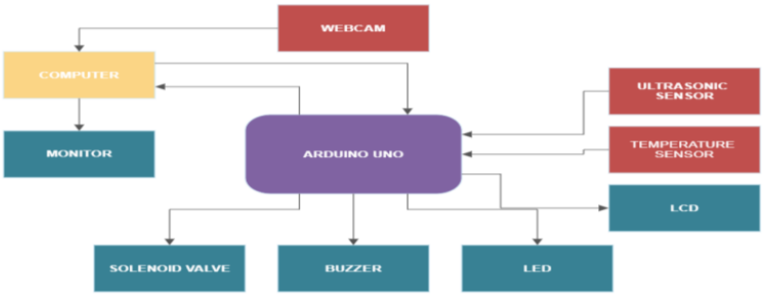


Fig. 1. System Block Diagram

The system utilizes webcam-based face recognition technology to accurately identify and match professors' and students' faces, eliminating errors associated with manual methods. Additionally, integrating infrared temperature sensors allows for non-contact measurement of body temperature, enabling the detection of potential fever cases.

The system incorporates a solenoid lock mechanism to restrict entry for unauthorized individuals or those with high temperatures, ensuring classroom security.

Here, if the Arduino receives the "face not recognized" signal from Python the buzzer will alarm, the red LED will be on and the solenoid will be still in a lock state, also if the person is recognized but has a high temperature but if the Arduino receives the "Face recognized" signal from python the green LED will be on and the solenoid will be on unlock state showing that the person can enter the classroom.

EQUIPMENT

The hardware components are:

A. Arduino Uno
B. Webcam
C. MLX90614
D. Solenoid Valve
E. Ultrasonic Sensor
F. Audible Alarm
G. LCD (Liquid Crystal Display)
H. LED Lights
I. Desktop
J. Relay Module

IMPLEMENTATIONS

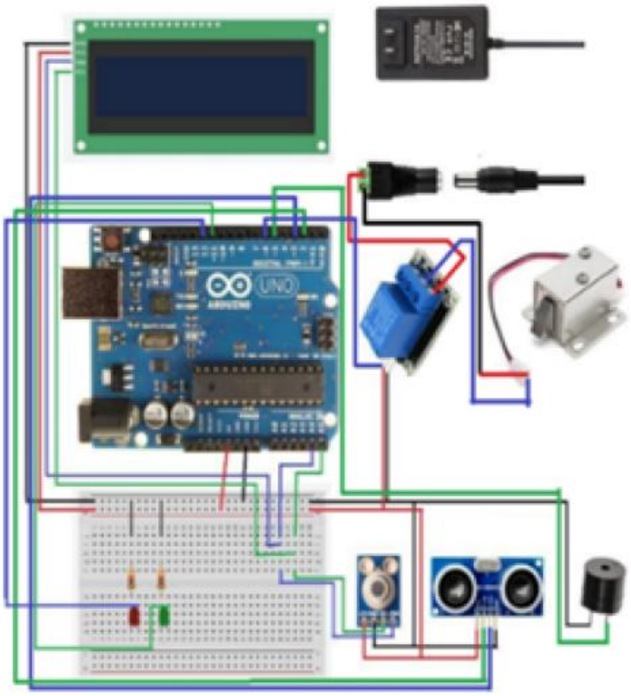


Fig. 12. Device Connections

Arduino consists of a microcontroller, which is a physical programmable circuit, and a software component that includes an IDE (Integrated Development Environment) for writing and uploading computer code to the Arduino board. The ultrasonic sensor and infrared temperature sensor are connected to the Arduino Uno with the breadboard, which measures the distance of a person and determines the body temperature. The LCD I2C and MLX90614's SDA are connected in Arduino pin A4 while the SCL are connected in pin A5. The GND pin is the ground for connecting all components; The VCC pin connects through the 5v pin of Arduino except for the LED and Buzzer. The LEDs are connected in pin D12 for Red LED and D11 for Green LED while the buzzer is connected in pin D5. The ultrasonic sensor's trig and echo are connected in pin D3 and pin D2. The solenoid lock is connected to a relay 12v AC DC power supply. The positive wire of the solenoid lock is connected to the common contact of the relay and the negative wire is connected to the negative wire of the 12v AC DC power supply; the positive wire of the 12v AC DC power supply is connected to the normally open relay while the input of relay is connected to the pin A6.

WORKING PROCESS

This project has two systems. These are programmed using Python and the Arduino IDE. The system programming in Python will be the enrollment phase and facial recognition where the system itself will be responsible for sending a signal to the Arduino if it was recognized or not. After receiving the signal, the other components such as the ultrasonic sensor, temperature sensor, LEDs, buzzer, and solenoid lock will be activated depending on the signal received.

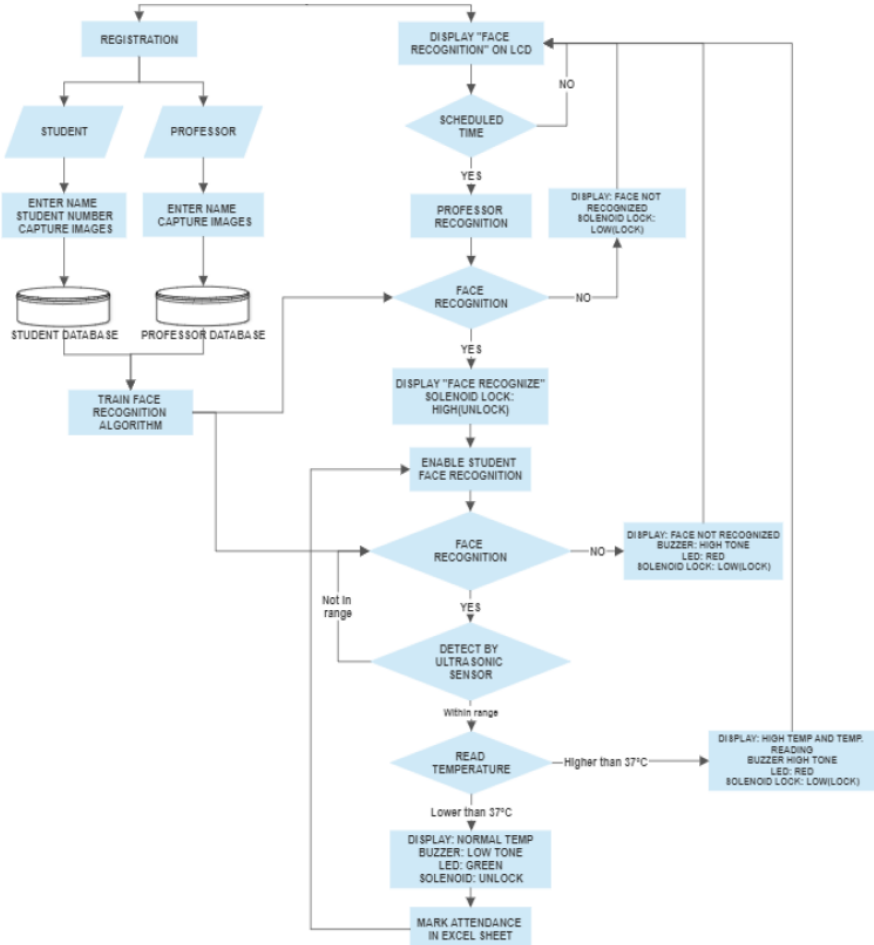


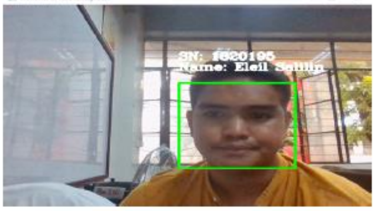
Fig. 13. System Flowchart

RESULTS AND DISCUSSION

The facial recognition technology met the criteria for accurate attendance monitoring with a noteworthy accuracy rate. It accurately identifies students and instructors at a rate of 95.5% on average. It properly identified 47 students out of 50 test samples, while misidentifying just 3. In well-lit situations, the system performed marginally better (97% vs. 92% in low-light conditions).

With a mean inaccuracy of around 0.3 degrees Celsius, the temperature sensor displayed exceptional precision. With a standard deviation of .12 degrees Celsius, temperature readings varied from 36.4 to 37.8 degrees. The accuracy of the sensor was not significantly affected by environmental factors such as changes in room temperature.

For 97% of the students, the system accurately recorded their attendance. In 3% of cases, there were discrepancies between the manual attendance records and facial recognition-based attendance, mostly as a result of blurry or poorly illuminated faces.



Sample Authorized Person

Training Data Sets

Sample Unauthorized Person

Sample Person not in Time Schedule

Table 1
Time Observation During the Device Testing

Days of Sample	Types of Attendance	Time Consumed	Estimated Time Consumed Per Head
DAY 1	Facial Recognition	**10.05 Minutes**	**15.75 secs/head**
	Manual Roll Call	16.52 Minutes	25.42 secs/head
	Listing Attendance	26.7 Minutes	41.08 secs/head
DAY 2	Facial Recognition	**11.17 Minutes**	**17.55 secs/head**
	Manual Roll Call	17.14 Minutes	25.71 secs/head
	Listing Attendance	28.09 Minutes	42.14 secs/head
DAY 3	Facial Recognition	**14.0 Minutes**	**21 secs/head**
	Manual Roll Call	19.35 Minutes	29.03 secs/head
	Listing Attendance	30.25 Minutes	45.38 secs/head

Table 1 shows the three days of observation. It shows how much longer it takes to monitor attendance using the manual roll call in a classroom than using a device like Face Recognition. Using Face Recognition gives accurate attendance records that are vital to classroom evaluation. However, manual attendance tracking can result in errors, missed students, or duplicate entries. Similar to my monitoring, which uses face recognition, the system matches the image that was captured to the data that is stored there. Depending on whether the individual is in the database or not, the system will either return a matching face or not. Because it can be done by people who work against the database when taking manual attendance, the records may not be accurate. This study offers significant advantages for confirming the identities of students in each class to assist in eradicating the phenomena of fake and replacement attendance. It can also efficiently conserve teachers' time and resources while precisely recording and counting students' tardiness, and absence.

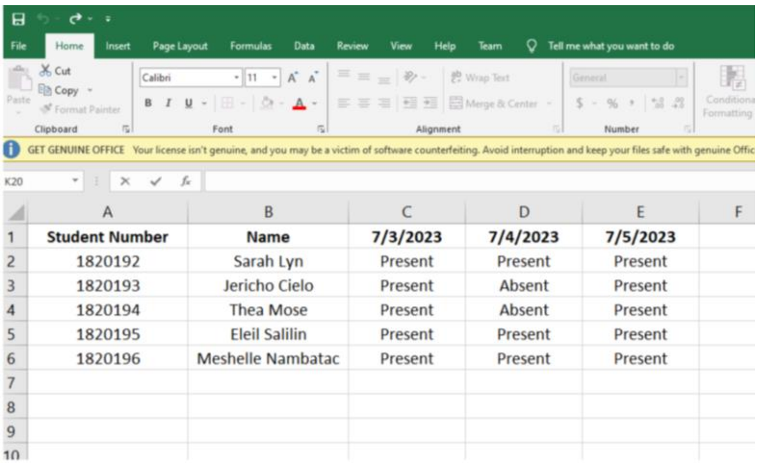
Table 2
Time Margins Between Other Types of Attendance

Days of Sample	Types of Attendance	Estimated Time Consumed Per Head	Time Between Face Recognition to Manual Roll-Call and Listing Attendance
DAY 1	Manual Roll Call	25.42 secs/head	**9.67 secs.**
	Listing Attendance	41.08 secs/head	**25.33 secs.**
DAY 2	Manual Roll Call	25.71 secs/head	**8.16 secs.**
	Listing Attendance	42.14 secs/head	**24.59 secs.**
DAY 3	Manual Roll Call	29.03 secs/head	**8.03 secs.**
	Listing Attendance	45.38 secs/head	**24.38 secs.**

Table 2 shows the margin of difference between the proposed system to the existing attendance monitoring which is the manual roll call and listing.

The table shown below is the report generated from the attendance database in Excel format. This was monitored for 3 days. It shows that the recognized students are marked present, and if the student did not get in the class within their time schedule, are marked as absent.

Table 3



Student Number	Name	7/3/2023	7/4/2023	7/5/2023
1820192	Sarah Lyn	Present	Present	Present
1820193	Jericho Cielo	Present	Absent	Present
1820194	Thea Mose	Present	Absent	Present
1820195	Eleil Salilin	Present	Present	Present
1820196	Meshelle Nambatac	Present	Present	Present

SUMMARY AND CONCLUSION

This study aims to develop and utilize a system that is more accurate and efficient by integrating face recognition and Infrared Temperature technology. Upon detecting your face, the LCD will display "RECOGNIZED," followed by showing your temperature. If your temperature is normal (below 37.4 degrees Celsius), the green LED will turn on, and the solenoid will be unlocked.

On the other hand, if the face is recognized, but your temperature is above 37.4 degrees Celsius, the red LED light will turn on, the buzzer will ring, and the solenoid will remain locked. Subsequently, the system will automatically update the attendance in an Excel file, marking the student as "present" or "absent" based on the recognition result with time schedule constraints.

The following conclusion was reached at the end of this chapter based on the study's findings:

This study development and testing targets computer engineering students and subject professors for the accurate and efficient system that will track their real-time attendance are highlighted by the combined findings, which resulted to the conclusion:

We conclude that the speed and efficiency of the facial recognition system based on the results is ahead of the manual roll-call and listing attendance in every individual testing. It states that the margin of speed of the face recognition to the manual roll-call is ahead with a range of 8-10 seconds per head in scanning each individual. For the listing attendance it has an estimated margin of 15-20 seconds, the accuracy of the facial recognition is observed through simulation and checked if the information upon registration and actual output is paired. The temperature's accuracy ensures that individuals with elevated body temperature are identified. The system offers significant benefits, including contactless attendance monitoring, efficiency, and reduced human error.

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"AGBASA": A WEB APPLICATION IN READING COMPREHENSION

Dr. Nancy G. Liwanag

INTRODUCTION

The rapid technological advancement has significantly impacted the lives of people even students. Learning materials are being introduced every now and made available to every learner and designed to run on different devices such as smartphones, tablet computers, and other mobile devices. Mobile learning introduces new ways for students to learn as well as educators to teach. Mobile learning is a well-established methodology with countless benefits as accessing learning content anytime and anywhere, adjusting the content to students' needs, and receiving timely feedback. The development of a website application for reading comprehension can be an effective tool in enhancing students' performance by implementing an application learning in a continuous assessment. When a beginner reader encounters vocabulary, they do not know or do not recognize it due to inaccurate decoding. They are likely to skip ahead. The more blanks in a line of text, the harder it is to make meaning the more cognitively challenging and frustrating the reading task becomes. That is why poor comprehension can result when a student struggles with decoding, has a limited vocabulary, or attempts to read a text that is too high of a level. Reading comprehension refers to the ability to interpret and understand the content of what is read. Moreover, one can improve reading comprehension through repetitive reading and nowadays there are many available reading tools or materials that can be accessed on different online browsers. The study by Ginson & Levin (2015) indicated that children differentiate letters according to their visual form, that is, their horizontal, vertical, and diagonal segments. Given the complexities of the visually distinct forms of letters (upper case, lower case, and printed form), current learning theory suggests that simultaneously teaching two versions of letters with their confusable sounds and labels may be overwhelming to a young child. However, there is no substantial evidence to suggest which particular form should be taught first. For children to become skilled readers they will also need to develop a rich conceptual knowledge base and verbal reasoning abilities to understand messages conveyed through print. Successful reading ultimately consists of knowing a relatively small toolkit of unconscious procedural skills, accompanied by a massive and slowly built-up store of conscious content knowledge. It is the higher-order thinking skills, knowledge, and dispositional capabilities that enable young children to come to understand what they are reading. Miñosa & Montero (2019) confirmed that it is safe to conclude that Socio-Economic Status (SES) influences the comprehension of students favoring those with high SES. Moreover, there exists a gender gap as regards the level of comprehension in senior. Further, it is concluded that teachers give prime importance to assessment as an initial step in the teaching of reading. Moreover, it is found that teachers place a premium on experiences as an essential resource for the effective teaching of reading with regular students as well as with students at risk. In the study about the effect of visual design and placement of intra-article navigation schemes on reading comprehension and website user perceptions, Cuddihy & Spyridakis (2012) suggested that websites require intra-article navigation schemes that are well designed, such navigational schemes signal the topical structure of the contents. It is also believed that visual design and placement of intra-article navigation schemes has an effect on website users' reading comprehension and user experience. In this study, differences were found for reading comprehension and perceived knowledge gained. It was found that reading comprehension was highest with an intra-article navigation that was most visually distinct as an article table of contents and that replaced the site's navigation on the web page layout. The researcher came up with the idea of creating a website application called "AGBASA" a native word that means "to read or reading". The Web application which provides users with accessible reading materials on how to improve reading comprehension.

MATERIAL AND METHODS

This study used the Developmental Method of research based on Richey and Klein (2005) which is the systematic study of designing, developing, and evaluating instructional programs, processes, and products that must follow internal quality and product effectiveness. The purpose of the system design was to enhance the thinking skills and knowledge of the users. In getting the relevant data needed by the researcher, the evaluators of the study were the Grade 4 to 6 students, teachers, and Information Technology (IT) experts. A total of one thousand two hundred thirty-nine (1239) students, fifteen (15) teachers, and ten (10) experts were considered. The evaluation form was developed to measure and assess the website in terms of accuracy, flexibility, reliability, user interface design, security options, and help options. The study used frequency, percentage, rank, and t-test to determine the difference between the assessment of the respondents as to accuracy, flexibility, reliability, user interface design, security options, and help options.

RESULTS AND DISCUSSION

Table 1
Summary of Assessment on the Application

Indicators	Weighted Mean	Interpretation	Rank
1. Accuracy	4.41	Strongly Acceptable	6
2. Flexibility	4.66	Strongly Acceptable	5
3. Reliability	4.68	Strongly Acceptable	3
4. User Interface Design	4.71	Strongly Acceptable	2
5. Security Options	4.67	Strongly Acceptable	4
6. Help Options	4.72	Strongly Acceptable	1

Table 1 shows the summary of assessment on the application indicating Help Options with weighted mean of 4.72; User Interface Design with weighted mean of 4.71; Reliability with weighted mean of 4.68; Security options with weighted mean of 4.67; Flexibility with weighted mean of 4.66; and Accuracy with weighted mean of 4.41 and all interpreted as Strongly Acceptable. Little, Brown, and Fenton (2013) discovered that assessments completed during the research process enable to identify areas for improvement and ensure that the research objectives are satisfied. The authors also claim that assessments are necessary for providing feedback to participants and ensuring the integrity of the research. Assessments can also be used to analyze the influence on the greater community or to identify potential applications of the findings.

Table 2
Difference between the Assessment of the Respondents on the Application

Variables	p-value	Hypothesis	Interpretation
1. Accuracy	.368	Accept Ho	Not significant
2. Flexibility	.013	Reject Ho	Significant
3. Reliability	.170	Accept Ho	Not significant
4. User Interface Design	.381	Accept Ho	Not significant
5. Security Options	.253	Accept Ho	Not significant
6. Help Options	.248	Accept Ho	Not significant

Note: Level of significance at .05

Table 2 presents the assessment of the respondents on the application in terms of accuracy, reliability, user interface design, security option and help option supported by computed p-value of .368, .170, .381, .253 and .248 are all greater than at 0.05 level of significance. Thus, the null hypotheses are accepted. Therefore, there is no difference in the assessment of the respondents on the application in terms of accuracy, reliability, user interface design, security option, and help option. Meanwhile, there is difference in the assessment of the respondents on the application in terms of flexibility supported by computed p-value of .170. Hence, the null hypothesis is rejected. According to Yusuf et al. (2016) computer literacy can enhance reading comprehension skills among students, and recommended that schools should incorporate computer literacy training as part of their curriculum. They found out that the students who received computer literacy training had higher scores on reading comprehension tests than the students who did not receive the training. They also revealed that computer literacy had a significant positive effect on reading comprehension performance.

CONCLUSION

The respondents namely the students, teachers, and IT experts confirmed that the developed website application is strongly acceptable for use in terms of Accuracy, Flexibility, Reliability, User Interface Design, Security Options, and Help Options. The p-value showed that the assessment of the respondents on the application in terms of accuracy, reliability, user interface design, security option, and help option have no significant difference while there is a difference in the assessment of the respondents on the application in terms of flexibility. In general, the developed website is “Very Acceptable” platform as a learning tool in reading comprehension.

RECOMMENDATION

The following are suggested to improve the website application.

Researchers or developers may consider incorporating tools that can perform computations, particularly in the aspect of assessment; including options for input and security options. Additional functionalities on audio and video stories is also suggested.

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DEVELOPMENT AND ACCEPTABILITY OF SEA GRAPE WRAPS

Boniebert P. Luciano

INTRODUCTION

Food plays a vital role in supporting and providing the necessary nutrients for the body. It can take the form of animal-derived products or plant-based options like vegetables and fruits, which contain essential nutrients such as carbohydrates, fats, proteins, vitamins, minerals, and water needed for daily life. In contemporary times, not everyone maintains a well-balanced and nutritious diet. Insufficient nutrition can compromise overall health and well-being, diminishing the ability to lead an active and enjoyable life. It can also lead to various health issues, including obesity, tooth decay, high blood pressure, high cholesterol, heart disease, diabetes, osteoporosis, certain cancers, and eating disorders. Consequently, adopting a healthy diet is essential to prevent these conditions.

The concept of wrappers involves the use of materials to cover or encase something for specific purposes. Edible wrappers are designed to enclose foods, safeguarding them from spills and other factors. In the Philippines, lumpia wrappers (spring roll wrappers) are well-known examples, typically made from ingredients like flour, salt, eggs, and water. These wrappers provide carbohydrates through the flour, sodium chloride through salt, protein from eggs, and moisture from water. However, these nutrients may not suffice to meet our dietary requirements.

Sea grapes, scientifically referred to as Caulerpa lentillifera, represent a nutritious type of edible seaweed popular in Asian cuisine. They possess a robust nutritional profile, boasting vitamins like A, C, and B vitamins (including B6 and folate), along with minerals such as calcium, magnesium, potassium, and iodine. Their dietary fiber content contributes to digestive health, while the calcium content supports the integrity of bones and teeth. These seaweeds also serve as a natural source of iodine, crucial for thyroid function and metabolism. Noteworthy is their antioxidant content, aiding in combating oxidative stress and potentially lowering the risk of chronic diseases. With relatively low-calorie content, incorporating sea grapes into a well-rounded diet offers a multitude of health benefits.

Statement of the Problem

The study aims to develop sea grapes as the main ingredient in food wrap. Scientifically, it seeks to address the following questions:

1. What are the ingredients and procedures used in developing the sea grape wrap products?

2. What are the assessments of the respondents on the acceptability of Fried and Fresh Seagrape Wraps as to:

   2.1 Appearance;

   2.2 Flavor;

   2.3 Aroma;

   2.4 Color;

   2.5 Texture; and

   2.6 Doneness?

3. Is there any significant difference on the assessment between the Fried and Fresh Sea grape products?

4. Based on the assessment result, what recommendations may be proposed to improve the Sea grape Wrap products?

Significance of the Study

The study gives new knowledge on the other possible uses of sea grape in food preparations that will be beneficial to the following:

Student for Food Related Course. This study will help students to get some information concerning with sea grape health benefits and its characteristics. Moreover, it aims to delve into the advantages and exploration of sea grape products.

Canteen Concessioners. Prepare foods in the canteen that are beneficial and nutritious, so the researchers consider them as one of the consumers of the sea grape wrap products.

Future Researcher. This study will serve as future reference and guide in doing product development about sea grape.

Homemakers. The outcome of the study will give them an idea to produce personalized product that is beneficial and can be a source of income.

METHODOLOGY

In this study, the researcher utilized the descriptive method to precisely describe the current situation and investigate preferences for the acceptability of the developed products. To gather pertinent information, a standard Hedonic Scale for preference testing was adopted. This scale was used for the final evaluation of sea grape wrap products. The sensory evaluation encompassed attributes such as appearance, texture, taste, aroma, odor, color, and doneness. The hedonic scale was employed to assess product quality.

RESULTS AND DISCUSSION

The salient findings of the study are as follows:

1. The ingredients in making sea grape wraps were composed of sea grape paste, flour, eggs, cornstarch, white sugar, evaporated milk, water and salt. The procedure in making sea grape wraps. First, whisk all the dry ingredients and then mix it then add the wet ingredients and mix it thoroughly until it becomes smooth and don't have lumps. Heat the pan and pour at least 1/4 cup of batter then make a thin form of wrapper. When it cooked, take it quickly in the pan. And lastly. Place it in the plate. Repeat it on the rest batter.

2. Based on the result of the sensory evaluation the average weighted mean of the Fried Sea grape wrap is (WM-8.09) while the Fresh Sea grape wrap is (WM-8.10) and they are both assessed as like very much. As to the composite mean the results are Doneness (WM-8.23); Appearance (WM=8.13) and Texture (WM-8.12) were all rated Like extremely. On the

other hand, The Flavor (WM-8-10); Color (WH-5.08); Aroma and odor (WM-7 92) were all rated as Like very much.

3. There is no significant difference on the level of acceptability of Fried and Fresh Sea grape Wraps by the three (3) groups of the evaluators regardless of age and preferences.

4. The suggestions of the respondents were the following: the filling should match the sea grape wrap, the serving size must be uniform, treat the toxicity level of sea grape, explore other flavors aside from sea grape. These suggestions will help the researchers improve and enhance more the following quality factor or characteristics of the developed Sea grape Wrap products.

CONCLUSIONS AND RECOMMENDATIONS

Based on the summary of findings, the following conclusions were drawn:

1. The ingredients of Sea grape Wrap products were available in the community and its procedures are easy to follow by the homemakers.

2. The Sea grape Wrap products are acceptable to all food tasters.

3. Respondents vary in their assessment on the acceptability of Fried Sea grape Wraps due to the preferences of age bracket of evaluators, While in Fresh Sea grape wraps were liked unanimously by the group of respondents due to its uniqueness in taste of the wrapper and filling.

4. Continuous product improvement should be conducted to achieve its desired quality.

Based on the foregoing summary of finding and the conclusions drawn, the following recommendations are made:

1. Sea grape Wraps recipe are recommended for utilization and adoption.

2. The developed Sea Grape wraps are palatable and nutritious based on the respondents thereby it could be brought to community for recipe and livelihood demonstration.

3. The developed Sea grape wraps are recommended to all ages especially to the vegetarian people.

4. The developed Sea grape wraps can be prepared for special occasion to be introduced in the community as a new food in Filipino table.

5. Conduct follow-up research on the same ingredients.

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LAKBAYK: BIKE MOBILE APPLICATION

Rowee M. Marfil

INTRODUCTION

Bicycles were becoming more popular as a mode of transportation, and people were urged to try them out. When the pandemic spread helps safeguard lives by accidentally limiting transport supply and resulting in public transit shortages, some people utilize bicycles to save time commuting to work. Bicycle imports grew 112 percent from 2019 to 2020, from 1 million to 2.1 million units. This demonstrates that an increasing number of individuals are adopting cycling as their new form of transportation.

This study aims to create an application that will teach bike commuters how to service and maintain their bikes, making all bike users in General Mariano Alvarez Cavite, prepared before going out on the road, tools and accessories cyclists should have brought on their ride, how to prevent misuse of the bicycle, how to check if their bike is in good condition before riding out, how to prevent pain while cycling, how to make an application and its benefits in servicing and maintenance, how to make an application and its benefits in servicing and maintenance

Mulvaney C.A., et al. (2015) explained that Cycling is an attractive form of transport. It is beneficial to the individual as a form of physical activity that may fit more readily into an individual's daily routine, such as cycling to work and to the shops, than other physical activities such as visiting a gym. Cycling is also beneficial to the wider community and the environment as a result of fewer motorized journeys. Cyclists are seen as vulnerable road users who are frequently in close proximity to larger and faster-motorized vehicles.

Bicycle commuting, according to Castro and Josef (2020), can help with transportation challenges created by dependency on automobile transit. One of its immediate benefits is that it allows for speedier travel times over bikeable distances. Furthermore, this might be considered as an opportunity to construct new types of bicycle commuting facilities that address other deterrents such as the inconvenience caused. According to Karanikola et al. (2018), these significant changes in transportation elements will not only contribute to environmental improvements (e.g., better air quality, less congestion, more efficient transportation), but will also improve a positive connection among street clients, as well as other good practices that support their wellbeing.

MATERIAL AND METHODS

This study used descriptive developmental research because the research strategy seeks data to comprehensively define a phenomena, situation, or population. It especially aids in addressing the research issues' what, when, where, and how questions. The research collects, analyzes, classifies, and tabulates data regarding existing circumstances, practices, beliefs, procedures, trends, and cause-and-effect linkages before producing a suitable and correct interpretation.

The sample size was established using the Simple Random Sampling approach, and the population set consisted of all bike users who lived in General Mariano Alvarez. It is a dependable method of acquiring data in which every member of a population is chosen at random. An online questionnaire is employed, which is divided into two parts: the respondent's profile and the second part, which assesses the quality of software in terms of reliability, functionality, usability efficiency, maintainability, and portability.

The T-test was used to identify the significant difference in the three groups of respondents based on the usage of frequency and percentage to provide the demographic profile of the respondents, the mean, and 5 liker-scale for the assessment of the respondent on the system

RESULTS AND DISCUSSION

Table 1
Summary of Assessment on the Application

Indicators	Weighted Mean	Interpretation	Rank
1. Functionality	4.57	Strongly Acceptable	2
2. Reliability	4.42	Very Acceptable	6
3. Usability	4.62	Strongly Acceptable	1
4. Efficiency	4.53	Strongly Acceptable	3.5
5. Maintainability	4.53	Strongly Acceptable	3.5
6. Portability	4.50	Strongly Acceptable	5

Table 1 shows the summary of assessment on the application indicating Usability with weighted mean of 4.6; Functionality with weighted mean of 4.57; Efficiency and Maintainability with weighted mean of 4.53; Portability with weighted mean of 4.50; and Reliability with weighted mean of 4.42 and all interpreted as Strongly Acceptable except to Reliability which is interpreted as Very Acceptable. Little, Brown, and Fenton (2013) discovered that assessments completed during the research process enable to identify areas for improvement and ensure that the research objectives are satisfied. The authors also claim that assessments are necessary for providing feedback to participants and ensuring the integrity of the research. Assessments can also be used to analyze the influence on the greater community or to identify potential applications of the findings.

Table 2
Difference on the Assessments of the Group of Respondents as to Age

Variables	p-value	Hypothesis	Interpretation
Functionality	0.273	Accept Ho	Not significant
Reliability	0.099	Accept Ho	Not significant
Usability	0.217	Accept Ho	Not significant
Efficiency	0.621	Accept Ho	Not significant
Maintainability	0.401	Accept Ho	Not significant
Portability	0.041	Reject Ho	Significant

Note: Level of significance at 0.05

Table presents the difference on the assessments of the respondents on the application as functionality, reliability, usability, efficiency and maintainability supported by computed p-value of 0.273, 0.099, 0.217, 0.621 and 0.401 accepted the null hypotheses. Therefore, there is no significant difference on the assessments of the respondents on the application as functionality, reliability, usability, efficiency, and maintainability. Meanwhile, there is no significant difference on the assessments of the respondents on the application as to portability supported by a computed p-value of 0.041. Hence, the null hypothesis is rejected.

Table 3
Difference on the Assessments of the Group of Respondents as to Gender

Variables	p-value	Hypothesis	Interpretation
Functionality	0.585	Accept Ho	Not significant
Reliability	0.142	Accept Ho	Not significant
Usability	0.665	Accept Ho	Not significant
Efficiency	0.364	Accept Ho	Not significant
Maintainability	0.398	Accept Ho	Not significant
Portability	0.304	Accept Ho	Not significant

Note: Level of significance at 0.05

Table presents the difference on the assessments of the respondents on the application as functionality, reliability, usability, efficiency, maintainability and portability supported by computed p-value of 0.585, 0.142, 0.665, 0.364, 0.398 and 0.304 accepted the null hypotheses. Therefore, there is no significant difference on the assessments of the respondents on the application as functionality, reliability, usability, efficiency, maintainability and portability.

Table 4
Difference on the Assessments of the Group of Respondents as to Profession

Variables	p-value	Hypothesis	Interpretation
Functionality	0.401	Accept Ho	Not significant
Reliability	0.278	Accept Ho	Not significant
Usability	0.948	Accept Ho	Not significant
Efficiency	0.139	Accept Ho	Not significant
Maintainability	0.199	Accept Ho	Not significant
Portability	0.194	Accept Ho	Not significant

Note: Level of significance at 0.05

Table presents the difference on the assessments of the respondents on the application as functionality, reliability, usability, efficiency, maintainability and portability supported by computed p-value of 0.401, 0.278, 0.948, 0.139, 0.199 and 0.194 accepted the null hypotheses. Therefore, there is no significant difference on the assessments of the respondents on the application as functionality, reliability, usability, efficiency, maintainability and portability.

CONCLUSION

According to the findings and responses, the application is Strongly acceptable in terms of functionality, usability efficiency, maintainability, and portability, and Very acceptable in terms of reliability. There is no significant difference in the assessment of the three groups of respondents for dependability, functionality, usability efficiency, and maintainability based on age, profession, or gender; nevertheless, there is a significant variation in the assessment of the respondents for portability and age.

RECOMMENDATION

According to the study's findings, the recommendations are, the application should be offered to cyclists of all ages, with a special emphasis on younger bikers. This is due to the increased usage of cellphones and other mobile devices by younger bikers. To reach a wider audience, the application should be made available in multiple languages. The app should be updated on a regular basis with fresh content, such as information on new bike maintenance procedures or changes in cycling rules.

UTILIZATION OF METHANE GAS THRU BIOGAS DIGESTER: BASIS FOR IMPROVED WASTE DISPOSAL MANAGEMENT SYSTEM AT EARIST-CAVITE CAMPUS

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INTRODUCTION

Small-scale biogas digester can potentially play an important role in reducing greenhouse gas emissions and human and environmental health risks while also improving economic conditions for EARIST Cavite Campus. Although the benefits of implementing small-scale biogas digester have been demonstrated in GMA Cavite, significant challenges to realizing these benefits on a broad scale remain. In this research the researchers attempt to identify and address aspects of the technical, economic, and social challenges to the broad utilization of methane Gas thru Biogas Digester: Basis for Improved Waste Disposal Management system Via Sustainable Methane Gas Production at EARIST – Cavite Campus. Mr. Michael M. Templonuevo the Chief Consultant and founder of the MHE Biogas Technology and Waste Disposal Consultancy introduced the idea of combining business ventures with environmental protection. Thus, the overlying principles of "Environmental protection, that everything is connected to everything else". A simple act of littering must be the basis of great destruction in the future! From thereon, the company included environmental protection and the concept of Corporate Social Responsibilities (CSR). The MENRO (Municipal Environment and Natural Resources Officer) started to offer BIOGAS TECHNOLOGY, A BY PRODUCT OF ANAEROBIC DIGESTION to every LGU and private commercial establishment for solid waste management and waste water treatment system.

Biogas digesters also produce a number of other important benefits that may be realized by the end user and others in society such as reduced greenhouse gas emissions and improved local human and environmental health. These co benefits or additional benefits that go beyond end user direct benefits, will be examined as positive externalities of biogas digester installations. A positive externality is a benefit to other members of society generated as a side effect or consequence of a product or economic.

Statement of the Problem

The study aimed to assess the integration and use of computers in teaching in selected state higher learning institutions in EARIST Cavite Campus.

Specifically, it sought to answer the following questions:

1. What is the status of solid waste disposal and management at EARIST -Cavite Campus in terms of:

    1.1 Biodegradable Waste;

    1.2 Recyclable Waste;

    1.3 Residuals; and

    1.4 Hazardous Waste?

2. What challenges are encountered by ECC on Solid Waste Disposal Management Program as to the above-mentioned variables?

3. How do the Teaching and Non-Teaching Personnel assess the Methane Gas Utilization through Biogas Digester as to:

3.1 Safety;

3.2 Usability;

3.3 Materials and Equipment Needed; and

3.4 Procedures in using Biogas Digester?

4. Is there significant difference in the assessments of the two groups of respondents on the use of Biogas Digester as to the above-mentioned variables?

5. Based on findings, what Solid Waste Disposal Management System thru Sustainable methane gas production can be proposed

Significance of the Study

Cognizant of the growing problem, this study will be significant for the following:

EARIST Cavite Campus – They will contribute to preventing the use of toxic chemicals in sewage treatment, plants, and saving money, energy, and materials by treating waste.

School Canteen Owners – They will be significant moreover; biogas usage does not require fossil fuel extraction to produce energy. Instead, biogas takes a problematic gas, and converts it into a much safer form. More specially, the methane content present in decomposing waste is converted into carbon dioxide. Students will be knowledgeable about the proper decomposing of solid waste.

Non-Teaching Personnel - This communal biogas kitchen was regularly used for simple cooking activities. The sludge and treated waste water will be used for plant watering. Its segregated collected biodegradable wastes include kitchen wastes from biodegradable bins. It is proven that biodegradable wastes will be managed effectively and efficiently, and biodegradable wastes will be collected, segregated and placed in a proper disposal system.

Researchers – Because the study can guide researchers to enhance their knowledge and get ideas for research.

Administration – The administrators will be aware of the importance of segregating waste.

METHODOLOGY

In this study, the researcher used the descriptive method to provide an accurate and systematic description of the utilization of methane gas through Biogas Disaster. A stratified sampling technique was used to select teaching and non-teaching staff from EARIST Cavite Campus. Data was collected through survey questionnaires and interviews, enabling the researcher to gather data from the respondents effectively.

RESULTS AND DISCUSSION

1. As to Status EARIST Cavite Campus solid waste disposal management, the majority of respondents often observe that there is a separate bin for biodegradable garbage with a composite mean of 4.35, while recyclable garbage most of the respondents observe that the recyclable garbage is separated from other kinds of waste with a composite mean of 4.25, however as to the residual waste, most of the respondents sometimes observe that the residual garbage is separated to other types of waste with a composite mean of 3.04, and as to the hazardous waste the majority of the respondents sometimes observe that waste are separated from other types of waste with a composite mean of 3.14.

2. As to the challenges majority of the respondents often segregate the biodegradable waste according to the right process with a composite mean of 4.29 and while as to the recyclable waste most of the respondents often segregate recyclable waste according to suitable technique with a composite mean of 4.24. While to the residual waste, the respondents sometimes observe that the residents around the school are dumping residual waste in the surroundings of the school with a composite mean of 3.21 and as to the hazardous waste with a composite mean of 3.25 majority of the respondents sometimes observe that the waste is being thrown inside the school by the community outside.

3. As to the assessment in Methane Gas Production thru biogas digester, in terms of safety it is odorless and is not detrimental to human health with the composite mean of 3.87, however as to the usability most of the respondents agree that the solid and liquid waste is use as a fertilizer of agriculture with a composite mean of 4.88. While as to the material and equipment needed respondents strongly agree that cow dung used as a mainspring in the production with a composite mean of 4.87 and as to the procedures it is easy and simple to use with a composite mean of 4.87.

4. The significance difference between the assessment of two groups of respondents through biogas digester, the Usability with a p—value of 0.077 and the Procedure in using Biogas Digester with a p-value of 0.233 all less than t-tabular value of 2.011t 0.05 level of significance, the null hypothesis is Accepted which means that there is no significant difference between the assessments of the group respondents through biogas digester. However, the safety with a p-value of 0.044 and Material and Equipment needed with a p-value of 0.017 are all less than t-tabular value of 2.011 at 0.05 level of significance, the null hypothesis is rejected in favor of the research hypothesis which means that there is a significant difference between the assessment of the group respondents through biogas digester.

CONCLUSIONS AND RECOMMENDATIONS

From the findings of the study, the following are concluded

1. The assessment of the ECC solid waste disposal management, the majority of respondents often observe that biodegradable garbage is separated from other types of garbage.

2. As to the challenges of solid waste disposal management of EARIST Cavite Campus: Majority of the respondents often segregate the biodegradable waste according to the right process, while as to the recyclable waste most of the respondents often segregate recyclable waste according to suitable technique. However, as to the residual waste the respondents sometimes observe that the residents around the school are dumping residual waste in the surroundings of the school with, and as to the hazardous waste majority of the

respondents sometimes observe that hazardous waste is being thrown inside the school by the community outside.

3. As to the assessment in Methane Gas Production thru Biogas Digester: as to the assessment for safety of biogas digester majority of the respondents agree that the biogas digester is odorless and is not detrimental to human health, as to the assessment for usability of biogas digester the respondents strongly agree that the biogas digester that the solid and liquid waste is use a as a fertilizer for agriculture. While, as to the assessment for materials and equipment's needed of biogas digester the respondents strongly agree that cow dung used as a mainspring in the production of biogas, and as to the assessment for procedures of biogas digester most of the respondents strongly agree that the biogas digester is easy and simple to use.

4. As to the significant difference between the assessments of two group respondents through biogas digester, the value of Usability and Procedure in using Biogas Digester are all less than t-tabular value, the level of significance with 48 degrees of freedom, the null hypothesis is Accepted in favor of research hypothesis. This means that there is no significant difference between the assessments of the group respondent through the Biogas Digester. However, the value of Safety and Materials and Equipment needed are all less than the t-tabular value, the level of significance with 48 degrees of freedom, the null hypothesis is rejected in favor of the research hypothesis. This means that there is a significant difference between the assessments of the group respondent through the Biogas Digester.

From the findings and conclusions of the study, the following are recommended.

1. The researcher recommends to have a different trash bins and designated garbage storage for each residual waste, and hazardous waste since EARIST Cavite Campus lack of bins and storage for each types of waste. Those trash bins and storages have an important role in keeping a community environmentally friendly by keeping garbage locked in and collected by authorities, hence preventing environmental hazard and keeping the community neat and tidy.

2. The researcher recommends to have posters explaining the different types of waste and signage indicating the proper location for trash. As a result, the community will be more aware of the various types of waste and the proper location for garbage disposal. 3. The researchers proposed for administration to have a seminar for teaching and non-teaching personnel about solid waste disposal management that will show it is important.

3. The researcher proposed for administration to have a workshop for teaching and non-teaching personnel about sustainable methane gas production that will show them the appropriateness and significance of methane gas.

4. The researcher recommends to future researchers to have more biogas digester at Eulogio "Amang" Rodriguez Institute of Science and Technology Cavite Campus to use as an alternative than LPG gas for cooking laboratory.

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CHEST-RIG PERSONAL VOICE ASSISTANT FOR VISUALLY IMPAIRED USING RASPBERRY PI

Ador G. Utulo

INTRODUCTION

The eyes are the organs of vision in humans and some animals. They are organs that detect light and convert it into electro-chemical impulses in neurons. The eyes, including their surrounding structures and the optical system, are responsible for vision, which is the sense that allows us to see and interpret the world around us. Visually impaired refers to someone who has partial or complete blindness, or a reduced ability to see. People who are visually impaired may be able to see light, shapes, and/or colors, but not in the same way as a person with normal vision. The various categories of blindness, including conditions such as total blindness, low vision, color blindness, and other forms of visual impairment. According to the World Health Organization, approximately 253 million people worldwide are visually impaired, of which 36 million are blind, and 217 million have low vision. The prevalence of blindness and visual impairment is higher in low- and middle-income nations than in high-income nations. Uncorrected refractive errors, cataracts, glaucoma, diabetic retinopathy, and age-related macular degeneration are the main causes of blindness and vision impairment in the world. But in our country In the Philippines, a lower-middle income country in Southeast Asia, blindness and visual impairment are growing public health concerns, with a prevalence rate of 1.98%. Detecting obstacles and navigation are one of the primary issues for blind and elderly individuals. Both individually and socially, visual impairment has vast, complicated, and far reaching effects (International Federation on Ageing, 2013). Vision loss has negative impacts on an individual's health and well-being (Zimdars et al.,2012); Vision being an incredibly critical sensory modality in humans, its loss impairs the execution of nearly all activities of daily living and instrumental activities of daily living, consequently diminishing a person's quality of life. General lifestyle, personal relationships, and profession. In addition, the inability to perform normal activities, such as crossing the street or cooking food, is a significant obstacle for blind people (Makandar et al.,2021). Therefore, technology that improves life's accessibility, safety, and quality has a significant social influence (Manduchi & Coughlan, 2012). Moreover, as our elderly and blind populations continue to grow, it has the potential to significantly affect our future quality of life. Several studies show the lack of studies focused on the design of navigation systems specifically for visually impaired people. There is limited research on the design of user interfaces, navigation systems, and other technologies that are specifically tailored for the needs of visually impaired people. Additionally, there is a lack of studies that explore the psychological and emotional aspects of navigation for visually impaired people, such as the impact of the environment on their sense of direction, the impact of using navigation systems on their self- confidence, and the experience of trust and security when using navigation systems. Lastly, additional study is required to determine how navigation systems can be enhanced to better serve the requirements of those who are blind or visually impaired.

The objective of this research is to develop a wearable device that is a hands-free chest rig for the visually impaired using a Raspberry Pi. It is a single-board computer (SBC), which means it is a complete computer built on a single circuit board. It includes all the necessary components for a computer, such as a microprocessor, memory, input and output interfaces, and a power supply. The Raspberry Pi is designed to be compact, affordable and energy-efficient, suited for a wide range of embedded applications. An ultrasonic sensor will also be part of the chest rig device, which can scan objects in the user’s path. This sensor is a device that utilizes sound waves with frequencies higher than the human hearing range to detect the presence and distance of objects. It emits ultrasonic waves, which bounce off objects and return to the sensor. By measuring the time, it takes for the waves to travel back, the sensor can determine the distance to the object. When integrated into a Raspberry Pi board, these sensors will provide real-time feedback to the user about obstacles in their surroundings. By emitting ultrasonic waves and analyzing the returning signals, the sensor can detect objects such as walls, furniture, or other obstacles, allowing the visually impaired person to navigate safely and avoid collisions. Additionally, the algorithm that will be used is Efficient det Lite using the Coco data set. Efficient net is a popular choice for helping visually impaired individuals due to its efficiency and accuracy in object detection tasks. It utilizes a deep learning technique known as Efficient det lite and is specifically designed to run on mobile devices, making it suitable for real-time applications. The COCO (Common Objects in Context) dataset is commonly used to train and evaluate object detection algorithms. It contains a large collection of images with a wide variety of objects in different contexts and poses. By training Efficient det on the COCO dataset, the algorithm learns to recognize and localize a diverse set of objects, which is essential for assisting visually impaired individuals in understanding their surroundings. When deployed on a chest rig device, Efficient det can use the device's official Raspberry Pi camera to capture a real-time video feed and analyses it to detect and label objects present in the scene. The chest rig device will also contain a GPS module and a NEO 6M Module. It is a compact device designed to assist visually impaired individuals with outdoor navigation. It provides real-time location tracking, route guidance and information on nearby points of interest, and distance and speed details. With customizable settings and accessibility features, it offers a user- friendly experience. Furthermore, the chest rig device will also be using a USB-to-audio connection, connecting it to a Raspberry Pi for input and output of personal voice assistance commands. Finally, it will contain a power source, such as a power bank, to power all of the components. Recognizing a person or telling an object apart are simple tasks for most people, but elderly people and those who are visually impaired may find them challenging. Personal Voice Assistant is one of the important needs of every blind and visually impaired person. This study integrates different features such as providing obstacle detection and navigation. The system will assist the user making their everyday life easier. This study uses customize wearable chest rig device which includes inside the Raspberry Pi 4b with 4gb of Random-Access Memory (RAM), Ultrasonic Sensor which will help detect the obstacle in the Environment. Also, a camera with 5-megapixel for computer vision which will be used to take input from the environment and passed into the Efficient det Lite algorithm to provide a prediction based on the computed output. Furthermore, 2 object detection will be computed at the time due to the resource’s limitation of the raspberry pi. GPS module that will track the user location and provide turn by turn navigation outside. However, in order to pick a location a volunteer is required to provide an input via device screen. In addition, the database for map will be limited to Manila, Philippines. Commands via Speech Recognition and Announcement output will be executed with the help of a USB to Audio Jack that will give alert or provide direction for the user. However, the delimitation of the study, since the device is wearable it will be limited on the front side of the user. Also, the time interval processing of the algorithm depends on the microcontroller speed. Furthermore, matter especially liquid will not be detected by the sensors. Moreover, the device will not be used to predict objects but rather to recognized objects available in the environment.

METHODOLOGY

The research design that will be utilized in the process of carrying out the research project will be action research. The researcher intends to develop a personal voice assistant for the visually impaired. Through the use of a customized wearable chest rig device which includes inside the Raspberry Pi 4b, Ultrasonic Sensor which will aid visually impaired in navigating both interior and outdoor environments. Experimental approach will be used in the design in order to build the device where all the function will be processed such as obstacle detection, navigation and personal voice assistant. Since the researcher needs to have 10 respondents the researcher will use the purposive sampling, as defined by Kassiani Nikolopoulou (2022) Purposive sampling is a non-probability sampling strategy in which units are chosen because they possess traits that you require in your sample.

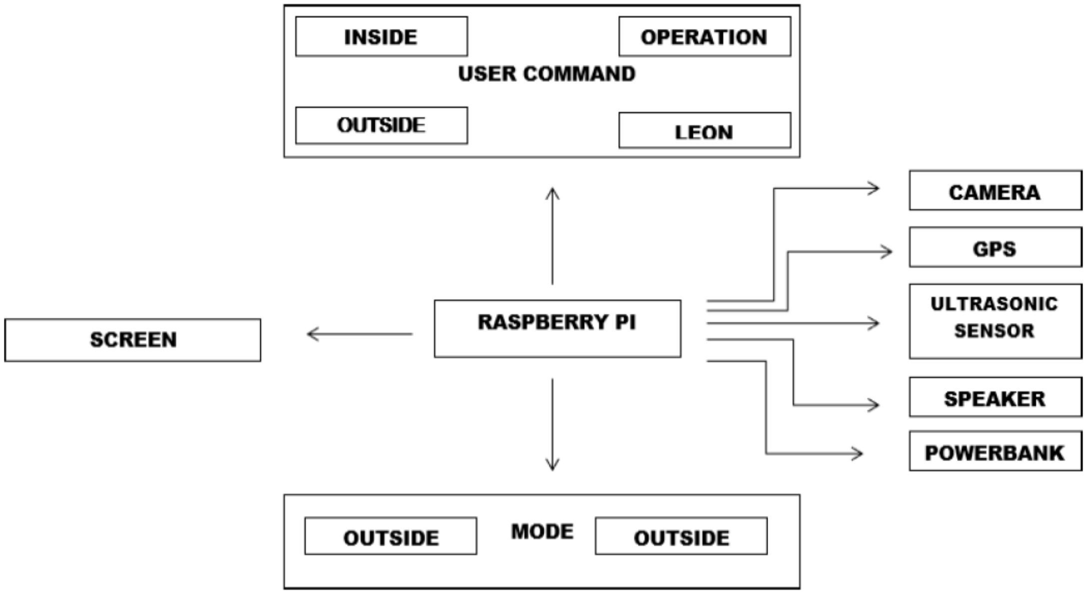


Figure 1. Block Diagram

2.1 The block diagram shows the main components of the Raspberry Pi 4 model B.

The text on the diagram describes the different modes of operation of the Raspberry Pi. The modes are:

USER COMMAND: This mode allows the user to enter commands directly into the Raspberry Pi's terminal.

- Operation: In this mode, you can ask the prototype to shutdown/ power off properly.
- Stop- In this command, you can stop the mode of prototype.
- INDOOR: This mode is used to set the Raspberry Pi to indoor mode.
- OUTDOOR: This mode is used to set the Raspberry Pi to outdoor mode.
- GPS: This mode allows the Raspberry Pi to access GPS data.
- SCREEN: This mode allows the Raspberry Pi to output video to a screen.
- RASPBERY PI 4 4GB: This mode indicates that the Raspberry Pi has 4GB of storage.
- Ultrasonic Sensor: This mode allows the Raspberry Pi to connect to sensors.
- CAMERA: This mode allows the Raspberry Pi to use a camera.
- SPEAKER: This mode allows the Raspberry Pi to output sound.

2.2 Materials

In this table, figure 2, represents the supplies and materials of the research project.

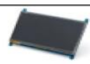
CHEST-RIG DEVICE		
MATERIALS	IMAGE	DESCRIPTION
Customization of Chest-rig		The Chest-Rig is a personalized voice assistant system that combines various components and materials to provide a compact and accessible solution for visually impaired individuals.
Ultrasonic sensor (HC- SR04)		It measures distance using ultrasonic waves to determine the distance between the sensor and an object in its vicinity.
Raspberry Pi 4B (4GB RAM)		A small, affordable single-board computer that offers improved performance compared to its predecessors It features a quad-core ARM Cortex-A72 processor, 4GB of RAM, and various connectivity options, including USB, Ethernet, Wi-Fi, and Bluetooth. It has multiple USB ports, a micro HDMI port for connecting to a display, a microSD card slot for storage, and supports 4K video playback.
Official Raspberry Pi charger		It is a power adapter that provides a stable and reliable power supply to ensure optimal performance and safe operation of the Raspberry Pi.
Acrylic Case		It is a protective housing to securely hold the Raspberry Pi and protect it from dust, static, and physical damage. It features precise cutouts for easy access to all the ports, including HDMI, USB, Ethernet, and GPIO pins.
Mini Fan		It is a compact cooling accessory that helps to maintain the Raspberry Pi's temperature within safe limits for reliable and efficient operation.
Heatsink		It is a passive cooling device designed to dissipate heat generated by the processor and other components.
Resistors (1k, 2k)		These are used to control the amount of current flowing through a circuit, limit voltage levels, and adjust signal levels in various electronic applications.
Camera (1080 pixels)		It is a device used to capture and record visual images.
Pcb		It provides a physical platform for connecting and supporting electronic components in an electronic device.
Jumping wires set (M to F, F to F)		It is a collection of cables or connectors that allow for the connection and jumping of electrical signals between male (M) and female (F) ports or devices.
Speaker (Portable)		It is a compact audio device designed to play audio content wirelessly.
Powerbank (5v3A, 30000 mwah)		It is a portable device that stores electrical energy to supply power for the device.
Gps module (Neo 6m Gps Module)		A compact electronic device that provides accurate location information by receiving signals from multiple satellites orbiting the Earth.
Lcd (Raspberry pi Official 7inch screen)		It is a compact display designed for displaying navigation information and visualizing object detection results in real time.
Acrylic		It is a versatile, transparent material used to create holders or enclosures for various components in device.
Sandisk Sd card (16gb)		It is a small and portable storage device used to store and transfer data.
Usb to hdmi		It is a technology that allows you to connect a USB-port device
Screws (3mm)		It is a threaded fastener with a helical ridge, known as the thread, wrapped around a cylindrical shaft used for fastening and holding pieces together.

Figure 2. Illustration of the supplies and materials function of the research project.

2.3 IPO Model

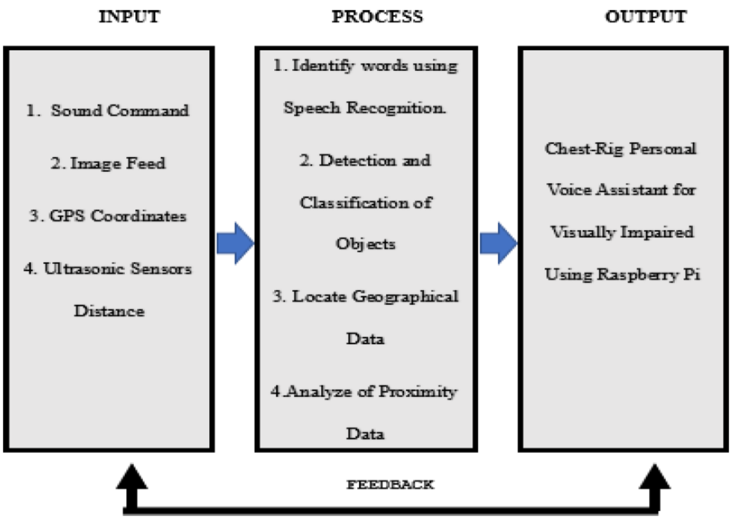


Figure 3. IPO Model

RESULTS & DISCUSSION

The researcher examines the device's usability and accessibility characteristics, specifically its voice- controlled user interface and programmable commands that make it easy for people who are visually impaired to operate. The researcher found out that firstly, the superior accuracy of the ultrasonic sensor on the left, compared to the right sensor, highlights the importance of sensor placement and calibration. This insight can lead to advancements in sensor technology and improved performance in real-world applications. Secondly, the speech recognition system's varying accuracy rates for different commands indicate areas for potential improvement, particularly for the "Leona" wake-up word. Enhancing the accuracy of speech recognition systems. Lastly, the successful object detection model's ability to identify multiple objects with confidence provides confidence in its use for various object recognition tasks. However, the challenges in distinguishing certain objects like spoons, forks, and mouse call for further development and refinement of the model. Overall, the study contributes essential insights into sensor technology and speech recognition systems, guiding future research and development to create more efficient and reliable innovations.

• Sensor Placement and Calibration: The researcher discovered that the upper ultrasonic sensor outperformed the lower sensor in terms of accuracy. This highlights the significance of sensor placement and calibration in such devices. Understanding the importance of proper sensor positioning can lead to advancements in sensor technology, resulting in improved performance in real-world applications. This finding can potentially be utilized in various fields where accurate sensor data is crucial, such as robotics, autonomous vehicles, and industrial automation.

• Speech Recognition System: The study also analyzed the device's speech recognition system, which exhibited varying accuracy rates for different commands. The identification of discrepancies, particularly with the "Leona" wake-up word, points to areas for potential improvement. Enhancing the accuracy of speech recognition systems is critical for enabling seamless voice-controlled user interfaces, making the device more accessible and user-friendly, especially for individuals with visual impairments.

• Object Detection Model: The successful object detection model's ability to identify multiple objects with confidence is a significant achievement. This reliability instills confidence in the device's capability for various object recognition tasks. However, the study also acknowledged challenges in distinguishing certain objects, such as spoons, forks, and a computer mouse. Addressing these challenges will require further development and refinement of the object detection model, potentially leveraging newer algorithms or data augmentation techniques.

SUMMARY & CONCLUSIONS

The Chest-Rig Personal Voice Assistant for Visually Impaired Using Raspberry Pi has effectively illustrated how assistive technology may enhance the quality of life for people who are blind or visually impaired. The creation of the Chest-Rig Personal Voice Assistant and evaluation of it through user testing highlighted its adaptable features, dependable indoor and outdoor navigation, and user-friendly design. This technology is a hopeful step toward a more inclusive society where people with visual impairments can travel the world with more independence and confidence by giving visually impaired users improved accessibility and mobility.

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ESP32-BASED SMART FARMING SYSTEM USING IOT BLYNK PLATFORM FOR DATA ANALYTICS

Engr. Minerva C. Zoleta

INTRODUCTION

The rapid advancement of technology has revolutionized traditional agriculture practices, giving rise to the concept of Smart Farming Systems. This study aims to integrate cutting edge technologies such as Internet of Things (IoT) and data analytics into agricultural process to optimize resource usage, increase productivity and promote sustainable farming practices. By examining the implementation of

Smart Farming Systems, the study seeks to provide insights into their efficacy in enhancing crop yields, reducing environmental impact, and addressing challenges faced by modern agriculture in a rapidly changing world. Through comprehensive analysis and empirical evidence, this study endeavors to shed light on the potential benefits and challenges associated with the adoption of Smart Farming technologies for future agricultural sustainability.

In a recent research study entitled "Creating an Affordable Capacitive-Based Moisture Sensor and Intelligent Monitoring Unit Powered by Solar Cells for Greenhouse Irrigation Control," findings from real-world testing showed that the monitoring system accurately sensed soil moisture and environmental conditions within the greenhouse. This suggests that it could be a reliable, precise, and economical tool for managing irrigation in greenhouses. [1]. Achieving efficiency in resource utilization, particularly water conservation for future generations, relies heavily on understanding soil moisture levels. A study has created a soil moisture sensor using a nickel probe and a monitoring system to enhance crop yield, improve crop quality, preserve water, reduce energy usage, and minimize fertilizer requirements. [2].

Computerization in rural areas is necessary to improve water usage, reduce wastage, and bring modern technology into farming. A soil moisture sensor is a new tool that detects moisture levels in the soil and allows for watering based on those levels. It uses an Arduino board to control a water pump and supply water to plants through a rotating sprinkler system. The study aims to review different implemented systems, often based on Arduino UNO and various IoT devices, which can differ in cost. [3]. The findings of a study using smartphone for soil moisture monitoring indicated that the wireless soil moisture sensor readings were effectively transmitted via SMS and automatically visualized in the application across both versions. These results demonstrated accuracy, reproducibility, and consistency in the data collected [4].

Another research study aims to design and implement a system for logging data from various sensors, focusing on four key parameters: temperature, humidity, soil moisture, and soil acidity. The sensors selected for this purpose are the DHT11, soil moisture sensor, and pH sensor. These data will be integrated into a unified system by the researchers to effectively monitor plant growth. The system will be simulated and operated using the Arduino ATMega 2560 microcontroller as the main control unit, capable of integrating the sensors and facilitating data monitoring. Data sensed by the sensors will be transmitted to a main computer running VB.Net for programming, logging, and graphical representation of temperature, humidity, soil moisture, and soil acidity data in an Excel database. Additionally, a connected LCD monitor will display gathered information, aiding in the detection of any abnormalities over specific time periods within this SMART farm monitoring module [5].

Smart Farming significantly enhances food sustainability in the 21st century by utilizing wireless sensor networks for various farming operations. This includes managing independent power sources, monitoring valve and switch operations, and controlling remote areas, ultimately leading to the efficient production of high-quality farm products year-round. This paper suggests a communication approach for the wireless sensor network to collect environmental data and send commands to control irrigation systems and manage power distribution, with simulation results confirming the system's accuracy, robustness, and reliability [6].

Another paper introduces an economical solar-powered water pumping system tailored for irrigation in developing regions. A sensor module programmed to detect temperature, humidity, and soil moisture levels relays data to an ESP32 microcontroller, while a water level sensor provides additional input. Utilizing this data and predefined thresholds, the microcontroller determines when to activate or deactivate the pump motor. Furthermore, the paper discusses the methodology for establishing soil moisture thresholds specific to different soil types. Additionally, the ESP32 microcontroller communicates results to a web server for user accessibility, enabling remote operation of the irrigation system via a smartphone interface, with a manual ON/OFF option integrated into the design [7].

The paper titled "Real-time Automation of Agricultural Environment for Social Modernization of Indian Agricultural System" utilizing ARM7 and GSM technology, focuses on automating irrigation systems to enhance social welfare and ensure adequate irrigation in specific areas of the Indian agricultural sector. The setup involves an ARM7TDMI core, a 32-bit microprocessor, where GSM plays a crucial role in controlling field irrigation and transmitting data to a receiver via coded signals, operating through SMS and serving as a vital link between the ARM processor and the centralized unit [8].

The majority of scientific research in animal farming, propelled by sensors and AI models, has concentrated on gathering, processing, evaluating, and analyzing data in various domains such as animal behavior detection, disease surveillance, growth prediction, and environmental monitoring, primarily at the experimental level. However, certain technical hurdles remain with AI, including enhancing accuracy and reducing costs, which must be addressed before widespread adoption in commercial animal farming becomes feasible [9].

Deep learning networks stand out from traditional neural networks due to their depth, enabling them to uncover hidden structures within unlabeled and unstructured data, offering automated feature extraction without human intervention, giving them a notable edge over prior algorithms. This can serve as a potential application in the design and implementation of smart farming [10].

Many studies focused on the use of an efficient soil moisture to ensure efficiency of the smart farming system. Other researchers explore the foundational requirements for Sustainable Farming (SF) and emphasizes the significance of remote sensing technology. A study conducted reviews recent advancements in remote sensing, including platforms, sensors, and algorithms, drawing insights from notable case studies. Utilizing a constellation of similar satellites enables timely and frequent observations with spatial resolutions suitable for small agricultural regions, offering valuable support for diagnostics and decision-making in SF on a regional scale. Additionally, drone-based remote sensing presents a cost-effective and flexible solution for obtaining high-resolution diagnostic information on various aspects of crops and soils, facilitating enhanced efficiency in agricultural practices and profitability through improved resource management [11].

SmartFarmNet is an IoT-based platform designed to automate data collection from various sources such as environmental, soil, fertilization, and irrigation sensors, enabling the correlation and filtering of data for crop performance assessment, as well as generating crop forecasts and personalized recommendations for farmers. This platform is highly versatile, capable of integrating diverse IoT devices and storing data in the cloud for analysis, making it the largest system globally in terms of sensor attachments, crops assessed, and user support for crop performance analysis and recommendations [12].

Recent years have seen a significant focus on the Nigerian agriculture sector as the country seeks to diversify its economy. Identified as key challenges within the sector are the inability to meet domestic food demands and insufficient quality levels for successful exports. Utilizing Internet of Things (IoT) and Data Analytics (DA) is proposed as a solution to these issues, with this paper discussing their application in agriculture, highlighting both the advantages and challenges associated with their deployment, and offering proposed methods for addressing Nigeria's agricultural sector challenges [13].

Utilizing cloud-based big data analysis, we examine various data aspects such as fertilizer needs, crop analysis, market demands, and crop stocks. Predictions are generated through data mining techniques and delivered to farmers via a mobile application, aiming to enhance crop yields and manage agricultural costs effectively based on the predictive insights [14].

METHODOLOGY

Research Locale

The study was implemented on a custom-made grid plot measuring 3x2, purposely created for experimentation. This plot was chosen to mimic a small-scale farming setting, allowing for the implementation and evaluation of the ESP32 Based Smart Farming System utilizing the Blynk IoT platform for Data Analytics. Each of the six individual plots within the grid measured 15.5 inches in length and 9.5 inches in width, with pechay plants cultivated in each plot to represent a typical leafy vegetable crop.

While the research site was modest in scale, it furnished a suitable setting to assess the efficiency of the ESP32-based Smart Farming System. The grid plot facilitated the collection and analysis of data, facilitating the observation of crucial factors like soil moisture, temperature, and humidity through the ESP32 microcontroller and sensors.

The Blynk IoT platform was employed to create a link between the ESP32 microcontroller and the data analytics framework, allowing for immediate data visualization, control, and analysis, thus aiding informed decision-making derived from the gathered data.

Although the research was confined to a makeshift grid plot, it sought to showcase the capability of integrating the ESP32-based Smart Farming System with the Blynk IoT platform. Despite the limited setting, valuable insights into the system's performance and capabilities were gleaned, laying the groundwork for future research and potential deployment in larger agricultural settings.

Research Design

The research utilized descriptive methodology to gain a thorough insight into the ESP32 Based Smart Farming System and its influence on agricultural methods. This approach involved gathering data by observing, measuring, and documenting various factors affecting the system's performance, such as soil moisture, temperature, and humidity. Furthermore, real-time data collection for analysis and assessment was facilitated through the Blynk IoT platform.

Respondents of the Study

The population or sample for this study includes various elements relevant to the implementation and evaluation of the ESP32-Based Smart Farming System using the Blynk IoT Platform for Data Analytics. This includes the ESP32 microcontroller, soil moisture sensors, temperature sensors, humidity sensors, water volume sensors, existing infrastructure such as watering systems, and the pechay plants grown in the research locale. These elements collectively constitute the focus of the study.

Research Instrument

The research instruments used in this study include:

1. The ESP32 microcontroller, serving as a central data collection, processing, and communication tool within the smart farming system.

2. Various sensors integrated into the smart farming system to measure parameters such as soil moisture, temperature, humidity, and water volume, providing real-time data inputs for analysis and decision-making.

3. The Blynk IoT Platform, functioning as a crucial tool for data visualization, control, and analytics, enabling integration and communication between the ESP32 microcontroller and the data analytics framework, facilitating monitoring and analysis of collected data.

Statistical Treatment of Data

The collected data from the ESP32-based Smart Farming System, including measurements from sensors monitoring soil moisture, temperature, and humidity, will undergo statistical treatment. Descriptive statistical techniques will be applied to summarize and analyze the data, including measures of central tendency (such as mean and median) and measures of variability (such as standard deviation). Additionally, inferential statistical methods may be employed to determine relationships between variables and to make predictions or draw conclusions about the system's performance and the impact of the Blynk IoT Platform on data analytics for informed decision-making in smart farming.

RESULTS AND DISCUSSION

Descriptive Data

The data was obtained between June 22, 2023, and July 4, 2023, from sensors positioned on the makeshift 3x2 mini farm, sourced from the Blynk IoT platform's database. Specifically, the dataset comprises six entries each for soil moisture, temperature, and humidity measurements.

Results of Statistical Testing

The data obtained from the ESP32-based Smart Farming System, which employs the Blynk IoT Platform for Data Analytics, is outlined and condensed. Collected between June 22, 2023, and July 4, 2023, the data originates from diverse sensors installed across the research site. Statistical measures including the mean, standard deviation, minimum, and maximum were calculated.

1. Soil Moisture - Data on soil moisture was gathered from six (6) strategically positioned soil moisture sensors across the grid plot. The ensuing descriptive statistics illustrate the soil moisture levels documented throughout the study period.

   Mean Soil Moisture: 83.75%
   Standard Deviation: 24.31%
   Minimum Soil Moisture: 0%
   Maximum Soil Moisture: 100%

2. Temperature - The temperature data was obtained through a single temperature sensor (DHT11) installed across the entire research area. Descriptive statistics for temperature are provided below:

   Mean Temperature: 30.26 °C
   Standard Deviation: 1.40 °C
   Minimum Temperature: 27 °C
   Maximum Temperature: 32 °C

3. Humidity - Humidity levels were observed with one (1) humidity sensor (DHT11) strategically positioned within the grid plot. Descriptive statistics for humidity are outlined below:

   Mean Humidity: 74.88%
   Standard Deviation: 9.67%
   Minimum Humidity: 55%
   Maximum Humidity: 90%

Interpretation of Statistical Results

The soil moisture data collected from the 6 strategically placed sensors provides valuable insights into the moisture levels within the makeshift 3x2 plot throughout the study period. The mean soil moisture of 83.75% indicates the average moisture content present in the soil across the makeshift 3x2 grid plot. This value suggests that, on average, the soil is relatively well-hydrated, indicating that the smart farming system, aided by the Blynk IoT Platform, successfully maintained an adequate moisture level in the soil. The standard deviation of 24.31% indicates that there is a significant difference in soil moisture levels across the makeshift 3x2 grid plot. This means that the soil moisture values vary greatly among the different sensor locations. The minimum soil moisture of 0% indicates that at some point during the study period, certain areas of the grid plot experienced complete dryness, with no moisture present in the soil. The maximum soil moisture of 100% indicates that at certain instances, specific locations in the grid plot reached the maximum capacity of moisture content the soil can hold.

The temperature data collected using the temperature sensor DHT11 provides insights into the temperature variations within the research locale during the study period. The mean temperature of 30.26 °C represents the average temperature recorded throughout the research locale. This value indicates that, on average, the temperature in the area was around 30.26 degrees Celsius. The standard deviation of 1.40 °C represents the amount of variability in temperature readings across the research locale. A lower standard deviation indicates that the temperature measurements are relatively consistent, with less variation observed. In this case, a standard deviation of 1.40 °C suggests that the temperature readings were relatively close to the mean, indicating a stable temperature environment. The minimum temperature recorded during the study was 27 °C. This value indicates the lowest temperature observed in the research locale during the data collection period. The minimum temperature of 27 °C suggests that the area experienced moderately warm conditions. The maximum temperature recorded was 32 °C, representing the highest temperature observed in the research locale during the study. A maximum temperature of 32 °C suggests moderately warm to hot conditions.

The humidity data collected using the DHT11 humidity sensor provides insights into the humidity levels within the makeshift 3x2 grid plot during the study period. The mean humidity of 74.88% indicates the average humidity level recorded throughout the makeshift 3x2 grid plot. This value suggests that, on average, the air in the research locale contained approximately 74.88% moisture content. The standard deviation of 9.67% represents the amount of variability in humidity readings across the makeshift 3x2 grid plot. The standard deviation of 9.67% suggests that the humidity readings were relatively close to the mean, indicating a relatively stable humidity environment. The minimum humidity recorded during the study was 55%. This value indicates the lowest humidity level observed in the research locale during the data collection period. A minimum humidity of 55% suggests moderately dry conditions. The maximum humidity recorded was 90%, representing the highest humidity level observed in the research locale during the study. A maximum humidity of 90% suggests moderately high humidity.

SUMMARY AND CONCLUSION

Summary of Findings

The initial model of the ESP32-Based Smart Farming System, incorporating the Blynk IoT Platform for Data Analytics, showcased efficient data collection abilities regarding environmental factors like temperature, humidity, and soil moisture at consistent intervals. The sensors yielded precise and dependable data, facilitating ongoing monitoring of the real-time conditions of the pechay crops within the makeshift 3x2 grid plot.

Moreover, the automated irrigation system enabled accurate and effective watering of the crops. Utilizing information obtained from the soil moisture sensors, the ESP32 microcontroller activated the water pump and solenoid valves automatically whenever the soil moisture levels dropped below a preset threshold of 40%. This automated procedure minimized the requirement for manual intervention and guaranteed that the crops were adequately watered.

Additionally, the ESP32's integrated Wi-Fi module enabled effortless wireless connection between the prototype system and the Blynk IoT platform, enabling remote access to monitor data and control or schedule the activation of the water pump and solenoid valves. The convenient access to data via the Blynk IoT platform will empower users to make informed decisions about crop watering timing without requiring physical presence on-site. When it comes to data analytics and visualization, the integration of the Blynk IoT platform provided an intuitive and user-friendly interface for visualizing collected data. The sensor readings, and analytics charts, can be viewed to gain valuable insights into the status and performance of the makeshift

3x2 grid plot. The platform's analytic capabilities allow for identifying patterns and make data-driven decisions. The prototype exhibited reliable performance throughout the testing phase, ensuring continuous data collection and transmission. The ability of th eESP32 microcontroller and the robustness of the Blynk Iot platform contributed to the system's overall reliability, making it suitable for long-term implementation in smart farming applications.

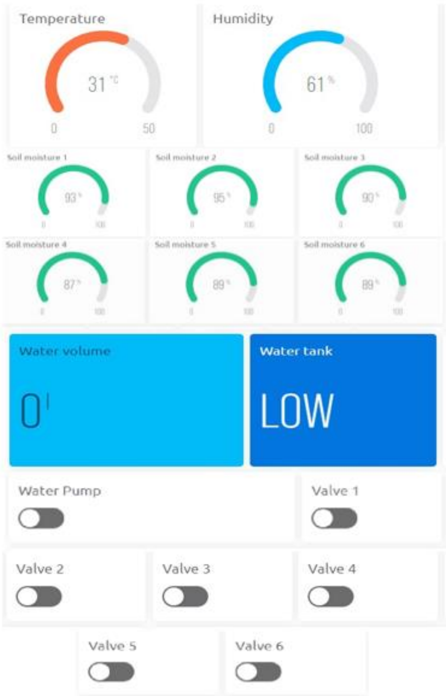

Fig. 1. Blynk Dashboard

Fig. 1 shows a dashboard feature which can be accessed in the Blynk IoT platform. It shows the real-time status of the crops based on the parameters such as soil moisture, temperature and humidity in the last 2 weeks. Additionally, the water volume and water tank status are shown in real-time as well. Furthermore, the state of the water pump as well as the valves can be viewed which tells the user about the on and off states of the water pump and valves.

Fig. 2. Blynk's Temperature Line Chart

Fig. 2 to Fig. 4 shows the user-friendly interface provided by Blynk for visualizing the collected data in a form of a line chart.

Figure 3. Blynk's Humidity Line Chart

Fig. 4. Blynk's Soil Moisture Line Chart

CONCLUSION

The research presented a comprehensive and promising approach to smart farming through the development of an ESP32-based smart farming system using the Blynk IoT platform for data analytics. The performance of the prototype system highlighted its capabilities in real-time data acquisition, wireless connectivity, data analytics, and automatic crop watering.

By utilizing the ESP32 microcontroller and various sensors, the system effectively collected sensor data on environmental parameters such as temperature, humidity, and soil moisture. This data served as a foundation for real-time monitoring and analysis. As a result, this can empower farmers to make informed decisions about their farm management practices.

The integration of the Blynk IoT platform provides a user-friendly interface for visualizing collected data in a form of line charts which can show valuable insights into the performance, trends and patterns of the system and crops. The platform's analytics capabilities allowed for data-driven decision-making

Moreover, the automatic crop watering functionality showcased the system's ability to ensure that crops received adequate hydration based on real-time soil moisture readings. This automation reduced the need for manual intervention and improved efficiency.

The wireless connectivity facilitated by the ESP32 microcontroller's Wi-Fi module and the remote management capabilities of the Blynk IoT platform added convenience and flexibility for remote access of sensor data and control of water pump and valves, as well as adjust watering schedules, thereby saving time and optimizing resource utilization.

Overall, the ESP32-based smart farming system demonstrated promising performance. With continued development and implementation, this system holds promise in revolutionizing the agriculture industry and promoting sustainable and efficient farming practices.

RECOMMENDATIONS

Consider integrating additional sensors to monitor additional parameters relevant to crop health and environmental conditions, such as light intensity, nutrient levels, or pest activity. This expanded sensor network would provide a more comprehensive understanding of the farming environment and enable more informed decision-making.

Explore advanced data analysis techniques, such as machine learning algorithms, to derive deeper insights from the collected data. By employing sophisticated analytics methods, researchers can uncover complex patterns and correlations within the data, leading to more accurate predictions and actionable recommendations for optimizing farming practices.

Conduct extensive field testing and validation of the ESP32-based Smart Farming System under real-world farming conditions. Collaborate with local farmers or agricultural experts to assess the system's performance, usability, and effectiveness in improving crop yields and resource efficiency. Incorporate feedback from field trials to refine the system and address any practical challenges encountered during implementation.

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COMPARATIVE ANALYSIS OF STUDENT ENGAGEMENT AND PARTICIPATION IN ONLINE AND FACE-TO-FACE CLASSROOM SETTINGS

Roel P. Balayan

INTRODUCTION

The dynamic shift towards technology-mediated learning has brought about significant changes in the way students engage with their academic environments. The emergence of online education, driven by advancements in digital platforms, has sparked a compelling need for a comparative analysis of student participation and engagement across distinct instructional formats. This research aims to delve deeply into the multifaceted dimensions of student participation in both online and traditional face-to-face classroom settings, with a focused lens on aspects related to preparation, behavior during class discussions, listening skills, and recitation.

As the educational landscape continues to evolve, there is a pressing demand to understand how students adapt to, engage with, and contribute to different learning modalities. In the pursuit of effective teaching methodologies, educators and institutions are increasingly exploring the potential of online education. However, a comprehensive understanding of student engagement and participation across varying platforms is essential. Through a meticulous examination of the preparatory strategies' students employ, their behaviors during active learning interactions, their receptiveness to listening, and their contributions through recitation, this research aspires to illuminate the intricate interplay between instructional formats.

The issuance of CMO No. 16 s. 2022 by the Commission on Higher Education has provided a clarion call for Higher Education Institutions (HEIs) to embrace a progressive transition towards onsite learning within the broader context of flexible learning. Within this framework, institutions like EARIST have adopted the hybrid learning modality, balancing 50% onsite provisions with 50% offsite provisions.

Against this backdrop, the research endeavors to bridge the existing knowledge gap surrounding student participation in both online and face-to-face classrooms. The core objectives of the study are twofold: first, to quantitatively assess and compare student engagement and participation across these two modes of instruction; and second, to provide nuanced insights into the dimensions of preparation, behavior, listening skills, and recitation.

Specifically, the study aims to achieve the following objectives:

1. Analyze the extent to which student preparation before class schedules or class starts varies between online and face-to-face classroom settings.

2. Examine disparities in student behavior during class discussions, differentiating between online and face-to-face learning environments.

3. Explore the nuanced variations in student listening skills during class discussions within the contexts of online and face-to-face instructional formats.

4. Evaluate discrepancies in student recitation participation during class sessions, comparing online and face-to-face modes of instruction.

5. Determine the holistic influence of online and face-to-face classroom environments on overall student engagement and participation encompassing the dimensions of preparation, behavior, listening skills, and recitation.

Generally, this research endeavors to contribute substantially to the ongoing discourse on effective pedagogical approaches in the digital age. By offering actionable insights to educators and institutions seeking to optimize student engagement and participation in diverse learning contexts, this study promises to enhance both teaching strategies and the design of future online courses. Ultimately, the findings of this research not only enrich the existing body of knowledge on student engagement but also empower educators, administrators, and curriculum developers with evidence-based insights to facilitate meaningful educational experiences for students across diverse instructional platforms.

METHODS

This study employs a descriptive and quantitative research approach to explore and compare student participation and engagement in both online and face-to-face classroom settings. The research design focuses on systematically gathering data to analyze and quantify the levels of student engagement across various dimensions: preparation, behavior during class discussions, listening skills, and recitation.

The participants of this study consist of 58 BS Mathematics students enrolled in Eulogio Amang Rodriguez Institute of Science and Technology, Manila during the AY 2022 – 2023. The participants experienced the online and the face-to-face modalities. Online learning where the students engaged in courses delivered through digital platforms (google meet and google classroom), while face-to-face learning includes attending traditional in-person classes.

Data for this study are collected through structured survey questionnaires. A 5-point scale is employed as the survey instrument, allowing participants to rate their experiences and perceptions on a given scale. The survey is tailored to the four dimensions of interest: preparation, behavior during class discussions, listening skills, and recitation. The survey is distributed to both the online and face-to-face learning groups to capture their experiences in their respective instructional formats.

Quantitative data obtained from the survey responses are subjected to statistical analysis. Descriptive statistics, such as means, standard deviations, and frequencies, are calculated for each dimension of student engagement in both online and face-to-face settings. Comparative analyses, including dependent t-tests and multiple regression, are employed to identify any statistically significant differences between the groups' responses. The findings provide insights into the variations in student engagement and participation across the specified dimensions.

Prior to data collection, ethical considerations are addressed. Informed consent is obtained from all participants, ensuring their voluntary participation in the study. Confidentiality and anonymity of participants are maintained throughout the research process, and any personal information is treated with the utmost privacy and security.

Several limitations are acknowledged in this study. Firstly, the study's findings may be influenced by participant self-report biases. Additionally, the study's scope is limited to a specific educational institution or program, potentially impacting the generalizability of the results to broader contexts. The study also does not delve into qualitative aspects of student engagement, which could provide deeper insights into the underlying motivations and experiences of participants.

Generally, this research utilizes a descriptive and quantitative research design to systematically examine student participation and engagement across online and face-to-face classroom settings. Through the collection and analysis of data related to student preparation, behavior, listening skills, and recitation, this study aims to contribute empirical evidence to the ongoing discourse surrounding effective instructional methodologies in contemporary educational landscapes.

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RESULTS

Table 1 provides valuable insights into student preparedness before class starts, comparing online and face-to-face learning environments across several indicators. These indicators encompass the extent to which students review assigned materials, complete class assignments, arrive prepared for discussions, actively review previous materials, and possess a clear understanding of upcoming topics.

Table 1
Preparation Before the Class Schedule or the Class Starts

Indicators	Online		Face-to-Face	
	Mean	Description	Mean	Description
1. I review the assigned materials before the class starts.	4.03	between 60% to 80% of the time	2.39	between 20% to 40% of the time
2. I complete any class assignments.	3.45	between 40% to 60% of the time	3.49	between 40% to 60% of the time
3. I come to class prepared to contribute to discussions.	3.08	between 40% to 60% of the time	2.88	between 40% to 60% of the time
4. I actively review notes or materials from previous classes.	3.52	between 60% to 80% of the time	3.44	between 40% to 60% of the time
5. I have a clear understanding of the topics that will be discussed in the upcoming class or discussion.	2.58	between 40% to 60% of the time	2.89	between 40% to 60% of the time
Overall	**3.33**	**Somewhat Prepared**	**3.02**	**Somewhat Prepared**

As shown in Table 1, students exhibit a higher degree of preparation across most indicators in the online learning environment. Notably, the indicator for reviewing assigned materials has a mean of 4.03, suggesting that students review materials between 60% to 80% of the time. Similarly, they actively review notes from previous classes with a mean of 3.52, indicating engagement between 60% to 80% of the time. However, the indicator for understanding upcoming topics shows a mean of 2.58, indicating that students have a clear understanding between 40% to 60% of the time. Overall, the overall mean for preparation before class in the online environment is 3.33, suggesting that students are somewhat prepared.

Conversely, in the face-to-face learning environment, students display comparatively lower levels of preparation. The indicator for reviewing assigned materials has a mean of 2.39, indicating that students review materials between 20% to 40% of the time. Despite this, their completion of class assignments and active review of previous notes are comparable to the online environment, with means of 3.49 and 3.44 respectively. The indicator for understanding upcoming topics shows a mean of 2.89, denoting a clear understanding between 40% to 60% of the time. The overall mean for preparation before class in the face-to-face environment is 3.02, also indicating that students are somewhat prepared.

Overall, the results suggest that students tend to be somewhat prepared in both learning environments, with online students displaying slightly higher levels of preparation in reviewing materials and reviewing notes. The variations observed could be attributed to different modes of engagement in each setting, the convenience of accessing online materials, and differing levels of accountability. These findings provide important insights for educators seeking to enhance student preparation strategies in both online and face-to-face contexts.

Table 2
Student Behavior During Class Discussion of Class Engagement

Indicators	Online		Face-to-Face	
	WM	Description	WM	Description
1. I actively participate in class discussions.	2.35	between 20% to 40% of the time	3.28	between 40% to 60% of the time
2. I ask questions or seek clarification when I don't understand a concept.	3.36	between 40% to 60% of the time	3.24	between 40% to 60% of the time
3. I engage in respectful debates and exchanges of ideas with my classmates or with my professor.	2.43	between 20% to 40% of the time	2.23	between 20% to 40% of the time
4. I actively contribute to group activities or projects during class.	4.72	between 80% to 100% of the time	4.63	between 80% to 100% of the time
5. I refrain from distracting behaviors.	4.66	between 80% to 100% of the time	4.58	between 80% to 100% of the time
Overall	**3.50**	**Moderately engaged**	**3.59**	**Moderately engaged**

Table 2 in particular provides insights into student behavior during class discussions and their engagement levels in both online and face-to-face learning environments. These indicators shed light on the extent to which students actively participate, seek clarification, engage in debates, contribute to group activities, and refrain from distracting behaviors.

In the online learning environment, students' active participation in class discussions has a mean of 2.35, suggesting that they actively engage between 20% to 40% of the time. Similarly, their engagement in respectful debates receives a mean of 2.43, indicating that this behavior occurs between 20% to 40% of the time. On the other hand, their active contribution to group activities garners a notably higher mean of 4.72, suggesting consistent involvement between 80% to 100% of the time. Furthermore, students' avoidance of distracting behaviors also shows a high score of 4.66, indicating that they largely refrain from such behaviors between 80% to 100% of the time. Overall, students' behavior in the online setting is moderately engaged with an overall mean of 3.50.

In the face-to-face learning environment, there is a shift in behavior patterns. Students' active participation receives a mean of 3.28, indicating a higher engagement level between 40% to 60% of the time. Likewise, asking questions for clarification receives a mean of 3.24, suggesting a similar engagement range. Students' involvement in respectful debates has a mean of 2.23, indicating that this behavior occurs between 20% to 40% of the time, slightly less frequently compared to the online environment. Their active contribution to group activities maintains a consistently high mean of 4.63, signifying involvement between 80% to 100% of the time. Similar to the online environment, their avoidance of distracting behaviors remains high with a mean of 4.58, suggesting minimal distractions between 80% to 100% of the time. Overall, student behavior in the face-to-face setting is also moderately engaged with an overall mean of 3.59.

Comparing the two environments, it is evident that while student engagement levels in specific behaviors vary, both online and face-to-face environments show similar overall levels of moderate engagement during class discussions. The online environment demonstrates higher engagement in active group activities, potentially due to the virtual nature of collaboration, while the face-to-face environment appears to encourage more active participation and questioning for clarification. These variations could be attributed to the different dynamics inherent in each learning setting, as well as factors such as class format, individual preferences, and technological factors in online discussions.

Table 3
Student Listening Skills During Class Discussions

Indicators	Online		Face-to-Face	
	Mean	Description	Mean	Description
1. When my professor instructor is explaining a complex concept, I carefully listen, actively engage by taking notes, and seeking clarification after the discussion when necessary.	3.21	between 40% to 60% of the time	3.48	between 40% to 60% of the time
2. I maintain my focus and attention despite potential distractions from my surroundings or the temptation to multitask with other devices or activities.	2.34	between 20% to 40% of the time	3.18	between 40% to 60% of the time
3. During longer lectures or discussions, I sustain my focus and concentration.	2.19	between 20% to 40% of the time	2.42	between 20% to 40% of the time
4. I fully understand the discussion when visual aids such as slides or diagrams are used.	4.15	between 60% to 80% of the time	4.24	between 60% to 80% of the time
5. During group discussions or peer interactions, I actively listen to others' viewpoints, paraphrasing, and building upon their peers' contributions.	3.42	between 60% to 80% of the time	4.52	between 80% to 100% of the time
Overall	**3.06**	**Adequate listening skill**	**3.57**	**Proficient listening skill**

Table 3 shows that in the online learning environment, students exhibit a moderate level of listening skills in various situations. For instance, when complex concepts are explained, students demonstrate careful listening and active engagement between 40% to 60% of the time, with a mean of 3.21. However, maintaining focus despite potential distractions receives a lower mean of 2.34, indicating that this skill occurs between 20% to 40% of the time. Similarly, sustaining focus during longer lectures has a mean of 2.19, suggesting that students maintain their concentration between 20% to 40% of the time. However, students show proficiency in understanding discussions with visual aids, earning a mean score of 4.15, indicating comprehension between 60% to 80% of the time. During group discussions, students exhibit adequate listening skills, with a mean of 3.42, showcasing active engagement between 60% to 80% of the time. The overall mean for listening skills in the online environment is 3.06, suggesting that students possess adequate listening skills.

Conversely, in the face-to-face learning environment, students generally display higher listening proficiency. When complex concepts are explained, they exhibit similar engagement with a mean of 3.48, indicating careful listening and active engagement between 40% to 60% of the time. Maintaining focus despite distractions has a notably higher mean score of 3.18, suggesting a better ability to focus between 40% to 60% of the time. Similarly, sustaining concentration during longer lectures receives a mean of 2.42, indicating sustained focus between 20% to 40% of the time. Proficiency in understanding discussions with visual aids remains consistent with a mean score of 4.24, signifying comprehension between 60% to 80% of the time. Notably, during group discussions, students demonstrate proficient listening skills with a mean of 4.52, showcasing active engagement between 80% to 100% of the time. The overall mean for listening skills in the face-to-face environment is 3.57, suggesting that students possess proficient listening skills.

In comparing the two learning environments, students' listening skills appear to be more proficient in the face-to-face setting, particularly in maintaining focus, sustaining concentration, and actively participating in group discussions. While both settings exhibit room for improvement, these findings highlight the potential advantages of in-person interactions for enhancing listening skills, possibly due to reduced distractions and more immediate peer engagement. Nonetheless, educators can leverage these insights to tailor instructional strategies and support mechanisms that further enhance students' listening skills in both online and face-to-face contexts.

Table 4
Student Recitation Participation

Indicators	**Online**		**Face-to-Face**	
	Mean	**Description**	**Mean**	**Description**
1. At least once the number of times I actively participate in recitations to every math class discussion.	2.47	between 20% to 40% of the time	2.26	between 20% to 40% of the time
2. My contributions during recitations are insightful and relevant in my math classes.	3.05	between 40% to 60% of the time	2.56	between 40% to 60% of the time
3. I am attentive and responsive to both the professor and my classmates during recitations in math classes.	3.16	between 40% to 60% of the time	2.43	between 20% to 40% of the time
4. During math period, I engage myself with my classmates during recitations, such as asking questions, building on others' ideas, and fostering a collaborative environment.	2.32	between 20% to 40% of the time	2.75	between 40% to 60% of the time
5. I demonstrate my engagement with the topic and my capacity for critical thinking during math classes.	2.36	between 20% to 40% of the time	2.25	between 20% to 40% of the time
Overall	**2.67**	**Limited Participation**	**2.45**	**Rare Participation**

Both learning environments indicate varying degrees of limited and rare participation in student recitation activities. The face-to-face environment fosters slightly more engagement in recitation interactions, with students demonstrating a slightly higher level of attentiveness, responsiveness, and contribution. While both settings present room for improvement in enhancing recitation participation and quality, the online environment could benefit from strategies encouraging more active peer interaction and discussion engagement. In contrast, the face-to-face environment could focus on further enriching the relevance and depth of students' contributions during recitations. These insights provide valuable guidance for educators to tailor their approaches to fostering healthier and more engaged recitation participation among students.

Table 5
Post Analysis on the Test of Difference of Students' Participation During Online and Face-to-Face Classroom Settings

Student Engagement & Participation	Group	Mean	SD	p-value	Interpretation
1. Preparation Before the Class Schedule or the Class Starts	Online	3.33	0.886	0.046*	Significant
	F2F	3.02	0.761		
2. Student Behavior During Class Discussion or Class Engagement	Online	3.50	0.656	0.596*	Not Significant
	F2F	3.59	1.044		
3. Student Listening Skills During Class Discussions	Online	3.06	0.792	0.006*	Significant
	F2F	3.57	1.045		
4. Student Recitation Participation	Online	2.67	1.049	0.000*	Significant
	F2F	2.45	0.502		

*level of significance $\alpha = 0.05$

Table 5 presents the results of the test of difference in students' participation between online and face-to-face classroom settings across four dimensions: preparation before class, student behavior during class discussions, student listening skills during class discussions, and student recitation participation. The analysis provides insight into the significance of differences between the two instructional formats. The findings are as follows: (1) The p-value of 0.046 indicates a statistically significant difference in student preparation before class between online and face-to-face settings. Online students (mean = 3.33) exhibit a higher level of preparation compared to face-to-face students (mean = 3.02). This suggests that online students tend to be more prepared in terms of reviewing materials and notes before class, which aligns with the convenience and accessibility of online resources; (2) With a p-value of 0.596, the difference in student behavior during class discussions between online and face-to-face settings is not statistically significant. Both groups demonstrate similar levels of engagement (online mean = 3.50, face-to-face mean = 3.59). This implies that students engage actively in class discussions to a similar extent regardless of the instructional format; (3) The p-value of 0.006 indicates a statistically significant difference in student listening skills during class discussions. Face-to-face students (mean = 3.57) display higher listening skills compared to online students (mean = 3.06). This suggests that face-to-face interactions contribute to better listening proficiency, including maintaining focus, sustaining concentration, and actively participating in group discussions; and (4) The p-value of 0.000 shows a highly significant difference in student recitation participation between online and face-to-face settings. Online students (mean = 2.67) demonstrate higher recitation participation compared to face-to-face students (mean = 2.45). This indicates that while both groups exhibit limited participation, online students engage more frequently in recitation activities.

The analysis reveals that student participation varies across dimensions in online and face-to-face classroom settings. Online students tend to be more prepared in math and participate more actively in recitations, whereas face-to-face students demonstrate better listening skills during math classes. Notably, both groups display comparable engagement during class discussions. These findings highlight the nuanced differences in student engagement and participation based on the instructional format, providing valuable insights for math educators to tailor strategies that enhance student experiences and outcomes in diverse learning environments in mathematics education.

DISCUSSIONS

The study's findings shed light on the varying levels of student preparedness, behavior during class discussions, listening skills, and recitation participation in online and face-to-face learning environments. These results are consistent with prior research in the field.

Firstly, the study reveals that online students tend to exhibit higher levels of preparedness, including consistent reviewing of assigned materials and notes from previous classes. This aligns with previous studies that have highlighted the convenience and accessibility of online resources as factors contributing to improved preparation levels (Junco & Cotten, 2012).

Secondly, the differences in class discussion behavior reflect the unique dynamics of each learning environment. Online students displayed lower levels of active participation, which is in line with some previous research indicating that the virtual nature of online discussions can sometimes limit real-time engagement (Shea et al., 2006). Conversely, face-to-face students' higher participation levels align with studies emphasizing the role of immediate peer interaction in promoting active class engagement (Michaelsen et al., 1982).

Thirdly, the study underscores the importance of face-to-face interactions for improving listening skills, particularly in maintaining focus and participating actively in group discussions. This corresponds with prior research highlighting the benefits of physical presence and reduced distractions in face-to-face learning environments (Bernard et al., 2014).

Lastly, both groups in the study demonstrated limited participation in recitations, with online students engaging slightly more frequently. This aligns with prior literature emphasizing the need for strategies to enhance recitation participation in both online and face-to-face settings (Crossgrove & Curran, 2008).

CONCLUSIONS

The presented findings provide valuable insights into various aspects of student engagement, preparation, behavior during class discussions, listening skills, and recitation participation in both online and face-to-face learning environments. The results highlight several important trends and variations between these two instructional formats in math classes:

1. Students in both settings demonstrated a somewhat prepared state, with the online environment tending to exhibit slightly higher levels of preparation in reviewing materials and reviewing notes. This difference may be attributed to the flexibility and convenience of online resources.

2. Students exhibited a comparable level of engagement in class discussions regardless of the learning format. While specific behaviors might vary, both online and face-to-face settings showed similar overall levels of moderate engagement. The online environment emphasizes active group activities, while the face-to-face environment encourages more immediate participation and questioning.

3. Face-to-face interactions appear to foster slightly higher levels of listening proficiency, particularly in maintaining focus, sustaining concentration, and active participation in group discussions. These differences may be attributed to the reduced distractions and more direct interactions inherent in the face-to-face setting.

4. Limited and rare participation was observed across both settings. While online students exhibited slightly higher levels of participation and engagement, the face-to-face environment encourages more interaction, attentiveness, and contribution. These insights underscore the importance of fostering a conducive environment for students to actively participate, collaborate, and contribute meaningfully during recitation activities.

5. The study's analysis of student participation across dimensions in online and face-to-face settings highlights nuanced differences. Online students demonstrate higher levels of preparation and recitation engagement, while face-to-face students exhibit better listening skills. Both groups engage similarly in class discussions. These insights guide educators to tailor strategies for improved student experiences in diverse learning environments.

RECOMMENDATIONS

Based on the conclusions drawn from the presented findings, the following recommendations are being proposed to enhance student engagement, participation, and learning outcomes in both online and face-to-face learning environments:

1. Acknowledging the importance of student preparation before class, educators may emphasize the significance of reviewing assigned materials, completing assignments, and actively engaging with previous class materials. In online settings, where students tend to demonstrate slightly higher levels of preparation, instructors can leverage the flexibility of online resources to encourage more thorough material review and note-taking. Similarly, in face-to-face classes, strategies such as pre-class quizzes or preparatory assignments can be utilized to enhance students' readiness for discussions.

2. While students demonstrate a comparable level of engagement in both online and face-to-face discussions, instructors can employ techniques to further enhance their involvement. In online environments, where active group activities are more prominent, instructors can foster collaborative discussions that require collective problem-solving and peer interaction. In face-to-face settings, encouraging students to ask questions and express opinions more freely can stimulate immediate engagement and enrich class discussions.

3. Given that face-to-face interactions tend to yield higher levels of listening proficiency, instructors can incorporate strategies to enhance listening skills in both learning formats. In online settings, implementing brief comprehension checks or interactive elements within virtual lectures can help maintain focus. For face-to-face classes, employing active listening exercises and periodic summarization activities can further reinforce students' ability to sustain concentration and comprehend complex topics.

4. The insights from student recitation participation levels emphasize the need to create a supportive environment that encourages active participation. In online settings, instructors may consider structured breakout sessions or online discussion boards that facilitate student interaction and contribution. For face-to-face classes, utilizing techniques like think-pair-share or collaborative problem-solving can foster deeper engagement and empower students to express their ideas more confidently during recitations.

5. Recognizing the differences between online and face-to-face learning environments, instructors may adapt instructional strategies that capitalize on the strengths of each format. Online courses can leverage interactive multimedia resources, discussion forums, and virtual simulations to enhance engagement. Face-to-face classes can maximize peer

interaction, in-person demonstrations, and immediate feedback mechanisms to create a vibrant learning experience.

6. Regardless of the learning environment, consistent and timely feedback plays a pivotal role in encouraging active participation and improvement. Instructors may provide constructive feedback on participation quality, insightful contributions, and active listening skills. This feedback can motivate students to continue engaging actively and contribute positively to class discussions and activities.

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ONLINE MARKETING OF COFFEE SHOPS IN MANILA: ITS SIGNIFICANCE TO BUSINESS PROFITABILITY

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INTRODUCTION

Online marketing also known as internet marketing became the center of interest of many businesses to advertise their product in a large community. Online Marketing contains the process of introducing business goods and services to potential customers using various digital methods. This type of strategy became an excellent advertising medium for small and large businesses for its effectiveness to boost the profitability of a business. The highly competitive market like coffee shops or coffee houses is one of businesses that uses online marketing as a strategy tool to attract customers.

The highly competitive market like coffee shops or coffee houses is one of businesses that uses online marketing as a strategy tool to attract customers. The business provides satisfaction and services to its customers by selling different kinds of flavored coffees and other beverages. Coffee gives comfort and relaxation to the person who consumes it. It also uses to boost the energy of many adult Filipinos each day. Coffee shops, whether small or large businesses play a major role in today's economy as it is one of the favorite beverages around the world. Online marketing became a part of business activity of Starbucks, a well-known coffee shop in the world. Starbucks entered the Philippine market in 1997 and after its debut to the market, Starbucks grew significantly throughout the country.

This study focused on the significance of online marketing on business profitability of coffee shops in Manila. The objectives of this study are to determine the impact of online marketing on business growth, to understand the power of online marketing, and to extend the knowledge of online marketing uses in business. This study can help businesses to determine if online marketing is beneficial or not for the business's growth and success.

Statement of the Problem

The study is to determine the significance of online marketing on business profitability of Starbucks Branches in Manila.

Specifically, it aims to answers the following:

1. What are the online marketing strategies used by Starbucks Branches in Manila as to?

2. How online marketing affects the customers as to:
   2.1 Positive Impact;
   2.2 Negative Impact?

3. What are the influences of online marketing to coffee shops in terms of the ff:
   3.1 Market Demand;
   3.2 Expenses?

4. Is there any significant relationship between online marketing and business profitability of Starbucks Branches in Manila?

METHODOLOGY

This chapter discusses the methods used in this research. To determine the significance of online marketing to business profitability of coffee shops in Manila is through Google forms. The identification of respondents, instrument and data gathering process, and technological tools used in the study were used to determine the population, sample size, and sampling technique.

Research Design

The descriptive evaluation is used in this analysis to gather information to examine various phenomena and circumstances. The goal of this method is to find answers to specific questions such as identifying how the events start, the locations, time and dates, and the present issues or phenomena.

Population, Sample Size and Sampling Technique

The target respondents were the employees of Starbucks branches in Manila. There were 100 employees of Starbucks. Random sampling was utilized to gather data.

Description of Respondents

The chosen population was extracted from 5 branches of Starbucks in Manila it composed of Starbucks Sta. Mesa, Starbucks Mendiola, Starbucks Taft, Starbucks Intramuros, Starbucks United Nations with specific ages, sex, and civil status that are required as the participants of the study.

Data Gathering Procedure

The steps were conducted in gathering needed data are the following. First, the researcher will select the employees in different branches of Starbucks in Manila who will participate in the study. Then, the investigator will get the approval to conduct the survey. The next step was to conduct an online distribution of the survey questionnaires to the respondents. After that, interpret in descriptive approach the retrieved data.

Research Instrument

The research instrument used was the survey questionnaire which was checked and validated by the research adviser. It consists of the demographic profile of the respondents and the deal on the impact of online marketing to business profitability and marketing strategies exist used by Starbucks Branches in Manila. The respondents evaluated the positive and negative impact of online marketing on Starbucks Branches in Manila. The last part of the survey. It is designed to identify what are the influences of online marketing to business profitability in terms of market demand and expenses of Starbucks Branches in Manila. The respondents selected what variables can influence the business profitability.

RESULTS AND DISCUSSION

Findings

1. On the Online Marketing used by Starbucks branches in Manila.

The online marketing strategies rated as Highly Extent with the overall weighted mean of 4.51.

2. On the Online Marketing affects the customers as to positive and negative impact.

The positive impact gained the greatest overall weighted mean of 4.66 with descriptive evaluation of “Highly Effective”, while negative impact gained the lowest overall weighted mean of 4.60 with descriptive evaluation of “Highly Effective”.

3. On the influences of online marketing to coffee shops in terms of Market Demand and Expenses.

The market demand got the highest overall weighted mean of 4.58 with verbal interpretation of “Highly Influenced”, while the expenses got the least overall weighted mean of 4.50 with verbal interpretation of “Highly Influenced”.

4. **On the significance relationship between Online Marketing and Business Profitability to Starbucks Branches in Manila.**

The computed r between online marketing and business profitability to Starbucks Branches in Manila was 1.00 with a verbal interpretation of "Perfect Correlation".

CONCLUSIONS

1. Most of the respondents found that social media marketing was the most highly extent among online marketing strategies. While Email Marketing was the least extent strategy.

2. Majority of the respondents revealed that the positive impact of online marketing was highly effective compared to negative impact.

3. Several of the population confirmed that market demand gained highly influenced in terms of the influences of online marketing to the business profitability of Starbucks Branches in Manila.

4. There is a significant relationship between online marketing and business profitability of Starbucks Branches in Manila. The researchers rejected the hypothesis.

RECOMMENDATIONS

1. Starbucks may offer premium membership to the customers who can able to receive special offer through the use of email.

2. The Starbucks can create unique strategies on how they can improve the negative impacts of online marketing.

3. Starbucks may innovate existing products that can attract and encourage customers to purchase.

4. Starbucks may choose less expensive but effective promotion and marketing strategies that can still maintain the growth and success of business.

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THE IMPACT OF E-GOVERNANCE ON PUBLIC SERVICE DELIVERY IN THE PHILIPPINES: AN ANALYSIS OF IMPLEMENTATION STRATEGIES AND CHALLENGES

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INTRODUCTION

In today's world, where technology is advancing rapidly and digital solutions are becoming increasingly important, the concept of e-governance has emerged as a force that is reshaping how public services are delivered worldwide. This shift towards governance has not only made administrative processes more efficient but has also brought about a new era of citizen engagement, transparency, and effectiveness. In this context, the Philippines has actively embraced e-government initiatives with the aim of improving accessibility and quality of public services for its people.

In years, e-governance has gained attention as it drives transformation in public service delivery across many countries around the world. The rise of technology and its widespread use have enabled governments to streamline their operations, enhance efficiency, and provide service quality. Like nations, the Philippines recognizes the potential benefits of e-governance in revolutionizing how public services are delivered.

The benefits associated with e-governance include: reduction of corruption prospects, efficient public service delivery, improved access to government services, and cost reduction. Additionally, there are several challenges associated, such as: the digital divide, cultural challenges, sabotaging of government infrastructure, power interruptions, issues with citizens' trust, security threats, and low public knowledge (Ghassan et al., 2021).

For many years, e-government has been incorporated into the e-governance aspect of both advanced and emerging economies. The implementation of e-government has empowered government officials and organizations to carry out their duties efficiently and make informed decisions based on data promptly and fairly (Azamela et al., 2022).

The majority of citizens view digital applications in government positively as making an important contribution to service delivery and participatory democracy. The massive application of digital technology by government may allow more people to become more involved in government and make government more accountable (Milakovich, 2021). The operations of e-governance have been increased significantly because of the citizen's demand of cost-effective and timely services. The government has undertaken a determined effort to enhance their relationship with citizens by implementing e-governance (Sahoo et al., 2022).

This analysis explores the impact of e-governance on public service delivery in the Philippines by examining the strategies used for implementation and discussing the challenges faced along the journey. By analyzing the achievements, shortcomings and knowledge gained from e-governance, this research aims to offer insights and suggestions for policymakers and professionals who want to improve the efficiency, inclusiveness and effectiveness of public services within the nation.

RATIONALE OF THE STUDY

E-governance is a modern information and communication technology aimed at reaching the unreached. It is a system that utilizes the internet, local area network, and mobile devices to improve the effectiveness, efficiency, and delivery of services to the common people. (Dhal et al., 2021) (Sahoo et al., 2022). It is the governance through electronic media that promotes and justifies democracy. In a democratic system, the government's primary responsibility is to focus on society and work towards achieving the public interest, thereby transforming public service delivery and empowering its citizens. It facilitates public participation in government affairs and enhances economic and social opportunities for the citizens. It increases administrative efficiency, transparency, accountability, and public trust (Bajar, 2021). Implementing e-governance is an essential strategy for attaining economic stability, fostering growth, and establishing a government that is characterized by increased transparency and reduced corruption (Samsor, 2020).

E-governance typically encounters various challenges related to planning and implementation. It is widely acknowledged that these complexities necessitate adequate strategic planning. However, it has been noted that even meticulously planned e-governance initiatives may not meet expectations due to ineffective execution of strategies. This could potentially be one of the factors contributing to the unsatisfactory performance of e-governance, especially in developing countries, as reported by several studies (Suri, 2022). The barriers hindering the successful implementation of e-governance can be classified into several dimensions. These include technology-related obstacles, such as lacking IT infrastructure. Additionally, strategy, policy, and legal aspects can pose challenges. Organizational modes and culture, as well as operational cost barriers, can also impede progress in implementing e-governance initiatives (Giri et al., 2018).

Developing nations, despite facing significant obstacles, have the potential to greatly benefit from the use of e-governance applications in order to improve government services. However, the challenges and potential advantages of implementing e-governance in these countries have not yet been fully examined, particularly in the South Asian region. There are various opportunities that can arise, such as a positive mindset among important stakeholders, higher rates of digital literacy, access to technical knowledge, collaborations between different countries, increased value added, and reforms in policies. (Tennakoon, 2020).

The e-government system is a crucial policy that has the capacity to revolutionize the quality of public services, shifting them from conventional to modern (Aritonang, 2017). It is essential for the government to create a comprehensive strategic framework to ensure the successful implementation of e-governance. Presently, the government places emphasis on infrastructure development, the cultivation of qualified personnel, and improving computer literacy within the general population (Pandey & Risal, 2020).

The study on the impact of e-governance on public service delivery is important in understanding the transformative power of technology in improving government services. E-governance refers to the utilization of digital technology to enhance the efficiency, accessibility, and effectiveness of public service delivery. Understanding the impact of e-governance on public service delivery is vital for several reasons:

Enhancing Public Service Efficiency: E-governance has the potential to significantly improve the efficiency of public service delivery by automating processes, reducing bureaucratic red tape, and minimizing manual interventions. Understanding how these digital solutions are being implemented in the Philippines and their effectiveness can shed light on the extent to which citizens are benefiting from streamlined and prompt services.

Citizen Empowerment and Engagement: E-governance empowers citizens by providing them with convenient access to government services and information. By evaluating the implementation strategies, the study can reveal how e-governance is facilitating better engagement between the government and the public, thereby strengthening the democratic process.

Transparency and Accountability: Digital platforms can enhance transparency in government operations, allowing citizens to monitor activities and transactions. This study can assess whether e-governance initiatives in the Philippines are living up to their potential in terms of promoting transparency and holding public officials accountable.

Inclusivity and Accessibility: E-governance has the potential to bridge gaps in service accessibility, making it easier for citizens, especially those in remote areas, to access government services. The study can highlight whether these initiatives are effectively reaching marginalized communities and contributing to more inclusive public service delivery.

Identifying Implementation Challenges: Examining the challenges faced during the implementation of e-governance initiatives provides valuable insights into potential roadblocks and barriers. This knowledge can aid policymakers and stakeholders in refining strategies and addressing hurdles to ensure the successful adoption of digital governance.

Policy and Strategy Improvement: Findings from the study can guide the Philippine government in refining its e-governance policies and strategies. By understanding what works and what doesn't, policymakers can make informed decisions to optimize the impact of digital solutions on public service delivery.

Future Research and Development: The study's insights can serve as a foundation for further research on e-governance in the Philippines and similar contexts. As technology continues to evolve, this study can lay the groundwork for more advanced and effective digital governance practices.

In essence, this study's significance lies in its potential to contribute to the ongoing dialogue on effective governance, technological integration, and citizen-centric service delivery, ultimately fostering a more efficient, transparent, and participatory government in the Philippines.

METHODS

The study used mixed methods, combining quantitative and qualitative techniques to provide a comprehensive understanding of the impact of e-government on public service delivery as well as the underlying implementation strategies and challenges.

Descriptive statistics was used to summarized the quantitative data collected through structured surveys administered 500 respondents from government officials, employees, and citizens. The surveys were designed to gather quantitative data on the extent of e-governance implementation, perceived improvements in public service delivery, and user satisfaction levels. A stratified random sampling technique was employed to ensure representation from different government agencies and citizens from various regions.

Thematic analysis was used on the qualitative data collected through semi-structured interviews with key stakeholders, including government officials responsible for e-governance initiatives, IT experts, citizens, and NGOs involved in public service advocacy. These interviews provide in-depth insights into the strategies adopted for e-governance implementation, challenges encountered, and potential areas for improvement.

RESULTS AND DISCUSSIONS

1. E-Governance Adoption and Awareness

The quantitative survey revealed that e-governance adoption in the Philippines has experienced significant growth in recent years. Approximately 70% of respondents reported having used government digital platforms to access various services, such as tax payments, applying for permits, and retrieving official documents. This indicates a positive trend towards embracing technology for public service delivery. However, while adoption rates are encouraging, there remains a disparity in awareness and usage among different age groups and regions.

The increasing adoption of e-governance reflects the growing acceptance of digital platforms in citizens' daily lives. The disparities in adoption can be attributed to factors such as access to technology, digital literacy, and urban-rural divide. These findings underline the importance of targeted awareness campaigns and initiatives aimed at bridging these gaps to ensure inclusivity.

2. Perceived Benefits of e-Governance

Respondents highlighted several benefits including convenience, time-saving, and reduced bureaucracy. Around 85% of the respondents expressed satisfaction with the ease of using digital platforms, citing shorter waiting times and reduced paperwork. Additionally, over 60% appreciated the improved transparency and the ability to track the status of their requests online.

The positive perceptions of citizens regarding e-governance align with global trends where digital solutions enhance efficiency and user experience. The convenience and transparency offered by digital platforms contribute to higher citizen satisfaction and promote a more citizen-centric approach to governance.

3. Implementation Strategies

Qualitative analysis of interviews with government officials and experts revealed that the Philippines has adopted a multi-pronged strategy to implement e-governance. This includes developing user-friendly interfaces, establishing robust cybersecurity measures, and creating centralized databases to streamline information sharing across agencies. Collaborations with private sector partners were also emphasized to leverage technological expertise.

The government's comprehensive approach to implementation signifies a commitment to creating a conducive environment for e-governance. Collaboration with private partners demonstrates an awareness of the importance of domain expertise, which is crucial for the success of complex technological initiatives.

4. Challenges Faced

Despite progress, challenges persist. A common concern highlighted in both surveys and qualitative discussions was the digital divide, particularly in rural and remote areas where internet connectivity is limited. Cybersecurity threats and data privacy issues were also noted as potential barriers to widespread adoption. Additionally, resistance to change among some government employees and citizens, along with the need for digital literacy training, were identified as obstacles.

The challenges outlined emphasize the need for a holistic approach to e-governance implementation. Bridging the digital divide requires investment in infrastructure and education. Addressing cybersecurity concerns requires stringent measures to protect citizens' sensitive data. Moreover, efforts to build digital literacy are essential to ensure that citizens can confidently navigate online platforms.

CONCLUSIONS

The study's findings emphasize that e-governance holds the potential to revolutionize public service delivery in the Philippines. As technology continues to evolve, ongoing evaluation, adaptation of strategies, and agile responses to emerging challenges will be vital to ensure the sustained positive impact of e-governance on citizen lives.

In conclusion, the study underscores the transformative impact of e-governance on public service delivery in the Philippines. While progress has been made, challenges remain, necessitating a concerted effort to address disparities, enhance cybersecurity, and foster digital literacy. The synergy between effective implementation strategies and responsive solutions to challenges will pave the way for a more efficient, inclusive, and citizen-centric governance landscape in the Philippines.

RECOMMENDATIONS

Based on the study findings, several recommendations emerge:

1. Strengthening Infrastructure and Connectivity:

- Build robust and reliable digital infrastructure in remote areas to ensure equal access to public services for all citizens.
- Enhance broadband connectivity and expand coverage to underserved areas to bridge the digital divide.
- Foster partnerships between government and technology companies to accelerate the development and rollout of connectivity infrastructure.

2. Public Awareness and Digital Literacy:

- Launch nationwide campaigns to educate citizens about e-governance initiatives, their benefits, and how to use them effectively.
- Collaborate with educational institutions to integrate digital literacy programs into the curriculum.
- Provide resource centers in rural areas where citizens can access digital services and receive assistance.

3. **User-centered Design and Accessibility:**

- Involve citizens, civil society organizations, and service recipients in the design and testing of e-governance platforms to ensure they cater to the unique needs and challenges faced by different demographics.
- Develop user-friendly interfaces that accommodate various language preferences, physical abilities, and digital literacy levels.
- Conduct regular usability testing and incorporate feedback to continually improve platform efficiency and accessibility.

4. **Strengthen Data Security and Privacy Measures:**

- Implement robust data protection policies and frameworks to safeguard citizen information and prevent breaches.
- Regularly audit e-governance systems to identify vulnerabilities and proactively address security issues.
- Foster public trust in e-governance by ensuring transparency regarding data handling practices and informing citizens about their rights.

5. **Capacity Building and Training:**

- Provide comprehensive training programs to ensure government officials and employees have the necessary skills to effectively utilize e-governance tools and platforms.
- Offer continuous learning opportunities and upskilling initiatives to enable employees to adapt to technological advancements.
- Foster knowledge sharing among government agencies and establish a centralized resource hub for best practices and case studies.

6. **Collaboration and Integration:**

- Encourage interagency collaboration to streamline information sharing and reduce redundancy in public service delivery.
- Integrate e-governance platforms with existing government systems and databases to optimize efficiency and avoid duplication of efforts.
- Foster partnerships with the private sector and technology companies to leverage their expertise and resources for innovative e-governance solutions.

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UPHOLDING THE STRATEGY ON HIRING EMPLOYEE UNDER MERITOCRACY PROCEDURE TOWARDS A REFINED PERFORMANCE

Leonora V. Divina

INTRODUCTION

In the ever-changing business world, organizations are always looking for methods to optimize their recruiting procedures and ensure they attract the most qualified candidates. The implementation of a meritocracy process in the recruitment and selection of employees is a strategy that has garnered considerable attention. This thesis seeks to examine the significance of sustaining a meritocracy-based employment procedure and its prospective impact on organizational success.

Meritocracy is a system that uses individual merit, abilities, and accomplishments as the primary criteria for hiring and advancement within an organization. It promotes the notion that individuals should be rewarded based on their skills and performance, as opposed to personal connections, nepotism, or other forms of bias. By implementing a meritocracy procedure, organizations aim to create a fair and transparent employment procedure that guarantees equal opportunities for all candidates.

The first section of the thesis will evaluate the candidates solely based on merit that are influenced by factors such as age, gender, and years in service.

The second section will provide an in-depth analysis of meritocracy and its relevance in today's competitive business climate that will examine the aawareness of the respondents on Recruitment, Selection, Hiring, and promote. It will examine the theoretical underpinnings of meritocracy and its implications for the recruitment and selection procedures. This section will also examine the potential benefits of adopting a meritocracy procedure, such as recruiting top talent, nurturing a culture of excellence, and boosting employee motivation and engagement.

The third section will focus on the obstacles and restrictions that organizations may face when implementing a meritocracy system. It will address issues including implicit bias, subjective evaluation criteria, and potential resistance from employees acclimated to conventional hiring practices. This section will also examine strategies and interventions that can be implemented to surmount these obstacles and guarantee an equitable and efficient meritocracy process.

The purpose of the paper is to explore the various facets of maintaining a meritocracy-based hiring strategy. It will investigate the benefits of implementing a meritocracy system, the challenges associated with its implementation, and the possible influence on organizational performance. Additionally, the research will examine best practices and strategies that can be employed to effectively implement and maintain a meritocracy procedure.

Statement of the Problem

1. What is the demographic profile of the respondents in terms of:

   1.1. Age;
   1.2. Gender;
   1.3. Years in Service.

2. How aware are the employee on meritocracy procedure based on the following:

2.1. Recruitment
2.2. Selection
2.3. Hiring
2.4. Promotion.

3. Is there a significant difference in the assessment of the two group of respondents when group according to profile?

4. What are the problems being encountered by the respondents.

5. Base on the findings and result, what strategies may be used by the agency to identify and select candidates based on merit?

METHODOLOGY

The research utilizes from empirical method known in descriptive research is strictly drawn from concretely empirical evidence and therefore “verifiable” evidence that involves trying to explain and understand a topic in a manner that is suitable for the given circumstance.

The use of quantitative research designs is emphasized much more while the course of the study. The design of quantitative research considers impact data, such as correlations, relative frequencies, and fluctuations among values, and attempts to establish a connection between the variables under consideration. The analysis explains the process that must be followed in order to acquire and analyze numerical data.

The data in this study are drawn from 50 selected permanent teaching government employees of the Eulogio Amang Rodriguez Institute of Science and Technology and the University of Caloocan City. The population is equally distributed among the areas of the study. Surveys were distributed using Google Forms and retrieved and tallied based on the timeline.

RESULTS AND DISCUSSIONS

1. The demographic profile of the respondents in terms of:

1.1 Age

Table 1
Profile of Respondents According to Age

Age	Frequency	Percentage (%)
21 – 30	12	24
31 – 40	12	24
41 – 50	18	36
51 and above	8	16
Total	**50**	**100**

As it showed in Table 1, there are a total of 50 respondents who participated in this study, where 24 or 48% are belongs to the age bracket from 21-40. However, there are a total of 26 or 52% of the respondents who are 41 and above.

According to Busayo and Longe (2021), researchers frequently include questions about age in surveys along with other demographic inquiries like gender and religion. Age-related survey questions are significant, but only when used appropriately. When not necessary, including them can sabotage your study process. In surveys, one of the most important demographic questions is age. These queries aid in the identification and appropriate categorization of various age groups within your target market during market research. In customer satisfaction surveys, age-related questions can be useful.

1.2 Gender

Table 2
Profile of Respondents According to Gender

Gender	Frequency	Percentage (%)
Male	15	30
Female	25	50
LGBTQIA+	10	20
Total	**50**	**100**

According to Table 2, most of the respondents are female, with the total of 25 or 50% of the respondents. Next, is male with 15 or 30% while 10 or 20% are LGBTQIA+.

Tannebaum, C. et. al. (2016) discovered that gender influences all aspects of decision-making, communication, stakeholder participation, and preferences for the adoption of treatments. Who adopts a method for implementation, when, and why is influenced by gender roles, gender identity, gender relationships, and institutionalized gender. There is mounting evidence that program theories may act differently within and across genders and other overlapping features depending on the circumstances.

1.3 Years in Service

Table 3
Distribution of Respondents According to Number of Years in Service

Number of years in service	Frequency	Percentage (%)
1 – 5	15	30
6 – 10	10	20
11 – 15	10	20
16 and above	15	30
Total	**50**	**100**

Table 3 presents the distribution of respondents according to the number of years in service. As shown in the table, there are 25 or 50% of respondents works from 1 to 10 years while the 25 or 50% also working from 11 years and above.

The findings of Mahajan, M. (n.d.) shows that an individual's conduct is affected positively or negatively starting on the day they start working and continuing for every successive year. In the early years, a positive factor like motivating level is higher than commitment level. While motivating level lowers as the years go on, commitment level rises. Role efficacy, despair, anxiety, and wrath all rise when organizational role stress levels rise over time. Unexpectedly, the length of employment has no bearing on an employee's conduct when it comes to handling disagreement; both recently hired employees and seasoned veterans choose to compromise and work together.

2. The awareness of the employee on meritocracy procedure

2.1 Recruitment

Table 4
The Awareness of the Employee on Meritocracy Procedure Based on Recruitment

Indicators	Mean	Rank	Verbal Interpretation
1. The agency provides a clear understanding of the ideal candidate profile.	3.50	3.5	Agree
2. Job vacancy is advertised in different channels.	3.50	3.5	Agree
3. Applications are reviewed to assess the candidate.	3.32	5	Agree
4. Creates a shortlist of candidates who meet the initial criteria.	3.74	2	Agree
5. Requires the candidate to undergo tests to evaluate the abilities and competencies.	3.96	1	Agree
Grand Mean	**3.60**		**Agree**

Table 4 presents the awareness of the employee on meritocracy procedure based on recruitment. It shows that indicator 5 “Requires the candidate to undergo tests to evaluate the abilities and competencies” obtained the highest weighted mean of 3.96. It means that respondents agree on this because it is part of the of the system. Although the goal is good because the company aims to ensure that employees who are place in the position is competent.

Second is indicator 4 “Creates a shortlist of candidates who meet the initial criteria” obtained the weighted mean of 3.74. The respondents agree on this because there are employees who are qualified but they are not included in the list.

Third, is indicator 1 “The agency provides a clear understanding of the ideal candidate profile” and indicator 2 “Job vacancy is advertised in different channels” both obtained the weighted mean of 3.50. It shows that company provides the criteria and qualifications of the applicants. They hired applicants based on the qualifications and each qualification is based on points system.

Lastly, is indicator 3 “Applications are reviewed to assess the candidate” obtained the weighted mean of 3.32. The respondents agree on this because it is to make sure that applicants are suitable to the job position.

The grand mean of 3.60 agree that respondents are aware on the meritocracy procedure based on recruitment. A firm functioning in a competitive market requires the best talent sources available to grow and prosper as an organization, according to Fagbadegun, J. (2019). A productive workforce will be produced by meritocratic hiring practices that select people purely on the basis of their competency, suitability, abilities, and experience. Although it may seem obvious, value judgments and nepotism continue to play a significant part in the hiring practices of the business world.

2.2 Selection

Table 5
The Awareness of the Employee on Meritocracy Procedure Based on Selection

Indicators	Mean	Rank	Verbal Interpretation
1. The agency announces the job opportunity to various channels.	4.02	4	Strongly Agree
2. Receives application from interested applicant.	4.22	2	Strongly Agree
3. Evaluates the qualifications and achievements of the candidate.	4.14	3	Strongly Agree
4. The selection committee reviews the applications of the candidate.	4.26	1	Strongly Agree
5. Provides feedback to candidates who are selected and are not selected.	3.72	5	Agree
Grand Mean	**4.07**		**Strongly Agree**

Table 5 presents the awareness of the employee on meritocracy procedure based on selection. Based on the results, indicator 4 “The selection committee reviews the applications of the candidate” obtained the highest weighted mean of 4.26. The respondents strongly agree on this because it is the task of the committee to check and reviews the applications of the candidates to check if they are qualified in the job position.

Second, is indicator 2 “Receives application from interested applicant” obtained the weighted mean of 4.22. This means that the qualifications is clearly defined and posted in the advertisement wall to attract applicants on the job.

Third, is indicator 3 “Evaluates the qualifications and achievements of the candidate” obtained the weighted mean of 4.14. This means that respondents strongly agree because the selection committee carefully evaluates the qualifications and achievements of the applicants. They ensure that no fake documents submitted to them and to ensure the veracity of the documents.

Fourth, is indicator 1 “The agency announces the job opportunity to various channels” with a weighted mean of 4.02. This means that the company wants to hired people from different location and to announce the job vacancy and possible career opportunity in their company.

Lastly, indicator 5 “Provides feedback to candidates who are selected and are not selected” with a weighted mean of 3.72. The respondents agree on this because the company announces or posted the names of qualified applicants in the bulletin board or in their social media page.

The grand mean of 4.07 shows that the respondent strongly agree that most of the employees are aware on the meritocracy procedure based on selection of qualified applicants. This is because most of the respondents experienced this when they apply on their current job position now.

The study conducted by Mushtaque, T. et al. (2021) draws the conclusion that recruiting and selecting workers is thought to be of utmost importance and is utilized to lay the groundwork for a successful firm. As a result, their study argues that firms can benefit from a moderate approach to integrating global HRM standards with regional customs and cultures.

2.3 Hiring

Table 6
The Awareness of the Employee on Meritocracy Procedure Based on Hiring

Indicators	Mean	Rank	Verbal Interpretation
1. Creates a clear understanding of the ideal candidate profile	3.80	5	Agree
2. Job vacancy is advertised through the various channels	3.92	4	Agree
3. Applications are reviewed to assess the candidates	4.36	1.5	Strongly Agree
4. Creates a shortlist of candidates who meets the initial criteria	4.22	3	Strongly Agree
6. Facilitates assessments on technical skills, psychometric tests	4.36	1.5	Strongly Agree
Grand Mean	**4.13**		**Strongly Agree**

Table 6 presents the awareness of the employee on meritocracy procedure based on hiring. The table shows that indicator 3 “Applications are reviewed to assess the candidates” and indicator 5 “Facilitates assessments on technical skills, psychometric tests” both obtained the highest weighted mean of 4.36. The respondents strongly agree on these indicators because they know that the company assessed the different test and skills requirements of the applicants. They ensure that they will hire applicants who are knowledgeable on the nature of job offered to them.

Next, is indicator 4 “Creates a shortlist of candidates who meets the initial criteria” obtained the weighted mean of 4.22. Shortlist is intended to monitor the candidates and to easy assessed them.

Then, indicator 2 “Job vacancy is advertised through the various channels” obtained the weighted mean of 3.92. This activity is made to open to the public about the job vacancy of the company. Through this, everybody has the opportunity to apply.

Lastly, indicator 1 “Creates a clear understanding of the ideal candidate profile” obtained the weighted mean of 3.80. This means that the respondents agree on this because company ensure the profile of the candidates are in good.

The grand mean of 4.13 implies that the respondents strongly agree that the employees are aware on meritocracy procedure based on hiring. Meaning, the respondents are aware that the applications and requirement they submitted are subject to evaluation and rating purposes in to identify the who are qualified or not.

The research of Mushtaque, T. et al. (2021) outlines the significance of merit-based hiring and its effect on workers' output. As for the paper makes the case that the ideal candidate for the position would be the vital and significant for the success of enterprises. In light of key informant interviews and a review of the literature, the study finds a variety of socio-political factors that have played a crucial role in organizational contexts. The article concludes that hiring and personnel selection are thought to be paramount significance, and are employed to lay the groundwork for a prosperous company.

2.4 Promotion

Table 7
The Awareness of the Employee on
Meritocracy Procedure Based on Promotion

Indicators	Mean	Rank	Verbal Interpretation
1. Employees are assessed base on job performance	4.36	2	Strongly Agree
2. Candidates shows exceptional skills, expertise, and a strong work ethic	3.84	5	Agree
3. Applicant employee meets the necessary experience, knowledge and competencies needed for the job	4.42	1	Strongly Agree
4. Assess the candidate based on their qualifications, performance records and potential to succeed in the higher-level position	4.32	3	Strongly Agree
5. Evaluate the suitability of employee candidate for the promotion	4.24	4	Strongly Agree
Grand Mean	**4.24**		**Strongly Agree**

Table 7 presents the awareness of the employee on meritocracy procedure based on promotion. It is shown, indicator 3 “Applicant employee meets the necessary experience, knowledge and competencies needed for the job” obtained the highest weighted mean of 4.42. This means that the respondents strongly agree that it is good to considered the knowledge and expertise of the employees in the promotion process.

Second, is indicator 1 “Employees are assessed base on job performance” with a weighted mean of 4.36. This means that all candidates for promotion are measured based on their performance for the certain period of time.

Third, is indicator 4 “Assess the candidate based on their qualifications, performance records and potential to succeed in the higher-level position” with s weighted mean of 4.32. This means that aside from job performance, other qualifications and records are also included in the process.

Fourth, is indicator 5 “Evaluate the suitability of employee candidate for the promotion” with a weighted mean of 4.24. This means that the respondents are know that their qualification are evaluated if they are suited to the nature of job.

Lastly, is indicator 2 “Candidates shows exceptional skills, expertise, and a strong work ethic” obtained the weighted mean of 3.84. The grand mean of 4.24 shows that the strongly agree that all employees are aware on meritocracy procedure based on promotion. That is why, some of them, continue to study to the higher level. Keep themselves improves and their knowledge and skills are developed.

Two separates but connected elements make up the design of promotion incentives. Promotion policies should be primarily performance-based (high meritocracy), and the reward for a promotion should be sufficient (steep pay progression), in order to encourage lower-tier employees to put in extra effort. According to Deserranno, E, et al. (2021), salary development and meritocracy go hand in hand. Lower-tier employees' productivity rises when promotions are more meritocratic, but this effect is only felt when there is a sufficiently steep wage progression.

3. The significant difference analysis

Table 8
The Significant Difference Between the Responses of the Respondents

Variables of the Study	df	Test Value	P-value	Critical Value	Decision	Remarks
1. Recruitment	48	12.207	2.506 E-16	2.011	Reject H_0	Significant
2. Selection	48	12.031	1.576 E-14	2.011	Reject H_0	Significant
3. Hiring	48	8.993	7.257 E-12	2.011	Reject H_0	Significant
4. Promotion	48	3.961	0.00025	2.011	Reject H_0	Significant

Table 8 presents the significant difference between the responses of the two groups of respondents (EARIST and UCC). The researcher used t-test at 5% level of significance to test the hypothesis. It shows that the test value of t-test for Recruitment, Selection, Hiring, and Promotion is greater than the critical value of t-test. And the p-value is less than 0.05 level of significance. Hence, there is enough evidence to reject the null hypothesis. Therefore, there is significant difference between the responses of the two groups of respondents. This implies, that the assessment of the two groups differ from each other. This is because each group has different view or experience about the meritocracy implementation in the workplace.

4. The problems being encountered by the respondents

Table 9
The Problems Encountered by the Respondents

Indicators	Mean Score	Rank
1. Bias and discriminatory	2.78	5
2. Limited opportunities for under presented groups	2.34	3
3. Lack of Standardized criteria	2.46	4
4. Over emphasis on credentials and experience	1.82	1
5. Lack of consideration for personal circumstances	2.08	2

Table 9 presented the problems encountered by the respondents in the meritocracy system Based on the results, indicator 4 “Over emphasis on credentials and experience” obtained the highest mean of 1.82. It is considered as Rank 1 because merit-based system will be based on documents and other proof of accomplishments. Rank 2 is indicator 5 “Lack of consideration for personal circumstances” with a mean score of 2.08. This means that it is also considered as a problem because it does not entertain the employees’ situation. They always find proof as basis for rewards and promotion. Third is indicator 2 “Limited opportunities for under presented groups” with a mean score of 2.34. It is also considered problem in meritocracy system because sometimes that under presented groups are not seen or not be considered. Fourth, is indicator 3 “Lack of Standardized criteria” got a mean score of 2.46. It implies that sometimes meritocracy system has no indefinite criteria in selecting and promotion of employees. Sometimes, criteria will be change if the management has someone bet to be promoted. The last and the least is indicator 1 “Bias and discriminatory” with a mean score of 2.78. It is true that this indicator is not exempted in the meritocracy system. It sometimes be seen in the process of selecting and promotion.

5. The strategies may be used by the agency to identify and select candidates based on merit as to the findings of the study

P.R.O.U.D. Employee

The proposed strategies of the researcher in identifying and selecting the candidates on merit system is the P.R.O.U.D. Employee. In this system, the employee is rated and selected through the following criteria.

1. **Educational Attainment (15%)** – the level of education they had. The higher the educational attainment, the higher the score.

2. **Performance Rating (60%)** and it divided to the following indicators

Positive Attitude. Employees who had a positive attitude is a goal-oriented person. They will always think positive even in the worst situation. They always hopeful that something good will happen. They are risk takers employees.

Relations to co-workers. It refers to the relationship of the employee to others. This is how their character are measured. They must be cooperative, team player and friendly to their co-worker.

Overall Performance. It refers to the overall observation and performance of the employee. Punctuality, tardiness, productivity and others.

Unconditional Service. They serve both the management and their client honestly and wholeheartedly. They will make the number priority in the workplace.

Dedication to Work. The love and loyalty they shown to their work.

3. **Training or Seminars Attended (25%)** – It refers to relevant training or seminars attended by the employees and it should be valid within three years of evaluation.

CONCLUSIONS

1. The demographic profile of the respondents in terms of:

1.1 Age. There is a total of 50 respondents who participated in this study. From this, there are 24 or 48% are belongs to the age bracket from 21-40. However, there are a total of 26 or 52% of the respondents who are 41 and above.

1.2 Gender. Most of the respondents are female, with the total of 25 or 50% of the respondents. Next, is male with 15 or 30% while there are 10 or 20% are LGBTQIA+ who participated in the study.

1.3 Years in Service. The result shows that there are 25 or 50% of respondents who are working from 1 to 10 years in the company, and the other half are also working from 11 years and above.

2. The awareness of the employee on meritocracy procedure

2.1 Recruitment. Most of the respondents agree that every company 1) requires the candidate to undergo tests to evaluate the abilities and competencies; 2) creates a shortlist of candidates who meet the initial criteria; 3) the agency provides a clear understanding of the ideal candidate profile; 4) job vacancy is advertised in different channels; and 5) applications are reviewed to assess the candidate. The grand mean of 3.60 presents that the employees on meritocracy procedure based on recruitment process.

2.2 Selection. The grand mean of 4.07 strongly agree that the employees are aware on the meritocracy procedure based on selection. Hence, most of them, strongly agree that 1) the selection committee reviews the applications of the candidate; 2) they receive application from interested applicant; 3) they evaluates the qualifications and achievements of the candidate; 4) the agency announces the job opportunity to various channels; and 5) provides feedback to candidates who are selected and are not selected.

2.3 Hiring. Most of the respondents strongly agree that employees are aware on the meritocracy procedure based on hiring process. They strongly agree on the 1) applications are reviewed to assess the candidates; 2) facilitates assessments on technical skills, psychometric tests; and 3) creates a shortlist of candidates who meets the initial criteria. On the other hand, respondents agree that job vacancy is advertised through the various channels and creates a clear understanding of the ideal candidate profile.

2.4 Promotion. The grand mean of 4.24 implies that the respondents are aware on the meritocracy procedure based on promotion. This means most of the respondents strongly agree on the following indicators, 1) applicant employee meets the necessary experience, knowledge and competencies needed for the job; 2) employees are assessed base on job performance; 3) assess the candidate based on their qualifications, performance records and potential to succeed in the higher-level position; 4) evaluate the suitability of employee candidate for the promotion; and 5) candidates shows exceptional skills, expertise, and a strong work ethic.

3. The significant difference analysis

There is significant difference between the responses of the two groups of respondents. This implies, that the assessment of the two groups differ from each other. This is because each group has different view or experience about the meritocracy implementation in the workplace.

4. The problems being encountered by the respondents

Most of the problem encountered by the respondents is over emphasis on credentials and experience and the least problem, while the least problem is the bias and discriminatory.

5. The strategies may be used by the agency to identify and select candidates based on merit as to the findings of the study

RECOMMENDATION

1. Applicants' profiles must be ascertained during the recruiting and selection procedure.

2. Human resource workers responsible for recruiting, selection, employment, and promotion should evaluate the applicants' information and notify ineligible candidates about the status of their application.

3. Ensures that appointed officials and staff must be career individuals who have passed a rigorous process of appointment based on merit and suitability, therefore guaranteeing them security of tenure.

4. Provide guiding principles for the merit system in employee recruitment, selection, employment, and advancement, and adhere to the Civil Service Commission's guiding principles as stated in RA 6713.

5. Appoint a proficient individual responsible for applicant selection.

6. Implement the proposed policy. P.R.O.U.D. Employee

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THE EFFECTIVENESS OF MOBILE WALLET APPS IN TODAY'S BUSINESS TRANSACTION: BASIS FOR MARKETING STRATEGY

Ma. Lourdes H. Gomez

INTRODUCTION

In the expansion of e-commerce as well as the stimulation of consumer demand, online payment will continue to play an ever-increasing and significant role.

The pandemic started last early 2019, where going out to purchase and do outdoor activities is very risky for everyone's health. Just like every normal citizen would say, "Good thing our technology keeps on advancing", you can buy and do almost everything through the mobile applications.

The entrepreneur's goal is to satisfy their customers. This is because they want the customers to come back and multiply. But processing the customer payments can be a time-consuming process. Mobile wallet Application is helpful when the business owner is offering a variety of payment options that allows customers to choose their preferred method of payment, which they get to pay faster.

Due to the rapid advancement of communication technologies and the universality of smart-devices, many applications have been developed for smart-devices to allow developers to provide various types of commercial and marketing services. A mobile wallet is a type of electronic wallet that conducts transactions through a mobile device, and it is a development of the latter. The entrepreneur's goal is to satisfy their customers. The purpose of this study is to know the effectiveness of mobile wallet application these days in our community.

STATEMENT OF THE PROBLEM

This study aims to discover the Effectiveness of Mobile Wallet Applications in Today's Business Transaction: Basis for Marketing Strategy.

Specifically, it seeks to answer the following questions:

1. How do the respondents be described in terms of the following:

    1.1 Age;

    1.2 Sex;

    1.3 Civil Status;

    1.4 Occupation;

    1.5 Preferred Mobile Wallet App?

2. What is the status of Mobile Wallet Applications in Today's Business Transactions in terms of the following:

    2.1 Accessibility

    2.2 Security

2.3 Discounts offer

2.4 Wide range of uses

2.5 Reliability

2.6 Cost and Fees

3. What are the problems encountered in using cashless payment in business transaction?

4. Base on the findings what marketing strategy can be proposed?

METHODOLOGY

This study used the **Descriptive Research Method**, which analyzed the Effectiveness of Mobile Wallet Apps in Today's Business Transaction: Basis for Marketing Strategy.

The identification of respondents, instrument and data gathering process, and technological tools used in the study were used to determine the population, sample size, and sampling technique.

Population, Sample Size and Sampling Technique

The target respondents of the study will be the Employed, Self-Employed and Businessmen in Metro Manila who uses mobile wallet apps for online payment transactions. There will be 100 respondents from this group of people who will respond to the survey. We will use **Random Sampling Technique** to gather data.

Description of Respondents

The chosen population will be extracted from different institutions, namely Academe, Businesses, Companies, as well as Government Agencies of private and government employees together with Employed, Self-Employed and Businessmen. The target population is 100 Mobile Wallet App users around Metro Manila.

Data Gathering Procedure

The steps were conducted in gathering needed data are the following. First, The questionnaire will be distributed to government employed, private employed and self-employed/ businessmen, who use mobile wallet application.

Then, the researcher will get the approval to conduct the survey. The next step was to conduct an online distribution of the survey questionnaires to the respondents. After that, interpret in descriptive approach the retrieved data.

Research Instrument

The research instrument used was the survey questionnaire which was checked and validated by the research adviser. It consists of the demographic profile of the respondents and the deal on The Effectiveness of Mobile Wallet Apps in Today's Business Transaction: Basis for Marketing Strategy

RESULTS AND DISCUSSION

Findings

The study manifested that based on the survey conducted from the different groups of respondents the remarks exhibited an affirmative result as disclosed by the tables and data gathered.

The study determined The Effectiveness of Mobile Wallet App in Today's Business Transaction: Basis for Marketing Strategy. The descriptive survey method was used with 100 respondents.

Conclusions

- **Accessibility** the mobile wallet applications provide more convenient and time efficient mode of payment for customers but some viewed the e-wallet cashless transaction don't suit well for persons with disabilities.
- **Security** the mobile application requires users to type a passcode, fingerprint, or use the face scan to unlock the mobile wallet but some claimed that there are difficulties with the encryption of data for secure and safe use of digital wallet application.
- **Discounts and offers** the mobile wallet application are introduced to different brand promotions, loyalty programs, incentives, coupons, vouchers. Yet, some experienced the difficulties to have location-based offers and contents.
- **Wide range of uses** effectively use mobile wallet apps in paying various types of necessities such as; mobile load and data packages, monthly utility bills, and consumer goods but some considered that settling monthly utility bills and buying consumer goods through mobile wallet app isn't easy to use for payment transaction.
- **Reliability** the mobile wallet application is reliable because the apps are guarded with multiple layers of security that are integrated into making Gcash and Paymaya while some stated that using the applications isn't reliable in terms of securing the account details and payment methods.
- **Cost and Fees** the mobile wallet app even there's a convenience fee applied in multiple cash in partners such as: Touchpay, Palawan express, LBC Express, etc. While some are against about the fees for each mobile wallet transaction in little sari-sari stores range from Php 10 to 15.

Recommendations

- **Accessibility** Mobile wallet application should add a feature like Intelligent Voice Operating System (IVOS) to make the application more user friendly for people with disabilities and customers can also utilize mobile wallet applications to pay for their medical services or medications.
- **Security** Mobile payments should enhance their data encryption and security. Privacy-enhancing technologies (PETs) should be required in the application itself since it protects the privacy by eliminating or reducing the collection of personal data, preventing unnecessary or undesired processing of personal data, and facilitating

compliance with data protection rules. Through this, users can feel safe using the mobile wallet app for transactions.

- **Discount and offers** Businesses that use mobile wallet applications should advertise online their discounts and offers. They should use Viral Marketing works with social networks, so social interactions can help in spreading the information about their location- based offers; through those users and customer will be aware.

- **Wide range of uses** Mobile wallet applications should make a promotional campaign centered about the capability of the apps to make cashless payment of bills to different establishments such as; Meralco, Maynilad, Bayantel, Social Security System, etc.

- **Reliability** The mobile wallet application should prioritize the Application Security because it also includes the internal safety of the app itself which designed with security measures that continue to provide protection when the app is in use. By this, the users can commit their account details and have trust in payment methods through the application.

- **Cost and Fees** Paymaya and Gcash should impose a suggested price for every transaction that could happen to small sari-sari stores, so the customers will have a legitimate reference.

SANGGUNIANG KABATAAN RELEVANCE TO ITS CONSTITUENTS; A LOOK INTO THE FUNCTION, DUTY, AND PERFORMANCE OF ELECTED YOUTH LEADERS

Felipe K. Jamero
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Roger Ramos

INTRODUCTION

Youth is vital in nation-building. The constitution is explicit in its role in the community and country. The local government code also states the function to which the sanguniang kabataan or Youth Council shall operate and the procedure for its orderly and coordinative function with the barangay council headed by the barangay chairman.

For years, there have been calls for the reform of the council. Congress legislated Republic Act 11768, or the Sanguniang Kabataan Reform Act. It instituted the youth council to be more participative by presenting its policies for development through the comprehensive development plan under Section 8. a, of the said law. The growing pain of organization, resource allocation, policy planning, program assessment, and youth advocacy are some of the responsibilities bestowed on their shoulders as duly elected members of the youth sitting in the council together with the regular members of the barangay officials. Problems in the past are constantly nagging as to programs, projects, and activities that their elder council members overshadow.

Balanon, et.al (2007) in their research, showed that involvement in governance at the local level could help develop young people’s leadership skills and confidence. Through participation in the democratic process, young people are empowered. They gain experience and learn new skills, become responsible and accountable, develop confidence, and forge meaningful connections with other youth and adults. The SK, the governing body of the KK, was designed to make this happen. SK officers represent the youth in their local government councils and have the same functions and privileges as any council member. They have a term of three years and receive 10 percent of barangay funds for youth projects.

Rosales (2022) looked into the sanguniang kabataan projects and found that results may also give resonate with the results of the study done by UNICEF (2007) that the youth want and deserve to have a voice in the government. Through the quantitative analysis of the needs of the respondents, we have seen how they resonate with UNICEF’s findings on the common issues that the youth wanted to focus on health, education, and employment. The three centers of youth participation to which the respondents gave much attention were health, education, and economic empowerment, which can be gleaned as the top priorities that the youth wanted to be noticed and prioritized by the government, much more by the Sangguniang Kabataan.

The nature and manner of their election are political, and criticism as to the nature, capacity, and service delivery are of doubt, for some, Rio (2021) speaks in this light; all participants decided to run as SK chairwomen because of family pressure and encouragement by barangay officials. All of them have family members who are barangay or SK officials. Furthermore, they were also assured of victory, either by their parents or barangay officials. All participants have manifested a strong dislike for the inactivity of the administration of previous Sangguniang Kabataan (SK) in their respective barangays and decided to compete in the election to improve SK's performance as an institution. Most of them have the idea that they can surpass the performance of the previous administration and bring more projects and programs to their constituents.

Hence, the need to look into the relevance, performance, and execution of public office peer into the current sanguniang kabataan to students and derived their view on the call to abolish the sanguniang kabataan. Malaluan, et.al. (2014) study showed that the performance of the SK officials with its mandated functions by the LGC as Good. Instead of abolition, the respondents perceive that reformation would correct SK‟s failures and shortcomings. There is no significant difference in the perception of the respondents concerning the abolition of the SK when grouped according to profile variables. An action plan was proposed to further improve the performance of the SK officials.

METHOD

Research Design

The researchers use descriptive methods to derive the data from the students' respondents. The employment of the descriptive method is appropriate to explain the phenomena, in this case, the relevance, acceptability, and function that are core tenets of public service. Further, it aims to obtain from a defined population thru the use of a survey instrument where respondents input their sentiments, and choices, designed by the researchers.

It attempts to assess the subject matter relating to the function, duty, and performance of sanguniang kabataan as well as to draw the respondents' purview on sanguniang kabataan’s relevance to the present. Respondents' information was collated, treated, and presented herein.

Participants

Student respondents are from the colleges and classes of the researchers. They are in different colleges and were requested to fill up an online Google questionnaire where 200 students answer the same.

Instrument

Researcher-made instruments were employed that constitute the respondents' circumstances as to age, sex, number of siblings, and parents. Questions as to function, the effectiveness of programs and activities, frequency of programs and activities, and relevance, need to have a sanguniang kabataan.

The local government code relating to the function of sanguniang kabataan was used to evaluate its functions, programs, and activities.

The survey instrument has three parts; part 1 is the respondents' profile and personal circumstances, and part 2 is on relevance, effectivity, frequency of programs and projects, and the need to have a sanguniang kabataan council.

Data Analysis

The researchers primarily used SPSS statistical software in the treatment of data. Respondent’s data were downloaded in Excel form and encoded in SPSS for analysis. Weighted Mean are used in interpreting Part 2 of the survey questionnaire, frequency distribution for Part 1 of the survey instrument, and Part 3 about respondent opinion on the abolition of the sanguniang kabataan.

RESULTS AND DISCUSSION

The study looks into the following concerns namely;

1. Are the Sanguniang Kabataan observing their functions as stated by law?

2. Are the following programs and projects of the Sanguniang Kabataan effective namely;

   2.1. Entertainment/Beauty Contest
   2.2. Drug Prevention
   2.3. Skill Development
   2.4. Financial Literacy
   2.5. Sports
   2.6. Education
   2.7. Health (i.e. early pregnancy)

3. Is the Sanguniang Kabataan Council relevant?

4. Is the Sanguniaang Kabataan Council Perforamnce

5. Should the Sanguniang Kabataan officials receive a salary?

Table 1
Respondents' Profile and Personal Circumstances

Respondents Profile	Frequency	Percentage
Age		
17-18	11	5.5
19-21	177	88.5
22-23	1	.5
24-above	11	5.5
Total	200	100.0
Sex		
Male	99	49.5
Female	101	50.5
Total	200	
Number of siblings 18 Years old and above		
no one	62	31.0
1-3	112	56.0
4-above	26	13.0
Total	200	100.0
Years living in the locality		
1-3 years	10	5.0
4-7 Years	36	18.0
Since birth	154	74.0
Total	200	100.0
Working Student?		
Yes	47	23.5
No	153	76.5
Total	200	100.0

Sanguniang Kabataan Voter?		
Yes	130	65.0
No	70	35.0
Total	200	100.0
Number of times voted in Sanguniang Kabataan Election		
1	186	93.0
2	8	4.0
3 or more	6	3.0
Total	200	100.0
Have you been a candidate in a Sanguniang Kabataan Election?		
Yes	7	3.5
No	193	96.5
Total	200	100.0

Table 1 presents the personal circumstances and profile of the respondents. 88.5% or 177 are of the age 19-21 bracket followed by age brackets 17-18; 24 and above, with 11 respondents or 5.5%. There are 50.5% or 101 are Female while 49.5% are Male respondents.

56.0% or 112 had siblings of 1-3 of 18 years and above, followed by 13.0% or 26 had 4 above, and the remaining 31.0%, or 62 had no siblings aged 18 years and above.

74% or 154 are living in their respective locality since birth, while 18.0%, or 36 are residing for 4-7 years, and the remaining 5.0%, or 10 respondents are living for 1-3 years in their current locality.

76% or 47 respondents are working while 76.5% or 47 are not. 65% or 130 are Sanguniang Kabataan voters while 35% or 70 are not. 93% or 186 had voted 1 time in the Sanguniang Kabataan election, 4%, or 8 had voted 2 times; while 3%, or 6 of them had voted 3 times or more.

96.5% or 193 have not been a candidate in the Sanguniang Kabataan election while 3.6% or 7 had been a candidate in the Sanguniaang Kabataan election.

Table 2
Respondents' Assessment of the Sanguniang Kabataan's Function

Description	N	Sum	Mean	Verbal Interpretation
1. Promulgation of resolution necessary to carry out objectives of the youth in the barangay	200	592	2.96	Inconsistently Performing its function
2. Initiation of programs designed to enhance the social, political, economic, cultural, intellectual, moral, spiritual, and physical development of the members	200	577	2.89	Inconsistently Performing its function
3. Submission of annual and end-of-term reports to the sanguniaang barangay on their projects and activities for the survival and development of the youth in the barangay	200	559	2.80	Inconsistently Performing its function
4. Meeting regularly once a month on the date, time, and place fixed by the Sangunian	200	524	2.62	Inconsistently Performing its function

5. Consultation and Coordination with all youth organizations in thebarangay for policy formulation and program implementation	200	543	2.72	Inconsistently Performing its function
6. Implementation of policies and programs within his jurisdiction with sanguniaang barangay by the SK Chairman	200	570	2.85	Inconsistently Performing its function
7 . Coordination with the “Pederasyon ng mga Sangguniang Kabataan in the conduct of an annual activity known as the “Linggo ng Kabataan”	200	531	2.65	Inconsistently Performing its function
Composite Mean	**200**	**556**	**2.78**	**Inconsistently Performing its function**

Legend: 4. Performing its function regularly; 3. Moderately performing its function; 2. Inconsistently performing its function; 1. Not performing its function

Table 2 presents the mandated functions of the Sangguniang Kabataan per the local government code. The respondent’s overall evaluation of the Sangguninang Kabataan function had 2.78 weighted mean or Inconsistently performing its function. Function number 1 had a 2.96 weighted mean or inconsistently performing its function of the seven (7) mandated functions and received the highest weighted mean in all areas; Function 7 had a 2.65 weighted also showed inconsistently performing its function, it is observed that it received the lowest evaluation from the respondents on all areas of the mandated function of the Sangguniang Kabataan.

Table 3
Effectiveness of the Sanguniang Kabataan’s Programs and Activities

Description	N	Sum	Mean	Verbal Interpretation
1. Entertainment/Beauty Contest	200	543	2.71	Somewhat effective
2. Drug Prevention	200	574	2.87	Somewhat effective
3. Skill Development	200	564	2.82	Somewhat effective
4. Financial Literacy	200	518	2.59	Somewhat effective
5. Sports	200	652	3.26	Moderately effective
6. Education	200	486	2.43	Somewhat effective
7. Health (i.e. early pregnancy)	200	584	2.92	Somewhat effective
Composite Mean	200	560	2.8	Somewhat effective

Legend: 4. Very effective; 3. Moderately effective; 2. Somewhat effective; 1. Ineffective

Table 3 presents the programs, activities, and projects that are identified by the Sangguniang Kabataan. Respondents in general evaluated these projects with a 2.8 weighted or somewhat effective. Sport receive a 3.26 weighted mean or moderately effective the highest among all the projects identified while Financial Literacy had a 2.59 weighted mean or somewhat effective.

In all, the majority of the usual programs, projects, and activities were evaluated as moderately effective except for Sports.

Table 4
Relevance of the Sanguniang Kabataan Council

Description	N	Sum	Mean	Verbal Interpretation
1. Sanguniang Kabataan provides peace and order in the community	200	533	2.67	Somewhat Relevant
2. Sanguniang Kabataan officials help in crime prevention	200	517	2.58	Somewhat Relevant
3. Sanguniang Kabataan provides a venue that addresses the issue of bullying and other mischief committed by youth offender	200	470	2.35	Somewhat Relevant
4. Sanguniang kabataan are training grounds for future leaders	200	513	2.57	Somewhat Relevant
5. Their programs, activities, and plans are timely and needed by the community.	200	533	2.66	Somewhat Relevant
6. Sangunian kabataan are children of a traditional politician	200	532	2.66	Somewhat Relevant
7. Barangay Chairman wields authority, influence, and guidance in the Sanguniang Kabataan Council	200	563	2.81	Somewhat Relevant
Composite Mean	**200**	**523**	**2.61**	**Somewhat Relevant**

Legend: 4. Highly Relevant; 3. Moderately Relevant; 2. Somewhat Relevant; 1. Irrelevant

Table 4 presents the relevance of Sangguniang Kabataan. A 2.61 composite weighted mean or somewhat relevant was derived from the respondents. Statement number 7 or Barangay Chairman wields authority, influence, and guidance in the Sangguniang Kabataan Council received a 2.81 weighted mean or somewhat relevant among all statements under study. Statement number 3 or 3. Sangguniang Kabataan provides a venue that addresses the issue of bullying and other mischief committed by youth offenders had a 2.35 weighted mean or somewhat relevant.

In all, respondents view issues under study had somewhat relevance in the sangguniang kabataan council functions, execution, and performance, ranging from a political dynasty, peace, and order, program, planning, and identification.

Table 6
Respondents' Perception of the Sangguniang Kabataan Performance

Description	N	Sum	Mean	Verbal Interpretation
1. Sanguniang Kabataan are active in the barangay	200	556	2.78	Strongly Disagree
2. Sanguniang Kabataan officials are easy to approach when there is a problem related to the youth	200	523	2.62	Strongly Disagree
3. Sanguniang Kabataan are highly exposed to corruption	200	526	2.63	Strongly Disagree
4. There is financial accountability and openness to accomplishment report	200	577	2.88	Strongly Disagree
5. Manifest practical management skills in handling its function as a public official	200	565	2.82	Strongly Disagree
6. They are trained in handling disputes and youth-related problem	200	550	2.75	Strongly Disagree
7. They show unity as a team	200	561	2.80	Strongly Disagree
Composite Mean	**200**	**551**	**2.75**	**Strongly Disagree**

Legend: 4. Strongly Agree; 3. Agree; 2. Strongly Disagree; 1. Disagree

Table 6 presents respondents' perceptions of the Sanguninaang Kabataan performance ranging from statements related to financial openness, organizational capacity, and unity among council members. A 2.75 weighted mean or Strongly Disagree verbal interpretation was derived from the respondents. Statement number 2. Sanguniang Kabataan officials are easy to approach when there is a problem related to the youth yielded a 2.62 weighted mean or Strongly Disagree verbal interpretation, further, the lowest weighted mean among statements subjected to the respondent's assessment. While statement number 4 There is financial accountability and openness to accomplishment report yielded a 2.88 weighted mean or Strongly Disagree verbal interpretation.

In general, respondents manifested a Strongly Disagreeing on matters of the Sanguniang Kabatasan Council's financial openness, and accountability, organizational skills in handling disputes, and accessibility to their Sanguniang Kabataan officials.

Table 7
They Should Receive a Regular Salary from the Government

	Frequency	Percent
Yes	51	25.5
No	29	14.5
Maybe	120	60.0
Total	200	100.0

Table 7 yielded that 60% or 120 of the respondents may consider having a salary for Sanguniang Kabataan officials while 25% or 51 of the respondents agreed to give them salaries. On the other hand, 14.5% or 29 do not agree to give the Sanguniang Kabataan officials salary.

Table 8
Respondents' Perception of Sanguniang Kabataan's abolition

	Frequency	Percent
Yes	30	15.0
No	98	49.0
Maybe	72	36.0
Total	200	100.0

Table 8 presents that 49% or 98 are against the abolition of the Sanguniang Kabataan, 36% or 72 may consider its abolition, and 15% or 30 are for its abolition.

CONCLUSION

The study yields the following information;

1. Respondents have a prevailing view that the Sanguniang Kabataan are inconsistent in the observance of their functions as provided by the local government code;

2. The listed and identified projects, programs, and activities are somewhat effective with the exception to Sport related projects;

3. Sanguniang Kabataan Council is perceived to be somewhat relevant in concern of peace and order, crime prevention, antibullying, training ground for future leaders, fielding grounds of traditional politicians, and employment of programs, projects, and activities for the youth in the Barangay Council;

4. Respondents strongly disagree on the Sanguniang kabataan performance in terms of; activity and access to the Sanguniang Kabataan officials, financial transparency, practical management skill, and manifest unity as elected Sanguniang Kabataan officials.

5. Many respondents are amicable to the idea that Sanguniang Kabataan officials should receive a salary from the national government;

6. Respondents are against the abolition of the Sanguniang Kabataan.

RECOMMENDATIONS

From the result of the study the following are recommended;

1. Sanguninang Kabataan officials should actively engage their constituents to dispel the notion that they are not up to the responsibilities bestowed on them as public officials;

2. Constituents should be informed, engaged, and be part of the formulation of youth-related projects and institution of timely projects that are not only timely but for the protection and preservation of the welfare of the youth;

3. Sanguniang Kabataan officials should make available their time for consultation and to understand, and implement, a device policy that is in keeping with the present challenges, and provide an avenue where they can solicit information for the institution of relevant projects that concerns them.

4. Sanguniang Kabataaan should distance themselves from traditional notions and activities that isolate them and are perceived as incapable of engaging their constituents by truly involving themselves, and committed to serving.

5. Manifest doable, feasible, timely, and well-organized activity that is to the benefit of their constituents by understanding the current challenges the sector confronts and present doable projects

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THE EFFECTIVENESS OF GREEN MARKETING IN STARBUCKS: AN ASSESSEMENT

Ma. Theresa Maddagan

INTRODUCTION

Human activities have a wide negative effect on the environment. Our society today is more concerned with natural environmental issues like global warming, the disposal of waste, climate change, and an alarming population that is influenced by our daily life routine. These problems impact the way of life of every individual, which largely have an effect on both personal and societal health. The government is very concerned with green marketing practices and has taken various interventions to promote green marketing practices in every business.

Green marketing (also called eco-marketing or environmental marketing) is the marketing of goods and services to raise environmental awareness among consumers. In the 1980s and early 1990s, many companies around the world began to use green marketing practices as a strategy for converting their products and services to green marketing, such as methods of production, packaging, and distribution.

According to Karnai et al. (2021), "green marketing" is about those marketing activities that consider the long-term interests of our society with the objective of connecting consumers, companies, and the environment. In order to improve quality of life, green marketing uses a non-traditional, environment-oriented strategy and tool system.

One of the companies that have pioneered green marketing practices and strategies is Starbucks. Starbucks is one of many coffee shops across the globe, with more than 32,646 retail locations in over 75 countries. They have become well-known for their environmental dedication and commitment, as they have used sustainable practices to win market share. Starbucks is a standout because of its seamless integration of green marketing practices into its operational framework. The company's reputation is built on its dedication to efficient trash disposal and material minimization. They utilize this campaign framework to teach their consumers how to reuse, reduce, and recycle properly.

METHODOLOGY

This study employed the research design, sources of data, data collection and tools for data analysis to treat different sub-problems in the study. It includes the research method, Population, Sample Size and Sampling Technique, Description of the respondents, Administration of the Questionnaire, Research Instruments, Data gathering, and the Statistical Instruments.

This research will focus on the effectiveness of Green Marketing on Starbucks Pasig. This research will use descriptive research design through survey questionnaires to attain the intended objectives and to gather information that is needed in the study which will be collected, analyzed, and interpreted by the researchers. Descriptive research design is the best method to use, to observe and describe the characteristics and impact of green marketing practices in coffee shops like Starbucks.

According to McCombes (2019), descriptive research design aims to accurately and systematically describe a population, situation, or phenomenon. It can be used in a wide variety of quantitative and qualitative methods to investigate one or more variables. It also identifies characteristics, frequencies, trends, correlations and categories. Furthermore, the data will be gathered through survey questionnaires, and will be quantified to know the effectiveness of Green Marketing in Starbucks.

The descriptive research method is used to evaluate the effectiveness of Green Marketing in Starbucks: An assessment. The respondents of this study are customers, employees, administrators of Starbucks in Robinson Metro East - Pasig City. The respondents will be 100 consumers that are familiar with green marketing.

RESULTS AND DISCUSSION

Sub-problem No.1.: Profile of the Respondents

Table 1
Frequency and Percent Distribution of the Respondents According to the Type of Respondents

Types of Respondents	Frequency	Percentage	Rank
Customer	93	93	1
Employee	5	5	2
Administrator	2	2	3
TOTAL	**100**	**100**	

Table 1 presents the profile of the respondents in terms of their type. As shown in the table, most of the respondents were customers. Out of 100 respondents, 93 or 93% are from the said group. Followed by Employee consists of 5 or 5% respondents. The least number of respondents were Administrators with a share of 2 or 2% of the total number of participants.

Table 2
Frequency and Percent Distribution of the Respondents According to Age

Age	Frequency	Percentage	Rank
18-22 years old	57	57	1
23-27 years old	32	32	2
28-above years old	11	11	3
TOTAL	**100**	**100**	

Table 2 displays the profile of the respondents in terms of age. Based on the table, it can be seen that the majority of the participants aged 18 – 22 years old. Out of 100 respondents, 57 or 57% of individuals are from the said age group. Followed by the age of 23 – 27 years old with 32 or 32% On the other hand, respondents aged 28 – above years old were 11 or 11% of the entire participants. This statistic is significant in understanding the demographic of Starbucks customers. It provides insight into the age range of the majority of Starbucks customers, which can be used to inform marketing strategies and product offerings.

Table 3
Frequency and Percent Distribution of the Respondents According to Sex

Sex	Frequency	Percentage	Rank
Male	40	40	2
Female	60	60	1
TOTAL	**100**	**100**	

The profile of the respondents according to gender is presented in Table 3. As can be gleaned in the table, 60 or 60% of the 100 respondents are females, while 40 or 40% are males. Thus, the majority of the participants were females.

Given the study "Starbucks Customers Statistics and Trends in 2023" conducted by GIT UX BLOG, the findings stated that 61% of Starbucks customers are female. This statistic is significant in understanding the Starbucks customer base, as it revealed that the majority of customers are also female.

Table 4
Frequency and Percent Distribution of the Respondents According to Civil Status

Civil Status	Frequency	Percentage	Rank
Single	85	85	1
Married	14	14	2
Widowed	1	1	3
Separated	0	0	4
TOTAL	**100**	**100**	

Table 4 presents the profile of the respondents in terms of their civil status. As shown in the table, most of the respondents were single. Out of 100 respondents, 85 or 85% belong to these individuals. Followed by 14 or 14% of respondents were married. While widowed status has 1 respondent out of 100 respondents. On the other hand, none or 0% of the respondents claimed to be separated.

Based on Start.io Blog 2022, Starbucks target demographic includes students, professionals and employees. The typical Starbucks customer is single or newly married, as well as parents of younger or older children. It is a popular coffeehouse brand for a wide swath of the population in the middle to upper classes.

Sub-Problem No. 2: Assessment of the Effectiveness of Green Marketing Practices in Starbucks

Table 5
Assessment of the Effectiveness of Green Marketing Practices in Starbucks in Terms of Business Practices

A. Business Practices	Mean	Descriptive Interpretation	Rank
1. Support farmers to use sustainable practices and to promote environmental.	4.46	HE	3
2. Implemented community outreach programs to promote sustainable coffee farming practices and to protect wildlife.	4.33	HE	4
3. Enacted energy conservation practices in their stores, such as using LED lighting and energy-efficient equipment.	4.18	E	5
4. Established recycling and composting programs in their stores to help reduce waste and promote sustainability.	4.48	HE	2
5. Conducting a community tree planting which helps to reduce pollution.	4.50	HE	1
TOTAL	**4.39**	**HE**	

Legend: "4.20-5.00 (Highly Effective (HE))", 3.40-4.19(Effective (E))", 2.60-3.49 (Moderately Effective (ME))", 1,80-2.59 (Least Effective (LE))", 1.00-1.79 (Not Effective (NE))"

Based on Table 5, the total mean score for all the assessed practices is 4.39, indicating a high level of effectiveness in Starbucks' green marketing practices as a whole. The overall descriptive interpretation confirmed that Starbucks' green marketing practices are highly effective.

Conducting a community tree planting which helps to reduce pollution and support biodiversity obtained the highest weighted mean of 4.5 rank as 1. This is followed by Established recycling and composting programs in their stores to help reduce waste and promote sustainability with a weighted mean of 4.48 rank as 2. Support farmers to use sustainable practices and to promote environmental sustainability with a weighted mean of 4.46 rank as 3. Next, implemented community outreach programs to promote sustainable coffee farming practices and to protect wildlife habitats with a weighted mean of 4.33 rank as 4 lastly Enacted energy conservation practices in their stores, such as using LED lighting and energy-efficient equipment got the lowest weighted mean of 4.18 rank as 5.

In summary, Starbucks has demonstrated strong commitment and effectiveness in implementing green marketing practices related to supporting sustainable farming, protecting wildlife habitats, reducing waste, conserving energy, and promoting biodiversity.

On the other hand, based on "A Study on the Consumer Perception towards Green Marketing Practices in FMCG Products" Sharadhi, H. & Yarram, et al. (2023). The study investigated the relationship between green marketing practices and competitive advantage in the FMCG (Fast-moving consumer goods) industry. Overall, the findings revealed that the impact of green marketing practices on enhancing business in FMCG companies was insignificant. However, the study identified that green promotions specifically had a highly influential and positive effect on the distribution aspect of competitive advantage. This suggests that companies in the food and beverage sector can develop marketing strategies based on green promotional activities to gain a competitive edge in environmentally friendly practices.

Table 6
Assessment of the Effectiveness of Green Marketing Practices in Starbucks in Terms of Product Development

B. Product Development	Mean	Descriptive Interpretation	Rank
1. Produced a compostable packaging for food products that were made from plant-based materials.	4.49	HE	1
2. Improved cups with trendy and fresh designs.	3.89	E	5
3. Replaced all plastic straws with common straw alternatives; cold cup straw less lids or biodegradable paper.	4.39	HE	3
4. Reintroduced personal reusable cups, allowing the customers to use their own mugs and tumblers.	4.45	HE	2
5. Offer merchandise like Tumbler, straw, and reusable cups.	4.27	HE	4
TOTAL	**4.30**	**HE**	

Legend: "4.20-5.00 (Highly Effective (HE))", 3.40-4.19(Effective (E))", 2.60-3.49 (Moderately Effective (ME))", 1,80-2.59 (Least Effective (LE))", 1.00-1.79 (Not Effective (NE))"

Table 6 revealed the assessments of the effectiveness of green marketing practices in Starbucks in terms of Product Development rated with an overall weighted mean of 4.30 and verbally interpret as Highly effective while one item verbally interprets as Effective.

Produced a compostable packaging for food products that was made from plant-based materials obtained the highest weighted mean of 4.49 rank as 1. Followed by, Reintroduced personal reusable cups, allowing the customers to use their own mugs and tumblers with a weighted mean of 4.45. Replaced all plastic straws with common straw alternatives; cold cup straw less lids or biodegradable paper with a weighted mean of 4.38 rank as 3. Next, offer merchandise like Tumbler, straw, and reusable cups with a weighted mean of 4.27 rank as 4 and lastly, Improved cups with trendy and fresh designs got the lowest weighted mean of 3.89 rank as 5.

This suggests that customers value Starbucks' commitment to environmental sustainability and are responsive to their efforts to incorporate eco-friendly practices into their products.

According to the study " Analysis of Consumer Preference for Green Tea with Eco-Friendly Certification in China Sustainability" by Nam K, et al. (2022) The findings of this study suggest that people who are more aware of environmental issues are more likely to pay for green tea that has an eco-friendly certification compared to tea without certification.

Additionally, individuals who have a higher level of trust are also more inclined to pay for green tea that has an eco-friendly certification. The study used a popular choice experiment to estimate how much people are willing to pay (WTP) for different products. It ensured the results were objective.

Table 7
Assessment of the Effectiveness of Green Marketing Practices in Starbucks in terms of Waste Reduction

C. Waste Reduction	Mean	Descriptive Interpretation	Rank
1. Placed signs and messaging in its stores encouraging customers to practice proper waste disposal.	4.46	HE	2
2. Used its social media platforms to promote waste reduction and sustainability initiatives.	4.39	HE	4
3. Reintroduce reusable cups to help reduced plastic wastes with its trendy designs.	4.33	HE	5
4. Provides educational resources on its website and in its stores to help customers understand the environmental impact of their choices and how they can reduce waste.	4.43	HE	3
5. Offers compostable packaging as an eco-friendly solution to packaging waste and can be used to enrich soil and support plant growth.	4.50	HE	1
TOTAL	**4.42**	**HE**	

Legend: "4.20-5.00 (Highly Effective (HE))", 3.40-4.19(Effective (E))", 2.60-3.49 (Moderately Effective (ME))", 1,80-2.59 (Least Effective (LE))", 1.00-1.79 (Not Effective(NE))"

This Table 7 showed the assessments of the Effectiveness of Green Marketing Practices in Starbucks in terms of Waste Reduction rated with an overall weighted mean of 4.422. All items rated Highly Effective are: Offers compostable packaging as an eco-friendly solution to packaging waste and can be used to enrich soil and support plant growth obtained the highest weighted mean of 4.5 as rank 1. Followed by Placed signs and messaging in its stores encouraging customers to practice proper waste disposal with a weighted mean of 4.46 as rank 2. Next, Provides educational resources on its website and in its stores to help customers understand the environmental impact of their choices and how they can reduce waste with a weighted mean of 4.43 as rank 3. Followed by, Used its social media platforms to promote waste reduction and sustainability initiatives with a weighted mean of 4.39 as rank 4 and last Reintroduce reusable cups to help reduced plastic wastes with its trendy designs got a weighted mean of 4.33 as rank 5.

Rashid, M. H. A. (2022). Concept of 3R in the Context of Environmental Marketing stated that In environmental marketing as well as green marketing 3R refers to Reduce, Reuse, & recycle. Reduce, Reuse, and Recycle are three essential components of environmentally responsible consumer behavior. They are also essential for the sustainable development of environmental marketing. The concept of 3R is sometimes called the waste hierarchy.

Table 8 revealed the assessments of the Effectiveness of Green Marketing Practices in Starbucks in terms of Customer Satisfaction rated with an overall weighted mean of 4.49. All items rated Highly Effective are: Providing Information about green marketing in product and service advertisements is trustable and has a weighted mean of 4.56 as rank 1. This is followed by Customers like and support eco-friendly because its uses attributes, colors, flavors, forms and appearance of the product with a weighted mean of 4.51 as rank 2. Satisfied not just with their packaging but also with their foods and drinks with a weighted mean of 4.48 as rank 3. Next, Customers buys coffee that does not contain any chemical elements that can harm the environment and safe to customers with a weighted mean of 4.46 as rank 4 and last Customers consider buying the useful eco-friendly products or have a good quality for their packaging with a weighted mean of 4.44 as rank 5.

Table 8
Assessment of the Effectiveness of Green Marketing Practices in Starbucks in Terms of Customer Satisfaction

D. Customer Satisfaction	Mean	Descriptive Interpretation	Rank
1. Customers like and support eco-friendly because it uses attributes, colors, flavor, form and appearance of the product.	4.51	HE	2
2. Customers buy coffee that does not contain any chemical elements that can harm the environment and safe to consumer.	4.46	HE	4
3. Customers consider buying that use eco-friendly products or have a good quality for their packaging.	4.44	HE	5
4. Satisfied not just with their packaging but also with their foods and drinks.	4.48	HE	3
5. Providing information about green marketing in product and service advertisements is trustable.	4.56	HE	1
TOTAL	**4.49**	**HE**	

Legend: "4.20-5.00 (Highly Effective (HE))", 3.40-4.19(Effective (E))", 2.60-3.49 (Moderately Effective (ME))", 1,80-2.59 (Least Effective (LE))", 1.00-1.79 (Not Effective(NE))"

Studies have shown the significant influence of environmental knowledge and consciousness on consumer environmental attitude. Consequently, companies that communicate their 'green product' in their packaging, advertisement or manufacturing process, gain satisfied customers. Because of the green trend, companies that fail to 'go green' are not failing to fail in their industry. Customers want to associate themselves with companies and products that are eco-friendly. (Abiudon, B. 2017)

Problem 3. Significant difference between the assessments of the respondents as aforementioned variable

Table 9
Significance Difference Between Type of Respondents and Assessment to Effectiveness of Green Marketing Practice in Starbucks

Green Marketing Practice	Pearson Chi-Square Value	p-value	Decision	Remarks
Business Practices	12.831	.938	Fail to reject Ho	Not Significant
Product Development	15.828	.605	Fail to reject Ho	Not Significant
Waste Reduction	31.367	.089	Fail to reject Ho	Not Significant
Customer Satisfaction	23.248	.181	Fail to reject Ho	Not Significant
Overall	**76.097**	**.663**	**Fail to reject Ho**	**Not Significant**

Relationship is significant at level .05 (p-value).

The Table 9 revealed the relationship test between Type of respondents and assessment to the effectiveness of green marketing practices in Starbucks.

As the table illustrated, all of the variables such as business practices, product development, waste reduction and customer satisfaction have no significant relationship between the Type of respondents and Assessment to The Effectiveness of Green Marketing Practice in Starbucks, which fail to reject Ho of the study. The p-value represents the statistical significance of the variables. If the p-value is less than .05 the relationship is significant, however if the p-value is greater than .05 the relationship is not significant.

Specifically, Business Practices with p- value of .938; Product Development with p- value of .605; Waste Reduction with p- value of .089 lastly, Customer Satisfaction with p- value of .181 and with overall p-value .663.

Starbucks is a company applied to go green and concerned about the environment. Moreover, it is supported by the policy regarding the plastic cups minimization and recycled materials used in Starbucks outlets. The objectives of the study are (1) To determine the effect of green marketing on Starbucks coffee brand image in Malang, (2) To determine the effect of brand image on buying interest in Starbuck Coffee in Malang. This research was conducted at Starbucks Malang City Point and Starbucks Kota Araya in March-July 2019. The object of the research was the brand image (X1) green marketing (X2) and buying interest. The data were analyzed using qualitative descriptive analysis, reliability test analysis, and path analysis. The results were (1) Green Marketing had positive and significant effects on Brand Image in other words the better quality of Green Marketing impacted on Brand Image quality improvement Starbucks Outlets in Malang (2) Brand Image had positive and significant effects on buying interest, in another sense better Brand Image of Starbucks Outlets in Malang impacted on consumer buying interest enhancement.

Table 10
Significance Difference Between Age and Assessment to Effectiveness of Green Marketing Practice in Starbucks

Green Marketing Practice	Pearson Chi-Square Value	p-value	Decision	Remarks
Business Practices	14.506	.883	Fail to reject Ho	Not Significant
Product Development	10.882	.889	Fail to reject Ho	Not Significant
Waste Reduction	25.889	.256	Fail to reject Ho	Not Significant
Customer Satisfaction	13.866	.738	Fail to reject Ho	Not Significant
Overall	**100.404**	**.082**	**Fail to reject Ho**	**Not Significant**

Relationship is significant at level .05 (p-value).

The Table 10 revealed the relationship test between respondent's age and assessment to effectiveness of green marketing practices in Starbucks.

As the table revealed, all of the variables such as business practices, product development, waste reduction and customer satisfaction have no significant relationship with the respondent's assessment, which fail to reject Ho of the study. The p-value represents the statistical significance of the variables. If the p-value is less than .05 the relationship is significant, however if the p-value is greater than.05 the relationship is not significant.

Specifically, business practices with p-value of .883; product development with p-value of .889; waste reduction with p-value of .256; last, customer satisfaction with pvalue of .082 and with p-value of .082.

Age is one of the important demographic characteristics in the assessment of respondents. On the other hand, the study revealed that age does not significantly affect the assessments of the respondents on four variables such us business practices, product development, waste reduction and customer satisfaction. This result is opposed and not consistent with the previous study. According to the study of Wibowo and Wulandari (2022), based on age, it is known that Starbucks consumers or visitors are of productive age. Starbucks also has a large segmentation of consumers at a young or productive age.

Table 11
Significance Difference Between Sex and Assessment to Effectiveness of Green Marketing Practice in Starbucks

Green Marketing Practice	Pearson Chi-Square Value	p-value	Decision	Remarks
Business Practices	12.856	.303	Fail to reject Ho	Not Significant
Product Development	15.070	.704	Fail to reject Ho	Not Significant
Waste Reduction	10.775	.462	Fail to reject Ho	Not Significant
Customer Satisfaction	6.453	.694	Fail to reject Ho	Not Significant
Overall	**41.339**	**.456**	**Fail to reject Ho**	**Not Significant**

Relationship is significant at level .05 (p-value).

This table revealed the significance difference between Sex and Assessment to Effectiveness of Green Marketing in Starbucks across various categories: business practices, product development, waste reduction, customer satisfaction, and the overall assessment.

Based on the table, the chi-square tests were conducted to determine if there is a statistically significant relationship between sex and the assessment of effectiveness. The results of the chi-square tests revealed that there is no significant difference between sex in the assessment of the effectiveness of green marketing practices in Starbucks. The p-values associated with each category are all above the commonly used threshold of 0.05, indicating that the differences observed are likely due to chance and not influenced by the sex of the respondents.

Similarly, for product development, waste reduction, and customer satisfaction, the chi-square tests indicate no significant relationship between sex and the assessment of effectiveness. The p-values of 0.462, 0.694, and 0.456, respectively, all exceed the threshold of 0.05, which fail to reject the Ho of the study.

In summary, based on the data presented, there is no significant difference between sexes in terms of their assessment of the effectiveness of green marketing practices in Starbucks. These findings suggest that both males and females perceive the effectiveness of green marketing practices in a similar manner, and the impact of sex on the assessment of effectiveness is not statistically significant.

Sex is a significant demographic attribute when evaluating respondents. However, the study found that the sex of the respondents has no significant impact on their assessments of four variables: business practices, product development, waste reduction, and customer satisfaction. Gender differences have been found to have varying effects on customer satisfaction across different studies. While in some cases the impact is significant, in others it is not. Interestingly, even in studies where the overall impact is considered non-significant, there are still noticeable distinctions in how male and female customers or staff members perceive and expect service quality, indicating that gender plays a role in shaping these perceptions

Table 12
Significance Difference Between Civil Status and Assessment to Effectiveness of Green Marketing Practice in Starbucks

Green Marketing Practice	Pearson Chi-Square Value	p-value	Decision	Remarks
Business Practices	21.994	.460	Fail to reject Ho	Not Significant
Product Development	16.471	.560	Fail to reject Ho	Not Significant
Waste Reduction	108.691	.000	Reject Ho	Significant
Customer Satisfaction	18.498	.423	Fail to reject Ho	Not Significant
Overall	**101.794**	**.068**	**Fail to reject Ho**	**Not Significant**

Relationship is significant at level .05 (p-value).

The table showed waste reduction has significant difference to effectiveness of Green Marketing practices in Starbucks, which reject the Ho of the study. However, business practices, product development, and customer satisfaction has no significant difference to effectiveness of green marketing practices in Starbucks, which fail to reject the Ho of the study. The p-value represents the statistical significance of the variables. If the p-value is less than .05 the relationship is significant, however if the p-value is greater than the .05 the relationship is not significant.

Specifically, Waste Reduction has a significant difference to effectiveness of Green Marketing in Starbucks with a p-value of .000. Business Practices has no significant difference to effectiveness of Green Marketing with p-value of .460; Product Development has no significant difference to effectiveness of Green Marketing with p-value of .560; Customer Satisfaction has no significant difference to effectiveness of Green Marketing with p-value of .423.

As stated by Everything to know (2022) Target Audience Segmentation is Green marketing often involves segmenting the target audience based on various demographic factors, such as age, income, and lifestyle. Civil status could be one of many demographic variables used to identify specific consumer segments interested in environmentally friendly products or sustainability practices.

Problem 4. Problems Encountered by the respondents

The problems encountered by the respondents are presented in table 13. Based on the table, statement 3, (*Green products are costly or pricy*) ranked the highest.

While the statement 9, (*Using plant-based milk or vegan food options may not have been suitable for all customers with dietary restrictions*) ranked the lowest. Lezoraine (2021) stated that alternatives were either difficult to find or more expensive, that is why more than half of Filipinos said it was difficult to be environmentally responsible. Despite these obstacles, many Filipinos claimed to have noticed an improvement in friends' and families' conduct in the Philippines.

Table 13
Problems Encountered by the Respondents

Problems Encountered	Rank
1. Lack availability of raw materials	3
2. Highly cost premiums products	2
3. Green products are costly or pricy	1
4. Misleading advertising around green efforts	8
5. Inconsistent quality of products	5
6. Inconsistencies in sustainable practices that caused confusion	6
7. Limited availability of sustainable options so that if they forgot to bring reusable cup, may not have a convenient alternative to a single-use cups	4
8. Some locations don't have the resources or infrastructure to implement certain initiatives, leading to inconsistencies in the customer experience	7
9. Using plant-based milk or vegan food options may not have been suitable for all customer with dietary restrictions	10
10. Some products, such as coffee cups and straws, may be difficult to replace with preference or product functionality	9

CONCLUSIONS AND RECOMMENDATIONS

Based on significant findings of the study, the following conclusions were drawn:

1. Majority of the respondents are customers, a population of females that aged 18-22 years old and had marital status of single.

2. Most of the respondents agreed that the implementation of green marketing practices in Starbucks has been highly effective across various aspects of the business. The highest weighted means were obtained for conducting community tree planting, producing compostable packaging, offering compostable packaging as a waste reduction solution, and providing trustworthy information about green marketing in product and service advertisements.

3. The researchers conclude that the effectiveness of green marketing creates and provides great information, importance of sustainability on their purchasing decisions when it comes to aforementioned variables.

4. Majority of respondents encountered a problem in Starbucks to be more environmentally responsible as they found green products as expensive or pricey.

Based on the summary of findings and the conclusions drawn therefrom, the following recommendations are proposed:

1. Organize events and workshops at EARIST to raise awareness about green marketing, sustainability, and environmental conservation. This can help in educating students and staff about the importance of making environmentally responsible choices.

2. Implement waste reduction initiatives within the campus. Encourage the use of reusable cups, containers, and utensils. Offer incentives or discounts for customers who bring their own reusable items.

3. They could create informative and engaging content. This could include info graphics, videos, blog posts, or even just images that highlight Starbuck's green marketing practices. Make sure the content is well written and visually appealing, and that it is relevant to the target audience.

4. They could partner with other businesses that share their commitment to green marketing it is a great way to reach a new audience and promote green marketing practices. They could collaborate on a social media campaign, or even host a joint event. It may also help company to find affordable raw materials in exchange of promoting green marketing to decrease the price of their eco-friendly products.

5. Starbucks should be focusing in young generation regarding their advocacies about green marketing and how it would help future generations. Utilize social media platforms to promote Starbucks' green initiatives and engage with the student community. By sharing updates and success stories, Starbucks can inspire others to take part in the movement.

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PUBLIC EMPLOYMENT SERVICE SYSTEM: JOB SEARCH AND APPLICATION FOR GENERAL MARIANO ALVAREZ CAVITE

Rowee M. Marfil
Kimberly Ann M. Ong

INTRODUCTION

The internet has had an impact on the everyday lives of every individual as it plays a role in providing information. Nowadays it serves as a platform for sharing information and creating opportunities for individuals to pursue their desired career paths. Many industries utilize this platform to facilitate job searches with a click. The integration of technologies into the business world has greatly benefited both employees and employers. Integrated technologies can make data more organized, accessible, and easier to share [18]. In the world of technology where everything is accessible to people of all ages smartphones as a convenient device. These smartphones offer functionalities such, as communication, task management and even browsing for potential opportunities.

Public Employment Services worldwide also adapt in this digital age by creating mobile apps and job portals for applicants to choose a career. In connection, the researcher created a mobile application for the applicants and a system for the Public Employment Service Office (PESO) in General Mariano Alvarez Cavite. This kind of job portal helps applicants pass their requirements to the PES office. The mobile app contains job postings and an account of the possible applicant, while the system will be used by the administrator and staff. The administrator and staff can delete, insert, and update information in the mobile app using the system, and the application of the user will be received by the PES system. The importance of the system and mobile app is to have an easier and more convenient way of recruiting applicants for their respective jobs or chosen careers.

METHODS OF DATA ANALYSIS

The descriptive-developmental approach was used since this type of approach aims to describe and analyze and is useful in evaluating the PESO mobile application in different variables like performance effectiveness, performance efficiency, user interface design, flexibility, accuracy, security option, and help option. This method helps the researchers to obtain information on the current state of phenomena.

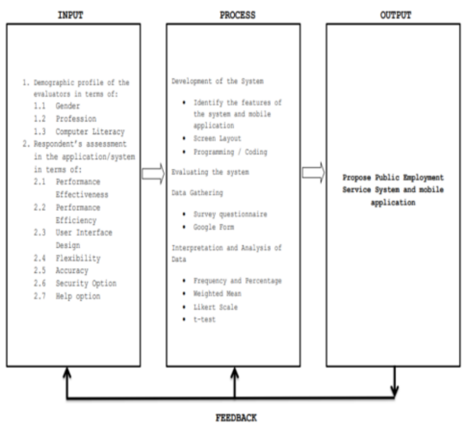

Figure 1. Conceptual Framework of the Research

Dataset collection

A survey questionnaire on a Google form was administered by the researchers and then the collected was analyzed using SPSS Application [8]. This method allowed the questionnaire to be disseminated to get the level of assessment of the valuators in the system and mobile application. The respondents consisted of the applicants who entered the office of the Public Employment Service in General Mariano Alvarez, Cavite, PESO staff, and IT experts. Before gathering data, the researchers prepared a letter of intent to be presented to the Public Employment Service office in GMA, Cavite, requesting to use and evaluation of the system. The researchers coordinated and went to the PES office to include the information in the system and mobile application [8] [11].

Population and Sample

The respondents consisted of the applicants who entered the office of the Public Employment Service in General Mariano Alvarez, Cavite, PESO staff, and IT experts.

Table 1
Population and Sampling Size

Evaluator	Population	Sampling	Percentage
Applicants	1,300	126	87%
PESO Staff	9	9	6%
IT Exoert	10	10	7%
Total	**1,319**	**145**	**100%**

Table 1 shows the population and sampling size of the respondents. There 126 or 87 percent of the respondents belong to the applicant's group; there are nine (9) or six (6) percent are PESO staff; and there are 10 or seven (7) percent are IT experts. A total of 145 respondents participated in this study.

Purposive sampling was used to select the PESO staff and IT experts as primary data sources. This method is a non-probability sampling technique in which the researchers select the sample based on their own judgment to achieve the objective of the study. Meanwhile, convenience sampling was used to select the applicants as respondents. This method is a non-probability sampling technique in which the researcher selects the sample based on convenience. The sample size was selected because there was no access to the full target population for a sample

Data Analysis

The researcher used frequency and percentage to analyze the data gathered from the questionnaire. Frequency was used to determine the exact number of respondents, while percentage was used to describe the respondents' part of the whole [12]. The researcher used a weighted mean and Likert scale to get the level of assessment of the user to the system and application. The Likert scale is a type of scale used to assess people's opinions, and respondents are asked to rate items at the contract level on this scale [12] [13]

The researcher used a t-test to determine the significant difference on the assessment of evaluators when grouped according to profile. The t-test is a statistical test that compares the mean and standard deviation of two samples to see if there is a significant difference between them [14] [15].

RESULTS AND DISCUSSION

Table I – VII shows the descriptive statistics of the respondent's assessment of the application. The average weighted Mean for Tables I, II, and III, the computed average mean is equivalent to the verbal interpretation of Very Acceptable. Tables IV, V, and VI also have an average mean that is equivalent to Very Acceptable despite some indicators that are rated as Strongly Acceptable. However, Table VII got a computed mean which is equivalent to Strongly Agree.

Table I
Assessment of the Respondents on Application in Terms of Performance Effectiveness

Indicators	Mean	Interpretation	Rank
Able to perform all required tasks	4.48	VA	1
Able to perform all tasks that may be desired in the future	4.39	VA	4
Well-designed appropriateness of display screens	4.47	VA	2
Adequate capacity to perform the required tasks	4.45	VA	3
Average Weighted Mean	**4.44**	**VA**	

Note: 4.50 – 5.00 SA(Strongly Acceptable); 3.50 – 4.49 VA(Very Acceptable); 2.50 – 3.49 A(Acceptable); 1.50 -2.49 LA (Less Acceptable); 1.00 – 1.49 NA(Not Acceptable)

Table I shows all indicators with a high Mean interpreted as Very Acceptable as the assessment of the respondents on the PESO Application in terms of Performance Effectiveness. "Able to perform all required tasks" and "Well-designed appropriateness of display screens" ranked 2 m this suggests that, on average, the first 2 indicators were highly rated by the respondents with a mean of 4.48 and 4.47 respectively. Indicators "Adequate capacity to perform the required tasks" and "Able to perform all tasks that may be desired in the future" ranked 3rd and 4th respectively (see Table I)

Table II
Assessment of the Respondents on Application in Terms of Performance Efficiency

Indicators	Mean	Interpretation	Rank
Fast response in time	4.42	VA	3.5
Efficient input	4.42	VA	3.5
Efficient output	4.46	VA	1
Efficient backup	4.38	VA	2
Average Weighted Mean	**4.42**	**VA**	

Note: 4.50 – 5.00 SA(Strongly Acceptable); 3.50 – 4.49 VA(Very Acceptable); 2.50 – 3.49 A(Acceptable); 1.50 -2.49 LA (Less Acceptable); 1.00 – 1.49 NA(Not Acceptable)

Table II presents the respondent's assessment of the PESO Application in terms of Performance Efficiency. All indicators are interpreted as "Very Acceptable" (VA) with the computed mean of 4.46, 4.38, and 4.42 respectively. This shows that there is a high level of satisfaction with the performance-related aspect of the application supported by the computed average mean of 4.42 which is also Very Acceptable.

Table III
Assessment of the Respondents on Application in Terms of Accuracy

Indicators	Mean	Interpretation	Rank
Capable to do computation when needed	4.41	VA	2
Able to perform the required tasks without error or mistakes	4.37	VA	3
Provide accurate dialog box and response according to the system	4.43	VA	1
Average Weighted Mean	**4.40**	**VA**	

Note: 4.50 – 5.00 SA(Strongly Acceptable); 3.50 – 4.49 VA(Very Acceptable); 2.50 – 3.49 A(Acceptable); 1.50 -2.49 LA (Less Acceptable); 1.00 – 1.49 NA(Not Acceptable)

Table III presents the assessment of the respondents on the PESO Application in terms of Accuracy. All indicators are interpreted as “Very Acceptable” supported by the computed mean of 4.43, 4.41, and 4.37 respectively suggesting that the system performs well according to these criteria; "Provision of dialog boxes and responses, by the system" ranked first. This shows that the application provides accurate dialog boxes and responses to end-users. The rest of the indicators received a Very Acceptable evaluation which is ranked 2 and 3, respectively. The application developed shows that it is capable and reliable in terms of computation and task execution.

Table IV
Assessment of the Respondents on Application in Terms of User Interface Design

Indicators	Mean	Interpretation	Rank
Focus on basic objectives	4.51	SA	2
Build an interface that is easy to learn and use	4.47	VA	3
Make it easy for users to obtain help or correct errors	4.41	VA	6
Minimize input problems	4.41	VA	6
Provide feedback to users	4.41	VA	6
Create an attractive layout and design	4.44	VA	4
Use familiar terms and images	4.54	SA	1
Average Weighted Mean	**4.45**	**VA**	

Note: 4.50 – 5.00 SA(Strongly Acceptable); 3.50 – 4.49 VA(Very Acceptable); 2.50 – 3.49 A(Acceptable); 1.50 -2.49 LA (Less Acceptable); 1.00 – 1.49 NA(Not Acceptable)

Table IV shows an overall computed mean of 4.45, which is interpreted as Very Acceptable as the assessment of the respondents on the PESO Application in terms of User Interface Design. The Indicators “Use familiar terms and images”, ranked 1, and “Focus on basic objectives”, ranked 2 with computed mean of 4.54 and 4.51 respectively and both are interpreted as Strongly Acceptable. “Build an interface that is easy to learn and use”, and “Create an attractive layout and design” indicators received the computed mean of 4.44 which is ranked 3, and 4.47 ranked 4, while all the indicators "Make it easy for users to obtain help or correct errors", "Minimize input problems", and "Provide feedback to users" received the same computed high mean of 4.44 and ranked 6 (see Table IV).

This suggests that the system includes the applicable and correct terminology, and images aligned with the system's core objectives to ensure the ease of use of the user, playing a vital factor in developing effective application software in terms of User interface Design that provides effective output to the users.

Table V
Assessment of the Respondents on Application in Terms of Flexibility

Indicators	Mean	Interpretation	Rank
Options for input	4.42	VA	5
Options for output – Generates Report	4.32	VA	7
Attain the purpose of the output	4.43	VA	3.5
Indicates the needed information	4.41	VA	6
Output can be displayed and viewed on screen.	4.50	SA	2
Conceptual design-depicts the new system showing its scope, overall architecture and relationship to the other system	4.43	VA	3.5
Usability	4.51	SA	1
Average Weighted Mean	**4.46**	**VA**	

Note: 4.50 – 5.00 SA(Strongly Acceptable); 3.50 – 4.49 VA(Very Acceptable); 2.50 – 3.49 A(Acceptable); 1.50 -2.49 LA (Less Acceptable); 1.00 – 1.49 NA(Not Acceptable)

Table V shows the assessment of respondents in terms of Flexibility of the PESO application. It was rated as Very Acceptable (VA) with a mean of 4.46. The indicators "Usability" ranked 1 and "Output can be displayed and viewed on-screen" ranked 2 interpreted as Strongly Acceptable (SA) supported by the computed mean of 4.51, and 4.50 respectively. The rest of the indicators for Table V receive a high computed value mean of 4.43, 4.42, 4.41, and 4.32 respectively, and are interpreted as Very Acceptable (VA). All in Table V shows positive results of assessment from the evaluators which means that the system demonstrates and is able or fit to be used for essential aspects in Job Application and Screening of applicants (see Table V).

Table VI
Assessment of the Respondents on Application in Terms of Help Option

Indicators	Mean	Interpretation	Rank
Provides help option for accessing the system	4.52	SA	1
Able to give appropriate information	4.42	VA	3
Able to give information of frequently asked questions	4.49	VA	2
Average Weighted Mean	**4.48**	**VA**	

Note: 4.50 – 5.00 SA(Strongly Acceptable); 3.50 – 4.49 VA(Very Acceptable); 2.50 – 3.49 A(Acceptable); 1.50 -2.49 LA (Less Acceptable); 1.00 – 1.49 NA(Not Acceptable)

Table VI presents another assessment of the respondent in terms of help options. Table VI shows an average computed mean of 4.48 which is interpreted as Very acceptable (VA). Indicators "Provides help option for accessing the system" received rank 1, "Able to give information of frequently ask questions" rank 2, and "Able to give appropriate information" received a rank 3 with a computed mean of 4.52 which is Strongly Acceptable (SA), 4.49, and 4.42 which is Verry acceptable (VA). This suggests that the evaluator of the system agrees that the availability of help options is a very essential feature of a system that is needed by the users [16]. (see Table VI).

Table VII
Assessment of the Respondents on Application in Terms of Security Option

Indicators	Mean	Interpretation	Rank
Provides security options for accessing the system	4.51	SA	2
Requires a username and password	4.53	SA	1
Authentication before a user can log in	4.50	SA	3
Provides a level user interface that includes roles and policies	4.46	VA	4
Average weighted mean	**4.50**	**SA**	

Note: 4.50 – 5.00 SA(Strongly Acceptable); 3.50 – 4.49 VA(Very Acceptable); 2.50 – 3.49 A(Acceptable); 1.50 -2.49 LA (Less Acceptable); 1.00 – 1.49 NA(Not Acceptable)

As to the assessment of the evaluators of the PESO application in terms of Security options, it shows a computed average mean of 4.50 which is Strongly Acceptable (SA). The indicators “Requires a username and password”, “Provides security options for accessing the system”, and “Authentication, before a user can log in” for Table VII is interpreted as Strongly Acceptable (SA) with computed mean of 4.53, 4.51, 4.50 and ranked as 1, 2, 3 respectively. “Provides a level user interface that includes roles and policies” is ranked 4 with a computed mean of 4.46 which is Very Acceptable (VA) (see Table VII).

This suggests that by providing different security measures like requiring a username and password, providing security options for accessing the system, and requiring authentication, different levels of users increased satisfaction with the user experience, as one important aspect of the development of software in Security options. Implementing security measures will help protect the systems, especially the data of the users from cyber-attacks and the like [17].

FINDINGS

Most of the respondents were male, with a total of 49 percent, followed by female respondents with 47 percent, while 4 percent preferred not to say. As to profession, the highest number of respondents were end-users with a total of 87 percent, followed by IT experts at 7 percent and PESO staff at 6 percent. As to computer literacy, the highest number of respondents were not proficient with a total of 75 percent, followed by proficient with 14 percent, and highly proficient with 11 percent.

Table 12
Difference Between the Assessment of the Evaluators When Grouped According to Gender

Variables	p-value	Hypothesis	Interpretation
Performance Effectiveness	0.712	Accept Ho	Not significant
Performance Efficiency	0.366	Accept Ho	Not significant
Graphical User Interface	0.956	Accept Ho	Not significant
Flexibility	0.244	Accept Ho	Not significant
Accuracy	0.229	Accept Ho	Not significant
Security	0.136	Accept Ho	Not significant
Help Option	0.192	Accept Ho	Not significant

Note: Level of Significance at 0.05

As to gender, there is no significant difference in respondents on the application as to performance effectiveness, performance efficiency, graphical user interface, flexibility, accuracy, security, and help option supported by computed p-values of 0.712, 0366, 0.956, 0.244, 0.229, 0.136 and 0.192, this means that gender does not appear to have a statistically significant impact on how evaluators rate these variables (see Table XII).

Table 13
Difference Between the Assessment of the Evaluators When Grouped According to Profession

Variables	p-value	Hypothesis	Interpretation
Performance Effectiveness	0.068	Accept Ho	Not significant
Performance Efficiency	0.005	Reject Ho	Significant
Graphical User Interface	0.300	Accept Ho	Not significant
Flexibility	0.183	Accept Ho	Not significant
Accuracy	0.181	Accept Ho	Not significant
Security	0.419	Accept Ho	Not significant
Help Option	0.772	Accept Ho	Not significant

Note: Level of Significance at 0.05

As to profession, there is a significant difference in the assessments of the respondents on the application as to performance efficiency based on the computed p-value of 0.005. There is a significant difference in the assessments of evaluators based on their professions for the "Performance Efficiency" variable, but no significant differences for the other variables (see Table XIII).

Table 14
Difference Between the Assessment of the Evaluators When Grouped According to Computer Literacy Level

Variables	p-value	Hypothesis	Interpretation
Performance Effectiveness	0.077	Accept Ho	Not significant
Performance Efficiency	0.175	Accept Ho	Not significant
Graphical User Interface	0.062	Accept Ho	Not significant
Flexibility	0.078	Accept Ho	Not significant
Accuracy	0.335	Accept Ho	Not significant
Security	0.009	Reject Ho	Significant
Help Option	0.006	Reject Ho	Significant

Note: Level of Significance at 0.05

As to computer literacy level, There is a significant difference in the assessments of evaluators based on their computer literacy level for the "Security" and "Help Option" variables based on the computed p-values of 0.009 and 0.006 but no significant differences for the other variables. This means that there is a statistically significant difference in how evaluators with different computer literacy levels assess security aspects. Evaluators with varying levels of computer literacy perceive security differently when evaluating a system or product. Organizations should pay close attention to security-related concerns raised by evaluators with varying computer literacy levels and consider tailoring security measures accordingly, Furthermore, there is a statistically significant difference in how evaluators with different computer literacy levels assess the availability and usefulness of help options and security features. This suggests, development of any application should consider tailoring help and support features to accommodate the needs and expectations of users with varying levels of computer literacy (see Table XIV).

The graphical user-interface (GUI) of the PESO system is presented in the Figure 1 showing the main tabs of the application which is consist of ‘Applicants’, ‘Companies’, ‘Settings’, ‘Generating a Report’ tabs, the dashboard contains ‘Job Hiring’, ‘Employers’, ‘Applicants’, and ‘Users’. Figure 2 presented the mobile application of the PESO, indicating the necessary content on the home page, showing all relevant job position match to the profile of the user.

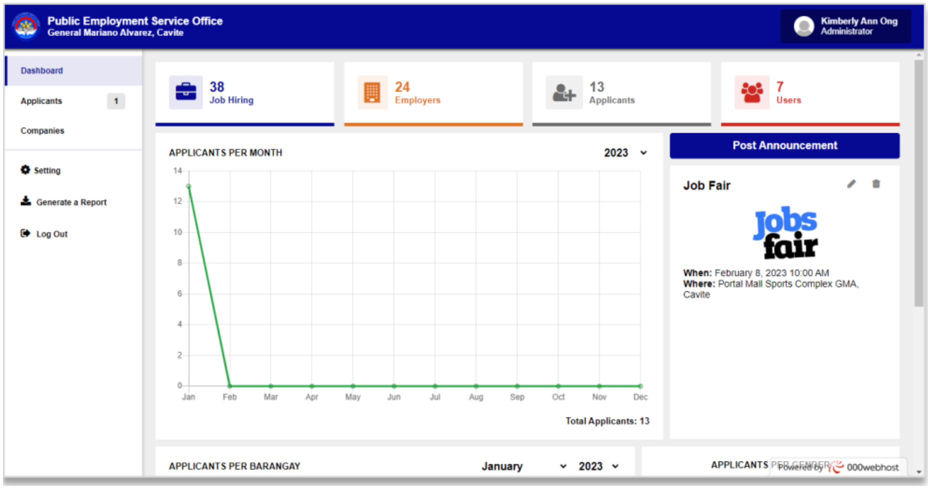

Figure 1. The main dashboard of the PESO System

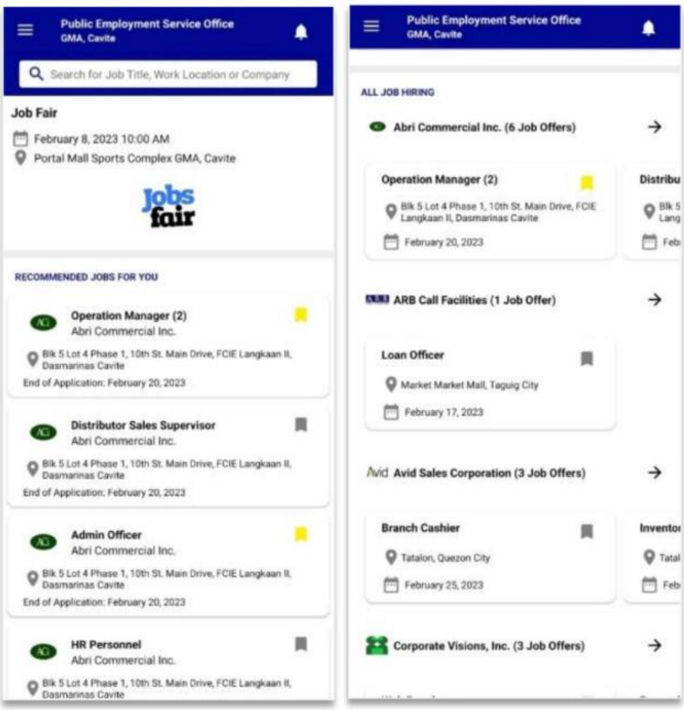

Figure 2. The Home page of Mobile application for PESO

CONCLUSION AND FUTURE PLANS

This research concluded that the “security option” of the application is strongly acceptable, which is highest among all of the variables that are used in the application The evaluator's responses on performance effectiveness, performance efficiency, user interface design, flexibility, accuracy, and help options are very acceptable.

There is no connotation between respondents’ genders. Whereas, there is a significant difference in respondents’ profession on performance efficiency and computer literacy level on security and help options

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PERSPECTIVES AND PRACTICES OF MIDDLE MANAGERS OF THEIR COMPETENCIES

Joseph T. Moraca

INTRODUCTION

Management is about ideas, people and resources. It is about making the best of the resources one has and maximizing staff potential, equipment, time, money and space. The organization in the academe consists of three levels of managers; these are top managers, middle managers, and first line managers and non-management who work together aimed towards the achievement of a goal.

Middle management is a vital position with a distinctive role. They are entrusted with important work that no one else can do. They think about the bigger picture and work in accordance to achieve optimal productivity. However, not all middle managers possess all the aforementioned capabilities, perspectives and practices to effectively carry out their responsibilities in the organizations they belong to because of lack of experience in decision-making as well as in planning and organization. In view of the aforementioned, many of the said ideas about the problems of academic middle managers' that is highly emphasized on the significance of middle managers' managerial competencies, abilities, leadership, management role and responsibilities and leadership training programs which are meant to help middle managers' address their professional shortcomings and concerns.

This study is premised on Management Competency Theory of Silva (2016) about competencies in management. According to Silva (2016) one must look ahead on the impact it may take on the organization while various aspects of management and leadership behaviour termed competencies in organization are contemporarily needed to bring optimum work performance. Guided by the theory, the researcher sensed the necessity to look into the competencies and relation practices of the middle managers in the academe. It explains that to make a standard work, it is important to possess the right skills and performance of middle managers that align with the organization's strategic direction, provide an impact and affect everyone in the organization. It helps the organization achieve good results and maintain its desired culture. The executive or top managers must understand how they will contribute to the organization's strategic positions and goals of what is expected from the middle managers, and how they are doing as it focuses on the growth and development of both organization and their subordinate.

The Independent Variable-Dependent Variable model was used as the conceptual framework of this study. The IV-DV model was deemed suitable for the purpose of the study since it aims to determine the relationship between the perspectives and practices of middle managers' competencies. The study considered also the Intervening Variables which consists the demographic criteria of the respondents such as age, sex, academic rank, designation/appointed position, number of years of teaching experience and highest educational attainment. The results would be the basis to undertake a development process which requires an analysis of the organization's needs as well as the design and development of a sustainable competency-building program to address the identified needs.

The main concern of the study was to determine the relationship between the perspectives and practices of middle manager's competencies. In particular, the first statement of the problem is (1). What is the profile of the middle managers' based on the following criteria: Age; Sex; Academic Rank; Designated position; Number of years of teaching experience; and Educational qualification? (2.) How may the perspectives of middle managers' and their subordinate on their competencies be determined in terms of the following domains such as: (1) advocacy; (2) communication skills; (3) financial skills; (4) self-leadership; and (5) problem management and resolution? (3). What are the practices of the middle managers' competencies in terms of the following indicators: (1) communication; (2) decision making; (3) negotiations; (4) task management; and (5) empowerment? (4). Is there a significant difference between the perspectives and practices of the middle managers' competencies? and (5). What are the perspectives of the middle managers' and subordinates on their competencies as extracted from focus group discussions in terms of the following domain: (1). advocacy; (2). communication skills; (3). financial skills; (4). self-leadership; and (5). problem management and resolution?

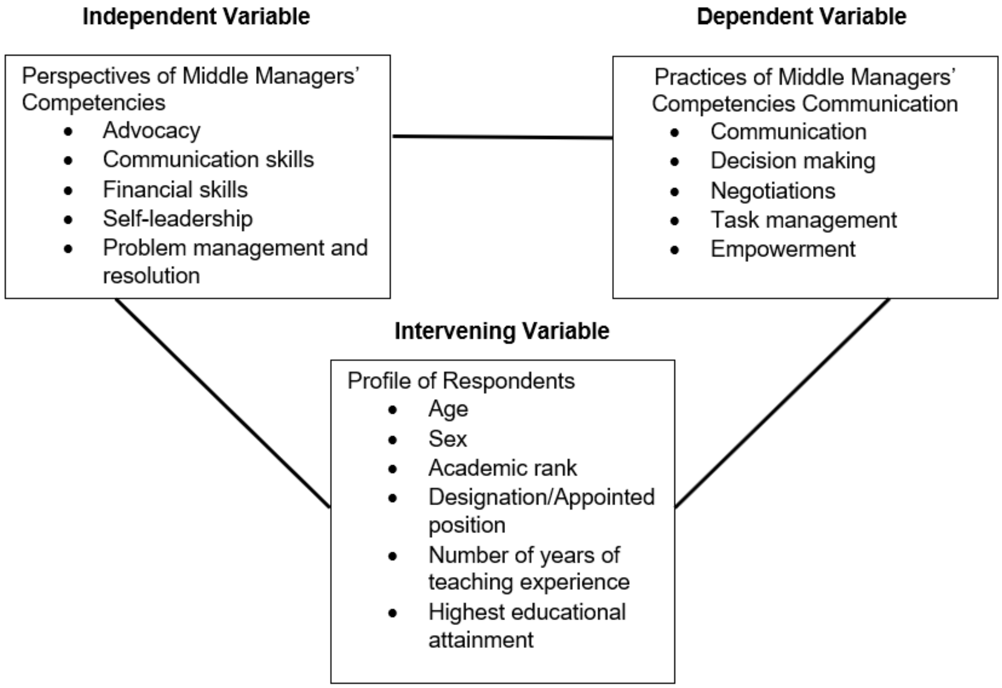

Figure 1. The Conceptual Model of the Study

METHOD

The Convergent Parallel model, a mixed method in triangulation design was utilized for this study. A convergent parallel design entails that the researcher concurrently conducts the quantitative and qualitative in the same phase of the research process. This design includes quantitative and qualitative research design in order to expand and strengthen the findings and conclusion of the researcher about middle manager's perspective and practices of their competencies. Furthermore, this convergence mixed method research involves collecting and analyzing quantitative and qualitative data separately on the same phenomenon and then the different results are converged by means of comparing and contrasting during the interpretation. The researcher of this study want to validate and confirm quantitative results with qualitative findings on perspectives and practices of middle managers' of their managerial competencies of state universities and colleges because the researcher will rely on the quality of data gathered in preparing a sustainable competency-building program for middle managers' that will be used by the different HEIs to mentor and guide middle managers in preparation to become leader in the academe or be part of the executive officials of their respective institution.

Because of the nature of the study involved, total population sampling and stratified sampling methods were employed in the selection of middle managers and subordinates as respondents and participants in this study. Respondents will be identified during the pre-survey conducted by the researcher. Pre-survey was conducted in order to determine the number of middle managers' and subordinates as target participants/respondents of this study. The basis of selection criteria for respondents and participants has been identified by the researcher through the survey of the different CHED Memorandum Order for Policies, Standards and Guidelines of the program/ unit.

Table 1
Respondents of the Study

State Universities and Colleges	Middle Managers'		Subordinate	
	Total Population	Sample	Total Population	Sample
SUCs A.	42	42	210	81
SUCs B.	10	9	51	10
SUCs C.	10	10	49	10
SUCs D.	33	31	165	66
Total	**95**	**92**	**475**	**167**

The data-gathering procedure of this study will be conducted with utmost consideration to the privacy of the respondents. Permission to conduct the study in the SUCs will be sought through written correspondence with the university administrators. As for the respondents/participants, their participation will be oriented about the study and their consent sought before they take part in it. They will be asked to sign a written consent before they participate in the survey, interview and focus group discussion. In order to ensure the confidentiality and liabilities of the participants and respondents to this study, the following steps will be observed: (1) any information collected from you during your participation in this survey will be anonymous. You will not be identified as no name/s are required for participation in this study, and all identifying information will be de-identified in the recording and interpretation process. The data and information collected will only be accessed by the researcher. (2) Participation in this study is on a voluntary basis, even if you decided to participate in the survey, you may withdraw anytime. No adverse action will be taken against you for withdrawing your participation as respondents. Any information that you may not wish to reveal will be highly observed by the researcher. If you wish to terminate your participation in this study, please inform the researcher immediately, so that your responses can be separated and destroyed right at that point. During the data gathering, the respondents/participants are given the prerogative to refrain from answering questions and their request for this will be granted and respected. All the data that will be gathered from the informants will be treated with the utmost confidentiality. Furthermore, the researcher will ensure the protection of the participants' identities and rights in accordance with the Data Privacy Act of 2012.

RESULTS AND DISCUSSION

Statement of the Problem 1

More than half of the respondents were 40 – 49 years old; almost two-thirds are male respondents. And the academics ranks of the respondents were almost equally distributed from instructors, assistant professor to Associate Professor. Almost all of the respondents handling the position of department/program chair. Furthermore, more than half of the respondents have been teaching for more than ten (10) years.

Statement of the Problem 2

On the perspectives of the middle managers and their subordinates on the competencies of the former have the highest level of agreement in each of the domains:

- In terms of ADVOCACY – The middle managers advocate on behalf of individuals and support networks to address their needs, expectations and priorities.
- In terms of COMMUNICATION SKILLS – In giving feedback, the middle managers foster self-improvement and constructive criticism rather than defensiveness or anger.
- In terms of FINANCIAL SKILLS – The middle managers listen openly and attentively to others when they share ideas about financial parameters.
- In terms of SELF-LEADERSHIP – The middle manager fulfills his/her responsibilities and commitments and demonstrates professionalism and responsibility, and
- In terms of PROBLEM MANAGEMENT AND RESOLUTION – The middle manager practices proactiveness in both opportunities and problems.

Statement of the Problem 3

The following competencies of the middle managers have the highest level of practice in the following indicators:

- In terms of COMMUNICATION – the middle managers communicate effectively at all levels of university/college management.
- In terms of DECISION MAKING, the middle managers exercise flexibility.
- In terms of NEGOTIATIONS, the middle managers design programs with stakeholders to address the need of the institution.
- In terms of TASK MANAGEMENT, the middle managers have values and respect the contribution of all members to meeting the needs of the individual in the department/unit.
- In terms of EMPOWERMENT, the middle managers disseminate regular updates on different in-service training programs available for members of the academic community.

Statement of the Problem 4

The post analyses on the test of the relationship between the middle managers' perspectives and practices, the study found out that there is a significant relationship between advocacy and the communication practices of middle managers. Also, between communication skills and each of the managerial practices such as communication, decision making, negotiations, task management, and empowerment. Also, between financial skills and communication practices.

On the other hand, there is no significant relationship between self-leadership and each of the managerial practices such as communication, decision making, negotiations, task management, and empowerment among the middle managers.

Statement of the Problem 5

During the focus group discussions, the following were observed:

From the responses of the participants of focus group discussion, quality accomplishment and activities of empowerment was the theme developed for advocacy. For communication skills openness and fairness and activities of giving periodic feedback as theme developed from the responses of the participants. It can be also deduced from the data that only the middle manager has a direct involvement on financial skills domain and the subordinates have no participation. Likewise, the data construe that middle manager prepares the annual budget plan to meet the department/unit objectives and targets. Also, professionalism and authority with respect are the theme developed from the responses of participants. The middle manager demonstrates good leadership to his/her subordinates. Additionally, the middle manager addresses complaints especially on faculty loading as commonly faced by his/her unit.

CONCLUSION

Based on the significant findings of the study, the following were concluded.

1. Majority or most of the middle manager respondents were 40 – 49 years old, male, with the academic rank of Instructor handling the position of Department/Program Chair, and have been teaching for more than ten years.

2. The respondents agree on the middle managers' competencies in terms of communication skills and self-leadership, but they slightly agree in terms of advocacy, financial skills, and problem management and resolution competencies.

3. The middle managers assessed themselves that they moderately practiced the following competencies such as communication, decision-making, negotiation, task management, and empowerment.

4. It was found that the middle managers had the same views and assessments on their perspectives and practices when grouped according to the number of years in teaching experience, while the rest of the profile had shown significantly different.

5. It was found that the advocacy, communications skills, and financial skills of the middle managers were related with their managerial practices.

6. From the focus group discussion of middle managers and subordinates, the participants developed themes about on the perspectives of middle managers of their competencies. Middle managers produce quality accomplishment and exhibit good leadership through openness and fairness. It also enumerates the activities of middle managers in terms of empowerment and giving feedback of their performance. Furthermore, the focus group discussion also mentioned the common problems in the department are frequent complaint against the subordinates and uneven distribution of faculty loading.

7. The developed sustainable competency-building program for middle managers serve as a guide and template to conduct seminar and training for the middle managers and faculty to enhance their competencies on school governance and management.

8. This study is anchored on Management Competency Theory of Silva (2014) about competencies in management. The Management Competency Theory of Silva (2014)

states that in order “to provide standard work, it is necessary to possess the right skills and knowledge of the ground rules of the task at hand. Likewise, integrity and commitment and a sense of responsibility are essential for managers that this might help improve employee’s performance in attaining all the outstanding goals” Based from the findings of the study middle managers’ perspectives of their competencies agree in terms of communication skills and self-leadership, but they slightly agree in terms of advocacy, financial skills, and problem management and resolution competencies. Furthermore, the middle managers assessed themselves that they moderately practiced the following competencies such as communication, decision-making, negotiation, task management, and empowerment, this assessment is further supported by the findings of the focus group discussion. The theory of Management Competency Theory of Silva (2014) is proven by this present study that the communication skills, self-leadership, advocacy, financial skills, problem management and resolution, communication, decision-making, negotiation, task management, and empowerment are the right skills of the middle managers to attain the target goals of the institution.

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ASSESSING THE APPRECIATION AND RECOGNITION OF EARIST-MANILA AS EMPLOYEE RETENTION STRATEGIES

Hernan M. Oliveros, DBA

INTRODUCTION

Employees stand as the cornerstone of a company's prosperity, evolving into invaluable assets with each passing moment within the organization. Recognizing the pivotal role, they play a robust retention program emerges as a linchpin for organizational triumph, not only fortifying employee morale and motivation but also cultivating a reservoir of seasoned professionals. Elevating retention practices transcends the mere preservation of staff; it acts as a catalyst for a cascade of benefits, from curbing turnover rates and streamlining hiring processes to fostering a cadre of high-caliber, seasoned workforce. By conscientiously directing attention towards refining these practices, organizations can effectively mitigate turnover challenges, thereby ensuring the sustained expansion and enrichment of their workforce.

The EARIST Faculty Manual (2018-2019) is the institutional handbook that serves as a guide and reference for members of the institution. It typically contains essential information about policies, procedures, guidelines, and other important details relevant to the institution's operation. It meticulously delineates the suggestions and incentive awards system, strategically designed as retention strategies with the overarching goal of enhancing institutional well-being. This structured approach aims to cultivate a culture of creativity, innovation, efficiency, integrity, and productivity in public service. Within this framework, the institute formulated criteria for screening candidates eligible for Institute Level Awards. Noteworthy is the inclusive nature of these awards, as nominees are drawn from both academic and non-academic personnel, irrespective of their position or role within the various services and offices. This deliberate inclusivity ensures that recognition and incentives are bestowed upon deserving individuals, fostering a sense of equity and motivation across the entire spectrum of the institution. In this Faculty Manual, faculty and staff is not only expected to be outstanding scholars in their respective fields. They ought to embody the values that the institution upholds which, apart from academic freedom and rigorous scholarship, also include excellence, accountability, resourcefulness, integrity, service-oriented, and teamwork.

Robbins (2019) believed recognition is appropriate and necessary when it’s earned and deserved, while appreciation is important all the time. Jamal (2021) stated that the rewards system and job satisfaction of employees nowadays is the problem of every company. Pick (2023) explained that to increase employee retention, you must first understand the psychology behind Appreciation and Recognition. Royall et al, (2021), explained that an inclusive workplace is one that gives its employees a sense of value and makes them feel as though they are an important component of the company because its success depends on their contribution.

In today's difficult global economy, work related stress is high, stress along with other health impairing factors can affect work productivity, satisfaction, safety, absenteeism, turnover, and even workplace violence, which is why organizations are increasingly turning to occupational health psychology to develop, maintain, and promote the health of employees (Pfister, 2019). The dissatisfaction among some employees regarding the institution's recognition practices, leading to instances where they choose to leave the company. The sources of discontent vary, ranging from strained relationships with coworkers to issues within the workplace environment. In some cases, employees disengage due to overwhelming workloads, inadequate salary and rewards, and a sense of being undervalued for their contributions to the company and institutions. Despite the faculty and staff being well-informed about the rewards and recognition practices outlined in the faculty manual, there is a noticeable gap in actual acknowledgment. Peer motivation for professional development is lacking, often complicated by varying work environments. Although training opportunities for career improvement exist, employees still express a feeling of being undervalued. Additionally, there's a prevailing fear of potential layoffs.

So, this study aims to use appreciation and recognition instrument used by EARIST Administration to assess the level of retention of staff and faculty members in the Eulogio "Amang" Rodriguez Institute of Science and Technology (EARIST). This research would like to assess the institutional programs in recognizing excellent employees of the institution. In addition, encountered problems by the employees will be included in this research.

METHODOLOGY

Research Design

The descriptive research method is usually defined as a type of quantitative research, though qualitative research can also be used for descriptive purposes. The research design should be carefully developed to ensure that the results were valid and reliable. Description research is to find a piece of valid and reliable information by providing facts for which were scientific about the nature of objects and persons. Hence, the researcher wants to find out the truth.

Population and Sampling

The respondents of the study are composed of were seventy-two (72) full-time faculty employees in various departments and twenty-eight (28) full-time staff in different offices a total of one-hundred (100) staff and faculty personnel of Eulogio "Amang" Rodriguez Institute of Science and Technology (EARIST-Manila). The study made use of purposive-convenience sampling. Purposive sampling relies on the judgment of researchers when choosing the best-fit participants that were relevant to the research context. Purposive sampling allows the researcher to gather subjective information, resulting in more informative and precise research results. The sampling unit being studied is not a representation of the population but rather for researchers wanting to pursue qualitative or mixed-methods research design.

Table 1
Faculty Respondent as to Educational Attainment

Educational Attainment	Faculty		Staff		Total	
	f	%	f	%	f	%
Doctorate Degree	24	33.33	3	10.71	27	27.00
Doctorate with earned units	6	8.33	2	7.14	8	8.00
Master's Degree	9	12.50	3	10.71	12	12.00
Master's with earned units	28	38.89	5	17.86	33	33.00
Bachelor's Degree	5	6.94	15	52.57	20	20.00
Total	**72**	**100.00**	**28**	**100.00**	**100**	**100.00**

As represented in Table 1, distributions of respondents as to educational attainment are as follows: 33 or 33.00 percent are masters with earned units, 27 or 27.00 percent have doctorate degree, 20 of 20.00 percent have bachelor's degree, 12 or 12.00 percent have master's degree, and 8 or 8.00 percent are doctorate with earned units. most respondents in terms of Faculty members are master's with earned units and staff are obtained bachelor's degree.

Research Instrument

The research instruments utilized to gather data had included stated below:

A survey questionnaire developed by the researcher was used to evaluate appreciation and recognition by the Faculty and Staff of EARIST. It was composing of two parts: Part I was designed to gather the demographic profile of the respondents. The Part II was designed to allow respondents to express how essential they view employees' appreciation and recognition.

After perusing the literature, a draft survey questionnaire was presented and submitted to the adviser and panelists for comments and suggestions. The revised questionnaire was then distributed to two respondents to test run the questionnaire. The suggestions, corrections and recommendations were collated and reflected in the questionnaire for modification purposes.

The study adopted content validity which indicated whether the test items represented the content that the test was designed to measure. The pilot study assisted in determining accuracy, clarity, and suitability of the instruments. It helped identify inadequate and ambiguous items such that those that failed to measure the variables were modified or disregarded completely and new items added. Validation through pre-survey will be administered to faculty and staff employees who were involved in the study. The conducted survey questionnaire started from May 14, 2023 to May 25, 2023 for Academic Year 2022-2023.

Data Gathering Procedures

The following approach and course of action were observed in gathering the needed data for the study. The researcher secured a letter of approval from the operation authority of the EARIST-Manila Campus in conducting the survey to the faculty and staff. The data were collected and compile and evaluate the accumulated data and information with the support and assistance of the statistician and the adviser. Analyze and interpret the results of the data with the help of an adviser. Present the results of the data in graphical and descriptive form of presentation.

The data collection started with the acquisition of necessary permissions. A formal letter of approval was obtained from the operational authority of the EARIST-Manila Campus, granting permission to conduct a survey among the faculty and staff.

Subsequently, data gathering ensued, and the collected information underwent a thorough process of compilation and evaluation. The researcher collaborated with a proficient statistician and sought guidance from the adviser throughout this phase. The accumulated data were rigorously analyzed, and results were interpreted in collaboration with the adviser, ensuring a comprehensive and accurate understanding.

To enhance the clarity of presentation, the study utilized graphical and descriptive formats, effectively conveying the findings. This multi-faceted approach, incorporating methodical data collection, expert collaboration, and clear presentation, strengthened the integrity and comprehensibility of the study's outcomes.

According to LaMarca (2011), Likert scales are more advantageous and universal methods for survey collection that are easily understood. since it does not require the participant to provide a simple and concrete yes or no and it does not force them to take a stand on a specific topic but allows them to respond with a degree of agreement thus making it easier to answer with a manner of choosing to agree, disagree or to be neutral. Moreover, the responses are easily quantifiable and subjective to computation.

The concept of the boundary of the numerals will be used as follows.

Employee recognition and appreciation practices

Scale	Range	Verbal Interpretation	Symbol
5	4.20-5.00	Strongly Agree	SA
4	3.40-4.19	Agree	A
3	2.60-3.39	Neutral	N
2	1.80-2.59	Disagree	D
1	1.00-1.79	Strongly Disagree	SD

Problem Encountered in the Employee Appreciation and Recognition

Scale	Range	Verbal Interpretation	Symbol
5	4.20-5.00	Highly Encountered	HE
4	3.40-4.19	Encountered	E
3	2.60-3.39	Moderately Encountered	ME
2	1.80-2.59	Least Encountered	LE
1	1.00-1.79	Not Encountered	NE

RESULTS AND DISCUSSIONS

The assessment of the established practices in recognizing employees of EARIST-Manila as to recognition and appreciation rated as Agree with an overall weighted mean of 4.19 is tabulated in Figure 1. Four (4) items rated as Strongly Agree, namely: fully understands the reward and recognition practices of the institution with a composite weighted mean of 4.25 as rank 1; provides employee evaluation of an employee's work performance to recognize and appreciate their contribution in the organization with a composite weighted mean of 4.24 as rank 2; and ensures that recognition and appreciation are equally received by every employee; and appreciates and recognizes employee's achievement with both the composite weighted mean of 4.21 as rank 3 and 4. One (1) item rated as Agree which is recognized appropriately when they perform well at their regular duties with a composite weighted mean of 4.04 as rank 5.

As to assessments of the groups of respondents on the established practices in recognizing employees of EARIST-Manila as to recognition and appreciation are as follows: staff rated as Strongly Agree with an overall weighted mean of 4.25, and faculty rated as Agree with an overall weighted mean of 4.12.

It only shows that the school has fulfilled the objectives for rewards and recognition practices which is to encourage, recognize and retain the employees. As stated in the EARIST Faculty Manual (2018), the institution shall encourage creativity, innovativeness, efficiency, integrity, and productivity in the public service by recognizing and rewarding the employees for their suggestions, inventions and other personnel efforts that contribute to the improvement and accomplishment of the institutions.

In support of the results of the findings, Jamal (2021) proved the rewards and recognition systems are a huge help to the organization to form job involvement, boost morale participation in decision-making, task significance and recognition that creates a positive and cooperative atmosphere and commitment of employees. In this regard, the recognition and rewards practice should not only come up with monetary rewards but also develop new strategies to promote productivity and commitment of individual.

Table 1
Established Practices in Recognizing Employees of EARIST-Manila As to Recognition and Appreciation

Indicators	Faculty		Staff		Composite		Rank
	WM	VI	WM	VI	WM	VI	
1. Ensures that recognition and appreciation are equally received by every employee.	4.06	A	4.36	SA	4.21	SA	3.5
2. Provides employee evaluation of an employee's work performance to recognize and appreciate their contribution in the organization.	4.18	A	4.29	SA	4.24	SA	2
3. Recognizes appropriately when they perform well at their regular duties.	4.04	A	4.04	A	4.04	A	5
4. Appreciates and recognizes employee's achievement.	4.10	A	4.32	SA	4.21	SA	3.5
5. Fully understands the reward and recognition practices of the institution.	4.24	SA	4.25	SA	4.25	SA	1
Overall Weighted Mean	**4.12**	**A**	**4.25**	**SA**	**4.19**	**A**	

Legend:

Range	*Scale*	*Verbal Interpretation*	*Symbol*
5	*4.20-5.00*	*Strongly Agree*	*SA*
4	*3.40-4.19*	*Agree*	*A*
3	*2.60-3.39*	*Neutral*	*N*
2	*1.80-2.59*	*Disagree*	*D*
1	*1.00-1.79*	*Strongly Disagree*	*SD*

As shown in Table 2, the assessment of the established practices in recognizing employees of EARIST-Manila as to job security rated as Agree with an overall weighted mean of 3.95. One (1) item rated as Strongly Agree which is the security that the job provides guarantees a long-term stay in the workplace with a composite weighted mean of 4.34 as rank 1. Four (4) items rated as Agree, such as: career mobility is encouraged within the organization to help improve the skills set of every employee with a composite weighted mean of 4.07 as rank 2; experience being rewarded for doing the job well that leads to staying in the workplace even more with a composite weighted mean of 3.99 as rank 3; there is no problem in regard to regularization with a composite weighted mean of 3.91 as rank 4; and faculty and staff have the fear of being laid off with a composite weighted mean of 3.47 as rank 5.

Table 2
Established Practices in Recognizing Employees of EARIST-Manila As to Job Security

Indicators	Faculty		Staff		Composite		Rank
	WM	VI	WM	VI	WM	VI	
1. The security that the job provides guarantees a long-term stay in the workplace.	4.29	SA	4.39	SA	4.34	SA	1
2. Faculty and staff have the fear of being laid off.	3.40	A	3.54	A	3.47	A	5
3. Career mobility is encouraged within the organization to help improve the skills set of every employee.	4.10	A	4.04	A	4.07	A	2
4. There is no problem in regard to regularization.	3.88	A	3.93	A	3.91	A	4
5. Experience being rewarded for doing the job well that leads to staying in the workplace even more.	3.90	A	4.07	A	3.99	A	3
Overall Weighted Mean	**3.91**	**A**	**3.99**	**A**	**3.94**	**A**	

As to assessments of the groups of respondents on the established practices in recognizing employees of EARIST-Manila as to job security rated as Agree, these are: staff with an overall weighted mean of 3.99, and faculty with an overall weighted mean of 3.91.

It determines that the job security as established practices in recognizing employees is acknowledged for the following purposes: Long-term Job Security, Career Mobility and Skills Set Improvement, Recognition Experiences for doing their job well, Guaranteed Regularization and the fear of being laid-off.

Ertürk (2022) confirmed that Job Satisfaction is influenced by many elements, including pay, incentives, working environment, career chances, loyalty to the company, and work-life balance that impacts the employee's performance and productivity. In connection with, the importance of being recognized leads employees to be loyal and stay in the institution with a long-term vision. Also, encouraging career mobility enhances every employee's skills set that is essential for them to be sufficient and effective to continuously improve and be beneficial in the institution.

As unveiled in Table 3, the assessment of the established practices in recognizing employees of EARIST-Manila as to training and development rated as Agree with an overall weighted mean of 4.06. All items rated as Agree, namely: provides training that design learning goals to enhance current work assignments and cultivate a career ready improvement with a composite weighted mean of 4.14 as rank 1; understands the broader professional goals of individual employees and provides training and development opportunities that support those endeavors with a composite weighted mean of 4.13 as rank 2; provides training that helps increase the motivation level of employees with a composite weighted mean of 4.11 as rank 3; provides sufficient necessary material and equipment to perform the work properly with a composite weighted mean of 4.06 as rank 4; and there is an equal opportunity for all the employees to attend the training with a composite weighted mean of 3.90 as rank 5. As to assessments of the groups of respondents on the established practices in recognizing employees of EARIST-Manila as to training and development are as follows: staff rated as Strongly Agree with an overall weighted mean of 4.21, and faculty rated as Agree with an overall weighted mean of 3.91.

Table 3
Established Practices in Recognizing Employees of EARIST-Manila
As to Training and Development

Indicators	Faculty		Staff		Composite		Rank
	WM	VI	WM	VI	WM	VI	
1. Provides sufficient necessary material and equipment to perform the work properly.	3.82	A	4.29	SA	4.06	A	4
2. Understands the broader professional goals of individual employees and provides training and development opportunities that support those endeavors.	4.00	A	4.25	SA	4.13	A	2
3. Provides training that helps increase the motivation level of employees.	3.89	A	4.32	SA	4.11	A	3
4. Provides training that design learning goals to enhance current work assignments and cultivate a career ready improvement.	4.07	A	4.21	SA	4.14	A	1
5. There is an equal opportunity for all the employees to attend the training.	3.79	A	4.00	A	3.90	A	5
Overall Weighted Mean	**3.91**	**A**	**4.21**	**SA**	**4.06**	**A**	

It identifies that the training and development practices in recognizing employees were provided, namely: create goals for learning to enhance current work, training and development opportunities that support them, and necessary material and equipment. In addition, this boosts motivation, and commitment to the organization. Diwakar (2019) reiterated that job-related training helps employees better understand the professional goals that support their job, enhance their work tasks, and develop a career that will make them more confident.

As depicted in Table 4, the assessment of the established practices in recognizing employees of EARIST-Manila as an inclusive workplace environment rated as Agree with an overall weighted mean of 4.10. One (1) item rated as Strongly Agree which is someone who encourages and motivates them to enhance their professional development at work with a composite weighted mean of 4.27 as rank 1. Four (4) items rated as Agree, such as: provides an environment for free and open expression, ideas, opinions, and beliefs with a composite weighted mean of 4.13 as rank 2; fosters a workplace that allows employees to be themselves at work without fear with a composite weighted mean of 4.12 as rank 3; able to engage with diverse groups of people and get networking opportunities with a composite weighted mean of 4.04 as rank 4; and the opinion of the employees is greatly valued and respected with a composite weighted mean of 3.96 as rank 5.

Table 4
Established Practices in Recognizing Employees of EARIST-Manila
As to Inclusive Workplace Environment

Indicators	Faculty		Staff		Composite		Rank
	WM	VI	WM	VI	WM	VI	
1. The opinion of the employees is greatly valued and respected.	3.99	A	3.93	A	3.96	A	5
2. Able to engage with diverse groups of people and get networking opportunities.	3.96	A	4.11	A	4.04	A	4
3. Fosters a workplace that allows employees to be themselves at work without fear.	4.06	A	4.18	A	4.12	A	3
4. Provides an environment for free and open expression, ideas, opinions, and beliefs.	4.14	A	4.11	A	4.13	A	2
5. Have someone who encourages and motivates them to enhance their professional development at work.	4.15	A	4.39	SA	4.27	SA	1
Overall Weighted Mean	**4.06**	**A**	**4.14**	**A**	**4.10**	**A**	

As to assessments of the groups of respondents on the established practices in recognizing employees of EARIST-Manila as an inclusive workplace environment rated as Agree, these are: staff with an overall weighted mean of 4.14, and faculty with an overall weighted mean of 4.06.

It reveals that inclusive work environment practices in recognizing employees were offered, specifically: peer motivation for professional development, an environment with provision in freedom of expression, a workplace that helps employees be themselves, engagement with diverse groups and employees feeling valued and respected.

Zhenjing et al. (2022) pointed out that workers are more willing to integrate their extraordinary use of skills, abilities, and knowledge to achieve success in a welcoming and supportive workplace environment. It has been observed that the workplace environment stimulates employee commitment and employee achievement-striving ability which further improves employee performance. Furthermore, employees will be more productive and motivated at work if they are surrounded by supportive and encouraging people to accomplish their work tasks.

As summarized in Table 5, the overall assessment of the established practices in recognizing employees of EARIST-Manila rated as Agree with the grand mean of 4.08. All items rated as Agree, namely: recognition and appreciation with a composite weighted mean of 4.19 as rank 1; inclusive workplace environment with a composite weighted mean of 4.10 as rank 2; training and development with a composite weighted mean of 4.06 as rank 3; and job security with a composite weighted mean of 3.95 as rank 4.

Table 5
Summary on the Established Practices in Recognizing Employees of EARIST-Manila

Indicators	Faculty		Staff		Composite		Rank
	WM	VI	WM	VI	WM	VI	
1. Recognition Appreciation	4.12	A	4.25	SA	4.19	A	1
2. Job Security	3.91	A	3.99	A	3.95	A	4
3. Training and Development	3.91	A	4.21	SA	4.06	A	3
4. Inclusive Workplace Environment	4.06	A	4.14	A	4.10	A	2
Grand Mean	**4.00**	**A**	**4.15**	**A**	**4.08**	**A**	

Generally, the assessments of the groups of respondents on the established practices in recognizing employees of EARIST-Manila rated as Agree, such as: staff with the grand mean of 4.15, and faculty with the grand mean of 4.00.

It only shows that the faculty and staff have observed the established practices with regards to retention strategies in particular with Appreciation and Recognition, Job Security, Training and Development and Inclusive Workplace Environment.

As reflected in Table 6, the computed t-values are as follows: recognition and appreciation with 0.09890, job security with 0.06361, training and development with 0.23530, and inclusive workplace environment with 0.06558 were lower than the critical value of 1.86 with 8 degrees of freedom with 0.05 level of significance. Hence, there is no significant difference in the established practices in recognizing employees of EARIST-Manila as assessed by faculty and staff. Hence, the hypothesis is accepted.

Table 6
Comparative Assessment on the Employee Appreciation and Recognition Categories As Assessed by the Faculty and Staff

Indicator	Faculty		Staff		df	t-value	Critical Value	Decision	Interpretation
	WM	SD	WM	SD					
1. Recognition Appreciation	4.12	0.007	4.25	0.016	8	0.09890	1.86	Accept Ho	Not Significant
2. Job Security	3.19	0.110	3.99	0.094	8	0.06361	1.86	Accept Ho	Not Significant
3. Training and Development	3.19	0.014	4.12	0.016	8	0.23530	1.86	Accept Ho	Not Significant
4. Inclusive Workplace Environment	4.06	0.007	4.14	0.027	8	0.06558	1.86	Accept Ho	Not Significant

Legend: Level of Significance –0.05

As displayed in Table 7, the assessment of the problems encountered on the established practices in recognizing employees of EARIST-Manila rated as Encountered with an overall weighted mean of 3.44. Five (5) items rated as Encountered, these are: provides limited career/promotion opportunities with a composite weighted mean of 3.81 as rank 1; displayed favoritism/unfair treatment with a composite weighted mean of 3.60 as rank 2; lack of communication between changes or decisions from administrators to faculty and staff causes confusion among information with a composite weighted mean of 3.55 as rank 3; a full work schedule causes employees to not attend training and seminars that are required in expertise enhancement with a composite weighted mean of 3.49 as rank 4; and tendency of administrators to neglect appreciation and recognition with a composite weighted mean of 3.40 as rank 5. Five (5) items rated as Moderately Encountered, namely: workplace conflict is one of the reasons for employee turnover; and poor training leads to a number of challenges in the workplace that can also lead to increased employee frustration and demotivation at work with both the composite weighted mean of 3.36 as rank 6 and 7; lack of appreciation and recognition resulting in employee turnover with a composite weighted mean of 3.32 as rank 8; the scarcity of job opportunities is a factor that employees retain to the institution with a composite weighted mean of 3.30 as rank 9; and employees felt disrespected at work with a composite weighted mean of 3.27 as rank 10.

Table 7
Problems Encountered on the Established Retention Programs in Recognizing Employees of EARIST-Manila

Indicators	Faculty		Staff		Composite		Rank
	WM	**VI**	**WM**	**VI**	**WM**	**VI**	
1. Provides limited career / promotion opportunities.	3.86	E	3.75	E	3.81	E	1
2. Displayed favoritism / unfair treatment.	3.44	E	3.75	E	3.60	E	2
3. Employees felt disrespected at work.	3.17	ME	3.36	ME	3.27	ME	10
4. Tendency of administrators to neglect appreciation and recognition.	3.33	ME	3.46	E	3.40	E	5
5. Lack of appreciation and recognition resulting in employee turnover.	3.25	ME	3.39	ME	3.32	ME	8
6. Lack of communication between changes or decisions from administrators to faculty and staff causes confusion among information.	3.53	E	3.57	E	3.55	E	3
7. Workplace conflict is one of the reasons for employee turnover.	3.33	ME	3.39	ME	3.36	ME	6.5
8. Poor training leads to a number of challenges in the workplace that can also lead to increased employee frustration and demotivation at work.	3.28	ME	3.43	E	3.36	ME	6.5
9. The scarcity of job opportunities is a factor that employees retain to the institution.	3.14	ME	3.46	E	3.30	ME	9
10. A full work schedule causes employee to not attend training and seminars that are required in expertise enhancement.	3.40	E	3.57	E	3.49	E	4
Overall Weighted Mean	**3.37**	**ME**	**3.51**	**E**	**3.44**	**E**	

Legend:

Range	***Scale***	***Verbal Interpretation***	***Symbol***
5	*4.20-5.00*	*Highly Encountered*	*HE*
4	*3.40-4.19*	*Encountered*	*E*
3	*2.60-3.39*	*Moderately Encountered*	*ME*
2	*1.80-2.59*	*Least Encountered*	*LE*
1	*1.00-1.79*	*Not Encountered*	*NE*

As to assessments of the groups of respondents on the problems encountered on the established practices in recognizing employees of EARIST-Manila are as follows: staff rated as Encountered with an overall weighted mean of 3.51, and faculty rated as Moderately Encountered with an overall weighted mean of 3.37.

CONCLUSIONS

The established retention practices in Recognition and Appreciation, Job Security, Training and Development and Inclusive Workplace Environment were agreed. Consequently, the four sub-variables were ranked from highest to lowest as appreciation and recognition appears to top, inclusive workplace environment as the second, training and development as the third and job security as the least. This indicates that for the faculty and staff, it is more important for them to be appreciated and recognized along with having a workplace that has an inclusive environment than having job security because even if job security is guaranteed, the employees themselves have the right to decide whether they will stay in the institution or not.

Faculty and staff have similar assessments as to Appreciation and Recognition for retention strategies. The hypothesis is accepted if there is no significant difference in the established program in EARIST-Manila.

The identified problems by the faculty and staff in the established retention practices are divided into two results. Among the ten (10) presented problems, there are five (5) issues that rank the most encountered by the faculty and staff. These implies that the institution provides limited career/ promotion opportunities; displayed favoritism/ unfair treatment; lack of communication between changes or decisions from administrators to faculty and staff causes confusion among information; a full work schedule causes employee to not attend training and seminars that are required in expertise enhancement; and tendency of administrators to neglect appreciation and recognition. While the remaining five (5) issues presented are moderately encountered, which means the faculty and staff experience it however, it is less likely to be affected by the way employees want to be recognized and appreciated.

RECOMMENDATIONS

Based on the findings and conclusion the following recommendations are drawn: Update the EARIST Faculty Manual with the elevated and more precise appreciation and recognition practices that will meet the needs of both the faculty and staff to continue the existing system in which can provide a more specific and aligned policies and programs that is being performed in the institution regarding the necessity of the academic and non-academic personnel.

Establish an intervention program to improve the retention practices that are beneficial to both the faculty and staff for them to be more motivated and productive in the workplace.

An employees' engagement and commitment may emerge from the cooperative efforts of the institution and their co-employees in identifying the problems that cause employees to be demotivated at work. The institution should work out a specific plan of action to identify the work-related issues evolving in any area or field. Such supervision promotes a healthy environment in which continuous improvement becomes an essential part of recognizing the efforts and contributions of the employees.

Explore ways in which they can help the institution to be more connected with their employees to provide an efficient system like workshops, conferences and team building that supports career growth opportunities, engagement, and collaboration, and foster a culture of recognition and appreciation method fairly for everyone.

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AWARENESS IN DATA PRIVACY LAW AMONG BPA STUDENTS ITS RELATION TO ONLINE CLASS MODALITY

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INTRODUCTION

The Researcher studied the significance and the benefits of having awareness in Data Privacy Law or known as R.A. No. 10173 towards the respondents of the study and as well as to the future readers. The accessibility of data and technological improvements that enable the fastest and more accurate generating and processing of useful information help us. Information is necessary to monitor programs, develop knowledge and innovation, make data-driven policies, improve the effectiveness and convenience of our interactions with the society and more. People should know about the fact that their information is being collected and should have the ability to exercise control over how their information is being used. Data Privacy is one of our fundamental rights that should be respected by everyone.

A Data Privacy law was implemented in 2012 it is also called the Data Privacy Act, which is described as "An Act Protecting Individual Personal Information in Information and Communications Systems in the Government and the Private Sector, Creating for This Purpose a National Privacy Commission, and for Other Purposes" (R.A. No. 10173). The law's intended purpose is to safeguard natural persons or individuals through the protection of their persona1 information, as is evident from the title. In accordance with the Data Privacy Act, these people are known as "data subjects" (DPA).

Online data sharing included elements like the grades, attendance, subjects, records, and a lot of records for the students. Previously, only the administration, guidance counselor, teacher, or other faculty reliable who want it to fulfill the child's academic needs had access to that information. Traditional information is now routinely exchanged with companies that provide Student Information Systems, Learning Management Systems, and a variety of other technologies in schools because to the use of generation.

Teachers need to be aware about safety and security of the information. Teachers must first understand the relationship between privacy, confidentiality, and security in order to feel comfortable teaching this subject. Teachers should keep in mind the student's ownership of all personal information while thinking about privacy because it should be kept that way. Reviews, ratings, and demographic data are just a few examples of this data. All student information must be kept private, and teachers are only permitted to disclose it to those individuals that need to know, including parents, teachers and even the administrators.

There is a significant risk of student data exposure while using insecure networks and devices at school. Students should be aware of these risks while schools should take efforts to protect sensitive information. Teachers ought to motivate their students to understand more about the fundamental threats to their online privacy and security.

The purpose of this study is for all students and teachers to be aware in data privacy law for them to secure their personal information. Modern technological breakthroughs provide a level of usefulness and security never before possible for both schools and pupils. Therefore, due to a surge in lot devices, the security of student data is of the utmost importance. The educational ecosystem is affected by data security in a number of ways, with students playing a crucial part. When privacy is absent from data security, students who are at the center of sensitive information are exposed to multiple risks. To be proactive rather than reactive with their information in the event of consequences, students and teachers should be taught data security and a plain educational approach that they can fully understand.

STATEMENT OF THE PROBLEM

This study determines the awareness of BPA students and faculty members on data privacy law to online class modality.

Specifically, it sought to answer the following questions:

1. Assess the data privacy law in an online class practice as to:

   1.1 Using video conference tool;
   1.2 Posting in forums responsibility;
   1.3 Surfing the internet safety; and
   1.4 Removing data traces in online learning?

2. Is there a significant difference on the awareness of data privacy law on online class practices as assessed by BPA students and faculty members?

3. What are the problems encountered in the awareness of data privacy on online class practices?

METHODOLOGY

Research Method Used, Research Location, Respondents of the Study, Sampling Procedure, Instrumentation and Data Analysis.

1. The study engaged in a descriptive research design to assess the awareness of the BPA students in the Data Privacy Law.

2. The respondents to this research are the students from the College of Business and Public Administration at Eulogio “Amang” Rodriguez Institute of Science and Technology under the program of Bachelor in Public Administration.

3. The sampling technique that the researcher used is the purposive sampling technique, a non-probability method for obtaining a sample where researcher use her expertise to choose specific participants that will help the study meet the goals.

4. The researcher used a survey questionnaire to acquire data.

5. Statistical Treatment of Data The data and information, tailed and tabulated, were analyzed and interpreted using the following:

   5.1. Frequency;

   5.2. Percentage;

   5.3. Weighted Mean; and

   5.4. Likert Scale.

RESULTS AND DISCUSSION

Findings

1. On the BPA Students and Faculty assess the data privacy law in an online class modality. The overall assessment of the awareness of data privacy law on online class practices rated as Practiced with the grand mean of 4.14. Two (2) items rated as Highly Practiced, these are: using video conference tools with caution with a composite weighted mean of 4.26 as rank 1; and surfing the internet safety with a composite weighted mean of 4.24 as rank 2. Two (2) items rated as Practiced, namely: posting in forums responsibility with a composite weighted mean of 4.13 as rank 3; and removing data traces in online learning with a composite weighted mean of 3.92 as rank 4.

Generally, the assessments of the groups of respondents on the awareness of data privacy law on online class practices are as follows: faculty members rated as Highly Practiced with the grand mean of 4.32, and students rated as Practiced with the grand mean of 4.05.

2 . On the significant difference on the awareness of data privacy law on online class modality as assessed by BPA students and faculty members. The computed t-values are as follows: using Videoconference tools with caution with 0.22813; posting in forums responsibility with 0.24915; surfing internet safety with 0.12044; and removing date traces in learning with 0.09863 were all lower than the critical value of 1.664 with 70 degree of freedom and 0.05 level of significance. Hence, there is no significant difference on the awareness of data privacy law on online class practices as assessed by faculty members and students. Therefore, the hypothesis is accepted.

3. On the problems encountered on the awareness of the data privacy law on online class modality. The assessment of the problems encountered on the awareness of data privacy law on online class practices rated as Not Encountered with an overall weighted mean of 1.50. All items rated as Not Encountered, such as: sharing data and information with a composite weighted mean of 1.44 as rank 1; sensitive data misuse and thief with a composite weighted mean of 1.49 as rank 2; and environment security with a composite weighted mean of 1.57 as rank 3.

CONCLUSION

1. Among the BPA Students and Faculty assess the data privacy law in online class modality these are: using video conference tools, and surfing the internet safety, posting in forums responsibility, and removing data traces in online learning.

2. Among the significant difference on the awareness of data privacy law on online class modality as assessed by BPA students and faculty members, there is no significant difference on the awareness of data privacy law on online class modality as assessed by faculty members and students.

RECOMMENDATION

1. The Administrators can provide public forum that will invite expertise on Data Privacy and guidance consent with lawyers together with Faculty and Students that will show their experience and for proper dissemination and awareness among BPA Students.

2. Collaboration and proper coordination between Faculty members and Students to proper monitor and periodic feedbacks on data privacy.

3. School should provide emails for students that will use for class meeting to maintain security in every online class and to avoid hackers or other people to join in every class subjects.

4. Each class must provide group chat to access and have collaboration among students and class teachers.

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SOCIAL AND WORK OPPORTUNITIES OF EMPLOYEES WITH DISABILITY: BASIS FOR COUNSELLING PROGRAM

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INTRODUCTION

Persons with disability (PWD) are part of the Philippine Society and should be able to live as freely and as independently as possible. To many people, disability is synonymous with general hopelessness and dependence. More and more efforts however are being exerted, both internationally and local to provide the disabled with adequate support to enable them to effectively cope with the social and economic demand of life and to restore hope, confidence and ability among individuals confronted with multifaceted problems of disability. Moreover, disability must be the concern of everyone – family, community and all government and non-government offices. The disabled should not be ostracized, instead they should be helped to be self-reliant and let them feel that they have the same rights and freedom as the able-bodied, including the right to social security, the right to adequate standard of living, the right to education, right to a job, and even the right to rest and leisure. Disabled persons need the comforting feeling that comes with give-and-take of normal family life; they need the sense of security that comes with being in a position to help others; they must become resolute in doing all they can help at self-improvement. Furthermore, to have a disability means that one has fundamental difficulty accomplishing things that others take for granted. Disabilities can be physical in nature (an inability to walk due to amputation, or muscular or neurological dysfunction) sensory (as in blindness, or deafness), cognitive (as in brain damage or mental retardation), behavioral (as in inability to work), or even emotional. A disability may be generally defined as a condition which may restrict a person's functions to undertake or perform a task in the same way as a person who does not have disability. Former Senator Orlando Mercado (2015) filed the Senate Bill No. 1286 known as the Magna Carta for Disabled Persons. The Bill in Section 9 states the employers are prohibited to discriminate against a disabled applicant on account of his disability except when the nature of job cannot be performed by the disabled satisfactorily, or will expose him to further injury. This section has a provision requiring the employer to prove that the disabled applicant cannot satisfactorily perform the job he is applying for. The employer is also prohibited to transfer or re-assign a disabled employee to work which he will be unable to perform. Moreover, he is also cannot terminated or dismiss disabled employees on account of their disability unless he can prove that their employment would impair prejudice the interest of the company.

MATERIAL AND METHODS

This study used descriptive research to determine the significance between the assessment of employees with disabilities and peers in terms of social and work opportunities. The descriptive method is appropriate to use because this present clearly all the necessary data which were collected in order to identify the status and the factors that may be either affect the coherent stability of their work. The researcher used the purposive sampling drawn from the employees and peers. A survey questionnaire is utilized for the purpose of gathering data. The study is attained by conducting an interview with the Human Resource Management of the company to seek permission to conduct a survey. The statistical treatment used are frequency, weighted mean and t-test.

RESULTS AND DISCUSSION

Table 1
Difference on the Assessments of the Employees and Peers

Variables	Mean Emp	Mean Peer	t-value	df	Critical Value	p-value	Int	Conclusion
Social Opportunities	37.33	40.67	-1.3123	53	2.0057	.1951	Accept Ho	Not Significant
Work Opportunities	35.87	37.70	-0.7373	52	2.0066	.4643	Accept Ho	Not Significant

As shown in Table 1 that the computed p-value for Social Opportunities is 0.1951 and Work Opportunities is 0.4643 are all greater than at 0.05 thus the null hypotheses are both accepted. Therefore, the assessment of the Employees and Peers as to Social Opportunities and Work Opportunities are both not significant.

According to Schedin Leiulfsrud et al. (2011) they describe the value of work as a personal and social identity in interaction with others, as a hegemonic social norm and a sense of moral obligation to contribute to society.

Nota, Santili Ginvra, and Soresi (2014) quoted that work is a crucial issue and lives of people with disabilities and that it helps them construct their personal identity and find meaning in their life. Work is also an important arena for the distribution of income, but it is also an important arena for participation and self-realization.

Saunders and Nedelec (2014) states that having a job was shown to mean not only that they received pay for work that they do, it was believed to be a "natural part of life, source of identity, feelings or normality and self-esteem and work". It is also a place where one forges a sense of self and takes part in a community where they have the opportunity to socialize on a regular basis with others in daily life.

CONCLUSIONS

Based on the findings and conclusions presented, social and cultural diversity in the lives of persons with disabilities is being recognized. It provides a barrier-free physical and communication environment for employees with disabilities. It also addressed health and work promotion issues for individuals with disabilities. The management should give employees some appreciation by commending them for their hard work through monetary rewards. Similarly, rewarding employees through merits they are recognized as they perform duties in their best way.

RECOMMENDATIONS

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

1. Recognize social and cultural diversity in the lives of persons with disabilities;

2. Provide a barrier-free physical and communication environment in the workplace;

3. Recognize and address health and safety, and work promotion issues for individuals with disabilities;

4. The management should give employee some appreciation by commending them for their hard work through monetary rewards; rewarding employees through merits as they are recognized for the performance of hard work and duties;

5. The researchers recommended to give opportunities to PWD to employ them in the industry and to feel that they are a big part of the society.

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PEACE AND ORDER AND PUBLIC SAFETY PLAN OF MAKATI CITY, PHILIPPINES

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INTRODUCTION

Public safety focuses on reducing crime and hires individuals for positions like law enforcement officers and medical emergency responders in order to make residents feel safer. The definition of public safety is the defense of the general populace. Besides the most fundamental level, public safety entails protecting the general populace from criminals, natural disasters, and other potential threats. Public safety is the sole responsibility of a number of federal agencies and municipal departments in the US. Take into account law enforcement personnel, security personnel, emergency response personnel, fire departments, and parole officers. Regardless of their function, public safety professionals' primary goal is to reduce risk and protect people, communities, and organizations (Goodwin University, 2019).

Programs, policies, and procedures must be created and implemented in order to accomplish public safety. When disasters like fires, earthquakes, floods, and tidal waves strike, it is very important to be prepared to execute rescue or preventive activities. Along with that, it entails working with the appropriate national authorities to plan the resource mobilization and carry out relief and recovery operations (Metropolitan Manila Development Authority, n.d.).

In the Philippines, as specified in DILGMC No. 2015-128, the Peace and Order and Public Safety Plan is a three-year plan that incorporates the consolidated Integrated Area/Community Public Safety Plans of the province's cities and municipalities. It comprises of initiatives and actions to advance tranquility, law, and order, as well as community safety (Breva, 2020).

Aydinan (2021) stated that the core of every community's police department is thought to be the patrol unit. These patrol units interface directly with society, therefore having them around reduces the need to create specialist operations units. Both police executives and municipal politicians are conscious of the importance of the patrol force as the core element of the police force. Due of this, the barangay enforcers' main duties include of patrolling and responding to incidents within their Area of Responsibility (AOR) in order to supplement the Philippine National Police's (PNP) resources. This is true since local governments have many characteristics in common with community policing.

Around 1,477 of the nation's 1,715 local government units (LGUs) have operating peace and order councils (POCs), according to Benhur Abalos Jr., secretary of the Department of the Interior and Local Government (DILG). He added that law and order are still essential for a thriving economy (Caliwan, 2022). They commend the efforts made by these 1,477 LGUs to consistently provide strong performance in support of programs and policies meant to promote peace and order in their respective jurisdictions and safeguard individuals from the negative aspects of our society, he added. In the local government's battle against crime, narcotics, terrorism, and violent extremism, Peace and Order Councils have been crucial. The government and LGUs may collaborate more successfully to put plans into action that, as such, enhance peace and order.

The council needs to be assessed because, at the barangay level, it is largely responsible for planning and carrying out the neighborhood's security measures (Habitan, 2019). The Barangay Peace and Order Council's degree of operation and the extent to which it contributes to upholding peace and order both serve as benchmarks for the effectiveness of the council and its activities. In order to sustain and grow community peace and order to the fullest extent possible, this can be improved even further through council evaluation.

Many areas of human activity are thought to be made possible when there is peace and order in our neighborhood. These include the growth of the economy, an increase in investments, the creation of jobs, and the draw of more tourists, among others. In order to promote economic health and a high level of living in a location or region, society, political figures, and bureaucrats work together continuously to improve the economy (Nierras, 2022).

The researchers were inspired to evaluate the peace and order and public safety plans for keeping the community in order. In our culture, safety and security are key objectives, and solving challenges in these areas is critical. International security, cyber security, physical security, fire safety, and other types of safety or security are all available today. A strong plan for maintaining public order and safety must be in place in order to improve security and prevent accidents or crimes from happening in a certain location. As some of the sources of violence in human history can have an influence on the development of safety and security, the effective implementation of a stronger security system is recommended in order to secure protection from situations where the public may be endangered. The local government considered barangays to have an official duty to maintain public order and security as the main aspects of a strong community.

The researchers conducted a study based on the peace and order and public safety plan of the barangay. A stronger public safety strategy can be constructed by understanding what needs to be enhanced or improved. This study determined the Peace and Order and Public Safety Plan of Barangay San Antonio, Makati City. Particularly, this study sought answers to the following:

1. How do the respondents assess the Peace and Order and Public Safety Plan of Barangay San Antonio Makati City in relation to the following;

    1.1. Standard Operating Procedures;

    1.2. Human Capital;

    1.3. Logistical Support; and

    1.4. Community Support?

2. Is there any significant difference in the assessment made by the respondents on the Peace and Order and Public Safety Plan of Barangay San Antonio Makati City in relation to the above-mentioned variables?

3. What are the problems encountered on the Peace and Order and Public Safety Plan of Barangay San Antonio Makati in relation to the above-cited variables?

4. What recommendations maybe proposed to address the problem encountered?

5. What criminal justice development may be forwarded to enhance Peace and Order and Public Safety Plan of Barangay San Antonio, Makati City?

THEORETICAL FRAMEWORK

This study is based on Wilson & Kelling's Broken Windows Theory (Ruhl, 2023), this theory contends that crime and disorder coexist in a dynamic process whereby uncontrolled disorder grows and encourages criminality. Both direct and indirect relationships exist between physical and social disruptions including panhandlers, the homeless, and unattended adolescents. Debris, graffiti, and abandoned buildings are a few examples of physical disorder. Potential criminals are openly told through chaos that the area doesn't care about crime, giving them the confidence to commit crimes without worrying about being caught. Motivated criminals feel that chaos denotes a rational actor because it denotes the absence of watchmen who are capable of maintaining order, according to Weisburd et al, (2004). Unintentionally, unrest increases people's fear of crime, leading them to avoid social interactions, avoid strangers, and restrict their movements to safe areas. People who have ceased engaging in neighborhood life due to fear of their surroundings are starting to think that others should be battling crime and disorder on their behalf. Interestingly, those who see signs of local disorder are afraid of crime because they think that disorder fuels crime. Wealthy locals soon start to flee the region, taking their money with them, as disorder and crime grow. As this happens, the neighborhood's resources and ability to exercise informal social control are both decreased (Kelling & Wilson, 1982). Residents withdraw when there is general disorder, which weakens neighborhood safety and encourages crime. This indirect effect is caused by a local causal mechanism. The researchers were inspired to evaluate the effectiveness of the plan for keeping the neighborhood safe, secure, and peaceful. Our culture places a high value on safety and security, therefore finding solutions in these areas is essential. There are several options for safety and security available today, including global security, cyber security, physical security, fire safety, and others. The researchers' investigation was built on the peace, order, and public safety plan of the barangay.

METHODOLOGY

The study utilized descriptive method of research for which this method used survey because it interprets the observation and analyzes the data gathered. The researchers used the Stratified Random Sampling which covered the randomly selected residents and members of public safety assigned within the vicinity of Barangay San Antonio, Makati City, Philippines. The respondents of this study were composed of two (2) groups. Group 1 is composed of one hundred (100) residents of Barangay San Antonio, Makati City and Group 2 composed of twenty (20) selected members of peace and order and public safety who are assigned for the peace and order and public safety of the barangay, a total of 120 respondents. They are described according to their demographic profile, such as age, gender and classification of the respondents. The instrument that was used for this research study was a researcher-made survey questionnaire that contains a series of questions that are structured in a logical order and may be completed independently. It consists of the following: 1. Personal information according to their age, civil status, highest educational attainment, and occupation; 2. Peace and Order and Public Safety Plan of Barangay San Antonio, Makati City in relation to the following variables; Standard Operating Procedures; Human Capital; Logistical Support; and Community Support; 3. Problems encountered on the Peace and order and Public Safety Plan of Barangay San Antonio, Makati City in relation to the Standard Operating Procedures; Human Capital; Logistical Support; and Community Support; 4. Proposed approaches to minimize the problems encountered by the Peace and Order and Public Safety Plan of Barangay San Antonio, Makati City in relation to the Standard Operating Procedures; Human Capital; Logistical Support; and Community Support. Documentary analysis was also utilized to give supplement the study. The instrument of this research study was validated with the aid of the experts that were first sent to the adviser for corrections, comments, and suggestions on the appropriateness of the language used, the clarity of the items, and the right direction and construction. Second, for content validation, the survey questionnaire was forwarded to the three experts.

RESULTS AND DISCUSSION

The researchers were able to gather the data and present it in this section.

1. How do the respondents assess the Peace and Order and Public Safety Plan of Barangay San Antonio Makati City in relation to the following;

   1.1. Standard Operating Procedures;

   1.2. Human Capital;

   1.3. Logistical Support; and

   1.4. Community Support?

In terms of standard operating procedure, the respondents considered that the barangay's plan for peace, order, and public safety is constantly monitored and controlled in the implementation of actions and initiatives in terms of peace, order, and public safety at the barangay level. Garcia (2022) identified Makati as one of the safest tourist spots in the country, provided credence for this conclusion. In addition, maintaining community life has made it crucial to protect individuals from crime, as stated by Lim et al in 2020. The Safe City Program in Malaysia aims to end crime by implementing techniques relating to the design of the physical environment, target hardening and management, community involvement, and public awareness. Table 1 shows the assessment of respondents on the peace and order and public safety plan of Barangay San Antonio, Makati City in terms of Standard Operating Procedures.

Table 1
Peace and Order and Public Safety Plan of Barangay San Antonio
In Terms of Standard Operating Procedures

Indicators	POPS Officials		Residents		Composite	
	WM	VI	WM	VI	WM	VI
1. The POPSP of the barangay coordinates and monitors the implementation of public safety programs and projects at the barangay level.	4.80	A	4.38	A	4.59	A
2. The POPSP committee serves as info-gathering mechanism pertaining to public safety.	4.70	A	4.28	A	4.49	A
3. The barangay POPSP council monitor and check the activities of criminal elements.	4.85	A	4.26	A	4.56	A
4. The committee on POPSP give tasks and supervise the barangay tanods in identifying constituents with deviant behavior for referral to appropriate authorities.	4.70	A	4.26	A	4.48	A
5. Maintain constant communication, and rapport with the Barangay Peacekeeping Action Team (BPAT), the city or municipal management coordinating committee, and the barangay's law enforcement units.	4.75	A	4.38	A	4.56	A
Overall Weighted Mean	**4.76**	**A**	**4.31**	**A**	**4.54**	**A**

Table 2 presents the assessment as to human capital made by the respondents was that the members of the barangay peace and order and public safety committees has always been involved in and contributed to barangay peace and order and public safety activities because, based on the peace and order and public safety plan that they had established, the committees had a scheduling system for patrolling and monitoring their area of responsibility. Austria-Cruz (2020) said the barangay is responsible for upholding social order and maintaining peace within the barangay. A significant factor in the evolution of the barrio has been the formation of barrio Police Security Officers (BPSOs), commonly referred to as "Barangay Tanods," as the fundamental political unit.

Table 2
Peace and Order and Public Safety Plan of Barangay San Antonio, Makati City In terms of Human Capital

Indicators	POPS Officials		Residents		Composite	
	WM	VI	WM	VI	WM	VI
1. There are enough personnel in the barangay to implement the peace and order and public safety plan.	4.60	A	4.15	U	4.38	A
2. The staff or members of the barangay are well aware of the peace and order and public safety plan.	4.70	A	4.29	A	4.50	A
3. The members of the barangay attend seminar, training, symposia, and the like to strengthen their skills and knowledge of the peace and order and public safety plan.	4.60	A	4.16	U	4.50	A
4. The members of barangay peace and order and public safety plan participate and engage in activities of the barangay.	4.85	A	4.37	A	4.61	A
5. The barangay peace and order and public safety personnel know how to respond on incidents and emergencies in their area of responsibility.	4.85	A	4.28	A	4.57	A
Overall Weighted Mean	**4.75**	**A**	**4.25**	**A**	**4.50**	**A**

The respondents categorized the indicators as always on the Barangay San Antonio, Makati City, Peace and Order, and Public Safety Plan in terms of logistical support according to the aggregate weighted mean of 4.51 shown in Table 3. In line with the respondents' evaluation in terms of logistical support, Barangay San Antonio's public safety and peace officers consistently maintain an active emergency patrol team and patrol vehicles that ensures the neighborhood's streets secure. Their current peace and order and public safety plan further stipulates that roving and gate officials communicates with CCTV personnel to monitor any suspicious person(s) or vehicle(s) entering or leaving the area. In addition, the majority of individuals are not very concerned with crime prevention (Vicente et al. 2020). The national government employs a number of strategies to assist local law enforcement authorities in battling crime. Among these are the employment of mobile or foot patrols, the enforcement of curfews, the dissemination of information, and other techniques.

Table 3
Peace and Order and Public Safety Plan of Barangay San Antonio
In terms of Logistical Support

Indicators	POPS Officials		Residents		Composite	
	WM	VI	WM	VI	WM	VI
1. There is a budget for the implementation of the peace and order and public safety plan.	4.85	A	4.18	U	4.52	A
2. Basic equipment is provided to the members of the barangay.	4.85	A	4.21	A	4.53	A
3. There is proper storage and maintenance for equipment and supplies for executing the peace and order and public safety plan.	4.70	A	4.05	U	4.38	A
4. There are available supplies in terms of reliability, quality, and quantity for the execution of the peace and order and public safety plan	4.80	A	4.11	U	4.46	A
5. There is a barangay patrol for respond in support of public safety and emergency situations.	4.95	A	4.32	A	4.64	A
Overall Weighted Mean	**4.83**	**A**	**4.17**	**U**	**4.51**	**A**

Table 4 shows the respondent's assessment regarding community support, communication between the community and the barangay peace and order and public safety committee is **always** evident in Table 4. The Barangay Peacekeeping Action Team's objective is to implement peacekeeping actions in cooperation with the different members of the community and guarantee their ongoing support for the maintenance of peace, order, and safety, according to Executive Order No. 008-18, Series of 2018, made by the Office of the Punong Barangay. Ordu & Nnam (2017) reiterate this conclusion. Community policing, involves a close contact between police and the general people in order to safeguard lives and property at the neighborhood level. Effective local law enforcement ensures the safety of the general populace. It makes the general public more aware of the reality that both crime victims and perpetrators are part of the community, and that police are both community members and State agents of social control who are concerned with preventing and regulating crime in the society in which they are also immersed. Police involvement in community affairs, police-community collaborations, and the sharing of information between the three groups are all important initiatives and strategies for effective community policing in Nigeria.

Table 4
Peace and Order and Public Safety Plan of Barangay San Antonio
In Terms of Community Support

Indicators	POPS Officials		Residents		Composite	
	WM	VI	WM	VI	WM	VI
1. The residents of the barangay San Antonio, Makati city are cooperative towards the implementation of the peace and order and public safety plan.	4.75	A	4.29	A	4.52	A
2. Residents of Makati City's barangay San Antonio are aware of the peace and order and public safety plan.	4.55	A	4.29	A	4.42	A
3. Residents of Makati City's barangay San Antonio identify the resources available in the peace and order and public safety plan in order to address the needs of the community.	4.80	A	4.28	A	4.54	A
4. The residents acknowledge the need to maintain a constant flow of communication in order to report peace and order and public safety concerns in their barangay.	4.75	A	4.39	A	4.57	A
5. Residents of San Antonio, Makati City, propose some suggestions for improving their barangay's peace and order and public safety plans.	4.70	A	4.30	A	4.50	A
Overall Weighted Mean	**4.71**	**A**	**4.31**	**A**	**4.51**	**A**

The aggregated weighted mean of 4.52 (Table 5) indicates that the respondents have rated the indicators as Always with the standard operating procedures, human capital, logistical support, and community support Peace and Order and Public Safety Plan of Barangay San Antonio Makati City. Abalos stated that in a developing economy, peace and order are still crucial. They value the efforts made by these 1,477 LGUs to continuously deliver excellent performance in promoting programs and policies intended to enhance peace and order in their respective jurisdictions and protect citizens from the unfavorable elements of our society. Peace and Order Councils have been essential in the local government's battle against crime, drugs, terrorism, and violent extremism. As a consequence, the government and LGUs could collaborate more successfully to implement initiatives that support peace and order (Caliwan, 2022).

Table 5
Summary Table of Assessments on the Peace and Order and Public Safety Plan of Barangay San Antonio

Indicators	POPS Officials		Residents		Composite		Rank
	WM	VI	WM	VI	WM	VI	
1. Standard Operating Procedure	4.76	A	4.31	A	4.54	A	1
2. Human Capital	4.75	A	4.25	A	4.51	A	2
3. Logistical Support	4.83	A	4.17	U	4.51	A	2
4. Community Support	4.71	A	4.31	A	4.51	A	2
Overall Weighted Mean	**4.76**	**A**	**4.26**	**A**	**4.52**	**A**	

2. Is there any significant difference in the assessment made by the respondents on the Peace and Order and Public Safety Plan of Barangay San Antonio Makati City in relation to the above-mentioned variables?

Table 6
Significant Difference on Peace and Order and Public Safety Plan of Barangay San Antonio and Related Variables

Variables	Mean	sd	t-ratio		
			Computed t-value	Decision	Verbal Interpretation
Public Safety Officials	4.63	0.1367	5.1409	Reject H_o	Significant
Residents	4.47	0.0538			

As manifested by the data in Table 6, it could be noticed after the values obtained was subjected to statistical analysis obtained a computed t-value of 5.1409 with 118 degrees of freedom at .05 level of significance verbally interpreted as significant. There is a strong indication that the there is a significant difference between the assessment of public safety officials and residents on the Peace and Order and Public Safety Plan of Barangay San Antonio Makati City in terms of standard operating procedures, human capital, logistical support, and community support. Therefore, the public safety officials and residents perceived different assessment on the Peace and Order and Public Safety Plan of Barangay San Antonio Makati City in terms of standard operating procedures, human capital, logistical support, and community support.

3. What are the problems encountered on the Peace and Order and Public Safety Plan of Barangay San Antonio Makati in relation to the aforementioned variables?

Based the respondent's assessment, they classified the problems encountered on the Peace and Order and Public Safety Plan of Barangay San Antonio Makati as to standard operating procedures as moderately serious. The most common problem that they encountered is that the peace and order and public safety committee were ineffective in acquiring information on public safety issues.

Table 7
Problems Encountered on the Peace and Order and Public Safety Plan of Barangay San Antonio in Terms of Standard Operating Procedures

Indicators	POPS Officials		Residents		Composite	
	WM	VI	WM	VI	WM	VI
1. The peace and order and public safety committee were ineffective in acquiring information on public safety issues.	3.80	S	3.18	MS	3.49	S
2. The barangay peace and order and public safety department are inconsistent on the enforcement of their programs.	3.45	S	3.10	MS	3.28	MS
3. In peace and order and public safety initiatives and projects, there is a lack of coordination and monitoring.	3.30	MS	3.09	MS	3.20	MS
4. Poor supervision of the committee of peace and order and public safety in the barangay that leads to irrelevant report of constituents in the community.	3.30	MS	3.03	MS	3.17	MS
5. There is an absence of coordination, communication, and involvement between the Barangay Peacekeeping Action Team (BPAT), the barangay's law enforcement units, and the city or municipal executive coordinating committee.	3.45	S	2.93	MS	3.19	MS
Overall Weighted Mean	**3.46**	**S**	**3.07**	**MS**	**3.26**	**MS**

The participants' perspective on the encountered problem in terms of human capital in barangay peacekeeping action team is moderately serious (Table 8). The top most is that personnel are not knowledgeable and equip enough to do their roles in maintaining peace, order, and public safety in the community. Maintaining the safety and security of the public is essential for societal harmony, political stability, and economic prosperity. The Philippine government keeps a tight eye on POPS's (community peace, order, and public safety) efficacy. When there is a strong sense of community support and leadership, the Peace and Order and Public Safety (POPS) program may be executed most effectively. When measures that minimize economic and social divide are put into place, communities grow more stably. Therefore, government agencies ought to take the lead in deterring crime.

Table 8
Problems Encountered on the Peace and Order and Public Safety Plan of Barangay San Antonio in Terms of Human Capital

Indicators	POPS Officials		Residents		Composite	
	WM	VI	WM	VI	WM	VI
1. There is an insufficient number of the barangay personnel to carry out the peace and order and public safety plan.	3.10	MS	2.99	MS	3.05	MS
2. There is a lack of knowledge of the barangay personnel about the peace and order and public safety plan.	3.05	MS	3.07	MS	3.06	MS
3. The barangay peace and order and public safety personnel failed to undertake seminars, workshops, conferences, and other engagements to improve their skills and understanding of the public safety plan.	3.00	MS	2.90	MS	2.95	MS
4. There is a conflict between and among the members of barangay peace and order and public safety.	2.90	MS	2.88	MS	2.89	MS
5. The barangay peace and order and public safety department are unfamiliar on how to respond during emergencies or disorder in the community.	3.05	MS	2.88	MS	2.97	MS
Overall Weighted Mean	**3.02**	**MS**	**2.94**	**MS**	**2.98**	**MS**

Table 9 shows the problems encountered on the peace and order and public safety plan of Barangay San Antonio, Makati City, they often come across is the funds provided for the plan to ensure public safety and maintain peace and order are insufficient as the top problems in terms of logistical support. As to the overall assessment, the problems encountered in terms of logistics is moderately serious. Broad public support for the peace agreement can be demonstrated, as can specific advocacy for particular reforms, the public pledge of financial support for the peace process, lobbying for particular constituencies that are opposed to or simply skeptical of the deal, and the launch of information and education campaigns aimed at the general public. Both in times of peace and in times of war, the financial standing of a party is important. Pressure will be used to the non-Governmental party in particular to revert to the pre-existing condition as long as there isn't a peaceful alternative to wartime extortion.

Table 9
Problems Encountered on the Peace and Order and Public Safety Plan of Barangay San Antonio in Terms of Logistical Support

Indicators	POPS Officials		Residents		Composite	
	WM	VI	WM	VI	WM	VI
1. Budget allocation for peace and order and public safety plan is limited.	3.30	MS	3.15	MS	3.23	MS
2. The members of the peace and order and public safety plan are catered to with outdated equipment.	3.00	MS	3.12	MS	3.06	MS
3. The barangay peace and order and public safety department are unable to afford and maintain the proper equipment needed due to a lack of budget allocation.	3.15	MS	2.89	MS	3.02	MS
4. Defective communication device for barangay personnel may affect their urgent response to emergencies.	3.25	MS	3.05	MS	3.15	MS
5. Non-operational or no available vehicles for emergencies or immediate response.	3.05	MS	2.90	MS	2.98	MS
Overall Weighted Mean	**3.15**	MS	**3.02**	MS	**3.09**	MS

The results show in Table 10 that the problem they encountered most often was that the citizens of Barangay San Antonio had no interest in participating in maintaining the peace and public safety of the barangay because they were not fully encouraged to impart their suggestions about peace and public safety. As to overall assessment, problems encountered in terms of community support is moderately serious. Haim, et.al (2018) stated that the capacity of the state to provide public goods and services is constrained by low legitimacy and a lack of confidence. This issue is particularly relevant to policing since officers need knowledge about community events in order to deliver services effectively and efficiently. The location of crime hotspots, information about suspicious individuals or activities, complaints of crimes that have already occurred, and information about the most important issues are all provided to the police by the public. The little resources the police have are allocated by the police using this information to deter crime and maintain public safety. This entire system collapses when people lose faith in the cops.

Table 10
Problems Encountered on the Peace and Order and Public Safety Plan of Barangay San Antonio, Makati City in Terms of Community Support

Indicators	POPS Officials		Residents		Composite	
	WM	VI	WM	VI	WM	VI
1. The residents are uncooperative with barangay officials who are executing the peace and order and public safety plan in their neighborhood.	3.15	MS	2.86	MS	3.01	MS
2. Insufficient knowledge of the residents on the peace and order and public safety plan of the barangay.	2.95	MS	2.95	MS	2.95	MS
3. The community are hesitant to ask for barangay assistance, pertaining to the peace and order and public safety.	3.00	MS	2.95	MS	2.98	MS
4. The residents and the barangay peace and order and public safety personnel are at disagreement with one another.	3.00	MS	2.77	MS	2.89	MS
5. The Residents failed to notify the barangay authorities on the incidents happened in their area.	3.00	MS	2.83	MS	2.92	MS
Overall Weighted Mean	**3.02**	**MS**	**2.87**	**MS**	**2.95**	**MS**

Table 11 presents the problems encountered on the Peace and Order and Public Safety Plan of Barangay San Antonio Makati in terms of standard operating procedures, human capital, logistical support, and community support garnered total weighted mean of 3.07 verbally construed as moderately serious. In contrast to crime prevention or community safety, crime control is frequently perceived as a more focused and quick reaction. Contrary to popular belief, non-criminal justice organizations like those in the areas of education, health, housing, child protection, family support, urban planning, voluntarism, civil society, private businesses, and local government entities may be more involved in promoting community safety and preventing crime.

Table 11
Summary Table on Problems Encountered on the Peace and Order and Public Safety Plan of Barangay San Antonio, Makati City

Indicators	POPS Officials		Residents		Composite	
	WM	VI	WM	VI	WM	VI
1. Standard Operating Procedure	3.46	S	3.07	MS	3.26	S
2. Human Capital	3.02	O	2.94	MS	2.98	MS
3. Logistical support	3.15	O	3.02	MS	3.09	MS
4. Community support	3.02	MS	2.87	MS	2.95	MS
Overall weighted mean	**3.16**	**MS**	**2.98**	**MS**	**3.07**	**MS**

4. What recommendations maybe proposed to address the problem encountered?

Based on the result, the respondents evaluated the recommendation regarding standard operating procedure as to that the barangay peacekeeping action team is highly recommended supported by 4.45 mean score. The top most recommendation is that the plans and programs of the barangay peace and order and public safety shall be posted in their social media page and in the barangay bulletin board to educate residents of their plans. Nicor-Mangilimutan et al. (2020) argued in their study that a community with contented residents would be peaceful, safe, and sustainable as a result of the towns' efficient implementation of the Peace and Order and Public Safety (POPS) program. Creating and maintaining secure communities, whether they are rural, urban, densely populated, underpopulated, or have higher or lower incomes, is essential to good governance.

In terms of human capital, as highly recommended evident by 4.57 mean score. There shall be an orientation or briefing for the barangay peace and order and public safety personnel about the programs and plans rated as the top most recommendation. Patalinghug (2017) mentioned that community safekeeping was already characterized as the purpose of safeguarding the fundamental core of individual lives and possessions from major persistent threats in a manner that is in accordance with long-term accomplishment. The Philippine National Police, which serves as the first line of defense for the criminal justice system in terms of law enforcement, developed a habit of defending the lives and property of the general public. Similar to this, the PNP's mission is to uphold law and order, protect public safety, and strengthen local governments' abilities to effectively manage and provide important services to residents. To do this, the PNP has created a highly competent and professional police force.

As to logistical support, a proposed scheduling system for using the vehicle for patrolling and a standby vehicle for emergency response because it would give assistance to those individuals who needed help in the street of Barangay San Antonio, Makati City. The motorized vehicle is intended to offer mass casualty crisis response and transport, medical evacuations, on-site triage, rehabilitation for firefighter and EMS personnel, and medical assistance for ongoing emergency incident. By boosting surge capacity for the purposes of public safety, exploring hard-to-reach areas, and providing an area of rapid coverage and connectivity, drones play a crucial role in delivering timely and essential wireless communication services for the recovery of services right after a disaster. Collaboration between drones and IoPST is capable of supporting public safety requirements like real-time analytics, real-time monitoring, and improved decision-making to help smart cities meet their public safety requirements. Such critical facilities are needed to provide in the event of disasters and for the purposes of public safety. As a result, the use of drone-based wireless communication can enable public safety organizations effectively deal with threats and handle emergencies, ultimately saving lives and protecting ecosystems. By partnering between smart wearable technology and drone technology, this effort will contribute to raising the bar of public safety in smart cities. In this way, a public safety network is established through the use of drones and IoPST devices that exhibits satisfactory results in terms of improving efficiency and information accuracy (Alsamhi, et al. 2019).

Last, in terms of community support, it will be important for public safety officials to build trust with the citizens so that they feel confident in constantly seeking their support, and this will give the community harmony within their authorities and every citizen. Haim (2018) stipulated that in situations where the legitimacy of the state is questioned, collaboration between the police and the community, sometimes known as "community policing," may increase public trust and improve police ability to enforce the law. Few researches, meanwhile, have examined how these treatments affect measures of crime and trust.

Table 12
Summary Table of the Proposed Recommendation on the Peace and Order and Public Safety Plan of Barangay San Antonio, Makati City

Indicators	POPS Officials		Residents		Composite	
	WM	VI	WM	VI	WM	VI
1. Standard Operating Procedure	4.43	HR	4.46	HR	4.45	HR
2. Human Capital	4.67	HR	4.46	HR	4.57	HR
3. Logistical support	4.71	HR	4.41	HR	4.56	HR
4. Community support	4.72	HR	4.54	HR	4.63	HR
Overall weighted mean	**4.63**	**HR**	**4.47**	**HR**	**4.55**	**HR**

In general, as indicated by the total weighted mean of 4.55, the respondents rated Always on the proposed recommendations to address the problems encountered on the Peace and Order and Public Safety Plan of Barangay San Antonio Makati in terms of standard operating procedures, human capital, logistical support, and community support.

CONCLUSIONS

The researchers were able to draw the following conclusions based on the findings of the study. First, the respondents evaluated the indicators in accordance with the Barangay San Antonio, Makati City, Peace and Order and Public Safety Plan's standard operating procedures, human capital, logistical support, and community support; second, public safety officials had different perceptions of the Barangay San Antonio, Makati City, Peace and Order and Public Safety Plan. Third, the respondents consistently gave the suggested solutions to address the problems encountered on the Barangay San Antonio Makati Peace and Order and Public Safety Plan when it came to standard operating procedures, human capital, logistical support, and community support. This was true even though the approach frequently had problems with these standards. By doing this, the barangay peace and order public safety committee may enhance its effort to promote public safety through the distribution of flyers and other materials, as well as through activities like seminars.

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DIGITAL SKILLS REQUIREMENT AND ITS ALIGNMENT TO EMPLOYABILITY OF BSOA STUDENTS

Dr. Chanda R. Tingga

INTRODUCTION

Technology has fundamentally altered how people interact, cooperate, and communicate, but it has also had unanticipated side effects. Technology has also modified how students' study. Digital literacy, refers to the ability of an individual to use, evaluate, create and communicate information and data through the use of various digital platforms. It involves typing skills, ability to produce text, images, audio and designs using technology. For students in college, especially, having strong digital abilities is crucial for academic achievement. The phrase "digital skill" refers to a wide range of competences, many of which combine skills with other elements such as dispositions, character traits, knowledge, work habits, and fundamental understandings.

The researchers had come up with this study in view of the fact that the current generation is digitally exposed and since BSOA students are expected to be knowledgeable and proficient in using digital technology, the researcher ought to discover whether the BSOA students of Eulogio "Amang" Rodriguez Institute of Science and technology had enough digital skills required in the workplace and are they prepared enough to do digital work.

STATEMENT OF THE PROBLEM

This study aims to determine what the Digital skills requirement are and it's alignment to Employability of BSOA.

Specifically, the following are the questions aimed to be answered:

1. What digital skills are necessary for the Bachelor of Science in Office Administration Students?

   1.1 Social Skills,

   1.2 Collaboration Skills; and

   1.3 Technical Skills?

2 How BSOA students would characterize their digital proficiency in the following situations:

   2.1 Utilizing tools or resources for text editing;

   2.2. Making a presentation; and

   2.3 Collecting and controlling digital information?

3. Is there a significant relationship between the digital skills requirement and alignment to employability of BSOA?

Research Method Used, Research Locale, Respondents of the Study, Sampling Procedure, instrumentation and Data Analysis

1. The study utilized a survey research technique.

2. The study was participated by the BSOA student of Eulogio “Amang” Rodriguez Institute of Science Technology, SY 2020 – 2021.

3. The purposive sampling technique, a well- accepted method for rigorous selection of respondents was utilized in this study.

4. The researcher used the following instruments to gather data:

   4.1 Survey Questionnaire.

5. Statistical Treatment

The data and information tallied and tabulated were analyzed and interpreted using the following:

   5.1 Frequency;
   5.2 Percentage;
   5.3 Weighted Mean;
   5.4 Likert Scale; and
   5.5 Ranking.

Sub-problem No. 1: What digital skills are required for the BSOA students as to: Summary of the Digital Skills

Indicators	WM	VI	Rank
1. Social Skills	4.42	HR	2
2. Collaboration Skills	4.29	HR	3
3. Technical Skills	4.43	HR	1
Grand Mean	**4.38**	**HR**	

This table summarizes the overall assessment of the respondents of the digital skills rated as Highly Required with the grand mean of 4.38. All items rated as Highly Required, namely: technical skills with a composite weighted mean of 4.43 as rank 1; social skills with a composite weighted mean of 4.42 as rank 2; and collaboration skills with a composite weighted mean of 4.29 as rank 3.

Sub-problem No. 2: How BSOA students would characterized their digital proficiency in the following situations:

Summary of the Virtual Internship Program Affects the BSOA Student’s Employability

Indicators	WM	VI	Rank
1. Utilizing Tools or Resources for Text Editing	4.45	HP	2
2. Making a Presentation	4.47	HP	1
3. Collecting and Controlling Digital Information	4.42	HP	3
Grand Mean	**4.45**	**HP**	

Table summarizes the overall assessment of the digital proficiency rated as Highly Proficient with the grand mean of 4.45. All items rated as Highly Proficient, such as: making a presentation with a composite weighted mean of 4.47 as rank 1; utilizing tools or resources for text editing with a composite weighted mean of 4.45 as rank 2; and collecting and controlling digital information with a composite weighted mean of 4.42 as rank 3.

Sub-problem No. 3: Is there a significant relationship between the digital skills requirement and alignment to employability of BSOA?

Correlation of Digital Skills Requirement and Alignment to Employability of BSOA

r-value	VI	Interpretation	Decision
0.99	VSC	Not Significant	Accept Ho

Legend:

Scale	***Verbal Interpretation***	***Symbol***
1.00	*Perfect Correlation*	*PC*
0.80 – 0.99	*Very Strong Correlation*	*VSC*
0.60 – O.79	*Strong Correlation*	*SC*
0.40 – 0.59	*Moderate Correlation*	*MC*
0.20 – 0.39	*Weak Correlation*	*WC*
0.01 – 0.19	*Negligible Correlation*	*NC*

The results revealed in the table that the computed t-value is 2.132 which is lower than the critical value of 2.132 with 4 degrees of freedom at the 0.05 level of significance. Hence, there is no significant relationship between digital skills requirement and alignment to employability of BSOA. Therefore, the hypothesis is accepted.

The following are the major findings of the study:

1. On the digital skills that required for students.

The overall assessment of the respondents of the digital skills rated as Highly Required namely: technical skills with a composite weighted mean of 4.43 as rank 1; social skills with a composite weighted mean of 4.42 as rank 2; and collaboration skills with a composite weighted mean of 4.29 as rank 3.

2. On the characteristics of the students for digital proficiency

The overall assessment of the digital proficiency rated as Highly Proficient with the grand mean of 4.45. All items rated as Highly Proficient, such as: making a presentation with a composite weighted mean of 4.47 as rank 1; utilizing tools or resources for text editing with a composite weighted mean of 4.45 as rank 2; and collecting and controlling digital information with a composite weighted mean of 4.42 as rank 3.

3. On the significant relationship between the digital skills requirement and alignment to employability of BSOA.

The computed r- value is 2.132 which is lower than the critical value of 2.132 with 4 degrees of freedom at the 0.05 level significance. Hence, there is no significant relationship between digital skills requirement and alignment to employability of BSOA. Therefore, the hypothesis is accepted.

CONCLUSIONS

Based on the findings, these are the following conclusion:

1. The digital skills of the students that required in employment were observed.

2. The digital proficiency on utilizing tools or resources for text editing, making presentation then collecting and controlling digital information are highly essential.

3. The data and analysis do not provide enough evidence to reject the initial assumption that there is a significant relationship between digital skills and employability for BSOA graduates. The decision to focus on developing digital skills to enhance employability should not solely rely on statistical findings but on the understanding of industry trends, the demand for digital skills, and the potential benefits they can bring to one's career prospects.

RECOMMENDATIONS

Based on the findings and conclusions drawn, the following recommendations are offered:

1. Implement digital activities that can encourage students to enhance their collaboration skills with the use of digital tools.

2. As digital tools continue to evolve and the need for lifelong learning increases, it's essential to consider the ways in which we are helping our students build new digital skills and how those skills can empower students to be able to drive their own learning forward.

3. Educators and institutions have focus on developing these skills and characteristics among students to enhance their digital proficiency especially with the fast-paced changing and innovation of digital technologies.

4. Prioritize continuous development of digital skills as the job market and digital technologies are continually evolving, and digital skills are becoming increasingly valued by employers.

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