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PREFACE

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AOJ adheres to a double-blind peer review system to ensure the integrity and quality of published work. The journal welcomes manuscripts from a range of disciplines, recognizing that many of today's questions require perspectives that cross traditional academic boundaries. By publishing original studies, theoretical discussions, and applied research, AOJ seeks to contribute to the continuing dialogue between scholarship and practice.

This issue has been made possible through the collective efforts of authors, reviewers, and the editorial team who share the goal of advancing knowledge and extending its application to diverse settings. The journal's open-access format reflects our belief that scholarship should be accessible and should support a wider community of learners, decision-makers, and stakeholders.

It is our hope that the articles presented in this volume will not only inform but also inspire further inquiry, reflection, and collaboration. Through this journal, APCORE affirms its role as a partner in promoting research that is responsive to the needs of society and supportive of sustainable futures.

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Research Article

People's Assessment of the Leadership Competencies of the Local Chief Executives During the Pandemic

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ABSTRACT

This paper aims to assess and analyze the leadership competencies of the local chief executives based on the perception of the people-respondents during the pandemic and arrives at recommendations for improvement. The leadership competencies during the pandemic from 2020 to 2021 were evaluated by the people-respondents using a survey questionnaire and the results were analyzed using statistical treatment. It appears that the local chief executives showed competencies moderately in terms of leadership, clear purpose and vision, responsiveness to community needs, partnership development/ external relationship building, skills and commitment, effective processes and systems, well-managed resources, organizational learning, innovation and change, accountability, and organizational management, integrity, professionalism, and respect for diversity. Furthermore, the data indicated that the local government was inefficient in dealing with the pandemic crisis. The findings recommend the creation of a community-based crisis management council that is independent and empowered for a long-term mission, tasked to mitigate, implement, monitor, and assess crises before, during, and after they happen. Furthermore, they must be autonomous and enjoy fiscal autonomy to prevent the politicization of the council.

Keywords: Leadership, Competencies, Local Executives, Local Government, Pandemic

1. INTRODUCTION

Countries around the world struggled to find solutions to mitigate, if not eliminate, the effects of Covid 19 pandemic. Forster et al. (2021) stressed that leaders of different countries reacted differently during the COVID-19 pandemic as they relied on various scientific evidence before acting, as each has different systems and funding sources.

Bouckaert et al. (2020) showed that countries worldwide observed the same logic, risk management procedures, and increased hospital facilities. However, it cannot be denied that each of these countries followed a Coronationalistic way influenced by the state's cultures and traditions. This Coronationalism dominated the political-administrative management of nations in dealing with the COVID-19 crisis. National responses may be suitable but insufficient and need more collaboration from across the border to fight the pandemic effectively. Hence, countries crossed different ways to provide solutions, but as mentioned by Bouckaert, it may not be enough to battle the creepy economic, social, and fiscal effects of the pandemic.

Several literatures stressed that during the pandemic, leaders used different strategies to face this unexpected event. Some of them were not successful, while others, such as New Zealand and South Korea, were able to minimize the effects of COVID-19. Countries have different political systems, and their approaches in dealing with this plague vary from centralized, authoritarian to a more liberal, top bottom. Further, it was stressed in different studies that a result-oriented governance results in the development of trust between the government and the people. Government officials must possess leadership competencies and be wardens of change with the power of foresight and communication skills.

Consequently, success in the war against this pandemic lies in the hands of the front-liners of the government, the mayors who observed and acted differently. There were mayors or local leaders who were dependent on the plans of the national government. In contrast, others had initiatives and made sure that people trusted them to easily implement their plans and projects during and after the pandemic. Their leadership skills as prominent strategists, therefore, will depict the status of the units they handled.

Osborne and Gaebler (1992) suggest values in reinventing the government as follows: catalytic government: steering rather than rowing; community-owned government: empowering rather than serving; competitive government: injecting competition into service delivery; mission-driven government: transforming rule-driven organizations; result-oriented government: funding outcomes, not inputs; customer-driven government: satisfying the needs of the people, not the bureaucracy; enterprising government: earning, instead of spending; anticipatory government: prevention rather than cure; decentralized government: from hierarchy to participation and teamwork; and market-oriented government: leveraging change through the market. As such, these values are suggested as essentials in local and national governance during and after the pandemic to provide solutions to mitigate this crisis's impacts and lead the nation toward recovery. It is paramount for the government to reinvent its governance to meet the demands of the current situation. These include leadership skills not only of the national but also of the local administrators to ensure their constituents will be provided and protected economically and socially.

In the Philippines, local government officials, specifically the mayors, played a critical part during these tough times, from policymaking to implementing the policies needed to battle the impacts of this crisis. The Local Government Code of 1991 empowered local government officials with decentralized or devolved powers. In the exercise of these functions, it is necessary that they, such as the governors, mayors, and barangay chairpersons, possess leadership competencies that will give them the capabilities to face the difficulties and challenges encountered during and after the pandemic. Cities and provinces in the country exerted efforts, as proved by the study conducted by Carpio et al. (2023). It stressed that barangay officials were responsive in the implementation of the protocols, but there were still challenges faced by them.

The local government units comprise 81 provinces, 146 cities, 1,488 municipalities, and 42,046 barangays (www.dilg.com.ph). However, the study focused on municipalities as they are the leading officers in directly battling the effects of Covid 19. These frontlines were the first to act and react to ensure that the people were well provided to reduce the ill effects of the pandemic. Thus, this study intends to assess the leadership competencies of local leaders from the perspective of their constituents.

2. MATERIALS AND METHODS

This study was primarily conceived to assess the leadership skills of the local chief executives in the Philippines as perceived by the Filipino people during the pandemic. It aimed to know the leadership competencies of the mayors using the following variables: leadership, clear purpose and vision, responsiveness to the needs of the people, partnership development/external relationship building, skilled and committed people, effective process and systems, management of resources, and organizational learning, innovation, and change, accountability and organizational performance management, integrity, professionalism, and respect for diversity (Valerio, 2018).

The research was made to know the people's perceptions of the leadership skills of their respective local leaders during the pandemic. It can be a tool for determining the strategical implementation of the effectiveness and efficiency of the mayors during the pandemic. This can be a tool for the leaders to know how they are perceived by the people and serve as a guide in dealing with another possible unprecedented event like the COVID-19 pandemic in the future.

This study utilized the quantitative approach using simple purposive sampling (Tongco, 2007), which is more reliable in gathering data in comprehending social conditions and events. Simple purposive sampling was used in choosing the respondents using the online means of gathering data as it assists the researchers in looking for respondents to dig deeper into the topic, specifically residents of the research locale of the study. It used percentage frequency distribution and weighted mean because it is practical and valuable in summarizing and analyzing the data gathered through a survey. The study population was the local chief executives, specifically the mayors in some areas in the Philippines and the research used the Likert scale in its verbal interpretation.

The results were presented in tabular and textual format and analyzed using statistical treatment, specifically weighted mean, and supported by previous studies on related literature.

The researchers exploited the leadership competencies mentioned in the study paradigm (Figure 1) as a basis for people's assessment of the leadership competencies of their local chief executive during the pandemic. The researchers handled the inputs using the following leadership competencies such as leadership, clear purpose and vision, responsiveness to community needs, partnership development/ external relationship building, skills and commitment, effective processes and systems, well-managed resources, organizational learning, innovation and change, accountability, and organizational management, integrity, professionalism, and respect for diversity as provided in the survey questionnaire.

Theoretically, James Macgregor Burns (1993) stressed that leaders must have the following qualities: self-confidence, optimism, dogged idealism, risk-takers, inventors, entrepreneurs, visionaries, result-oriented and moral builders who can infuse values and are determined to define, defend, and promote missions and goals. Further, a transforming leader believes in empowering all stakeholders and guiding them in fulfilling their goals (Burns, Peltason, & Cronin, 1993). This kind of leader requires soft skills to understand the needs and wants of his people, especially in turbulent times.

These are the basis of the researcher's hypotheses in assessing the leadership competencies of the local chief executives as front-liners in public service. It is imperative to dig deep into the competencies of the local leaders because, in a complex world of public administration, it is the local leaders who know and feel the problems and issues of the people. Therefore, assessing such

competencies and knowing their implication for good governance is essential.

The systems approach (input-process-output) in studying a political scenario arrived at a proposed plan that can be utilized as an assessment tool in determining the leadership competencies of the local chief executives in turbulent times. In addition, the proposal can serve as a guide for current and aspiring local leaders in facing future crises.

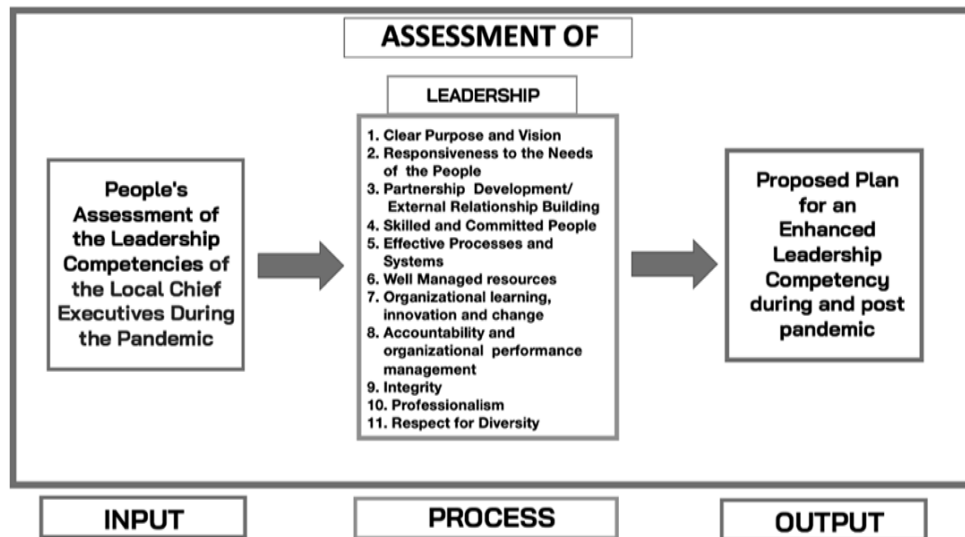


Figure 1. The Paradigm of the Study

3. RESULTS AND DISCUSSION

Our findings showed that all of the local government leaders in our respondents' areas managed to demonstrate their leadership competencies as follows moderately:

Table I.
Leadership Competencies by the People as Assessed by the Respondents

Items	Weighted Mean	Verbal Interpretation
LEADERSHIP		
1. The local government in the past pandemic was active and committed to the constituency.	3.02	Agree
2. The local government in the past pandemic had a strong desire for change.	2.97	Agree
3. The local government in the past pandemic is seen as an inspiration by others.	2.76	Agree
4. Local government in the past pandemic has been respected for being transparent with constituents	2.73	Agree
5. The local government in the past pandemic is trustworthy.	2.82	Agree
6. Local government in the past pandemic has encouraged participation	3.01	Agree
7. The local government in the past pandemic encouraged coordination.	3.10	Agree
Overall Weighted Mean	2.92	Agree

Table I shows that local leaders encouraged coordination and participation of all stakeholders (3.10), as illustrated by their active and committed action in mitigating the effects of the pandemic. However, the people-respondents felt the lack of transparency and thus resulting in doubts as to the trustworthiness of the local leaders, as pointed out in the weighted mean of 2.73. In the study by Burns, Peltason, & Cronin (1993), a good leader must be a morale builder who empowers his people whom they can trust and guide them in fulfilling their goals. Therefore, building people's trust is a vital component of leadership competency, which is an important component to embattle the challenges during and facing the aftermath of the pandemic.

Table II.

Leadership Competencies by the People as Assessed by the Respondents in Terms of Clear Purpose and Vision and Responsiveness to the Needs of the People

Items	Weighted Mean	Verbal Interpretation
CLEAR PURPOSE AND VISION		
8. The local government, during the last pandemic, had a clear understanding of the needs of the people.	2.95	Agree
9. The local government in the past pandemic is following and has shown strategic planning.	2.90	Agree
10. The local government in the last pandemic has remained the same in achieving and setting goals.	2.86	Agree
11. The local government, during the past pandemic, is acting based on the department's mission and goals.	2.95	Agree
Overall Weighted Mean	2.92	Agree
RESPONSIVE TO THE NEEDS OF THE PEOPLE		
12. Local government, in the past pandemic, has been conducting a continuous assessment of people's needs and satisfaction.	2.89	Agree
13. The local government, during the past pandemic, has implemented continuous programs or services that meet the needs of the people.	2.95	Agree
14. Local government during the pandemic had performance standards based on "best practice" in delivering programs and services.	2.83	Agree
15. The local government, during the past pandemic, has maintained a smooth and regular flow of information to keep the community informed of either progress or failure.	2.92	Agree
Overall Weighted Mean	2.90	Agree

The people-respondents perceived that their local leader manifested a clear purpose and vision and somehow understood the needs of the people in this time of crisis but seemed to lack strategic plans for dealing with and providing solutions to alleviate the suffering of their respective constituents, as shown in Table II. The inconsistency in achieving and setting their goals was also apparent. Local leaders must be vision driven in coordination with the whole system and the local community (Ramalingan et al. (2020).

Further, the people, nevertheless, sensed that their respective leaders responded positively to their needs as the government implemented programs and somehow informed them of their progress, but still thought that it lacked effort in giving the best practice in governance during the pandemic (Table II). A good leader during the pandemic must learn to steer instead of simply rowing the boat, meeting the needs of the people and not the bureaucracy (Osborne & Gaebler, 1992).

Table IV.

Leadership Competencies by the People as Assessed by the Respondents in Terms of Partnership Development/External Relationship Building

Items	Weighted Mean	Verbal Interpretation
PARTNERSHIP DEVELOPMENT/EXTERNAL RELATIONSHIP BUILDING		
16. The local government, in the past pandemic, has been collaborating and coordinating with other sectors to achieve a common goal.	2.99	Agree
17. The local government during the past pandemic shows a good and positive image.	2.91	Agree
18. The local government during the last pandemic was active and positively influenced the making of laws.	2.83	Agree
19. Local government in the past pandemic has had a continuous relationship with the public.	2.93	Agree
Overall Weighted Mean	2.92	Agree

The local government may have failed to make laws that could have aided during the pandemic. Nonetheless, the respondents saw that somehow their leaders collaborated with other sectors to provide solutions during the past pandemic and maintained a good relationship with the public (Table IV). The mission of our local leaders is to anticipate challenges and be

prepared to face all the impacts of any fortuitous event. Thus, the foresight of local leaders is an important skill in leadership competencies.

Table V. Leadership Competencies by the People as Assessed by the Respondents in Terms of Skilled and Committed People

Items	Weighted Mean	Verbal Interpretation
SKILLED AND COMMITTED PEOPLE		
20. The local government, during the last pandemic, had a concrete, realistic, and detailed plan for the constituency.	2.80	Agree
21. The local government, during the past pandemic, has policies and programs that benefit the community.	2.93	Agree
22. The local government during the past pandemic was fair in distributing the benefits to its constituents.	2.68	Agree
23. The local government, in the last pandemic, provides economic training for its constituents.	2.70	Agree
24. The local government in the past pandemic is ensuring the strengthening of the capacity of the department and constituency.	2.83	Agree
25. Local government in the past pandemic has been trustworthy, maintaining an open and honest dialogue inside and outside the workplace.	2.79	Agree
Overall Weighted Mean	2.79	Agree

During the last pandemic, the government had concrete, realistic, and detailed policies and programs that could decrease the effects of Covid 19. However, people perceived that their local leaders needed an open and honest dialogue with their constituents, failing to meet their urgent needs and, most often, just a fair distribution of government support to the public as the perception of the respondents was fairly the lowest. Burns (1993) stressed that a leader must empower their people toward achieving their goals, and Osborne & Gaebler (1992) suggested a community-owned government that empowers the people instead of simply serving them.

Table VI.

Leadership Competencies by the People as Assessed by the Respondents in Terms of Effective Processes and Systems

Items	Weighted Mean	Verbal Interpretation
EFFECTIVE PROCESSES AND SYSTEMS		
26. The local government, in the last pandemic, has been conducting regular and strategic planning for the constituency	2.85	Agree
27. Local governments in the past pandemic have robust and updated financial plans.	2.79	Agree
28. The local government, in the last pandemic, makes a budget according to the operation of the department.	2.91	Agree
29. The local government, during the past pandemic, has been regularly monitoring budgetary activities.	2.81	Agree
30. The local government in the last pandemic had operational planning connected to strategic planning.	2.85	Agree
31. The local government during the last pandemic was professional, and strong and well designed the processes of each department.	2.82	Agree
32. Local government in the past pandemic had a transparent, formal system for decision-making.	2.88	Agree
33. The local government's decision in the past pandemic is consistently implemented.	2.79	Agree
34. The local government, during the past pandemic, has had constant integration between different programs and organizational units.	2.84	Agree
35. The relationship with local government during the past pandemic was one of necessities (rather than hierarchy and politics).	2.65	Agree
36. The tasks and responsibilities of the local government during the past	2.82	Agree

pandemic are performed.		
37. Local government in the past pandemic had an organization chart and job descriptions that were complete and updated.	2.79	Agree
Overall Weighted Mean	2.82	Agree

In Table IV, the local government officials could meet the standard tasks required by a government which included conducting regular meetings, budgeting, planning, monitoring, and arriving at a formal decision-making system. However, the inconsistencies in its implementation were very evident, and actions done were mostly characterized by politics. Thus, it barely sustained the processes and systems made to lessen the socioeconomic impacts of the pandemic. On the other hand, in terms of the available resources (Table V), the local leaders hardly managed them. They lacked a vigorous system in budgeting, decision-making, and organizing their goals and failed to wisely utilize the latest technology in improving their services to the public. Although it was evident that their respective leaders sought opportunities for innovations, they tried ways to adapt to the changing environment, and entered into joint ventures with other sectors, but still, a failure to conduct an open and extensive dialogue with their respective constituents to fully understand and provide the much-needed organizational innovation and change during the crisis (Table VII).

Table VII.

Leadership Competencies by the People as Assessed by the Respondents in Terms of Well-Managed Resources

Items	Weighted Mean	Verbal Interpretation
WELL-MANAGED RESOURCES		
38. The local government in the last pandemic has a robust system in financial management.	2.78	Agree
39. The local government in the last pandemic has a proper and transparent financial plan according to the budget, decision making, and organizing goals.	2.72	Agree
40. The design of the physical infrastructure of the local government in the past pandemic is consistent with the current and future needs.	2.84	Agree
41. The local government, in the past pandemic, has state-of-the-art and latest technology to support and improve the performance of the departments.	2.70	Agree
42. Local governments in the past pandemic have practical user-friendly, and comprehensive systems to create, document, and disseminate knowledge to all	2.80	Agree
Overall Weighted Mean	2.79	Agree

Table VIII.

Leadership Competencies by the People as Assessed by the Respondents in Terms of Organizational Learning, Innovation, and Change

Items	Weighted Mean	Verbal Interpretation
ORGANIZATIONAL LEARNING, INNOVATION, AND CHANGE		
43. The local government, in the past pandemic, has been conducting an open and extensive dialogue with the constituency	2.75	Agree
44. The changes implemented in local government during the last pandemic are in line with the changes in time and the environment	2.85	Agree
45. Local government in the past pandemic has sought opportunities for innovation and success.	2.91	Agree
46. The local government, during the past pandemic, has been conducting joint ventures or partnerships that respond to system expansion and innovation	2.81	Agree
47. The local government in the last pandemic has a robust system in financial management.	2.78	Agree
Overall Weighted Mean	2.79	Agree

Table IX.
Leadership Competencies by the People as Assessed by the Respondents in Terms of Accountability and Organizational Performance Management

Items	Weighted Mean	Verbal Interpretation
ACCOUNTABILITY AND ORGANIZATIONAL PERFORMANCE MANAGEMENT		
48. The local government in the past pandemic had effective day-to-day processes and decision-making that are embedded in comprehensive performance	2.78	Agree
49. The local government in the past pandemic had an efficient, complete, and integrated system that is used for measuring performance and progress on an ongoing basis of the department.	2.79	Agree
50. The local government's responsibility in the past pandemic has a standard that is always communicated to everyone.	2.80	Agree
51. Local government during the past pandemic had a clear delegation and accountability framework.	2.67	Agree
Overall Weighted Mean	2.76	Agree

Table IX stressed that the lack of accountability of frameworks was evident in local governance during the pandemic. The people-respondents felt that the local leaders did not provide a system that monitors and measures whether the leaders' performance was effective and was rooted in public service. On the other hand, the performance of the local leaders was perceived as aligned with the values of each local government unit and doing the right thing for the right reason. Still, then again, the people-respondents lacked neutrality in interpersonal and political matters. Hence, there had been barely to no observance of integrity in the exercise of good governance Table X.

However, despite the observance of professionalism in the performance of their tasks and responsibilities, the results showed that the level of efficiency was low. It is worth mentioning that the leaders of the local government units had a good grasp of respect for diversity, as the people felt that through their policies and acted fairly in terms of racial diversity, as shown in Tables XI, XII.

The possession of leadership competencies of any leader in the government is supported by Burns (1993) and Osborne & Gaebler (1992). They both asserted that leaders must be catalysts for change, risk-takers, result, and market oriented. These are important variables to consider in local governance, especially during turbulent times.

Table X.
Leadership Competencies by the People as Assessed by the Respondents in Terms of Integrity

Items	Weighted Mean	Verbal Interpretation
INTEGRITY		
52. The actions of the local government during the past pandemic were aligned with the values of the department and appreciated in their daily work.	2.91	Agree
53. The local government in the past pandemic has acted as a role model to others, in work and in daily behavior.	2.81	Agree
54. The local government in the past pandemic protects justice.	2.81	Agree
55. The local government in the recent pandemic determined the cause to avoid conflicts of interest.	2.77	Agree
56. Local government during the past pandemic has maintained neutrality in interpersonal and political matters.	2.63	Agree
57. The local government in the past pandemic has been following the specified ideal.	2.89	Agree
58. Local government in the past pandemic is stable in the face of external challenges.	2.88	Agree
59. Local government in the past pandemic is doing the right thing for the right reason and encouraging others to do the same.	2.88	Agree
60. The local government in the past pandemic shared information openly even the "bad" decisions with the people.	2.76	Agree

Overall Weighted Mean	2.82	Agree

Table XI.

Leadership Competencies by the People as Assessed by the Respondents in Terms of Professionalism

Items	Weighted Mean	Verbal Interpretation
PROFESSIONALISM		
61. Local government in the past pandemic has created an organization that performs appropriately, starts and ends meetings on time, meets deadlines, and achieves results.	2.82	Agree
62. The local government has focused on the quality and continuous improvement of the department during the recent pandemic	2.97	Agree
63. The local government during the past pandemic has created a welcoming, positive environment for all	2.84	Agree
64. The local government during the past pandemic is making sure that the resources are used in the best possible way.	2.81	Agree
65. Local government in the past pandemic has led to a level of high efficiency	2.68	Agree
Overall Weighted Mean	2.79	Agree

Table XII.

Leadership Competencies by the People as Assessed by the Respondents in Terms of Respect for Diversity

Items	Weighted Mean	Verbal Interpretation
PRESPECT FOR DIVERSITY		
66. The local government during the past pandemic was composed of different types of workers.	2.97	Agree
67. The local government during the last pandemic promoted policies that respect diversity within the organization	2.95	Agree
68. The local government in the recent pandemic is acting on the challenge of losing bias and tolerance in the department.	2.78	Agree
Overall Weighted Mean	2.90	Agree

4. CONCLUSION

A government official must possess the attributes of a good leader, but the complexity of the pandemic challenged the existing leadership structure of the government system. The public servant needs to have an open and honest dialogue, engage different sectors in active collaboration, and build trust with their constituents. They need to encourage participation and be transparent in their plans and programs in battling the impact of the pandemic. In order to successfully combat such challenges and difficulties, local leaders must recognize that the challenges are unexpected, and the situation is uncertain; thus, leaders must act like strategists and visionaries to anticipate future crises.

Each municipality is diverse, and the way to manage a crisis like the pandemic is to involve the people by listening to their needs and creating policies and programs that respond to this. Empowerment requires the removal of institutional barriers and promote dialogue and encounters between sectors.

Leaders during crises must be innovative, creative, risk-takers, and driven. It is necessary for leaders, as public managers, to conduct the rudiments of meetings, budgeting, planning, monitoring, and maximizing available resources and the latest technology for an efficient and effective program toward sustainable development.

In summary, the data indicated that the local government was agreeably efficient in dealing with the pandemic crisis. The local government failed to develop an accountability framework resulting in fairly managing and distributing goods and services efficiently and effectively. Laws and ordinances were not fully adequate and not relative to the needs of the communities. The lack of transparency led to inconsistent implementation of goals and confusion and disorganization in many sectors.

Aside from the leadership competencies mentioned, it is also important that they act based on necessity, not bureaucracy. In times of crisis, communication through an open and honest dialogue between leaders and all stakeholders is the bridge that will

connect misunderstandings leading to the successful implementation of policies.

The Philippines is exposed and vulnerable to many threats; the World Risk Index of 2022 even ranked the country as the first in the world as a disaster risk hotspot based on exposure, vulnerability, susceptibility, lack of coping capacities, and lack of adaptive capacities. The researchers recommend empowering the grassroots to act and make decisions for their communities during a crisis. Upskilling and enhancing their capacities will lower the disaster risks and prevent further losses because the actions are based on local knowledge and experiences. At the same time, reconstruction and recovery will be more thorough and directly benefit the community.

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Research Article

Human Resources Development for State Universities in the MIMAROPA Region: Basis for a Model in Preparation for Internationalization

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ABSTRACT

This paper undertakes a comprehensive analysis and investigation into the Human Resource Development (HRD) programs implemented by state universities in the MIMAROPA region, with the overarching objective of formulating an international framework model grounded in these programs. The research involved 270 respondents, using stratified random sampling and validated instruments. Ethical considerations ensured participant confidentiality. Through a meticulous examination of various factors, the study sheds light on the intricate dynamics shaping HRD within the region's educational institutions. Notably, the findings underscore the diversity among universities, with each institution exhibiting unique strengths and areas for improvement in their HRD endeavors. Collaborative initiatives, organizational support, and strategic alignment emerge as crucial determinants of HRD effectiveness and commitment within MIMAROPA state universities. In response to the identified disparities, this study proposes a comprehensive HRD model tailored specifically for MIMAROPA state universities. This model integrates core pillars focused on strategic alignment, commitment enhancement, addressing HRD needs, and institutional characteristics, aiming to provide a robust framework for the successful implementation of internationalization efforts. By leveraging collaborative learning, interdisciplinary exchanges, and innovation, the proposed model seeks to cultivate a conducive environment for HRD practices aligned with emerging trends, industry demands, and global standards. Ultimately, it is envisaged that the adoption of such a holistic approach will empower MIMAROPA state universities to play a pivotal role in shaping the regional and global educational landscape.

Keywords: Model of Human Resources Development, State Universities, MIMAROPA Region, Internationalization, Human Resources Development Practices, Development Needs of Human Resources

1. INTRODUCTION

Higher education is undergoing significant transformation in this globalizing era, where educational paradigms are constantly shifting. State universities, recognized as drivers of knowledge dissemination and societal progress, must adapt to these changes and actively embrace internationalization as a strategic goal. With its socio-diversity and geographical advantages, the MIMAROPA region presents a unique opportunity to leverage internationalization to enhance educational excellence, promote research innovation, and facilitate global engagement.

However, the path towards internationalization is more than just diversification or forging partnerships with foreign institutions. Instead, it necessitates a comprehensive approach that permeates all facets of university operations. An essential foundation for achieving this transformation lies in focusing on Human Resource Development (HRD) management. Efficiently developing and managing the creative abilities of faculty, staff, and administrators forms the backbone for successfully implementing internationalization initiatives, propelling universities towards gaining recognition and fostering competitiveness.

This paper will be crucial for the administrators, teaching force and students of state universities in the MIMAROPA region. This research endeavors to provide an in-depth analysis of the Human Resource Development (HRD) landscape within MIMAROPA state universities, exploring the HRD practices, commitments, responses to development needs towards international competitiveness and its output is to craft a model of human resource development for state universities in the MIMAROPA region towards internationalization.

2. MATERIALS AND METHODS

This study employed a descriptive research design to systematically gather and analyze data relevant to human resource

development practices among state universities in the MIMAROPA Region. The study involved a total of 270 respondents drawn from Mindoro State University, Romblon State University, Palawan State University, and Western Philippines University.

Respondents were selected using stratified random sampling, ensuring proportional representation from each university. The sample size was computed using Cochran's formula to achieve statistical adequacy. The respondents consisted of faculty members and heads of offices, who are directly involved in or knowledgeable about institutional human resource development (HRD) initiatives.

A Likert-scale survey questionnaire was used as the primary data collection instrument. It was designed to assess three key areas: (1) the HRD practices of state universities; (2) the level of commitment of these universities in promoting HRD for international competitiveness; and (3) their responsiveness to HRD needs in the region. The instrument was reviewed and validated by a panel of academic experts from the participating universities to ensure content validity. It was also pilot-tested, yielding a Cronbach's Alpha coefficient of 0.993, indicating excellent internal consistency (Zikmund, 2010).

The researcher personally administered and retrieved the questionnaires. Respondents were asked to indicate their level of agreement with the items using a five-point Likert scale: (1) Strongly Disagree, (2) Disagree, (3) Moderately Agree, (4) Agree, (5) Strongly Agree.

Data were analyzed using descriptive statistical tools, specifically mean scores and rankings, to determine the general trends and levels of agreement in each dimension assessed.

3. RESULTS AND DISCUSSION

The data on human resource development indicators—including Training and Development, Rewards and Recognition, Employee Participation, Supervisor Support, Peer Support, and Organizational Support—reveal meaningful patterns that reflect both the strengths and gaps in HR practices across the four universities located in table

Peer Support (4.39, Rank 1) and Training and Development (4.36, Rank 2) are two areas where University C excels overall. The aforementioned high scores indicate a cooperative workplace and a strong dedication to skill development, both of which are likely to boost employee engagement and output. A well-rounded HR environment where both formal systems and interpersonal dynamics are successfully fostered is also indicated by its high ratings in Supervisor Support and Rewards and Recognition. Training plays a crucial role in human resource management, aiming to enhance the competence of faculty members in delivering quality instruction and services to students (An et al., 2015). This approach is essential for increasing personnel abilities to address the challenges and opportunities of the modern workplace (Kotnour, 2009). Many organizations utilize competency training as a reward package, particularly for employee promotions (Macalaguim & Menez, 2014). The connection between the professional development and academic stature of faculty members within an institution is highlighted in the work of Guraya et al. (2016). The study underscores the importance of an institution's educational vibrancy being intrinsically tied to the professional growth of its faculty. Specifically, a dynamic and energetic Faculty Development Program is identified as a key factor in realizing this connection.

Guraya et al. (2016) demonstrate that such a Faculty Development Program significantly enhances faculty skills across various domains, including teaching, assessment, curriculum support, organizational leadership, and mentoring. The findings suggest that investing in a robust Faculty Development Program can contribute substantially to the overall development and effectiveness of faculty members, thereby positively impacting the educational landscape of the institution. Retaining and incorporating REFERENCES, such as Guraya et al. (2016), strengthens the scholarly basis of the discussion and aligns it with existing research in the field.

For educational institutions, such as the Lyceum of the Philippines University (LPU) – Batangas, delivering necessary products and services is vital to achieving intended outcomes (Javier, 2012). LPU-Batangas, aspiring to be a leader in providing globally competitive graduates, prioritizes faculty development programs for professional continuing education (Laguador et al., 2014).

With high levels of peer support (4.29, Rank 2) and supervisor support (4.41, Rank 1), University A has a robust interpersonal support network at work. However, it has lower rankings in Rewards and Recognition (4.14, Rank 4.5) and Employee Participation (4.00, Rank 6), suggesting that although employees may feel personally supported, they may not be fully acknowledged for their achievements and may not participate in decision-making. Long-term employee engagement and retention may be impacted by this. The assertion made by Brick (2012) underscores the significance of recognition within the workplace, emphasizing its critical role in shaping organizational culture and influencing workforce engagement. The author further claimed that recognition is a fundamental element that contributes to the overall operation of a workplace, influencing the dynamics and interactions among employees. This recognition-centric approach aligns with the contemporary understanding that an engaged workforce is a key driver of organizational success.

Fostering a culture of recognition is instrumental in cultivating engaged and loyal employees within an organization (Hastwell, 2023). Integrating employee appreciation as a fundamental aspect of workplace culture requires deliberate and meaningful practices. By establishing intentional recognition programs and initiatives, employers can positively impact employee

morale, motivation, and overall satisfaction, contributing to a more vibrant and productive work environment. Recognizing and appreciating employees for their contributions not only boost individual morale but also strengthen the sense of belonging and commitment to the organization, ultimately enhancing employee retention and overall organizational success (O'Malley, 2000).

University D has the lowest score in Organizational Support (3.22, Rank 6), but it performs moderately overall, especially in Peer Support (4.22, Rank 1) and Supervisor Support (4.03, Rank 2). This disparity implies that although supervisors and employees have good connections, the institution may not be providing enough structural or policy-based assistance. Long-term professional growth and fulfillment may be hampered by this, particularly if resources and institutional support are inconsistently offered.

A strong basis for HR development is provided by the results, which suggest that interpersonal support networks (supervisors and peers) are generally robust across all universities. The lower organizational support, rewards, and participation scores, particularly in Universities B and D, however, point to serious weaknesses in institutional-level HR systems and policies. These universities need to develop their formal systems in order to boost institutional performance and staff happiness. This entails developing open and honest incentive scheme.

A motivated, high-performing workforce is ultimately more likely to be fostered by organizations that invest in both human relationships and institutional support systems. This is crucial for accomplishing sustainable development goals and maintaining regional competitiveness, particularly in light of ASEAN integration.

Table 1.

Summary of the Mean Distribution on the Level of Practices of the State Universities in the MIMAROPA Region in Advancing Human Resource Development

Indicators	University A (n = 20)		University B (n = 141)		University C (n = 53)		University D (n = 56)	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Training and Development	4.24	3	3.64	3	4.36	2	3.7	3
Rewards and Recognition	4.14	4.5	3.56	5	4.28	3	3.54	5
Employee Participation	4.00	6	3.54	6	4.21	5	3.61	4
Supervisor Support	4.41	1	3.81	2	4.26	4	4.03	2
Peer Support.	4.29	2	3.96	1	4.39	1	4.22	1
Organizational Support	4.14	4.5	3.61	4	4.19	6	3.22	6

Table 2 examines Human Resource Development (HRD) Practices, Climate, Employee Outcomes, and University Outcomes, provide valuable insights into the internal effectiveness of HRD systems within the state universities.

University A's consistent mean score of 4.24 across all indicators suggests a balanced and stable HRD system. This indicates that the university maintains a well-integrated approach—its practices, organizational climate, and outcomes are aligned, which may contribute to sustained institutional performance and employee satisfaction. However, the lack of variation across categories may also imply a need for innovation or targeted improvements in specific areas, rather than relying on a “one-size-fits-all” approach.

University C, on the other hand, shows the highest employee outcome score (4.49) and strong performance in university outcomes (4.22), which implies that its HRD efforts are translating effectively into results. This suggests a system where staff development directly contributes to improved institutional performance. The high employee outcome score indicates strong motivation, job satisfaction, or capability among the staff, which is crucial for long-term success.

Universities B and D, on the other hand, managed comparatively excellent employee and university outcomes while having lower HRD practices and atmosphere scores. This could imply that other elements, including leadership style, unofficial mentoring, or outside opportunities, are making up for any underdeveloped formal HRD environments or processes. On the other hand, this cannot be sustained over time. If HRD procedures and encouraging environments are not improved, these organizations run the risk of employee burnout, inconsistent perform.

Although employee and institutional outcomes are generally favorable, the statistics suggest that the core components of HRD, especially practices and climate, need to be strengthened to make sure that success is not coincidental or fleeting. By taking a more methodical and organized approach to HRD, these universities will be in a better position to adjust to changing educational demands and maintain their competitiveness in the larger ASEAN market.

Table 2.

Summary of the Mean Distribution on the Level of Commitment of the State Universities in Advancing Human Resource Development Toward International Competitiveness

Indicators	University A		University B		University C		University D	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Human Resource Development Practices	4.24	2.5	3.36	4	3.97	4	3.38	4
Human Resource Development Climate	4.24	2.5	3.59	3	4.05	3	3.69	3
Employee Outcome	4.24	2.5	4.21	1	4.49	1	4.23	1
University Outcome	4.24	2.5	3.99	2	4.22	2	4.07	2

The findings from Table 3, with a mean score of 4.53 overall, University A was the best-performing institution in the MIMAROPA region for producing human resources for ASEAN integration. This suggests a strong institutional commitment to developing skills in line with regional and global development. Interestingly, University A did well in developing fundamental competences including skills, abilities, and expertise, and it scored first in helping graduates create a global worldview (mean = 4.65). With an overall mean score of 4.51, University C came in second, demonstrating steady strength across a number of metrics, such as core competences, alignment with state government aims, and inclusive and varied learning environments, all of which scored 4.58.

However, with an aggregate mean of 4.17, University B performed in a reasonable manner. Although it did not lead in the majority of metrics, it was the best at offering internship and experiential learning opportunities (mean = 4.30), indicating a close connection to the industry and giving students real-world experience. At 4.04, University D had the lowest total mean, lagging behind. Its provision of community-based services and extension programs, however, stood out (mean = 4.29), indicating its involvement in outreach and local development initiatives.

Despite these advantages, the institutions all have some significant areas for improvement. The weakest area for University A was its continuing education and lifelong learning programs (mean = 3.25), suggesting that adult and professional education possibilities need to be strengthened. Additionally, University D scored poorly in a number of crucial areas, including diversity and response to shifting employment trends. The lowest-performing metrics often included curriculum responsiveness to economic and technological changes, flexibility in education delivery, and lifelong learning—all of which are critical to satisfying the ever-changing demands of the ASEAN labor market. These observations highlight the necessity of a more comprehensive and forward-thinking strategy for human resource development in state universities in the MIMAROPA area.

In terms of building human resources for ASEAN integration, the first data set's implications (Table 3) show the state universities in the MIMAROPA region's advantages as well as their shortcomings. Universities A and C's continuously high mean scores imply that they are better suited to meet local and international educational needs. They are leaders in producing graduates who are competitive in the ASEAN labor market because of their excellent performance in promoting inclusive education, cultivating a global mentality, and building core competences. Graduates from these institutions are probably going to have the perspectives and abilities required for innovation, cross-border work, and regional collaboration.

However, University D's and University B's lower scores suggest that they may be failing in important areas like providing lifelong learning, collaborating with government and industry sectors, and being able to adapt to industry developments. In an increasingly competitive and interconnected ASEAN economy, this may have an impact on the employability and relevance of their graduates. A serious gap is also revealed by University A's persistently low lifetime learning program score (3.25), which raises the possibility that even high-performing institutions are unable to sufficiently address the requirement for professionals to

continuously upgrade their skills.

All things considered, the data suggests that although there are admirable procedures in place, all universities still need to adopt a more unified and progressive strategy. To guarantee that human resource development in the area not only satisfies present demands but also continues to be responsive to future ASEAN integration aspirations, it is imperative to invest in lifelong education programs, improve flexible learning alternatives, and fortify ties with industry.

Table 3.

Mean Distribution on the Response of the State Universities to Developing Human Resources in the MIMAROPA Region for ASEAN Integration

Indicators	University A		University B		University C		University D	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
The University develops a global mindset among graduates.	4.65	1	4.28	2.5	4.51	11.5	3.95	12.5
Focuses on developing core competencies such as skills, talents, expertise and ideas.	4.60	3	4.28	2.5	4.58	2	4.14	3
The HR contributes to local and regional economic development by fostering entrepreneurship, supporting small businesses, and providing economic growth resources.	4.55	7.5	4.09	13	4.38	14	4.05	7
Developing partnerships with local employers, industry associations, and government bodies to facilitate internships and other experiential learning opportunities may enhance students' employability.	4.15	14	4.30	1	4.43	13	4.18	2
HR development needs to focus on the tourism sector, including training and education for tour guides, hospitality professionals, and environmental preservation efforts.	4.45	12.5	4.17	8	4.36	15	4.11	4.5
Engagement in research activities contributes to the development of cutting-edge knowledge and technology.	4.50	11	4.19	5	4.53	7.5	4.00	9
Indicators	University A		University B		University C		University D	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
There is collaboration with local industries, businesses, and government agencies to develop programs and curricula that align with the specific needs of the regional job market.	4.45	12.5	4.06	14	4.53	7.5	3.96	11
Offers extension programs, workshops, and resources to the local community, helping individuals acquire new skills, update their knowledge, and enhance their employability.	4.55	7.5	4.18	6	4.57	4	4.29	1
Provides online and distance learning options, making education more flexible and accessible to working adults and individuals	4.60	3	4.15	9.5	4.51	11.5	4.07	6

who may not have the opportunity to attend traditional on-campus classes.								
Offers a range of scholarships, grants, and financial aid programs to help students and teachers cover their educational expenses.	4.55	7.5	4.26	4	4.53	7.5	3.95	12.5
Aims to create inclusive and diverse learning environments, reflecting the diversity of their region.	4.55	7.5	4.15	9.5	4.58	2	4.11	4.5
Aligns educational programs and research activities with the broader development goals and priorities of the state government.	4.55	7.5	4.12	11	4.58	2	4.04	8

Achieving the foundation through Core Pillars in the Internationalization Model for HRD in MIMAROPA State Universities involves a strategic alignment at its core (Figure 1). The foundational principle was to align HRD practices with institutional strategic objectives.

The Level of Commitment Enhancement is pivotal in laying the foundation of the Internationalization Model for HRD in MIMAROPA State Universities (Figure 1). Its primary focus is fortifying the commitment to strategic alignment, ensuring that HRD practices go beyond mere adherence to institutional objectives and become deeply ingrained in the organizational culture. Strategic Alignment Enhancement holds paramount importance in this context. This component is a linchpin by reinforcing the foundational principle of aligning HRD practices with the institution's strategic objectives (Brun, 2014). Considering the dynamic nature of educational landscapes, an enhanced commitment to strategic alignment is deemed essential. It ensures that HRD practices evolve harmoniously with the changing goals and priorities of the institution, a critical factor for maintaining relevance and effectiveness (Popov et al., 2021).

The commitment to Capacity Building emerges as an indispensable aspect of commitment enhancement. According to Osborne and Hammoud (2017), by implementing targeted initiatives, institutions can bolster the capabilities of their workforce, providing them with the skills and expertise necessary to execute HRD practices in alignment with strategic objectives. This commitment is foundational to ensuring that the human capital within the institution is well-equipped to navigate and contribute to the evolving landscape of HRD.

On the other hand, Performance Indicator Refinement emerges as another vital component in commitment enhancement. Regularly reviewing and refining performance indicators is integral to this process, aligning the metrics for measuring HRD effectiveness with the institution's strategic goals (Brown et al., 2019). Smither and London (2009) further argued that fine-tuning performance indicators enables a more accurate assessment of how HRD practices contribute to the overarching strategic alignment, fostering a culture of continuous improvement.

Emphasizing a Positive HRD Climate is crucial for nurturing a culture that values strategic alignment and prioritizes it in daily practices. According to Zhenjing et al. (2022), a positive work environment, characterized by collaboration, innovation, and a shared commitment to institutional objectives, enhances the overall effectiveness of HRD practices. This emphasis on a favorable climate becomes a cornerstone for embedding strategic alignment within the organizational DNA. Commitment to improving Employee Outcomes is vital to the commitment enhancement framework. Ensuring that HRD practices positively impact individual satisfaction, motivation, and career growth is humane and aligns seamlessly with broader institutional goals. According to Jawaad et al. (2019), the commitment to enhancing employee outcomes is integral to the foundational strategic alignment.

Encouraging Global Engagement Strategies reflects a commitment to preparing the educational community for a globalized job market. According to Brown et al. (2018), institutions contribute significantly to strategic alignment by fostering a global mindset by aligning HRD practices with the realities of the international employment landscape. This global perspective becomes imperative for graduates entering an interconnected world. From another perspective, maintaining a Sustained Accreditation Focus is imperative in commitment enhancement. This sustained commitment demonstrates an unwavering dedication to quality and excellence.

The HRD Needs Addressing component within the Internationalization Model for HRD in MIMAROPA State Universities is a linchpin for achieving the foundation, underscoring the critical importance of aligning HRD practices with institutional strategic objectives (Figure 1). Each facet within HRD Needs Addressing contributes distinctively to the strategic alignment, and a comprehensive examination of these components reveals their pivotal role in the overall framework.

Encouraging knowledge sharing among institutions is a cornerstone in fostering a collaborative environment. The

significance lies in its substantial contribution to the Foundation's strategic alignment. According to Gede and Huluka (2023), knowledge sharing facilitates the exchange of best practices and innovative approaches and ensures that HRD practices remain pertinent and in harmony with institutional objectives. Halawi (2023) further claimed that this aspect cultivates a continuous improvement and adaptability culture, which is essential for the dynamic educational landscape.

On the other hand, strengthening collaboration with local industries for program relevance is crucial for bridging the gap between academia and the workforce's real-world needs. This component aligns HRD practices with industry demands, producing well-prepared graduates and synchronizing with current job market requirements (Kozlowski & Ilgen, 2006). The strategic foundation benefits significantly from this alignment, ensuring that HRD practices are theoretically sound and practically applicable. Ensuring consistent dedication across all HRD dimensions, as expressed in the commitment to consistent capacity building, is foundational for cultivating a skilled and adaptable workforce. This commitment contributes substantially to the strategic alignment by enhancing the capabilities of faculty and staff. In doing so, HRD practices align with the evolving institutional objectives and foster a culture of continuous learning and development, reinforcing the strategic foundation.

Establishing a robust system for monitoring and evaluating HRD initiatives is paramount for gauging the effectiveness of practices aligned with institutional goals. Regular assessments provide valuable insights for continuous improvement, ensuring that HRD practices remain dynamic and aligned with the ever-changing educational landscape (Brown et al., 2018). This commitment ensures that the strategic foundation is not static but responsive to emerging needs and challenges.

The Institutional Characteristics component in the Internationalization Model for HRD in MIMAROPA State Universities is a linchpin for achieving the foundation, underlining the paramount importance of aligning HRD practices with institutional strategic objectives (Figure 3). A detailed exploration of each characteristic within this component reveals their integral role in the broader framework and their substantial contributions to strategic alignment.

Collaboration Strengthening holds pivotal significance. According to Day et al. (2020), strategic alignment is enhanced by nurturing an environment of continuous improvement through collaborative efforts among faculty, departments, and institutions. This synergy contributes to the dynamic evolution of HRD practices, ensuring their alignment with institutional objectives while fostering innovation and adaptability. Promoting Interdisciplinary Approaches is crucial for a holistic learning experience that aligns seamlessly with the strategic foundation (Adipat, 2024). By integrating diverse perspectives and knowledge areas, institutions can enrich HRD practices, equipping students to tackle multifaceted challenges in the professional landscape.

On the other hand, the Global Perspectives Integration assumes paramount importance in aligning HRD practices with the internationalization goals of the Foundation. By emphasizing the integration of global perspectives, this characteristic ensures that the curriculum and HRD initiatives remain globally relevant, cultivating a mindset that prepares students for a connected and diverse global workplace (Cheung & Jackie, 2023).

HRD Model for State Universities in the MIMARPA Region Towards Internationalization



Figure 1. A Proposed Model of HRD for State Universities in MIMAROPA Region towards Internationalization

In the intricate web of the Internationalization Model for HRD in MIMAROPA State Universities, the interconnectedness of Core Pillars, Level of Commitment Enhancement, HRD Needs Addressing, and Institutional Characteristics is depicted through meaningful two-way relationships, each influencing and being influenced by the others (Figure 1).

The Core Pillars, foundational to the model, share a reciprocal relationship with the Level of Commitment Enhancement. Here, the strategic initiatives outlined in the Core Pillars play a guiding role in influencing commitment levels, ensuring a continuous alignment with institutional objectives. Simultaneously, the commitment enhancement efforts feed into the development and refinement of the Core Pillars, creating a dynamic feedback loop that sustains strategic alignment. The bidirectional relationship between Core Pillars and HRD Needs Addressing is pivotal. The Core Pillars, championing international standards, collaboration, and academic excellence, directly address the identified needs within HRD. This interaction ensures that programs not only align with institutional objectives but also stay responsive to the dynamic and evolving landscape of HRD.

The influence of Core Pillars extends to and is shaped by Institutional Characteristics. The establishment of Centers of Excellence, collaboration strengthening, and global engagement strategies outlined in Core Pillars are both influenced by and influence the collaborative and interdisciplinary approaches highlighted in Institutional Characteristics. This dynamic exchange ensures a cohesive integration of the foundational principles and institutional characteristics.

Moving to the relationship between Level of Commitment Enhancement and HRD Needs Addressing, we find a mutual connection. Commitment enhancement efforts, focusing on strategic alignment, capacity building, and a positive HRD climate, are deeply intertwined with HRD Needs Addressing. Identifying and addressing HRD needs is a guiding force, directing commitment enhancement efforts toward the most relevant and impactful areas within HRD. Similarly, the Level of Commitment Enhancement interacts with Institutional Characteristics through efforts like faculty development and sustained accreditation focus. These commitment enhancement initiatives influence and are influenced by collaboration strengthening, interdisciplinary approaches, and other characteristics that define the institution. The ongoing exchange ensures that commitment enhancement efforts are harmonized with the broader institutional characteristics.

The interlinking of HRD Needs Addressing with Institutional Characteristics underscores their dynamic relationship. Identifying and addressing HRD needs are intricately connected with collaborative research and innovation, interdisciplinary approaches, and other characteristics. This interplay ensures that institutional characteristics recognize and actively contribute to addressing the identified needs within HRD. These two-way relationships form a tapestry of interdependence within the Internationalization Model for HRD. The arrows represent the continuous exchange of influence, feedback, and refinement, emphasizing the need for a holistic and integrated approach. This intricate dance ensures that the model remains responsive to the evolving needs of the institution, the HRD landscape, and the broader educational context.

4. CONCLUSION

This study uncovered substantial differences in HRD practices among MIMAROPA state universities, shedding light on their distinct approaches to HRD. Notably, significant variations were observed in training and development initiatives, rewards and recognition practices, and employee participation levels, indicating diverse organizational cultures and priorities across these institutions. Disparities in support systems and HRD effectiveness further underscored the necessity for customized interventions tailored to each university's specific needs. Moreover, differences in HRD climate, employee outcomes, and university outcomes highlighted the intricate dynamics within these organizations. Addressing these variations through targeted strategies was imperative for enhancing overall effectiveness and performance, ensuring that HRD practices align with institutional goals, and fostering a conducive work environment across MIMAROPA state universities.

The Core Pillars serve as the sturdy base for the HRD internationalization model in MIMAROPA State Universities, guaranteeing compliance with global standards and industry requisites. Elevated levels of commitment play a pivotal role in ingraining strategic alignment deeply within HRD practices, nurturing a culture marked by dedication and adaptability. Addressing HRD needs comprehensively is imperative to ensure relevance, inclusivity, and adaptability, which are crucial for meeting the ever-evolving educational and societal requirements. Institutional characteristics such as collaboration, interdisciplinary learning, and global perspectives are pivotal in shaping HRD practices to align with institutional objectives and industry demands. The interdependence among these components establishes a resilient framework for the successful implementation of HRD internationalization in MIMAROPA State Universities.

Targeted interventions are recommended to enhance HRD practices within universities. There should be increased support for training and development initiatives, particularly in institutions with lower commitment levels.

Encouraging universities to expand and formalize job rotation programs is crucial for enriching employee skills through

diverse job experiences, fostering adaptability and versatility among the workforce. It is paramount to align HRD practices with institutional goals to ensure a coherent approach to employee development, thereby enhancing organizational cohesion and effectiveness. Prioritizing initiatives that support career growth and offer personalized development plans is essential for fostering individualized employee growth and satisfaction, ultimately contributing to organizational success.

Addressing specific areas of improvement within universities requires targeted interventions. For instance, establishing programs aimed at enhancing the global mindset development among students, particularly in universities like University D, which may be lagging in this aspect, is crucial. This initiative can broaden students' perspectives, preparing them for success in an increasingly interconnected global landscape.

Implementing targeted training programs to address disparities in training and development initiatives among universities is crucial for promoting equity and enhancing the overall effectiveness of HRD practices. Tailoring training programs to the unique needs and challenges of each institution ensures that all employees have access to relevant skill development opportunities, fostering a culture of continuous learning and improvement.

Furthermore, enhancing recognition schemes and support systems is essential to promote employee participation and organizational support for HRD initiatives. Recognizing and rewarding employees for their contributions to HRD efforts boosts morale, motivation, and engagement while providing adequate support systems to ensure that employees have the resources and guidance, they need to succeed in their development endeavors.

Faculty members may collaborate to share best practices and adapt training and development approaches to suit the unique needs of their respective institutions. Additionally, faculty should establish consistent support systems and recognition practices to foster a positive HRD climate and improve overall effectiveness. Students can actively engage in providing feedback and suggestions to faculty and administration regarding HRD practices, contributing to a culture of continuous improvement. By addressing observed differences through tailored strategies, both faculty and students play a crucial role in enhancing overall effectiveness and performance within their universities.

Forming a cross-functional task force inclusive of faculty, administrators, industry partners, and students is crucial to overseeing strategic planning and ensuring the development of a detailed and phased plan with defined roles, responsibilities, and timelines. This strategic planning should include aligning HRD practices with ISO Certification standards, involving the review of practices, staff training, and regular internal audits for sustained compliance. Collaborating with industries is vital for identifying relevant COPC standards, followed by faculty and staff training to ensure program alignment.

Furthermore, faculty members may prioritize enhancing their commitment levels to ensure deep integration of strategic alignment within HRD practices, fostering a culture of dedication and adaptability. They may also collaborate across disciplines to ensure comprehensive addressing of HRD needs, promoting inclusivity and relevance in education.

Finally, students should actively engage in interdisciplinary learning. Moreover, embrace global perspectives to contribute to the institutional characteristics essential for shaping HRD practices. By recognizing the interconnectedness of these components and working collaboratively, both faculty and students can contribute to the successful implementation of the HRD internationalization model in MIMAROPA State Universities, ensuring alignment with global standards and industry requirements.

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Research Article

Taekwondo Student-Athletes Resilience and Mental Toughness: Coping with Sports Failure

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ABSTRACT

National athletes are often celebrated for their victories, but the reality of sports failure is an integral part of their journey to success. This participatory action research explored how athletes process and learned from defeats and adversities. Twelve Taekwondo student-athletes, who train and compete in national games and Southeast Asian tournaments, participated in the study. Participants completed the Sports Mental Toughness Questionnaire (SMTQ; Sheard, Golby & Wersch, 2009) and underwent semi-structured interviews that utilized the principles of Motivational Interviewing (MI; Miller & Rollnick, 2013). The results of the SMTQ indicated a high level of mental toughness which the student-athletes attributed to their skill in emotion regulation and persistence under pressure. Thematic analysis of their experiences revealed the centrality of a strong sense of community, derived from the social support of coaches, teammates, and family members, in building resilience and nurturing mental toughness. Effective coping strategies identified by the student-athletes included goal setting, reframing setbacks, and positive self-talk, which helped maintain motivation. The actionable insight derived from this action research emphasizes the value of the MI principles in fostering continuous resilience-building among Taekwondo student-athlete participants.

Keywords: sports failure, resilience, Motivational Interviewing, action research

1. INTRODUCTION

"It's not whether you get knocked down; it's whether you get up".

- Vince Lombardi

Setbacks play a crucial role in fostering resilience, equipping individuals with the strength and adaptability needed to navigate life's challenges. Nowhere is this more evident than in sports, where repetitive training, perseverance through failure, and a commitment to improvement shape a resilient mindset that extends beyond the playing field (Wu et al., 2022). Athletes experience both triumphs and defeats, and both experiences cultivate coping skills that prove valuable in personal, academic, and professional settings. Moreover, the social support with teammates and coaches inherent in sports acts as a psychological buffer, mitigating stress and enhancing overall resilience (Masten et al., 2021).

Mental toughness is a defining trait in athletic success, enabling athletes to manage pressure, adversity, and stress while striving for excellence. It is closely tied to goal achievement, emotion regulation, and self-reflection, fostering confidence, control, positive thinking, and competitiveness—all of which contribute to enhanced performance (Soundara et al., 2022). Beyond athletic outcomes, psychological attributes such as grit and resilience empower student-athletes to recover from setbacks, cope with competitive demands, and maintain motivation in the face of challenges (Akbar et al., 2024; Mendizabal, 2024). A meta-analysis by Hsieh et al. (2022) further highlights the pivotal role of mental toughness in competitive sports, demonstrating its profound impact on performance and long-term success.

Taekwondo, a discipline that demands both physical skill and mental fortitude, provides a unique framework for developing resilience and mental toughness. The rigorous training, emphasis on perseverance, and exposure to high-stakes competition prepare student-athletes to cope with sports-related failures and setbacks. Losing a match or struggling with technical mastery can be discouraging, but Taekwondo sports instills a growth mindset—encouraging athletes to learn from mistakes, refine their strategies, and persist in the face of adversity. Beyond the physical and technical aspects, the sport fosters emotional regulation, stress management, and psychological endurance, all of which contribute to an athlete's ability to rebound from failure. By cultivating these traits, Taekwondo student-athletes not only improve their athletic performance but also build lifelong coping

mechanisms applicable in academic, personal, and professional domains.

While resilience and mental toughness are widely recognized as critical factors in athletic success, there remains a gap in research on how Taekwondo student-athletes specifically develop these psychological attributes in response to sports failure. Unlike team sports, where collective support may buffer the emotional impact of loss, Taekwondo is often an individual pursuit, placing greater psychological pressure on athletes to manage setbacks independently. Without proper guidance and support systems, repeated failures can lead to diminished motivation, burnout, and decreased self-efficacy. Despite the demanding nature of the sport, there is limited empirical research exploring targeted interventions or coping strategies that help Taekwondo student-athletes process failure in a constructive way. Addressing this gap is crucial for fostering a culture that not only values technical excellence but also prioritizes psychological resilience, ensuring that athletes develop the mental toughness needed to thrive both in competition and in life.

Research has consistently highlighted social support as a key factor in athletes' psychological well-being, not only in enhancing sports performance but also in fostering resilience and personal growth through open discussions about setbacks and challenges (Birrane, 2017; Katagami & Tsuchiya, 2016). In this context, Motivational Interviewing (MI) has emerged as an effective, evidence-based, and collaborative counseling approach that helps individuals reframe setbacks as opportunities for growth (Lewis, 2017; Rollnick et al., 2019). By fostering a supportive dialogue, MI encourages self-reflection, enabling athletes to explore their emotions, redefine failures, and develop a more adaptive mindset toward adversity. Moreover, MI plays a crucial role in helping athletes overcome resistance and ambivalence, strengthening their commitment to change and encouraging active engagement in goal setting and the behavioral adjustments necessary for performance improvement (Breckon et al., 2018; Hare et al., 2022). In sports psychology, MI is particularly valuable due to its emphasis on both relational and technical components, which enhance athlete readiness for change and facilitate action-oriented interventions. By improving communication between athletes and coaches, MI fosters a positive and collaborative approach to goal setting, self-efficacy, and performance enhancement (Mack, 2020; Mack et al., 2017). Given its effectiveness in promoting resilience and mental toughness, integrating MI into sports interventions could be instrumental in helping Taekwondo student-athletes navigate setbacks and maintain motivation in high-pressure competitive environments.

Understanding the experiences of Taekwondo student-athletes from their own perspectives is crucial in gaining deeper insights into how they navigate sports failure, build resilience, and develop mental toughness. By giving them a platform to share their personal journeys—their struggles, coping mechanisms, and lessons learned—this study seeks to highlight the psychological and emotional aspects of competitive sports that often go unspoken. Recognizing their voices not only enriches our understanding of the challenges they face but also informs strategies that can better support their growth, motivation, and long-term success in both sports and life.

This study explores the coping strategies employed by Taekwondo student-athletes in dealing with sports failure, focusing on how these experiences contribute to their resilience, mental toughness, and overall motivation. It examines their personal journeys in the sport, the challenges they face in training and competition, and the lessons learned from overcoming setbacks. Additionally, it investigates the role of coping mechanisms and support systems, such as coaches, teammates, and psychological interventions, in transforming failures into growth opportunities. Ultimately, this research aims to understand how these athletes sustain resilience and mental toughness, providing insights that may guide others in overcoming sports-related challenges.

2. MATERIALS AND METHODS

Research Design. This study employs a qualitative research approach to gain an in-depth understanding of Taekwondo student-athletes' experiences, perspectives, and motivations in coping with sports failure (Tenny et al., 2022). Additionally, it adopts a participatory action research (PAR) framework, which values experiential knowledge and emphasizes the co-creation of insights between researchers and participants (Cornish et al., 2023).

Participants. The participants of this study consisted of Taekwondo student-athletes from the three big educational institutions in the so-called university belt in Manila, all of whom have experienced significant sports failures, such as losses in major competitions or setbacks in training. A purposive sampling method was used to select individuals who met the criteria of being actively involved in the university's Taekwondo team and having encountered challenges that tested their resilience and mental toughness. A total of 12 participants were recruited, ensuring diverse perspectives on coping mechanisms and psychological endurance.

Data Collection. Participants completed the Sports Mental Toughness Questionnaire (SMTQ; Sheard, Golby & Wersch, 2009) followed by semi-structured interviews to provide flexibility in exploring participants' experiences while ensuring that key topics related to resilience, mental toughness, and coping strategies were covered. The interview guide was informed by principles

of Motivational Interviewing (MI; Miller & Rollnick, 2013) to encourage open and reflective discussions. Each interview lasted approximately 40 to 50 minutes and was recorded with the participants' consent for accuracy and transcription purposes.

Data Analysis. Thematic analysis was employed to identify, analyze, and report patterns and themes within the participants' responses (Jowsey et al., 2024). Given the exploratory nature of this study and the absence of predefined conceptions about the coping strategies used by student-athletes, an inductive thematic analysis approach was adopted. This allowed themes to emerge organically from the data, ensuring that the findings were grounded in the lived experiences of the participants rather than shaped by prior assumptions (Naeem et al., 2024). To facilitate the analysis, QDA Miner, a qualitative data analysis software, was utilized to assist in coding, organizing, and systematically interpreting the data (Silver & Lewins, 2024).

Ethical Considerations. This study adhered to ethical research principles, ensuring that all participants were treated with respect and that their rights and well-being were protected. As the research posed no more than minimal risk to participants, formal Institutional Ethics Review Board (IERB) approval was not sought. However, permission to conduct the study was obtained from the Taekwondo team coaches, and informed consent was secured from all student-athletes before participation. They were fully informed about the study's objectives, procedures, and voluntary nature. They were assured of their right to withdraw at any time without any consequences. A registered psychologist supervised the interviews to ensure the appropriate use of Motivational Interviewing strategies. Confidentiality and anonymity were maintained by removing personally identifiable information from the data and securely storing all research materials. The study followed ethical guidelines for qualitative research, ensuring that the narratives shared by the participants were handled with sensitivity and respect.

3. RESULTS AND DISCUSSION

The Taekwondo student-athletes demonstrated high levels of mental toughness, as reflected in their Sports Mental Toughness Questionnaire scores. They attributed their mental toughness to their ability to regulate emotions and their persistence in overcoming challenges. Based on their personal narratives, recalling positive experiences—such as moments of camaraderie with teammates and past competitive successes—served as a coping mechanism during difficult times. This was especially evident during the COVID-19 pandemic when they faced the challenges of training in isolation, receiving instructions solely through online meetings with coaches and teammates, and managing financial difficulties that impacted both their personal and family needs.

"It's the bonding really, and the friendship that is the fruit of being together in excitement, in uncertainties, in hardships. It helps to think that I am not the only one who's tired, who's pressured to get the medals, and who needs to stay attentive and achieving in our academics."

"There are many challenges like in communication between coach and player especially during the COVID pandemic, the training continues non-stop even if there is no coach beside you to guide your moves and you don't hear your other teammates shouting in practice, you just have to push yourself and train. The hardships make the medal more meaningful."

The participants defined failure based on their experiences of anxiety, particularly in situations where they felt underprepared due to insufficient practice, faced overwhelming expectations, or were dissatisfied with their own performance in a game. They also associated failure with moments of tension in communication with their coach and teammates, the physical toll of training—such as body aches and injuries—and a perceived loss of mental sharpness caused by fatigue and physical setbacks.

"I feel pressured when all I hear is: Go out there and win. Go for gold. It's pressure that I have to be the best. I pressure myself to win and in the end, I end up a loser, and with injury. I prepared for a long time, I pressured myself only to go home limping."

"I feel tense, anxious, there is tension in my head, in how I listen, how I talk, how I anticipate moves of opponents."

For these Taekwondo student-athletes, lapses in disciplined training, performance mistakes, and game losses were not merely setbacks but valuable experiences that contributed to their personal growth and motivation for improvement. They emphasized the importance of viewing mistakes and defeats as learning opportunities, which encouraged them to refine their efforts and strengthen core values such as discipline, respect, and teamwork.

"I turn my failures to motivational force. Challenges shape me and prepare me. I get to know where I lack and so I double my effort in training to perfect my forms."

"I get to reflect on my attitude. Win or lose, there should always be respect... towards the officials, our coach, my teammates, it's one of the

core values of Taekwondo, to show respect and commitment.”

The coping strategies shared by the participants encompassed both individual efforts and social support systems. On a personal level, they emphasized the importance of effective time management, cultivating self-compassion, and developing inner strength to navigate challenges.

“For me, I train regularly, ... on time in scheduled training. I train and I train again and again and again, to be better the next time.”

“I give myself time to accept what I must do. ... I give time for myself to cry, to feel the sadness of losing. Meditation helps me. ... I give myself time to relax. ... I tell myself I need to be inwardly strong (tibay ng loob).”

Alongside personal effort, the Taekwondo student-athletes highlighted the vital role of their support systems, which included their coaches, teammates, family, and sponsors. The guidance and instruction from their coaches, the camaraderie and encouragement from their teammates, the unwavering motivation from their families, and the monetary incentives from sponsors collectively strengthened their character and resilience, both in sports and in life.

“Our coaches and my teammates, they make me feel that mistakes and loses are part of the game, ... it’s part of life. My coach is like a parent, they give advice, they teach, they inspire. They ingrain it in my head that I can win even if the opponent looks strong, ... even if the opponent is a black belter and I am not yet. ... My teammates are super helpful especially when we just laugh out our mistakes... they cheer me up, they teach me what to do, they are my support system, my family and even my relatives. They all give me strength.

Looking ahead to how they can further develop their mental toughness and resilience in the face of ongoing hardships and challenges, Taekwondo student-athletes emphasize the importance of mental and emotional strength, as well as social connections. They highlight perseverance, emotion regulation, and viewing failures as opportunities for growth and motivation to maintain discipline and train diligently. Most importantly, they recognize the value of open communication within the team as a crucial factor in fostering resilience and sustained performance.

“It’s an emotional battle, and you shouldn’t loose. It’s a matter of arriving in acceptance. I will accept it ... whether I win ... or I loose ... it’s okay. The struggle is real. These challenges that are on my face ... in my body ... I turn them into motivation.”

“It’s our bond as a team ... I lean on them. Being social ... being in a conversation, voicing out my thoughts, ... knowing I am a part of the team, ... connecting with my teammates, my coach, my family, it’s the way to make me feel my inner strength(tibay ng loob).”

“I tell myself ... and I also share this to newbies ... keep working in your training until you meet your goals – the dreams you aspire ... it’s really discipline.”

The coping dynamics of Taekwondo student-athletes, as revealed through their narratives, highlight a multifaceted approach to resilience-building. Figure 1 summarizes these key factors based on the frequency and depth of their discussions, as well as the aspects they emphasized most. Social support emerged as a dominant theme, with athletes frequently mentioning the encouragement, motivation, and guidance from coaches, teammates, and family. Mental and emotional strategies, such as perseverance, emotion regulation, and self-compassion, were also widely discussed, particularly in relation to overcoming setbacks and maintaining motivation. Additionally, many participants emphasized behavioral strategies, including disciplined training, time management, and balancing academic and athletic responsibilities, as essential to sustaining progress. While extrinsic factors such as rewards and recognition were mentioned less frequently, they still played a role in reinforcing resilience and long-term commitment. Collectively, these insights illustrate the interconnected nature of social, psychological, and practical elements in shaping the athletes' ability to cope with failure and grow in their sport. Each factor builds on another. When one is missing or lacking, resilience weakens.

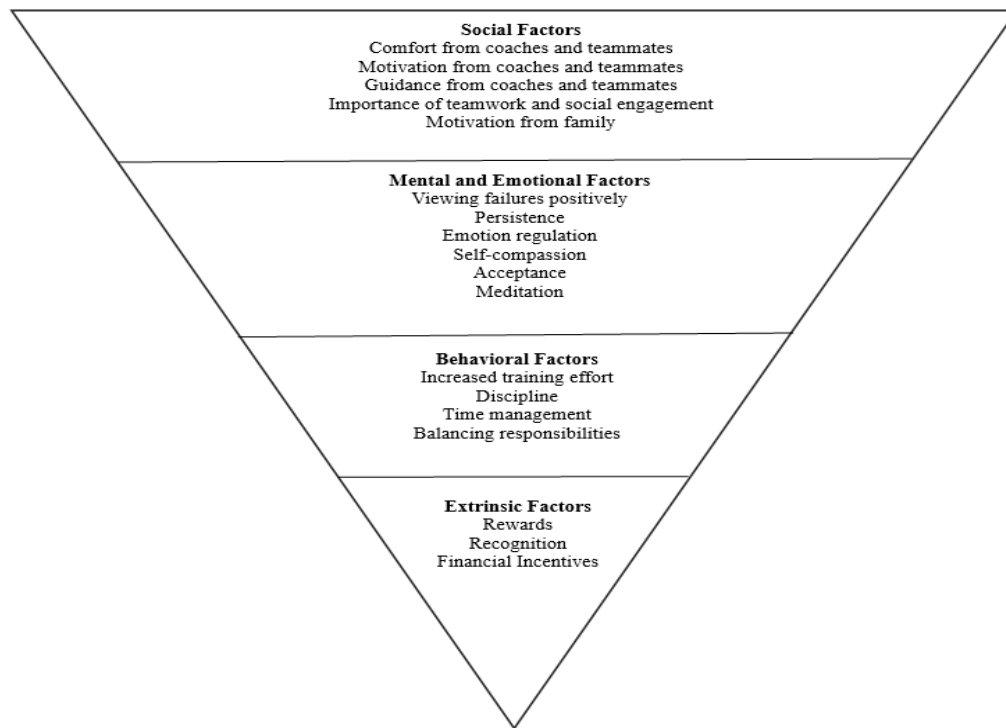


Figure 1. Key Factors in Building Resilience Among Taekwondo Student-Athletes

Building on these findings, the final part of the results reflects on the researchers' role in facilitating these narratives and the insights gained through the interview process. In conducting the semi-structured interviews, the researchers remained mindful of their influence on the discussion, recognizing that the depth and authenticity of the participants' stories were shaped not only by their experiences but also by how these were elicited. Applying the principles of motivational interviewing, particularly expressing empathy and supporting self-efficacy, proved instrumental in creating a space where athletes felt encouraged to articulate their struggles and growth.

A key aspect of the interview process was the application of motivational interviewing principles, which provided a supportive framework for eliciting rich, personal narratives from the participants. Among its five core principles, expressing empathy and supporting self-efficacy proved to be the most effective in encouraging athletes to share their experiences openly. By using phrases such as *"Help me understand..."* and *"Help me see you clearly..."*—delivered with genuine curiosity and warmth—the interviewers created a space where participants felt heard and valued. Nonverbal cues like smiles and sincere gestures of encouragement, along with affirming statements such as *"You inspire me by saying that,"* further reinforced the athletes' confidence in their own resilience. These approaches not only deepened the discussion but also empowered the participants to reflect on their coping mechanisms with a greater sense of self-awareness and affirmation, ultimately enriching the study's insights into resilience-building among Taekwondo student-athletes.

The findings of this study align with existing research on the negative psychological impact of sports failure, as well as the critical role of resilience and mental toughness in overcoming setbacks. Prior studies (Freimuth, 2018; Xu, 2023) have highlighted how failure in sports can lead to frustration, self-doubt, and heightened stress levels. Similarly, this study revealed that athletes experienced significant internal struggles, performance pressure, and external challenges—such as the disruptions caused by the pandemic—that intensified their difficulties. However, consistent with the work of Wu et al. (2022) and Masten et al. (2021), the athletes in this study demonstrated resilience by reframing failure as a source of personal growth, reinforcing the idea that adversity in sports can cultivate mental strength. Moreover, their coping strategies, which included both individual efforts and reliance on support systems, align with previous research (Murray et al., 2023; Moreno et al., 2019) emphasizing the vital role of social support in fostering resilience. Many participants underscored the significance of their teammates and coaches in maintaining motivation and pushing through challenges, further supporting the notion that strong social networks contribute to an athlete's ability to navigate and overcome adversity.

While the findings largely support existing research, this study distinguishes itself by focusing specifically on Filipino Taekwondo student-athletes and their unique experiences. One notable distinction is the strong emphasis on community in shaping

resilience. Despite Taekwondo being an individual sport, the athletes consistently highlighted the crucial role of coaches, teammates, and family in maintaining motivation and overcoming setbacks. Their narratives underscored how shared experiences within a supportive environment foster resilience, reinforcing the significance of social bonds in individual sports. Additionally, this study sheds light on the specific challenges these athletes faced during the pandemic, particularly the limitations of online training—an aspect not extensively explored in previous research. Financial constraints also emerged as a critical factor, adding complexity to how Filipino athletes navigate failure and sustain their commitment to the sport. Another key differentiation is the application of Motivational Interviewing (MI). While MI has been recognized as an effective tool in sports psychology (Rollnick et al., 2019), this study uniquely integrated MI principles to help athletes openly share their experiences.

However, the limitation of this study is the use of content analysis, which, while effective in identifying key factors in resilience-building, may not fully capture the depth of individual meaning-making processes. Future research could benefit from an interpretive phenomenological approach, which would provide a more nuanced understanding of how student-athletes construct meaning from sports failure and transform these experiences into a source of motivation.

4. CONCLUSION

While setbacks often lead to frustration and self-doubt, the findings highlight how athletes transform these challenges into opportunities for growth through personal determination, social support, and adaptive coping strategies. The strong sense of community—despite Taekwondo being an individual sport—proved to be a vital factor in sustaining motivation, with coaches, teammates, and family playing a significant role in fostering resilience. Additionally, integrating Motivational Interviewing principles demonstrated the effectiveness of reflective dialogue in reinforcing self-efficacy and reframing failure as a steppingstone to success.

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Research Article

Uncovering the Factors that Influence Student Decisions Behind Retention and Attrition within their Academic Program

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ABSTRACT

This study explores the factors influencing students' decisions to either remain in or leave their academic programs in a private higher education institution in Calocan City. Employing a descriptive phenomenological research design, the study examined the lived experiences of 15 students, encompassing both undergraduate and graduate levels, through in-depth interviews and field text analysis. Using Colaizzi's seven-step method, four primary themes emerged: Supportive Environment, Student Synergy, Scholarly Strength, and Silent Struggles. Findings reveal that a supportive environment, characterized by faculty and administrative care, significantly enhances students' sense of belonging and satisfaction. Positive peer relationships foster collaboration and mutual support, while high-quality instruction strengthens academic engagement. However, silent struggles, including financial constraints and personal challenges, were identified as barriers to persistence. The study underscores the critical need for holistic institutional strategies that address both academic and non-academic factors influencing retention. Recommendations include fostering a culture of care, enhancing mental health and financial support services, and continuously improving teaching quality. These insights aim to guide administrators and policymakers in developing interventions to mitigate attrition and promote long-term student success.

Keywords: Educational Experiences, Higher Education, Phenomenological, Student Attrition, Student Retention

1. INTRODUCTION

Private higher education institutions (HEIs) operate with a dual identity, serving both as centers of higher learning and as business entities. As with any private HEIs, student enrollment serves as the lifeblood of the institutions, sustaining their ability to fulfill their educational mission and support their critical operations. In the competitive landscape of higher education, attracting and retaining students is indispensable not only for ensuring institutional growth and stability but also for driving long-term profitability. Just as in traditional businesses, the ability to engage, satisfy, and retain customers, in the case of private HEIs - the learners, can directly impact the institution's success and longevity.

The retention and attrition of students within academic programs have become a critical area of consideration in private higher education institutions. Different programs face challenges in maintaining student enrollment. It has become a battle cry of every higher education institution to ensure that learners will still choose their school amidst increasing competition in the field. Especially now that learners can choose from numerous options, which offer not just quality education but holistic experience that meets both academic and personal needs. Thus, it is imperative for private higher education institutions to craft programs that foster loyalty, build lasting relationships and cater to the evolving expectations of the learners, ensuring their commitment to the institution will remain.

In their 2024 study, Bernardino et al. revealed a sharp rise of students' attrition during the peak of the pandemic despite the efforts of Philippine educational institutions and agencies to ensure the continuity of learning. Furthermore, during a recent conference held at the CHED Auditorium in Diliman, Quezon City, Commission on Higher Education Chairperson Prospero de Vera III revealed that over 40 percent of the students in higher education either temporarily or permanently left school last academic year 2022-2023. Thus, the chairperson called upon colleges and universities to identify challenges and provide interventions to address the rising attrition rate among students, Sevillano (2024).

These findings align with studies from other countries. For example, Khan et al. (2024) reported that college-level completion rates in Pakistan were alarmingly low, with 45% of students leaving college without obtaining their degrees. Similarly, a 2020 report by Radio Free Asia, citing a study from UNESCO, revealed that dropout rates in several Asian countries were among the highest globally. These international trends highlight the broader challenges faced by educational institutions in retaining

students, particularly in regions affected by socio-economic instability and inadequate support systems for learners.

The retention and attrition in private higher education institutions is fluctuating, characterized by varying rates of attrition and different reasons behind students' decisions to leave. For instance, research in the Philippines has shown that many students leave due to financial constraints, a lack of academic preparation, and inadequate mental health support, Bernardino et.al. (2024). Additionally, Dalangin (2018) cited three major reasons for students' attrition: academic struggles, unresolved educational and career goals, and a failure to integrate into the intellectual and social life of the institution. The Commission on Higher Education (CHED, 2024) also points to common causes of rising attrition rates, including financial hardships, family issues, relocation, medical and mental health concerns, and academic difficulties. This variety of reasons underscores the need for comprehensive interventions to address both academic and non-academic factors influencing student retention.

Private higher education institution students' retention has been a topic of concern for many years, as colleges and universities face the challenge of refining student success and reducing dropout rates. In today's landscape, where the cost of education continues to rise and the demand for a highly skilled workforce increases, the importance of student retention is more pronounced than ever. As institutions attempt to improve student success, understanding the key factors that influence whether students persist or leave becomes crucial. How do students decide whether to stay in or leave their academic program has prompted the researcher to conduct a thorough study which aimed at exploring the key factors that influence such decisions. The central question, "What factors influence students' decisions to either stay or leave their academic program?", is addressed in this study. The findings of this study may be used as a basis for developing targeted interventions and strategies aimed at improving student retention rates. This research could also inform administrators, policymakers, and educators on how to better align institutional practices with student needs, contributing to a decrease in attrition rates.

2. MATERIALS AND METHODS

The study employed the descriptive phenomenological research design, which, as Morrow (2015) explains, focuses on revealing the essence of any phenomenon through detailed examination. The primary goal of this study is to explore and illuminate the factors influencing students' decisions to either remain in or leave their academic program.

Selections were chosen through purposive sampling. The participants were selected from one of the private higher institution in Caloocan City. In addition, participants vary in terms of age, gender, year level and highest educational attainment.

The study's nature and purpose were clearly communicated to the participants before the interviews. Consent was obtained to audio record the interviews, which were conducted via Microsoft Teams. The participants consisted of fifteen (15) students, with seven (7) being undergraduates and eight (8) enrolled in graduate programs. Of the participants, nine (9) were female and six (6) were male.

An interview guide was used during the in-depth interview focusing on the central question, "What factors influence students' decisions to either stay or leave their academic program?". Follow-up questions were asked aligned on the participants' answers during the interview. Field notes were also taken during the in-depth interview.

The audio recordings were transcribed, and detailed field texts were prepared. Through a comprehensive analysis of these field texts, the factors influencing students' decisions to either remain in or leave their academic program were thoroughly explored. Colaizzi's seven-step method of phenomenological analysis was employed, ensuring a rigorous and data-driven approach at each stage. This process resulted in a clear yet comprehensive description of the phenomenon, which was validated by the participants themselves, as noted by Morrow (2015).

3. RESULTS AND DISCUSSION

This study delved into the factors that influence students' decisions to either stay or leave their academic program and was explored and described in this study through an in-depth analysis of field texts. Significant statements reflecting of the selections' lived experience were identified, extracted, and categorized using Colaizzi's seven steps of phenomenological analysis. The themes that emerged during the data analysis were identified using the acronym 4S: (1) Supportive Environment, (2) Student Synergy, (3) Scholarly Strength, and (4) Silent Struggles.

1. Supportive Environment

Many participants described their experience as overwhelmingly positive, with several highlighting that they are enjoying their stay in the program. This sense of enjoyment often stemmed from how well they felt treated by both faculty and administration; and others emphasizing the support they received from the administrative staff, which made their adjustment and adaptation to the institution's culture smoother. They shared:

S9: “It feels like a second home, laging support ang admin and faculty to our needs and We are very thankful. Sobrang okay ang department, hindi sya mabigat.” [It feels like a second home; the admin and faculty are always supportive of our needs, and we are very thankful. The department is really great; it doesn’t feel heavy.]

S10: “Iba sa department natin, naalagaan kami dito. Iba yung alam po namin na may malalapitan kami. May gagabay at may kakampi kami.” [Our department is different; we are well taken care of here. It’s different knowing we have someone to turn to, someone to guide us and support us.]

S15: “I am a transferee, I thought mahihirapan ako pero mas naging madali sya. Mas naramdaman kong belong agad ako. Mas naging madali yung pag adapt ko sa culture ng school.” [I am a transferee. I thought it would be difficult, but it actually became easier. I immediately felt that I belonged. Adapting to the school’s culture was much easier.]

S5: “I really appreciate the assistance that I am receiving for the department, from enrollment down to attending our classes.”

S6: “Ako, I really had so much fun and joy from my master’s degree and up to now in PhD. I had a very smooth journey. Di pinaramdam sakín ng institution na I should stop the program, na kaya ko, kaya di ako sumusuko. Very convenient and very approachable ang mga professors sa need namin.” [I really had so much fun and joy during my master’s degree, and up to now in my PhD. I’ve had a very smooth journey. The institution never made me feel like I should stop the program; they made me feel capable, which is why I haven’t given up. The professors are very convenient to approach and very accommodating to our needs.]

S7: “The experience so far, from the faculty to the dean, I have seen several transitions of different deans, but it’s just the same, the assistance given to the students is superb.”

Moreover, the selections have shared their challenges as they transition back to school after several years, and those returning after a demanding professional life. Despite these hurdles, they were able to adjust with the support of their professors. Some students reflected:

S5: “Although it’s challenging, since I just enrolled again after my master’s degree. I am very grateful to the faculty members for the support and consideration.”

S2: “Our classes are actually after long hours of work, but very grateful for the consideration and assistance of the professors. In fact, I always look forward to attending our classes, even though it’s after a long work, I get to enjoy and have fun since I am learning a lot from our professors and even with my classmates.”

The selections expressed a deep sense of belonging and satisfaction with their academic program, describing it as a “second home.” They appreciated the consistent support from both faculty and administration, which made their academic journey feel manageable and enjoyable. Students highlighted how the department provided a nurturing environment where they felt cared for, supported, and part of a community.

However, the selections also noted that without this level of support and understanding, they might feel less inclined to stay, potentially leading to their decision to leave. They shared:

S8: “Yung support, assistance and guidance, feeling ko pag nawala uli, that could lead me to stop again.” [The support, assistance, and guidance—I feel like if those disappear again, that could lead me to stop once more.]

S3: “Importante kasi yung ganung feeling para mag push kami eh, so if teachers will not be considerate anymore, baka yun na yun.” [That feeling is important to push us forward. If the teachers stop being considerate, that might be it for me.]

S7: “Pag wala nang support at parang nilalaro nalang ako, yung parang nandyan sya para pahirapan ka for no reason. Definitely, I will end it there.” [If there’s no support and it feels like I’m just being messed with, like they’re only there to make things hard for no reason, I’ll definitely end it there.]

S9: “Nasanay na kami na may guidance eh, pag naramdaman namin siguro na wala ng support at parang di na kami mahalaga, baka yun yung maging reason para lumipat.” [We’ve gotten used to having guidance. If we feel like there’s no more support and we’re no longer valued, that might be the reason for us to transfer.]

Teacher support can be defined as a student's perception of the care, assistance, feedback, and guidance provided by their teachers. According to Vidic et al. (2023), students identify several characteristics of teachers that they perceive as caring and supportive. These teachers are attuned to their students' needs, offer personalized leadership, facilitate a deep understanding of the content, provide academic assistance, and maintain high expectations for behavior and achievement. It is anticipated that students' perceptions of a caring and supportive school environment, marked by strong interpersonal relationships, will positively influence their overall school satisfaction. Conversely, if students perceive their school as a stressful environment, it may negatively affect their satisfaction with the school experience.

Creating a supportive and nurturing atmosphere for students is essential. This approach not only enhances academic performance but also fosters mental well-being and stability among the student body, contributing to both immediate learning objectives and long-term personal development. Implementing a friendly and welcoming student check-in process can set a positive tone for the day while also reassuring students of the institution's commitment to their safety and security (VisiPoint, 2024).

A sense of belonging is a crucial factor in the retention and academic success of college students. As discussed by Tian et al. (2021), students' cognitive evaluations of their college experiences—encompassing perceived value, quality, and expectations—positively correlate with their overall satisfaction at a particular institution of higher education.

2. Student Synergy

Student synergy highlights the collaborative, cooperative, and positive relationships among classmates, creating a dynamic where mutual support and shared goals foster a sense of belonging. When selections were asked to describe their relationships with peers, many students highlighted how warmly their classmates welcomed them. Some even expressed how much they look forward to seeing one another each day, genuinely excited to come to school. For others, these connections have gone beyond friendship; they feel as though they've found a new family among their classmates. They shared:

S9: “Ano, parang sila rin yung reason why I am excited to attend classes. Kahit maldita ako, I still feel na concern sila sa akin and masarap silang kasama.” [It’s like they’re the reason why I’m excited to attend classes. Even though I can be difficult, I still feel that they care about me, and they’re great to be around.]

S15: “Dahil nga transferee ako, isa to sa mga fear ko eh. Sabi ko, baka mahirapan ako. Pero sobrang welcoming nila, puro sila tanong agad tas kasama ko na sila agad nun kumain, then yun, tuloy tuloy na.” [Since I’m a transferee, this was one of my fears. I thought it might be difficult for me. But they were so welcoming; they immediately started asking me questions and even invited me to eat with them. From there, everything just flowed smoothly.]

S13: “I consider my school as my second home at dahil iyon sa mga kaibigan at classmates ko dito. Perfect sila.” [I consider my school as my second home, and that’s because of my friends and classmates here. They’re perfect.]

Additionally, the students emphasized the importance of a positive social environment and how it significantly benefits them. They expressed gratitude for the support and understanding they receive from their peers, highlighting how these connections enhance their school experience. The remarks shared reflect this appreciation:

S5: “I am very much grateful to my classmates, I get to learn from their experiences which I can also use and practice.”

S1: “Malaking factor ang classmates, and I am lucky to have a very supportive and understanding classmates.” [Classmates are a big factor, and I’m lucky to have very supportive and understanding classmates.]

S8: “I agree, it’s a factor, pag magaan mga kasama mo, definitely it will be easy for you too.” [I agree, it’s a factor. If the people around you are easy to get along with, it will definitely be easier for you too.]

Students expressed deep gratitude for the warm, welcoming atmosphere fostered by their peers, with many seeing their

classmates as a second family. This supportive environment makes school enjoyable and especially helps newcomers adjust. Such positive connections not only ease the academic journey but also enrich it, providing a strong sense of belonging.

Research underscores the impact of these peer dynamics. Yu et al. (2023) found that positive peer relationships significantly shape individual attitudes and feelings, supporting both academic success and personal fulfillment. Additionally, Fragata (2023) identified that peer pressure and cooperative learning positively influence students' motivation to learn Filipino. This study showed that peer support and collaborative efforts can turn peer pressure into a motivating force, suggesting that peer relationships have a partial mediating effect on academic motivation and engagement.

Supporting these findings, Tepordei et al. (2023) emphasized that early peer relationships can foster long-term social skills and emotional well-being, which are crucial for lifelong success and satisfaction. Together, these studies illustrate how positive peer interactions contribute not only to immediate academic motivation but also to sustained personal growth and life satisfaction.

3. Scholarly Strength

In addition to the support that the selections receive from teachers and classmates, they emphasize the importance of quality instruction in their learning experience. They expressed satisfaction with the teaching they receive, describing it as both rigorous and rewarding. The following statements revealed their satisfaction:

S9: “Magagaling ang mga teachers, talagang satisfied ako sa mga binibigay nila. Though minsan talaga mauubos ka pero worth it, matututo ka talaga.” [The teachers are excellent; I’m really satisfied with what they provide. Although sometimes it can be exhausting, it’s worth it—you really learn a lot.]

S1: “Holistic yung approach ng mga teachers eh, talagang ipapagawa sayo lahat ng kaya mong gawin.” [The teachers have a holistic approach; they’ll really have you do everything you’re capable of.]

S13: “I am very satisfied with what I am receiving from the professors. Full of experiences and wisdom.”

Furthermore, selections also shared their excitement for attending classes, especially for engaging tasks that enhance multiple skills:

S5: “Gusto ko yung mga activities ng professor. Ang daming target skills, speaking, listening, talagang nakakaexcite pumasok pag may nilu-look forward ka.” [I like the professors’ activities. They target so many skills—speaking, listening—it’s really exciting to attend when you have something to look forward to.]

S11: “Kahit pagod from a long day work, I am excited to attend classes because I know that I will learn something good again, nagagamit ko nga agad sya sa daily dealings ko eh.” [Even after a long day at work, I’m excited to attend classes because I know I’ll learn something valuable again. I even get to apply it right away in my daily dealings.]

Students emphasized the vital role of quality teaching in shaping their academic experiences, expressing a high level of satisfaction with the rigorous yet fulfilling instruction provided by their professors. They value the holistic teaching approach, which fosters the development of diverse skills and competencies. Moreover, many students expressed enthusiasm for class activities that make learning both engaging and practical. This positive attitude is further driven by the relevance and applicability of lessons to real-life scenarios, motivating consistent attendance and the integration of learned concepts into their daily routines.

Tertiary education must cultivate a comprehensive and continuous culture of quality, with a particular focus on enhancing the teaching and learning process. According to Suarman (2015), fostering quality in these areas is a core value that should be embedded in institutional practices. From the insights shared by students, it is evident that the quality of teaching significantly influences their decision to remain at a particular university. This underscores the importance of effectively delivering lesson content through diverse and dynamic teaching methodologies.

Research consistently demonstrates the impact of quality teaching on student satisfaction and retention. For example, Suarman et al. (2023) found a strong positive correlation between students' perceptions of teaching quality and their overall satisfaction. Similarly, Safta et al. (2022) highlighted that effective teaching methods are closely linked to higher levels of student contentment. Chandra (2021) further emphasized that poor teaching quality is a common factor behind students leaving universities. Academic challenges, when coupled with ineffective teaching, often become overwhelming and discourage students from continuing their studies. These findings reinforce the need for institutions to prioritize and continually improve the quality

of their teaching practices.

4. Silent Struggles

Despite positive experiences, several selections revealed personal challenges that could influence their decision to leave the program. Financial constraints, shifts in career aspirations, and loss of motivation were key concerns. They expressed:

S12: “Of course, I am still a student, umaasa lang po ako sa magulang, syempre sila ang nagsu-support sakin. Pag hindi na nila kaya, I have no choice, definitely kakailanganin kong huminto o humanap na mas murang school.” [Of course, I’m still a student, and I’m relying on my parents—they’re the ones supporting me. If they can’t afford it anymore, I’ll have no choice but to stop or look for a more affordable school.]

S9: “Financial din, alam nyo naman po iyan, talagang pinagsisikapan lang nila mama na makatapos ako.” [It’s also financial—you know how it is. My mom is really doing her best to help me finish my studies.]

S15: “Actually at the moment, medyo nahihirapan ako. Hindi po sa teachers or sa school kundi sa sarili ko, lately, tinatanong ko sarili ko kung it ba talaga ang gusto ko, or mas gusto ko ng ibang career. Pero ayun, dahil masaya naman po ako, kaya nandito pa din po.” [Actually, at the moment, I’m struggling—not because of the teachers or the school, but with myself. Lately, I’ve been asking myself if this is really what I want or if I’d prefer a different career. But since I’m happy here, I’m still staying.]

S11: “Minsan may mga feeling ako na tamad na tamad ako. Yan yung kalaban ko minsan eh, pero dahil masaya ako at ok naman po ako dito, laban lang. Pero ayun nga, pag nawala na yung drive or motivation, baka yan po ang maging factor.” [Sometimes, I feel really lazy. That’s what I struggle with at times. But since I’m happy and doing okay here, I keep going. However, if I lose the drive or motivation, that might become a factor.]

Students expressed the emotional and financial challenges of relying on family support, acknowledging the significant pressures that come with it. Many grappled with doubts about whether they had chosen the right career path, with some feeling uncertain about their future in the program. These internal struggles, coupled with episodes of burnout and declining motivation, underscored the delicate balance students must maintain between their personal aspirations and external expectations. Without sufficient support or if these challenges became insurmountable, many feared their academic journeys might prematurely end, emphasizing the fragile nature of their persistence.

As Bernardo and Resurreccion (2018) observed, financial pressures are a prevalent source of stress among students in higher education systems worldwide. Unsurprisingly, this stress negatively impacts the well-being of Filipino students. Adams et al. (2017) similarly noted that financial strain can significantly affect students’ psychological health and hinder their academic and social integration, which may ultimately lead them to take a break from their studies. Moore et al. (2021) added that financial stress often isolates students from wealthier peers, fostering feelings of embarrassment and exclusion, which further compounds their difficulties.

Multiple factors contribute to student dropout, including academic unpreparedness, adjusting to university life, misaligned expectations, and difficulties in pursuing long-term goals. Tamrat (2021) highlighted individual characteristics, financial challenges, goal commitment, and personal struggles as key reasons for attrition. Additionally, a report by Watermark Insights (2024) identified financial burdens, academic difficulties, the challenge of balancing commitments, and mental health issues as major factors affecting student retention. These findings underscore the importance of addressing these barriers to help students remain engaged in their educational pursuits.

4. CONCLUSION

The findings of this study underscore the critical role of a supportive environment, student synergy, scholarly strength, and addressing silent struggles in influencing students’ decisions to remain in or leave their academic programs. The strong sense of belonging, positive faculty-student relationships, and peer support emerged as essential factors fostering student retention. On the other hand, the absence of these factors could lead to leaving their academic programs. The institution's ability to provide a nurturing environment, personalized support, and opportunities for collaboration inevitably impacts student satisfaction and persistence.

To address these findings, institutions should continue fostering a culture of care and support by providing accessible faculty-student interactions and offering regular training for administrative staff to handle students' concerns empathetically. Establishing a student wellness office that prioritizes mental health, academic challenges, and financial aid may further strengthen students' commitment to their programs. Programs that encourage peer-to-peer collaboration and camaraderie, such as team-building activities, mentoring programs, and student organizations, should also be enhanced. Facilitating spaces where students can bond outside the classroom can deepen their sense of belonging and loyalty to the institution. These recommendations align with the findings of Majid et al. (2022), who emphasized the critical role of wellness programs and supportive learning environments in enhancing students' academic performance. Their study highlighted that wellness initiatives enable students to achieve optimal physical, social, and emotional functioning. Similarly, Poojary (2024) discussed how wellness programs help students unlock their academic potential by optimizing focus, information retention, and the application of concepts needed for success.

The study revealed the importance of addressing silent struggles, including financial, mental, and academic challenges. Students who feel that their struggles are acknowledged and adequately supported are more likely to persevere in their academic journey. To this end, private HEIs should establish early intervention programs, such as regular check-ins with academic advisors and mental health professionals, to identify at-risk students. Financial assistance programs, including scholarships or flexible payment schemes, should also be expanded to alleviate economic barriers. Additionally, continuous enhancement of academic programs by incorporating flexible learning options, relevant curricula, and modern teaching methodologies is necessary. Faculty members should undergo periodic professional development to ensure that their teaching approaches meet students' evolving needs. These strategies are supported by findings from the California Community Colleges Student Mental Health Program (2024), which emphasizes that mental health services are integral not only to students' psychological well-being but also to their academic success and retention. Similarly, Sutherland (2018) revealed that adolescents face significant emotional health challenges during their high school years, highlighting the unique role of school staff in helping students navigate these issues. Her study advocates for increased availability of mental health professionals, including counselors and school social workers, as well as enhanced teacher training to better support students.

Ultimately, student retention is a multifaceted issue requiring a holistic approach that addresses both academic and non-academic factors. By cultivating a positive, inclusive environment, private higher education institutions can ensure that students remain engaged and committed, despite the challenges they face. To achieve this, HEIs should implement a data-driven retention strategy that includes regularly surveying students about their needs and satisfaction. This data can inform the design of targeted programs and policies. By embedding these recommendations within their strategic framework, private higher education institutions can not only improve their retention rates but also cultivate a reputation for prioritizing student welfare and success. Central to improving the student learning journey is the provision of thoughtful, relevant, and detailed feedback, as noted by Cohen and Singh (2020). They emphasize that a learning journey lacking clear, consistent, and reliable feedback is one devoid of growth, cognitive development, intellectual challenge, and the potential for success. Similarly, Bashir et al. (2016) highlighted the critical role of feedback in enhancing the student learning experience, noting its significant impact on professionalizing teaching at the higher education level. By ensuring feedback processes are integral to their academic framework, HEIs can better support both student achievement and faculty development, ultimately contributing to stronger retention outcomes.

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Research Article

Shapes and Shades of Blended Learning in Tertiary Mathematics

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ABSTRACT

The COVID-19 pandemic accelerated the integration of alternating blended learning modalities in higher education, drastically transforming the teaching and learning environment. This phenomenological study explored the lived experiences, challenges, and coping strategies of tertiary mathematics faculty and extreme performers (both high- and low-achieving students) at the University of Eastern Philippines during the implementation of alternating blended learning. Guided by social constructivist and personalized learning theories, qualitative data were collected through semi-structured interviews and analyzed using Colaizzi's method. The study revealed five major themes from the students' experiences: (1) Internet Connectivity and Technological Difficulties, (2) Financial Difficulties and Budget Management, (3) Health, Motivation, and Emotional Struggles, (4) Teaching Strategies and Learning Resources, and (5) Coping Mechanisms and Time Management. High-performing students demonstrated greater resilience and adaptability, whereas low-performing students struggled with technological, financial, and emotional barriers. Similarly, six themes emerged from faculty experiences: (1) Adjustments in Teaching Methods and Work Environment, (2) Delivery and Integrity of Student Assessment, (3) Communication Methods and Delivery Platforms, (4) Connectivity Barriers and Technological Limitations, (5) Faculty Innovations and Adjustments in Instructional Materials, and (6) Faculty Recommendations for Future Improvement. Faculty faced challenges in instructional delivery, student engagement, and digital resource management but showed innovation and flexibility in adapting their strategies. The findings highlight the urgent need for strengthened digital infrastructure, professional development, mental health support, and more inclusive, flexible instructional practices. This study offers valuable insights for policy formulation, curriculum adjustments, and future research on enhancing the effectiveness of alternating blended learning in mathematics education.

Keywords: Experiences, Challenges, and Coping Mechanism

1. INTRODUCTION

The COVID-19 pandemic accelerated the integration of digital technologies into education, compelling higher education institutions worldwide to adopt flexible learning modalities. Among these, blended learning— which combines face-to-face instruction with online learning—has become a prominent model in the “new normal” of education.

This necessitated a rapid shift to flexible learning, including alternating blended learning—one week online, one week face-to-face—to maintain educational continuity. In tertiary education, blended learning has emerged as a key instructional model that bridges traditional digital pedagogy. The pandemic accelerated its adoption, promoting universities worldwide to develop flexible models suited to their context. This transition, while addressing immediate needs, highlighted pre-existing inequalities and presented significant challenges.

The shift to alternating blended learning impacted both faculty and extreme performers in mathematics classes. Faculty faced difficulties with instructional delivery, assessment, and navigating the digital divide. Extreme performers in mathematics classes struggled with online learning and the challenges of modular distance learning, particularly in subjects like mathematics, where abstract concepts proved difficult to convey online. These challenges were further compounded by existing resource disparities, particularly in rural areas.

The need for accessible, quality education is enshrined in Republic Act No. 7722 (Higher Education Act of 1994), this act asserts that the state shall protect, foster and promote the right of all citizens to affordable quality education at all levels and shall take appropriate steps to ensure that education shall be accessible to all. And reinforced by CHED's commitment to flexible learning (CHED Memorandum Order No. 06, series of 2022) explains the following:

The Higher Education Institutions (HEIs) shall determine and implement the appropriate teaching and learning approach, decide on the conduct of face-to-face classes and / or flexible learning mode relative to achievements of discipline, specific program outcomes suitable to conditions. The addendum therefore is adapted to support HEIs for the agile response to adapt the current changes relative to the implementation of flexible learning approaches that are convertible (flexible, face to face, blended, and others), hence this can be utilized by teachers and students in different settings, environments, or circumstances (CHED Memo Order No. 6, 2022).

Despite existing literature on blended learning's impact on academic performance, there's a gap in understanding the lived experiences of faculty and extreme performers in mathematics classes within this specific alternating blended learning model.

While much has been written about the design and outcomes of blended learning, fewer studies have explored the lived experiences of those navigating this environment—particularly in the context of mathematics education at the tertiary level. Mathematics, by nature is a subject that demands clarity, continuous practice, and immediate feedback. The shift to alternating modalities has transformed how both faculty and extreme performers in mathematics classes interact with mathematical content, with varying degrees of success and difficulty. While several studies have explored student performance, satisfaction level, and digital readiness in blended learning environment.

The University of Eastern Philippines -- Catarman, with the onset of the pandemic, was one caught to doing more still to transcend to another modality. The previously practiced learning and teaching modalities need to change and need to be reviewed and modified for the teaching-learning process not to stop. Learning systems of academic institutions were revisited and modified such that they respond to the call of times. Faculty experienced difficulties with the complexity of instructional delivery, teaching strategies selection, on assessing the learners and on the digital divide (De Villa & Manalo, 2020). This is because, undeniably, the faculty are on the forefront of defining and redefining, scoping and rescoping, designing and redesigning of platforms, strategies just to cope to the educational demands of the stakeholders. On the other hand, the learners had to face the reality of the phenomenon, switching from the more physically participative and engaged learners to being learners online. Challenges were reported on how the extreme performers in mathematics classes cope with the receiving, answering and participating in the very common modular distance learning.

This study addresses this gap by exploring the experiences of faculty and extreme performers in mathematics classes (high-performing and challenged) in the University of Eastern Philippines' tertiary mathematics classes. It examines the challenges and coping strategies employed during the pandemic, using self-learning modules and online platforms. The findings will contribute valuable insights to the body of knowledge on effective teaching and learning strategies in this unique context.

2. MATERIALS AND METHODS

This chapter presents the research methods and procedures of the study. It discusses the research design, the locale and the time of the study, participants of the study, sampling procedure, and instrumentation, validation of the instrument and data gathering procedures.

The researcher employed a qualitative research design. This design is appropriate for the study because it allowed the researcher to explore the unquantifiable meanings of the tertiary mathematics faculty and extreme performers in mathematics classes on blended learning with an in-depth and detailed description of their experiences. Furthermore, it investigated the significance and meanings of such experiences toward increased awareness of the phenomenon (Taylor & Frances, 2013). Specifically, a phenomenological research design was employed to collect and describe the conscious and firsthand experiences of both the extreme students and faculty as participants in this study. Creswell (2013) states that a phenomenological research design gives emphasis to the lived experiences of a specific sector and their shared attributes.

Likewise, the Colaizzi's method of data analysis was used. This method of data analysis classifies data according to themes, concepts or similar features by extracting the essential and significant meaning from the large amount of data (Kiger & Varpio, 2020)

For a more dig deep analysis of the data, the study recognizes the best characteristics of qualitative methodologies using the very common qualitative techniques like observations, key informants, and review of secondary data.

Key informants and or participants are those who may exhibit characteristics whose commonalities are beyond compare. Their responses were part of the significant findings of the study which thematized accordingly and systematically.

The study was conducted at the University of Eastern Philippines Main Campus as it really exemplifies the employment of the blended learning. Specifically, the qualified participants are faculty members of the three (3) colleges who are teaching mathematics in the undergraduate program with struggling students in their classes. The three colleges are the following: College of Education, particularly Bachelor in Elementary and Secondary Education; College of Science, and College of Engineering, particularly Electrical and Civil engineering Departments. This study was conducted this second semester, school year 2022-2023.

There were two groups of participants in this study. The first group were the tertiary mathematics faculty who employed blended learning, and the second group were the extreme students in their mathematics classes.

The participants were selected based on the following criteria (Villar et al., 2022):

1. Participants should be teaching in tertiary mathematics from year 2020 up to the present,
2. Participants regardless regular permanent or part-time lecturer if they utilized blended learning modality from the start of the pandemic,
3. There is no specific teaching experience or years in service to participate in this study, and
4. Willingness to participate in the study.
5. Inclusion Criteria (Student-Participants)
6. Participants with lowest grades in their mathematics subject,
7. Participants regularly enrolled for the second semester school year 2022-2023,
8. He/she was under the classes of the instructors-participants included in the study, and
9. Willingness to participate in the study.

This study used a purposive sampling technique in such a way that the participants will be interviewed to detail their experiences as extreme performers in mathematics classes and faculty during the pandemic. Furthermore, an inclusion criterion is provided to give more information about the qualifications of the participants voluntarily participated in this study. The criteria used by the researcher were based on the study of Villar et al. (2022).

A semi-structured interview guide for performer-participants and faculty-participants were used during the conduct of the study. The researcher created an interview guide to ensure that every topic will be covered to gather the information necessary for the study. The interview consisted of a few primary questions, which were supplemented by supporting questions when more information is needed. The idea was to ask open-ended, non-leading questions that allowed the interviewee to decide on the depth and direction of his or her response. The questions were broad enough to allow for a wide range of responses and responses of varying quality. The interview guide was also translated in layman's language for better understanding by the performers-participants not much on the faculty-participants. The researcher interviewed the eight faculty and sixteen students until data reached saturation, that is, the inquirer no longer finds new information that adds to an understanding of a category or theme (Creswell, 2013). The audio-recorded interviews were transcribed in full. The researcher presented the interview transcripts to the faculty and student-participants for member-checking before starting the data analysis. Researcher's journal was utilized by the researcher on jotting down the important details mentioned during the interview. This was also used in recording the observations about the participants' gestures, expressions and feelings.

To ensure the validity of the interview guide, the research instruments were validated according to the research questions with three experts. One (1) Doctor of Philosophy in the field of mathematics, one (1) Doctor of Philosophy in the field in English, and an expert in phenomenological research. After taking into consideration all the suggestions of the experts, the interview guides were revised. Further, the research instruments were being subjected for pilot testing of the participants who fell under the same criteria but are from a different university. The researcher must be able to ask pre-made and unplanned questions that will give the participants the opportunity to address and discuss unclarified issues and concerns. After the tools had been verified, revise, and modified followed before interviewing the eight (8) tertiary mathematics faculty and sixteen (16) students of the study.

After securing permission and approval to conduct the study from the research adviser, panel members, Vice President for Academic Affairs, and the University President, a demographic survey was conducted to identify the research participants who qualified under the set criteria. In identifying the faculty-participants, the researcher handled the transmittal letter to the Dean for Instruction to provide her the copies of the actual teaching load of the faculty for three (3) semesters. After identifying the participants of the study, a letter of consent was given to signify their full participation and willingness in the study. When the letter was already signed, the identified participants were asked on their most convenient time and place where they were comfortable and available for the conduct of interview. The study conducted face-to-face and onsite interviews to gather data that will describe the real-world experiences of both the faculty and extreme performers in mathematics classes. During the actual interview process, the researcher read the informed consent agreement form to the participant to assure that the data gathered is treated with confidentiality. A tape recorder was used, and the recorded audio was transcribed. At the same time, the researcher observed and wrote down the participant's behavior and gestures while answering the interview questions.

After the in-depth face-to-face interview, the outcomes of the study were processed using the Colaizzi's method of data analysis to interpret and analyze the data. This method of data analysis classifies data according to themes, concepts, or similar features by extracting the essential and significant meanings from the large amount of data collected (Kiger & Varpio, 2020).

3. RESULTS AND DISCUSSION

This chapter presents, analyzes, and interprets the findings from the data gathered with the aid of the research instruments. The discussions are aligned to the five (5) main objectives of the study which focuses on the shapes and shades of blended learning in tertiary mathematics classroom as basis in formulating policy formulation.

As defined in this study “shapes” significantly refer to the experiences and challenges of extreme performers and Faculty in mathematics classes on the implementation of alternating blended learning. And the “shades” is referred to coping strategies while on alternating blended learning. These challenges and coping strategies are translated and articulated experiences have the following themes:

THEME 1: Internet Connectivity and Technological Difficulties

One dominant challenge among students during blended learning was unstable internet connection and limited access to gadgets. This problem significantly influenced their ability to participate in classes, submit assignments, and comprehend lessons. Below are the experiences, separated by performance level. Here are the extreme students responses:

A. Low Performers:

Low-performing students experienced substantial setbacks due to poor internet connectivity and inadequate technological resources. Their struggles often led to missed classes, late submissions, and reliance on external sources like YouTube for learning. The impact of unstable signals and insufficient gadgets greatly hindered their academic performance and engagement.

"During online medyo challenging saam kay adi kami sa kanya-kanya boarding house... So adali challenge iton saam, kailangan namo magi imod pa sa mga tutorial sa Youtube para la mahibaro... Tapos danay deri ak nakaka-join sa online kay maluya an signal." (Student 1)

(During online classes, it was quite challenging for us because we lived separately in different boarding houses... It was really a challenge for us; we needed to rely on YouTube tutorials just to learn... Sometimes I couldn't join online classes because the signal was weak.)

"An na-experience ko po kay an ako man dati sito pagtikang kay first time, san first year kay waray po ak siton cellphone... unstable ngada na dati ditoy pa man la an may wifi." (Student 2)

(My experience was that when I started during my first year, I didn't have a cellphone yet... and the internet was unstable, only few places had Wi-Fi.)

"Maluya an internet connection, an ako cellphone danay nagba-hang... nadidisturbo kay ginsusugo ka s aim mama... disappointed ka pag dere ka submit on time..." (Student 3)

(The internet connection was weak, and my cellphone would often hang... I would get distracted because my mother would send me to do errands... I felt disappointed when I couldn't submit on time.)

"Dere namo nasabutan kay maluya an signal... another challenge an gadgets kay cellphone la ak gamit." (Student 4)

(We couldn't understand each other because the signal was weak... Another problem was the gadgets since I only used a cellphone.)

"Kay mahina man an internet connection, an resulta nakakapasa ak saak mga task ngan activities urbi na..." (Student 5)

(Because the internet connection was poor, I would often pass my tasks and activities late.)

"Makuri para saak kay an signal o an internet connection deri stable..." (Student 6)

(It was hard for me because the signal or internet connection was not stable.)

"An internet linat an sayo sa problema para maka participate ak sa online class kay need pa maghanap sin "piso-wifi"..." (Student 7)

(The internet was also a problem for me to participate in online classes because I had to look for 'piso-wifi' (coin-operated Wi-Fi hotspots).)

"Mahirap kasi kailanangan pa sin strong internet connection pag nagparticipate kasi sa online class." (Student 8)

(It was difficult because you needed a strong internet connection to participate in online classes.)

For low-performing students, unreliable internet and limited gadgets created major obstacles to active participation and timely submission of academic requirements. Many faced persistent frustrations, often resulting in incomplete tasks, missed lessons, and a heavier dependence on self-directed learning methods that were not always effective.

B. High Performers:

High-performing students, although also affected by internet and gadget limitations, demonstrated stronger adaptability and resourcefulness. Instead of succumbing to these barriers, they found ways to maintain consistent participation and academic performance.

"The internet connection was not stable tapos there are some apps nga diri gumagana sa ako gadget." (Student 1)

(The internet connection was not stable, and there were some apps that didn't work on my gadget.)

"Pag abot sa load diri gud permanente. Diri gud stable anam financial resources." (Student 2)

(When it came to mobile data load, it was not always available. Our financial resources were not stable.)

"Tapos danay di ka linat maka-attend sa online class kasi kinahanglan mo lat load or wifi... nauubusan ak load/data tas waray pan piso wifi." (Student 3)

(Sometimes I couldn't attend online class because I needed either mobile load or Wi-Fi... I would run out of load/data and there was no piso Wi-Fi available.)

"An signal an sayo sa pinaka challenge kay kami, ada gad kami sa bungto pero medyo ligid na kami san bungto, maiton nga an signal medyo mahya." (Student 4)

(The signal was one of the biggest challenges because although we were near town, we were still a bit far, so the signal was weak.)

"Sa amo kasi place mahya kasi an signal so kailangan ko magmata kaagabon para mag search sa internet." (Student 5)

(In our place, the signal was weak so I had to wake up early to search the internet.)

"An poor internet connection an sayo san pinaka problema kay an amo lugar deri gud stable an signal." (Student 6)

(Poor internet connection was one of the biggest problems because in our area, the signal was not stable.)

"Dinbi an connection linat is mahina. Kailangan kopa maghanap kami kun diin an malaksi an signal." (Student 7)

(Here, the internet connection was also weak. We had to search for a place where the signal was strong.)

"Sometimes we cannot attend online class because of slow internet connectivity." (Student 8)

(Sometimes we cannot attend online class because of slow internet connectivity.)

While high-performing students faced similar internet and gadget challenges, their ability to actively seek solutions — such as waking up early to find better internet signals, using available resources effectively, and prioritizing academic activities — helped them maintain strong academic outcomes despite technological difficulties.

Internet connectivity and technological resources were critical barriers to both high and low performers. Both groups faced similar obstacles, but high performers often demonstrated resilience by actively finding ways (e.g., searching for strong signal areas, using YouTube tutorials) to continue learning despite difficulties. Low performers, meanwhile, frequently struggled to cope, often relying on delayed submissions and external help.

THEME 2: Financial Difficulties and Budget Management

Financial constraints emerged as a major theme affecting students' participation and performance during online and blended learning. Students highlighted issues like the cost of loading mobile data, buying gadgets, and managing everyday living expenses. These realities influenced their learning experience differently based on their coping mechanisms. Here are the extreme students responses:

A. Low Performers:

Low-performing students experienced direct negative impacts from financial constraints. Limited resources to afford mobile data, unstable gadgets, and additional household expenses contributed to delayed submissions, poor class participation, and heightened academic stress. Their responses reflected greater difficulty in finding ways to adapt to these financial burdens.

"Medyo magastos pag abot sa expenses kay kailangan gud mag load... Problema namo in danay kon pano kami mag-approach san kuan sa amon instructor kay online." (Student 1)

(It was quite expensive regarding expenses because we really needed to buy mobile load... Sometimes, we also had problems on how to approach our instructor online.)

"Dati po anak adali experience na iba about sa internet connection, siton nagkayaon na gadget tapos iton about sa internet connection na danay unstable... Internal problems like wifi, maghubulog tas deri gud kaya naghubulog lab kami sa wifi vendo tapos kapos danay an kwarta." (Student 2)

(Before, my experience was different regarding internet connection — we already had a gadget but the internet was still often unstable... We had internal problems like having to insert coins in a Wi-Fi vendo, and sometimes we didn't have enough money for it.)

"An ako cellphone danay nagba-hang... disappointed ka pag dere ka submit on time... limited an imo knowledge nga makukuha." (Student 3)

(My cellphone would sometimes hang... I felt disappointed when I couldn't submit on time... and the knowledge I could get was limited.)

"An poor connection, permi laak late sa pagpasa san modules tapos late pag receive san mga updates... kailangan ko pa isipon an transportation an iba pa nga problema." (Student 5)

(Because of poor connection, I was always late in submitting modules and receiving updates... I also had to think about transportation and other problems.)

"Financial difficulties kay siton nga adlaw waray kami internet connection. Para kami maka gamit san internet, kailangan pa namo magpaload 50 pesos kada adlaw ngan darako na para saam..." (Student 6)

(We had financial difficulties because some days, we didn't have internet connection. To use the internet, we had to spend 50 pesos a day, and that was already a lot for us.)

"Need pa maghanap sin 'piso-wifi' pero okay man an signal ngan nakabulig para ma continue an learning ko... struggle lat ak sa paggamit san gadget." (Student 7)

(I had to look for 'piso-wifi' but the signal there was okay and it helped me continue my learning... I just struggled with using gadgets.)

"Sa gadget an usage san loads since kailanagn namo sin load para ma access an internet..." (Student 8)

(We needed mobile load to use our gadgets and access the internet.)

For low-performing students, financial difficulties served as a substantial barrier that directly hindered their learning process. Many struggled to maintain consistent online participation and performance, as limited finances restricted their access to necessary resources. Unlike their high-performing peers, they showed less evidence of strategic adaptation to these financial hardships.

B. High Performers:

High-performing students, while equally affected by financial challenges, demonstrated resilience and practical strategies to overcome these obstacles. They managed limited resources effectively, adapted creatively, and maintained focus on their academic goals despite economic hardships.

"Noong first year po ako there was only one cellphone which my brother and I parang naghuburamay la po kami." (Student 1)
(During my first year, there was only one cellphone, and my brother and I would take turns using it.)

"Diri man tanan na oras may kwarta... Kun willing talaga mag attend siton na klase, maniguro gud ak." (Student 2)
(Not all the time do we have money... If you really want to attend class, you will find a way.)

"An load kasi sadto depende, 1 week sadto an 100. Tapos kun pagwaray ngani ak 100, pyude nagpipisowifi nala ak sadto." (Student 3)
(Before, 100 pesos for load could last a week. If I didn't have 100, I would just use piso-wifi.)

"Online, para sa ako pabor iton kay harayo kami ngadi sa UEP, pagpinamasabe. Nagasto man pero load la." (Student 4)
(For me, online was favorable because we lived far from UEP (school), saving transportation costs. Even though we still spent money, it was only for mobile load.)

"That time makuri an amo pangabubi san ak parents so naging advantage iton san online kay dere kami naggagasto nagbabayad san boarding house, san transportation." (Student 5)
(During that time, my parents were struggling financially, so online learning was an advantage because we didn't have to spend on boarding house or transportation.)

"Magdadara ak sarili ko nga WIFI connection... nag outsourcing para makabanap pa sin impormasyon." (Student 6)
(I would bring my own Wi-Fi connection... I also did outsourcing to find more information.)

"An gastos niyan nga mga adalw natig bataas. An pamasabe, pagkaon ngan mas mahalaga nga hirimuon kon magi-aaram kaki sa amon panhimalay." (Student 7)
(Nowadays, expenses have gone up. Transportation, food, and it's even more important to manage studies while at home.)

"Dinbi an connection linat is mahina. Kailangan kopa maghanap kami kun diin an malaksi an signal." (Student)
(Here, the connection was also weak. We had to look for a place with a strong signal.)

Despite financial hardships, high-performing students showed strong adaptability and resourcefulness. They maximized limited resources, sought alternative solutions, and prioritized their academic needs effectively. Their ability to manage and overcome financial constraints played a key role in sustaining their learning engagement and academic success.

Both low and high performing students grappled with financial challenges like affording mobile data and maintaining gadgets. However, high performers often approached these constraints creatively—sharing devices, managing limited load, or making sacrifices like studying at odd hours. In contrast, low performers typically emphasized how these financial issues directly impeded their studies, with less evidence of strategic adaptation.

THEME 3: Health, Motivation, and Emotional Struggles

Students' physical health, emotional struggles, and overall motivation were heavily impacted during blended learning. Lack of sleep, stress, physical discomfort, and emotional difficulties such as frustration and distraction became important themes in their learning experiences. Here are the extreme students responses:

A. Low Performers:

Low-performing students were heavily impacted by physical health issues and emotional struggles. Frequent distractions, mental exhaustion, disorganization, and personal health problems often hampered their ability to stay focused and meet academic demands. Their experiences revealed a pattern of being overwhelmed without consistently effective coping mechanisms.

"During online class makadamo ak adto biranat kay deri ak sanay nga nagpipiraw." (Student 1)
(During online classes, I often had fevers because I wasn't used to staying up late.)
"Danay utod-utod an pag-bagaw san professor... Sa pdf, an iba deri maintindihan... naghubulog lah kami sa wifi vendo tapos kapos danay an kwarta." (Student 2)
(Sometimes the professor's voice would cut off... Some parts in the PDF were hard to understand... We would

just rely on piso-WiFi but sometimes we didn't have enough money.)

"An imo mental health ada ka la perme natutok sa gadget, tapos disappointed ka pag dere ka submit on time, nag oover think ka sa imo grades..." (Student 3)

(Your mental health suffers because you're always glued to gadgets, and you feel disappointed when you can't submit on time, and you start overthinking about your grades...)

"Danay nakukurian lat ak e organize an ako task ngan activities nga bhimuon... distraction kay san social media, an tendency natutunga anak focus." (Student 5)

(Sometimes, I had difficulty organizing my tasks and activities... Social media was a distraction, and my focus would get divided.)

"An pagpaload para saak is darako nga stress kay anam kwarta limitado... anak cellphone is daan na, tas nag lalag lat kaya na-iinterrupt anak mga trababoon..." (Student 6)

(Buying load was a huge stress for me because money was limited... My cellphone was also old and kept lagging, which interrupted my work.)

"May problema lat po ak sa pamati kay anak left ear deri na gumagana... an boses san teacher deri gud dako para mabatian ko an mga lesson..." (Student 7)

(I also had a hearing problem because my left ear was not functioning... The teacher's voice was not loud enough for me to hear the lessons properly.)

"Sa modular, nag ssearch laak answer sa online... minsan ko an teacher deri naghabatag pokus sa topic deri gud ak nasabot sa ngatan nga aranseran ngan activities." (Student 8)

(In modular learning, I would just search for answers online... Sometimes the teacher didn't focus much on the topic so I couldn't understand all the lessons and activities.)

Low-performing students faced compounded difficulties from health issues, emotional stress, and distractions. Their inability to effectively manage these problems often led to poor academic organization, decreased focus, and lower overall performance during blended learning.

B. High Performers:

Despite experiencing health and emotional challenges, high-performing students demonstrated resilience by maintaining motivation and seeking proactive solutions. They recognized the difficulties but continued to strive toward their academic goals through self-regulation, perseverance, and strategic learning behaviors.

"San pandemic po kasi nagkasakit po ak... so na-diagnose po ak sin gastritis tas ulcer po." (Student 1)

(During the pandemic, I got sick... I was diagnosed with gastritis and ulcer.)

"An pagbagsak... para kasi saak sadto bagan ka-unfair... Iisipon ko hala malimpyo paak." (Student 3)

(Failing felt unfair to me before... but I would think to myself, 'I can still recover.)

"Danay nahingangalimot ak kumaon to the point nga nagsusuol na an ako tiyan sa online damo kasi an amo mga activities." (Student 5)

(Sometimes I would forget to eat to the point that my stomach would hurt because of so many online activities.)

"An ako course deri gud aligned sa mathematics kaya nag adapt gud ak sine nga subject kasi maaram ak nga may fundamental knowledge nga magagamitan ko sa future..." (Student 6)

(My course was not really aligned with Mathematics, but I adapted to the subject because I knew it contained fundamental knowledge that I could use in the future.)

"Makuri gud an sugad sine nga pag-aradman kay lack of knowledge is permi ada kay waray man kami time para direct nga mangutana sa teachers..." (Student 7)

(Studying this way was really hard because the lack of knowledge was constant since we didn't have time to directly ask our teachers.)

"Sa online learning, anam teacher is nagdidiscuss san lesson dikan may mga parts na diko naiintidhan, ako dayun ginsesearch sa google." (Student 8)

(In online learning, when there were parts of the lesson that I didn't understand during the discussion, I would immediately search them on Google.)

High-performing students showed an ability to navigate health and emotional challenges by maintaining motivation and adapting their learning approaches. Despite physical and emotional setbacks, they remained focused on their goals and consistently found ways to overcome knowledge gaps and personal obstacles.

Both low and high performing students faced health and emotional difficulties such as stress, distraction, sickness, and mental exhaustion. High performers, however, tended to recognize these obstacles and still push through by finding motivation in family or future goals, whereas low performers often became overwhelmed by these problems, impacting their ability to focus and organize their work consistently.

THEME 4: Teaching Strategies and Learning Resources

The way teachers delivered content and the resources provided to students significantly shaped their learning experience. Some students appreciated modules, problem sets, and online explanations, while others struggled due to limited teacher interaction, unclear materials, or lack of immediate feedback. Here are the extreme students responses:

A. Low Performers:

Low-performing students encountered difficulties with the structure and delivery of teaching materials. Although resources were available, issues like unclear explanations, limited feedback, reliance on self-study, and lack of immediate interaction often hindered their understanding and reduced their academic performance.

"Okay man saam magtuto si sir Ampuan pag-abot sa online class... so deri danay naka-clarify so siguro sa about iton sa connection... pagnag-didiscuss siya online danay deri nababatian an kanya boses." (Student)

(Sir Ampuan was okay in teaching during online classes... but sometimes things weren't clarified, maybe because of the connection... When he discussed online, sometimes we couldn't hear his voice clearly.)

"Modular through online source, gindownload la an pdf file tapos babala na kaki magi basa tas mag study... Danay deri poh maintindihan an process..." (Student 2)

(Modular learning was through online sources; we would just download the PDF files and study by ourselves... Sometimes the process was really hard to understand.)

"In terms of delivery e send an module an module thru google classroom/messenger... disappointed ka pag dere ka submit on time." (Student 3)

(In terms of delivery, modules were sent through Google Classroom or Messenger... You would feel disappointed if you couldn't submit on time.)

"An module was sent thru Google classroom, an online discussion using PowerPoint. Quizzes was sent through Google forms, pero an major exam face to face." (Student 4)

(The module was sent through Google Classroom, and online discussions were done using PowerPoint. Quizzes were sent through Google Forms, but major exams were done face-to-face.)

"Learning in modular para saak maupay kay gintatagan dako nga oras para masabot an problem... May laak problema kabuman pagpasa saak modules kay deri ak nakaka-receive feedback." (Student 5)

(Learning through modules was good for me because it gave me more time to understand the problems... My only problem was after submitting my modules, I didn't receive feedback.)

"Sa modular naman mas maupay kay provided kami san hardcopies... Sa mga quizzes nakaka answer naman kami kay mayaon man kaki

hardcopy ngan softcopy..." (Student 6)

(Modular learning was better because we were provided with hardcopies... In quizzes, we could answer because we had both hard and soft copies.)

"Nag engage kami mga video tutorials ngan interact through facebook page... an amo exam is face-to-face kaya challenging..." (Student 7)

(We engaged with video tutorials and interacted through a Facebook page... Our exams were face-to-face, which made it challenging.)

"Nag announce nala an amo teacher kon may update about sa assessment ngan activity through messenger... Tapos minsan ko an teacher deri naghabatag pokus sa topic." (Student 8)

(Our teacher would just announce updates about assessments and activities through Messenger... Sometimes the teacher didn't focus enough on the topic.)

For low-performing students, the availability of modules and online materials did not fully compensate for the lack of structured guidance and feedback. This often resulted in confusion, incomplete understanding of lessons, and greater reliance on self-study without adequate teacher support, contributing to lower engagement and academic performance.

B. High Performers:

High-performing students made better use of teaching strategies and available learning resources. Even when faced with imperfect delivery systems, they proactively engaged with materials, sought clarification, and valued interactive learning opportunities, enhancing their understanding and performance.

"It was the problem set given by Sir Bless it really helped us a lot since the more problem set he give to us, the more we master the topic in integral calculus." (Student 1)

(The problem sets given by Sir Bless really helped us because the more he gave, the more we mastered the topic in integral calculus.)

"Pag-abot po sa pagtutdo makuri danay sumabot kay online... more on discussion." (Student 2)

(When it came to teaching, sometimes it was hard to understand because it was online... it was mostly discussion-based.)

"Danay nagpapa-exam si Sir paiba-iba man lat danay; waray man ini igtutdo, waray ba ig-discuss." (Student 3)

(Sometimes Sir would give exams even though the topics had not been taught or discussed yet.)

"Sa pagtutdo, mao ta gad kan Sir pag kuan, ugaring la deri kami mismo nakakasubaybay kay putol-putol." (Student 4)

(In teaching, Sir was good at explaining, but we couldn't really follow well because the connection kept cutting off.)

"An positive, pag submission kay diba ginko-consider man nira pag-abot san internet connection maiba sira maghatag sin duration pagsubmit san requirements." (Student 5)

(The positive thing was that they considered our internet connection issues by giving us longer durations to submit requirements.)

"Bisan deri ak fun san mathematics kay an amo teacher dali la mahibaro. Kon paano niya gintututdo doon ak nahibibaro gud." (Student 6)

(Even though I wasn't fond of Mathematics, our teacher made it easy to learn. The way he taught really helped me understand.)

"Maupay kon mayaan interaction between students ngan teachers. Kay pwede ko direkta nga mangutana saak teacher kon mayaan ak pakiana ngan an teacher naghabatag dayon feedback." (Student 7)

(It's good when there's interaction between students and teachers because I can directly ask the teacher if I have questions, and the teacher immediately gives feedback.)

"Anam teacher dire saam naghabatag exam or task kapag wara namo ka discuss or ka tudo an lesson pa gud. Anam teacher gin susure na naiintidhan namo an topic bago maghatag quizzes and examination." (Student 8)

(Our teacher didn't give exams or tasks if the lesson hadn't been discussed yet. The teacher made sure we understood the topic before giving quizzes and examinations.)

High-performing students effectively engaged with the provided materials and teaching methods, maximizing learning opportunities even when online delivery had limitations. Their willingness to seek clarification, participate actively, and use problem sets strategically contributed significantly to their academic success during blended learning.

Teaching strategies and resource delivery greatly impacted students' engagement. High performers maximized the provided materials, participated actively in problem-solving exercises, and sought clarification when needed. Low performers, although receiving similar resources, were more prone to confusion, lacked consistent feedback, and faced difficulties self-studying from modular contents or fragmented discussions.

THEME 5: Coping Mechanisms and Time Management

To overcome the obstacles presented by online learning, students adopted various coping strategies. Some demonstrated strong time management and self-discipline, while others found it difficult to stay focused and organized. This theme explores how students navigated their academic responsibilities despite challenges. Here are the extreme students responses:

A. Low Performers:

For low-performing students, navigating the challenges of online learning can be especially difficult, often compounded by distractions and inconsistent strategies. Despite these struggles, many low performers still attempt to manage their time by employing various coping mechanisms. These students often try to set schedules and make use of external resources like YouTube tutorials or borrowing devices to enhance their learning. However, maintaining focus and staying organized remains a significant challenge, influencing their ability to manage academic tasks efficiently.

"Na mamnag ko nala nag set schedule kon kano magpipitan kon kan-o tratrababuo an mga activities." (Student 1)

(I just managed by setting a schedule for when I would answer and work on activities.)

"Pagabot man sa pdf, anak technique na gingamit is youtube and other resources... Nag time management nala po ak." (Student 2)

(When it came to the PDFs, my technique was using YouTube and other resources... I also practiced time management.)

"Dere ak nala nag oonline in aga para deri ak gin-susugo, naghanap youtube tutorial para ma improve ak knowledge sa pagsolve, e manage an time sin manpay, bawal magrelax-relax..." (Student 3)

(I just avoided going online in the morning so I wouldn't be sent on errands. I looked for YouTube tutorials to improve my solving skills, managed my time well, and avoided relaxing too much.)

"During vacant time I studied my lesson, have an advanced reading, pag mag hang cp borrow san mga kamag-anak nga may cp pansamantala." (Student 4)

(During vacant time, I studied my lessons, did advanced reading, and when my phone hung, I temporarily borrowed phones from relatives.)

"Self-discipline para makapokus, e-organize an ako mga subject pra dire masamok, ngan time management para maimasan an cramming." (Student 5)

(Self-discipline to stay focused, organizing my subjects so they wouldn't get messy, and time management to avoid cramming.)

"Sa internet, since anak ate karuyag niya magkayaon sin sarili nga internet connection... nakiki-connect nala ak sa wifi niya." (Student 6)

(Regarding internet, since my older sister wanted to have her own internet connection, I just connected to her Wi-Fi.)

"Time management para saak an susi para maging malipyo ngan dali la an pag organize adali task ngan activities kada adlaw para mainvasan an distraction." (Student 7)

(Time management was key for me to stay organized and easily finish daily tasks and activities to avoid distractions.)

"Pagiging good listener ngan focus sa teacher habang nagdi-discuss. Ngan pag save san kwarta agap para prepare sa budget..." (Student 8)

(Being a good listener and focusing on the teacher during discussions. Also, saving money early to prepare a budget...)

Low-performing students employ time management strategies such as setting schedules and using external resources, but often face challenges in maintaining focus and consistency. Distractions, lack of discipline, and difficulties with organization hinder their ability to manage tasks effectively. While they demonstrate effort in adapting to the demands of blended learning, their strategies are often less consistent or face more barriers, which can affect their academic success.

B. High Performers:

High-performing students, on the other hand, tend to adopt more structured and proactive approaches to time management and coping. They emphasize strict scheduling, self-study, and actively seek external resources to enhance their understanding. These students tend to be more self-disciplined, often going above and beyond to ensure that they stay on track with their academic responsibilities. Through effective use of time management strategies, they navigate challenges more successfully, consistently meeting deadlines and excelling in their tasks.

"When it comes to time management para po makapasa ak on time ginpipirawan ko gud siya." (Student 1)

(When it came to time management, I really stayed up late to make sure I could pass requirements on time.)

"Kun willing talaga mag attend siton na klase, maniguro gud ak... kusa na dumuok sa imo mga classmate nga maaram na." (Student 2)

(If you are really willing to attend class, you will really find ways... even voluntarily approaching classmates who already understand the lessons.)

"Sa pag-aram ko, mabil-ing ak nala tutorial tapos nagse-self study ka nala." (Student 3)

(When studying, I would just look for tutorials and do self-study.)

"Sugad ni Sir, an technique talaga siton practice. Magprinaktis pagsolve." (Student 4)

(Just like what Sir said, the real technique was practice. Practicing solving problems.)

"Gin momotivate ko ka ak sarili, ginbimo ko nga motivation an ako family an mga ginbihimo nira para makatangpos ak." (Student 5)

(I motivated myself by making my family and everything they have done for me my inspiration to finish my studies.)

"Nag aaram gud ak ngan nag outsourcing para makabanap pa sin impormasyon, ngan nagprapractice ak pagsolve equations ngan word problem..." (Student 6)

(I really studied and outsourced information to find more knowledge, and practiced solving equations and word problems...)

"Namamanage ko anak time sin maupay ngan daramo anak nahibimo nga mga butang sa sayo ka adaln." (Student 7)

(I managed my time well and was able to accomplish many tasks in just one day.)

"Anam teacher dire saam naghabatag exam or task kapag wara namo ka discuss or ka tutdo an lesson pa gud. Anam teacher gin susure na naiintidhan namo an topic bago maghatag quizzes." (Student 8)

(Our teacher didn't give exams or tasks unless the lesson had been discussed or taught. The teacher made sure we understood the topic before giving quizzes.)

High-performing students excel in time management by employing consistent and proactive strategies, such as self-study,

strict scheduling, and seeking external resources. These students maintain a high level of self-discipline, enabling them to manage their academic tasks efficiently and effectively. Their ability to navigate the challenges of online learning through structured approaches plays a key role in their success, setting them apart from their peers who may struggle to maintain similar levels of organization and focus.

While both high and low performers experienced challenges in managing their time, high performers demonstrated more proactive behaviors such as strict scheduling, self-study, and seeking external resources like tutorials. Low performers, although also attempting scheduling and focus, often faced greater distractions or lacked consistent strategies to maintain productivity.

Table 1: Alternating Blended Learning: A Comparative Analysis of Extreme Student Experiences

Theme	Low-Performing Students	High-Performing Students
Internet Connectivity and Technological Difficulties	▪ Significant struggles with unstable internet, weak signals, and limited access to reliable Wi-Fi. ▪ Frequently rely on expensive mobile load or travel to areas with better connectivity. ▪ Difficulty participating in online classes, submitting assignments on time, and accessing materials. ▪ Gadgets often limited to basic or outdated cellphones.	▪ Also experience unstable internet but are more resilient and adaptive. ▪ Actively seek strong signal areas, utilize YouTube tutorials, and schedule their study around internet availability. ▪ Use limited gadgets strategically for academic tasks.
Financial Difficulties and Budget Management	▪ Major financial strain due to recurring costs for mobile data and load. ▪ Late submissions and missed classes due to lack of internet budget. ▪ High levels of stress managing daily costs for connectivity.	▪ Financial challenges are also present, but students creatively manage resources. ▪ Share gadgets, prioritize essential needs, minimize internet usage, or access free Wi-Fi points.
Health, Motivation, and Emotional Struggles	▪ High levels of stress, anxiety, sleep deprivation, and mental fatigue. ▪ Struggle to balance academic demands and personal health. ▪ Feelings of overwhelm and demotivation are common.	▪ Acknowledge health struggles but actively develop resilience. ▪ Draw motivation from family goals or personal ambitions. ▪ Implement self-care, time for rest, and stress management strategies.
Teaching Strategies and Learning Resources	▪ Experience unclear instructions, limited interaction, and delayed feedback. ▪ Heavily dependent on self-study and YouTube due to lack of guidance. ▪ Struggle to understand complex topics without structured support.	▪ More proactive learners. ▪ Engage with materials actively, participate in problem-solving, and seek clarification. ▪ Use online resources effectively and build peer-support networks when necessary.
Coping Mechanisms and Time Management	▪ Frequent struggles with procrastination, disorganization, and cramming. ▪ Lack consistent strategies for handling workload and distractions.	▪ Strong time management and discipline. ▪ Develop schedules, use self-study, manage distractions, and seek additional resources proactively.

The student responses highlight the significant challenges faced during alternating blended learning, particularly in terms of internet connectivity, gadget access, financial difficulties, and mental well-being. While both low and high-performing students

experienced these obstacles, their coping mechanisms and overall impact on their learning varied. Low-performing students often struggled to adapt to the demands of alternating blended learning, experiencing difficulty engaging with learning materials, and suffering from stress and distractions. In contrast, high-performing students demonstrated more resilience and adaptability, actively seeking solutions, utilizing learning resources effectively, and maintaining motivation and focus. The study suggests that blended learning presents unique challenges for all students, but low-performing students are particularly vulnerable to the negative impacts of these challenges. The study highlights the need for educators and institutions to provide more support and resources to help students overcome these obstacles and achieve academic success.

The sudden shift to blended learning due to unforeseen circumstances prompted a significant transformation in the educational landscape at University of Eastern Philippines. This report delves into the experiences of faculty members as they navigated this new terrain, focusing on six key themes that emerged from their narratives: Adjustments in Teaching Methods and Work Environment; Delivery and Integrity of Student Assessment; Communication Methods and Delivery Platforms; Connectivity Barriers and Technological Limitations; Faculty Innovations and Adjustments in Instructional Materials; and Faculty Recommendations for Future Improvement.

THEME 1: Adjustments in Teaching Methods and Work Environment

Faculty members shared how blended learning altered their teaching routines, technology use, and personal work environments. Some mentioned benefits such as time savings, while others described the pressure of constant screen exposure, disruptions at home, and health impacts. Here are the Faculty responses:

"Ang maganda lang sa blended, na-manage mo yong time mo, hindi na nale-late, hindi mo na kailangan mag-travel, you can save money... Masakit ang ulo mo dahil palagi kang puyat at palaging nakatutok sa gadget." (Faculty 1)

(The good thing about blended learning is that you can manage your time, you are no longer late, you don't need to travel, and you can save money... However, you often get headaches because you lack sleep and are always focused on gadgets.)

"The positive side, I was able to utilize online materials while discussing... I was at home during the sessions, I can do some activities after online." (Faculty 2)

"Sa printed nagrereklamo ang mga students kasi self-learning nga it needs more explanation... Tapos sa babay lang ako mag-o online di maiwasan na mag ingay ang dalawa kong mga bata, I have to stop for a while para sawayin sila." (Faculty 3)

(In printed materials, students complained because self-learning needed more explanation... Also, since I was just doing online classes at home, it was unavoidable that my two kids made noise, and I had to stop for a while to reprimand them.)

"An math makuri ig tudo tapos limited an imo discussion sa online... may ibang mga estudyante walang laptop o cellphone." (Faculty 4)

(Math is difficult to teach and online discussions are very limited... Some students do not have a laptop or cellphone.)

"I think I was able to explore with other methods... Preparations of lesson, hindi madali magprepare specially making videos, power point presentation because we are not used to it." (Faculty 5)

(I think I was able to explore other methods... Preparing lessons is not easy, especially making videos and PowerPoint presentations because we were not used to it.)

"Eager to find ways and innovations... happy ako kasi kahit papano mayaon ta man ak na e impart sa kanra... Another issue an retrieval san module san mga students nga barayo tapos wara signal." (Faculty 6)

(I was eager to find ways and innovations... I was happy because at least I had something to impart to them... Another issue was retrieving modules from students who lived far away and had no signal.)

"If na lessen an submission of hardcopies, para malessen livat an basura... ak ginibimo ako if may student nga di nakakaattend ak nala gin rerecord tapos gin sesend ko sa kanira." (Faculty 7)

(If the submission of hardcopies is lessened, it would also reduce waste... What I do is that if a student cannot

attend, I record the session and send it to them.)

"Before during san waray pa pandemic, parang expose kit sa face to face... pag abot sa pandemic I learned a lot of new things, I am now expose with google meet, via zoom, applications, google form." (Faculty 8)

(Before, when there was no pandemic, we were exposed to face-to-face classes... When the pandemic came, I learned a lot of new things, and I am now familiar with Google Meet, Zoom, various applications, and Google Forms.)

The shift to blended learning reshaped the faculty's teaching approach and daily routines. Some valued the flexibility of remote work, while others encountered fatigue, disruptions at home, and the demands of adapting quickly to digital platforms. Despite the different conditions, faculty continued to adjust their methods to fulfill instructional responsibilities.

THEME 2: Delivery and Integrity of Student Assessment

Faculty discussed their efforts in administering assessments, the issues they faced with dishonesty, and the adjustments they made to maintain fairness and accuracy in evaluating student outputs during blended learning. Here are the Faculty responses:

"During assessment online, ang hirap gumawa ng mga symbols sa math, kaya time consuming. Mayroong mga studyante na na wrong send, mayroon naman studenyante na ibang tao ang nagta-take nga exam nila, nandiyan ang cheating and dishonesty... Sa paggawa ng assessment, ini iba-iba ko bawat grupo to avoid cheating." (Faculty 1)

(During online assessments, it was hard to create math symbols, so it was time-consuming. Some students sent their answers incorrectly, and there were others whose exams were taken by someone else; cheating and dishonesty were present... To avoid cheating, I varied the assessments for each group.)

"During assessment, I consider the limitations on online assessments cannot submit their answers using the google forms because of the slow internet connection... I give a follow up with online recitation or even face to face recitation." (Faculty 2)

"Pag sa assessment naman, I'm giving them the benefit of the doubt, I cannot really rely if they are the one who took the exam, ang ginawa selfie muna bago mag-exam... pagdating sa result ng exam, nadismaya ako kasi ang dami paring bumagsak despite na ginawa ko naman ang labat." (Faculty 3)

(In assessments, I gave them the benefit of the doubt because I could not be sure if they were the ones who took the exam. I required a selfie before starting the exam... However, when the exam results came out, I was disappointed because many still failed despite all my efforts.)

"Pag mag quiz duda ka kon nagkurpyabay kay dere mo sira maiimod... Another challenge, sa northern samar uso an brown-out." (Faculty 4)

(When giving quizzes, you doubt if they are collaborating or cheating because you cannot see them... Another problem is that brownouts are common in Northern Samar.)

"When I give a quiz based on the exercises in the module, I did not record the score because lessons were not yet discussed since it is just some sort of diagnostic test." (Faculty 5)

"An ginhibimo ko mabatag ak problem set online tapos e send saak an solution, pero mayaon ta koropyabay kay napansin ko an kanra mga solutions pare-parehas la... naghabatag nala ak practical questions orally, iton dayon ipapaimod nira an kanra solution, kada student iba nga question an ak ginbatag." (Faculty 6)

(What I did was send a problem set online and ask them to send me their solutions, but I noticed that their solutions were very similar, suggesting they copied... So instead, I gave practical questions orally where each student had a different question to solve and show their solution immediately.)

"Pag nag eexam online nabibikit an dayun san estudyante an answer dikan ginsusugad nira sa mga estudyante nga wara pag take exam... Nag study gud ak kun pano gamiton an google form nga deri mag leak an answer." (Faculty 7)

(When exams were conducted online, students would immediately share the answers with classmates who had not yet taken the exam... I really studied how to use Google Forms in a way that would prevent answer leakage.)

"In terms of evaluation talaga sa google form and then sa content balimbawa sa amo solving mathematics anak gn hihimo is sa google form una ig sesend nira pictures of their solutions then mayaun part of portion is mayaun siya brief explanation through the method given about the solutions." (Faculty 8)

(In terms of evaluation, we used Google Forms, and for content like solving mathematics problems, the students would first send pictures of their solutions via Google Form, and there was also a section where they had to briefly explain their method.)

Faculty members actively addressed academic dishonesty by modifying assessments, requiring visual proof like selfies, designing group-specific tasks, and supplementing online exams with oral recitations. Despite their efforts, concerns about cheating and incomplete reliability in evaluation remained common, highlighting the complexity of maintaining integrity during remote assessment.

THEME 3: Communication Methods and Delivery Platforms

Faculty outlined how they delivered lessons and communicated with students using a variety of platforms and applications. Adjustments were made to accommodate both technology limitations and students' diverse accessibility situations. Here are the Faculty responses:

"Before the start of the classes, nagcreate ak group chat tapos ini-isa isa ko sila e-add na nakabase sa class list mo... Before the discussion, nag-explore muna ako ng Apps, na nandoon ang module mo, nagdi-discuss ka habang nagsosolve, tapos ina upload ko sa U-tube na kaprivate lang, e ka copy ko ang kink at e se send sa Group Chat." (Faculty 1)

(Before classes started, I created a group chat and added students one by one based on the class list... Before discussions, I explored apps where you could have the module open while discussing and solving. I uploaded the discussions privately to YouTube, copied the link, and sent it to the group chat.)

"I shifted to reporting type of delivery to maximize students' participation. I give students the topic by group, then during face to face I do the discussion... I realize that discussing online is not effective way of delivering the lesson." (Faculty 2)

"I use online platforms, the google classroom and the zoom application. I tried also to use facebook ang messenger to send my modules and videos." (Faculty 3)

"During online discussion I used platforms like Google Meet, and Zoom." (Faculty 4)

"I upload the materials and even the exercises... I upload the module sa word lang then the students would write their answers and picture it and upload them in the google classroom." (Faculty 5)

"An sa online naman, I implemented google classroom, those activities, syllabi, nagkakaroon kami online send it google classroom." (Faculty 6)

(For online, I implemented Google Classroom; activities and syllabi were posted there, and we would submit everything through Google Classroom.)

"I am using module and I also uploaded the learning material then a presentation na ginagamit during the discussion through google meet... And in submission the output I use online platform but my part nga di ko maintindihan I required them to submit a hardcopies to clarify san ira gin submit." (Faculty 7)

(I used modules and uploaded learning materials along with a presentation that I used during discussions through Google Meet... For submissions, I used an online platform, but if I couldn't fully understand their work, I required them to submit hardcopies to clarify their submissions.)

"Deri laak sa zoom nagkaklase lat ak via youtube live para lat sa mga students, kasi mas madali mag tutdo sa youtube kasi mas madali an server nira sa youtube compare sa via zoom and google meet." (Faculty 8)

(I did not only hold classes on Zoom but also used YouTube Live for students, because teaching was easier on YouTube since its server was faster compared to Zoom and Google Meet.)

Faculty members used a blend of Google Meet, Zoom, Google Classroom, Facebook, Messenger, YouTube, and private uploads to communicate and deliver content. Adjustments such as switching to private YouTube videos, uploading modules in different formats, and flexible submission requirements were common to ensure lessons reached as many students as possible despite internet limitations.

THEME 4: Connectivity Barriers and Technological Limitations

Faculty described persistent problems related to internet access, unstable connections, lack of student gadgets, and power interruptions. These technical issues disrupted teaching flow, limited student participation, and complicated the overall learning process. Here are the Faculty responses:

"During online discussion, kakaunti lang ang nagparticipate kasi dahil nga sa signal... hindi ko alam kung may naiintindihan sila... Slow internet connectivity." (Faculty 1)

(During online discussions, only a few participated because of poor signal... I wasn't sure if they understood anything... The internet connectivity was slow.)

"Not all students have gadgets. The slow internet connection. Power interruptions during online." (Faculty 2)

"Sa online naman, ayaw nila ng online kasi and signal mabina, kailangan pa nila pumunta sa bukid para makasagap ng malakas na signal para maka attend sa online class." (Faculty 3)

(Students didn't like online classes because the signal was weak; they even had to go to the hills to get stronger signal so they could attend online classes.)

"Stability of internet connection- balos iton an ngatanan an problema san mga estudyante lalo na kon adto sa isla o mga remote areas. Another challenge, sa northern samar uso an brown-out." (Faculty 4)

(Internet connection stability was almost everyone's problem, especially students from islands or remote areas. Another problem was that brownouts were common in Northern Samar.)

"Blended learning itself is a challenge, specially that students and teachers are not familiar with this type of learning... Printing of the materials, magastos imagine I have 500 students." (Faculty 5)

(Blended learning itself was difficult, especially because students and teachers were not familiar with this type of learning... Printing materials was expensive; imagine having 500 students.)

"Slow internet connection, students are not motivated, lack of interest... retrieval san module san mga students nga harayo tapos wara signal." (Faculty 6)

(Slow internet connection, lack of student motivation, and lack of interest... Retrieval of modules from students living far away and without signal was also a problem.)

"Sa online danay tigda nagbabrown out, tapos kundi man an internet tigda na wawara an signal, kaya di nakakadiritso san klase." (Faculty 7)

(During online classes, sometimes there would suddenly be a brownout, or the internet signal would suddenly disappear, so classes couldn't continue properly.)

"Sa internet ma'am before an una na introduce for delivery is zoom tara what happened the zoom is kailangan account or may limitation lang siya and then mas mahirap siya kumuha ng signal via zoom... tapos after that is google meet medyo okay na siya mas madali friendly siya madali la but same pa rin ang iba parang data consumption." (Faculty 8)

(Regarding internet use, at first we used Zoom for classes, but Zoom required accounts and had limitations, and it was harder to get a good signal through Zoom... After switching to Google Meet, it was somewhat better and easier to use, though it still consumed a lot of mobile data.)

Faculty consistently reported that unstable internet, lack of access to proper devices, and frequent power outages seriously hindered the effectiveness of blended learning. These technical limitations created gaps in student engagement and made smooth lesson delivery difficult across all teaching platforms.

THEME 5: Faculty Innovations and Adjustments in Instructional Materials

Faculty members made significant modifications in preparing and delivering instructional materials to address gaps in student understanding and accessibility. This included creating digital content, modifying assessments, and personalizing materials based on students' needs. Here are the Faculty responses:

"Before the discussion, nag-explore muna ako ng Apps, na nandoon ang module mo, nagdi-discuss ka habang nagsosolve, tapos ina upload ko sa U-tube na kaprivate lang, e ka copy ko ang kink at e se send sa Group Chat." (Faculty 1)

(Before discussions, I first explored apps where you could have the module open while discussing and solving, then I uploaded the videos privately on YouTube, copied the link, and sent it to the group chat.)

"I shifted to reporting type of delivery to maximize students' participation... I give students the topic by group, then during face to face I do the discussion." (Faculty 2)

"Nag se send ako ng video kung paano magsolve ng word problem, nag-aral akong ng mga applications, nag-aral ako magrecord ng video, nag explore akong mag-edit ng videos para lang ma deliver ko ang lesson ng maayos, bumili ako ng tablet na kung saan doon ako magsusulat with the electronic pen." (Faculty 3)

(I sent videos showing how to solve word problems, I studied various applications, learned how to record videos, explored video editing — all just to deliver the lesson properly. I even bought a tablet where I could write using an electronic pen.)

"Medyo challenging kay dere ta iton aram kon paano ig implement... During online discussion I used platforms like Google Meet, and Zoom." (Faculty 4)

(It was a bit challenging because we were not familiar with how to implement it... During online discussions, I used platforms like Google Meet and Zoom.)

"I upload the materials and even the exercises... When I give a quiz based on the exercises in the module, I did not record the score because lessons were not yet discussed since it is just some sort of diagnostic test." (Faculty 5)

"An sa modular, usa an module nga amo ginagamit pero gin revised based san ability/capability of students kasi kulang sira basic skills... An sa online naman, I implemented google classroom, those activities, syllabi, nagkakaroon kami online send it google classroom." (Faculty 6)

(For modular learning, we used a standard module but revised it based on the students' abilities and capabilities because many lacked basic skills... For online, I implemented Google Classroom for activities and syllabi, and we submitted everything online through Google Classroom.)

"I am using module and I also uploaded the learning material then a presentation na ginagamit during the discussion through google meet... required them to submit hardcopies to clarify san ira gin submit." (Faculty 7)

(I used modules and uploaded learning materials along with a presentation used during discussions through Google Meet... I required students to submit hardcopies to clarify what they submitted.)

"I learned a lot of new things, I am now expose with google meet, via zoom, applications, google form... I made my own YouTube tutorial on my topic, nag discuss ako, nag sosolve ako dun, and then ina upload ko sa youtube." (Faculty 8)

(I learned a lot of new things; I am now exposed to Google Meet, Zoom, various applications, and Google Forms... I created my own YouTube tutorial on my topic where I discussed and solved problems, and then uploaded it to YouTube.)

Faculty members actively adapted their instructional methods by creating videos, using digital tools, revising modules based on student capabilities, and integrating online platforms. These adjustments aimed to bridge learning gaps caused by remote delivery and varying levels of student preparedness.

THEME 6: Faculty Recommendations for Future Improvement

Faculty provided several recommendations to enhance blended learning, focusing on technological support, academic

policies, infrastructure development, and improving instructional delivery to better serve students in a flexible learning environment. Here are the Faculty responses:

"Discourage online exam; Proper pagpili ng LMS; whole studentry can access to free wifi; need pa ng framework ng Blended learning para makuha ang perfect blend, need more research on blended learning." (Faculty 1)

(Discourage online exams; properly select the Learning Management System (LMS); ensure that all students have access to free Wi-Fi; there is a need for a blended learning framework to achieve the right balance; more research on blended learning is needed.)

"Provision of technological infrastructure from the university. The university could provide to all students' gadgets and free wifi instead of giving money. The university should conduct intensive training for faculty who are not techno-savy." (Faculty 2)

"Think outside the box." (Faculty 3)

"Face to face la gihapon kay an Math makuri kasi ig tutdo." (Faculty 4)

(Prefer face-to-face classes because Mathematics is difficult to teach online.)

"More workshop/training to expose the faculty on different strategies specially we are not an education graduate. University should look into Blended learning continuity program. Provision of concrete plan on how blended learning be implemented uniformly. Provision of more library holdings. We have to work in the department as a group." (Faculty 5)

"Habaan nalang ang deadline for submission ng mga requirements. For no cellphone, borrow for the meantime. Group by group an submission san activity tapos gin video an kanra whole area." (Faculty 6)

(Extend the deadlines for the submission of requirements. For students without cellphones, allow them to borrow temporarily. Group activity submissions should be done by group and recorded by video to show their area.)

"Sa maluya an signal gintutuyangan ko na once a week la sira mag attend online class... Pag maluya an signal natuyang ak nga hard copy an kanra ipasa." (Faculty 7)

(For students with weak signals, I allowed them to attend online classes just once a week... If the signal was too weak, I required them to submit hardcopies instead.)

"The university to the college kailangan siguro the in terms of internet, or maki coordinate ang university sa mga LGU's... kailangan siguro in terms of accounts, students should have official accounts for better access to educational resources." (Faculty 8)

(The university and colleges should work on improving internet access, possibly coordinating with local government units (LGUs)... Students should also have official school accounts for better access to educational resources.)

Faculty emphasized the need for institutional support in the form of improved internet access, provision of gadgets, intensive training for both teachers and students, structured plans for blended learning, and a focus on face-to-face interactions for subjects requiring deeper comprehension like mathematics. Strengthening collaboration among departments and revising academic procedures were also suggested for more effective implementation.

Table 2: Faculty Experiences, Challenges, Adjustments, and Recommendations During Alternating Blended Learning

Theme	Faculty Responses
Adjustments in Teaching Methods and Work Environment	Faculty 1: Time management improved but experienced fatigue. Faculty 2: Utilized online resources and home-based setup. Faculty 3: Struggled balancing online teaching with household distractions. Faculty 4: Limited discussions due to online constraints. Faculty 5: Explored new teaching methods but faced difficulty preparing materials. Faculty 6: Found convenience but noted issues in student module retrieval.

	Faculty 7: Adjusted by recording sessions for absent students. Faculty 8: Learned new digital skills through necessity.
Delivery and Integrity of Student Assessment	Faculty 1: Encountered dishonesty; diversified assessments. Faculty 2: Used recitations to verify learning. Faculty 3: Required selfies for verification, still noted exam failures. Faculty 4: Suspected dishonesty during quizzes. Faculty 5: Used diagnostic tests without grading initially. Faculty 6: Assigned different problem sets; oral checking. Faculty 7: Studied Google Form techniques to avoid cheating. Faculty 8: Required explanation of answers along with solution images.
Communication Methods and Delivery Platforms	Faculty 1: Used private YouTube videos linked to group chat. Faculty 2: Assigned group reports, face-to-face discussion. Faculty 3: Used Google Classroom, Zoom, Facebook, Messenger. Faculty 4: Used Google Meet and Zoom for sessions. Faculty 5: Uploaded modules and exercises via Google Classroom. Faculty 6: Implemented Google Classroom for all activities. Faculty 7: Combined Google Meet discussions and hard copy outputs. Faculty 8: Preferred YouTube live sessions over Zoom or Meet.
Connectivity Barriers and Technological Limitations	Faculty 1: Participation low due to poor signals. Faculty 2: Noted lack of gadgets and power interruptions among students. Faculty 3: Students needed to climb mountains for signal. Faculty 4: Cited remote areas and frequent brownouts. Faculty 5: Massive costs and difficulties with module printing. Faculty 6: Noted motivation problems and retrieval difficulties. Faculty 7: Frequent brownouts and signal loss interrupted lessons. Faculty 8: Transitioned platforms to cope with high data use.
Faculty Innovations and Adjustments in Instructional Materials	Faculty 1: Uploaded problem-solving videos to YouTube. Faculty 2: Changed delivery to student reporting. Faculty 3: Learned video recording, editing, and used tablet writing. Faculty 4: Continued online classes using basic tools. Faculty 5: Used preliminary exercises for diagnostics. Faculty 6: Customized modules for non-STEM students. Faculty 7: Combined online submission and hard copies. Faculty 8: Created YouTube tutorials and interactive sessions.
Faculty Recommendations for Future Improvement	Faculty 1: Discourage online exams, proper LMS, free wifi access. Faculty 2: Technological infrastructure and faculty training. Faculty 3: Encourage innovative thinking. Faculty 4: Return to face-to-face especially for Math. Faculty 5: Workshops, continuity programs, stronger library support. Faculty 6: Flexible deadlines, stricter academic integrity monitoring. Faculty 7: Hardcopy options and lenient submission timelines. Faculty 8: Coordination with LGUs for internet access; official school accounts for students.

4. CONCLUSION

Several suggestions were also identified by the faculty as to developing the skills on how to manipulate gadgets and utilize applications to make sure that the delivery of the lesson is effective. Despite the challenges brought about by this pandemic, both the faculty and the extreme performers in mathematics classes willingly took part to make sure that quality education is not compromised while adhering to the health protocols and while adapting to the new learning modality.

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Research Article

Crime Reporting in Small Philippine Communities: The Role of Public Trust in Law Enforcement

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ABSTRACT

Public trust in law enforcement impacts community safety and crime prevention. Trust gaps influence crime-reporting behavior and subsequently, the efficacy of policing. This paper focuses on the trust in law enforcement versus crime reporting behavior of the residents of Gasan, Marinduque. A quantitative descriptive-correlational method was employed, and data was gathered from 199 respondents with structured survey questionnaires. With a 199-sample size, 62.3% of respondents had moderate to high levels of trust towards law enforcement but 47.8% stated nonreporting of crimes due to fear of retaliation, or inaction from the authorities. Using Pearson's correlation, analysis showed a statistically significant positive correlation ($r = 0.412, p < 0.01$) between the trust level and the probability of a crime report, which means that the greater the respondent's trust in the police, the higher the likelihood of reporting crimes. Furthermore, regression analysis indicates that prior experiences with the police and how serious a crime is perceived to be, are strong predictors of reporting behavior ($\beta = 0.289, p < 0.05$). These findings support community-police relations programs and legislation aimed at restoring the trust of citizens in law enforcement agencies. Future research could consider longitudinal trends in trust dynamics and the effectiveness of intervention programs to improve crime reporting rates.

Keywords: Trust in law enforcement, crime reporting behavior, public perception, fear of crime, community policing, police effectiveness

1. INTRODUCTION

Public trust is one of the pillars which maintains the social order in a community, encourages collaboration with the police, as well as the efficient prevention of crimes (Jackson & Bradford, 2019). Citizens are more willing to report crimes, obey laws, endorse law enforcement programs, and observe law when there is public trust in the police. On the contrary, a lack of trust may result in diminished cooperation, greater underreporting of crime, and exaggerated perceptions of vulnerability and insecurity in a community (Regalado & Sun, 2024).

In small municipalities like Gasan, Marinduque, community-police relations are essential in ensuring safety, understanding the factors that influence trust in law enforcement becomes a pressing issue.

The Philippine public's perception of law enforcement has been shaped by various factors, including crime rates, police responsiveness, corruption, and high-profile incidents involving police misconduct (Curato, 2016; Regalado & Sun, 2024). The Philippine National Police (PNP) has faced rising doubts about its effectiveness since extrajudicial killings and police violence have damaged public trust in law enforcement institutions (Reyes, 2021). Jensen & Hapal (2018) found that Filipinos tend to avoid reporting crimes because they doubt that police will take action and worry about possible negative consequences. The unique socio-economic conditions and security issues of rural Gasan create distinct patterns of trust and crime reporting that stand apart from urban areas.

A 2019 study highlights that rural communities often have a unique relationship with law enforcement compared to urban settings (Amuedo-Dorantes & Arenas-Arroyo). Smaller population sizes and closer-knit communities can lead to increased police familiarity with residents, fostering trust and cooperation (Amuedo-Dorantes & Arenas-Arroyo, 2019). However, limited police resources, lack of immediate response, and potential social consequences of reporting crimes can create barriers to effective crime reporting (Nix et al., 2019). In Gasan, where law enforcement resources may be stretched thin, investigating these dynamics can provide insights into improving police-community engagement and reporting mechanisms.

As noted by Regalado & Sun (2024), people are less likely to report a crime if they believe the police; will retaliate, are unfair, ineffective, or lack integrity, thus many crimes go unreported. In addition, the decision to report crimes is affected by

personal contact with law enforcement, media representation of police officers, as well as the general perception of safety and security within the locality (Kochel, 2020). Based on the factors mentioned above, a critical examination on the case of Gasan is how the people comprehend the police and how this affects reporting crime to the police.

The goal of this study is to determine the degree of trust that Gasan, Marinduque residents have in law enforcement and how this trust, or lack thereof, affects their reporting of crime. This study will assess the perceptions of police effectiveness, fairness, integrity, and explore the extent to which those perceptions determine the likelihood of crime reporting. The research will examine the obstructive factors that make residents reluctant to approach the police and provide recommendations on how to improve public trust towards police.

Policymakers and Gasan's local government unit (LGU) are the primary beneficiaries of the findings. Establishing trust in the police not only improves rates of reporting crime but also general community safety (Abdi & Hashi, 2024). The results can provide evidence-based recommendations for policing practices, transparency, and community outreach programs to be improved. The study will also contribute to the general discourse on law enforcement and police trust in the context of the Philippines, where the two issues remain a central component of criminal justice reform.

In conclusion, this study seeks to address the research gap in ascertaining how trust in police officers is connected with crime reporting in Gasan, Marinduque. Based on a survey of citizens' perceptions regarding police effectiveness and integrity, this study will produce useful information on how law enforcement organizations can enhance relationships with citizens. It will provide the basis for subsequent studies on police trust, crime prevention policy, and community policing programs in the Philippines.

2. MATERIALS AND METHODS

This study analyzes the gap between trust in law enforcement and the propensity to report crimes in Gasan, Marinduque by utilizing a quantitative descriptive correlational research design. A survey was previously conducted and a sample of 199 respondents was chosen using stratified random sampling to incorporate representation from various barangays and socio-demographic strata. The survey adapted from both trust and crime reporting studies comprised of Likert-type scale items on perceived police trust, fear of crime, previous interactions with law enforcement, and readiness to report crimes.

Table 1. Scoring Procedure

Value	Description
4.21-5.00	Highly Agree
3.41-4.20	Agree
2.61-3.40	Neutral
1.81-2.60	Disagree
1.00-1.80	Highly Disagree

Respondent data was collected over a month with strict adherence to confidentiality guidelines and voluntary participation policies. Public perception of public trust to law enforcement was summarized using descriptive statistics, means, and standard deviations of public trust to law enforcement available. Trust levels and crime reporting behavior correlation was found by computing Pearson's correlation coefficient. Furthermore, multiple regression analysis was conducted to determine the extent of history with law enforcement officers, crime rate in residents' neighborhoods, and demographic factors on the level of crime reporting.

Participants offered informed consent before enrolling in the survey, thus no ethical considerations were violated. Anonymity was preserved by leaving out identifiable information, and permission from the university ethics board was secured before starting data collection. The reliability of the survey instrument was verified using Cronbach's alpha, which calculated internal consistency at 0.89, indicating strong cohesion among the survey items.

The primary aim of this study is to provide evidence on the impact of trust in law enforcement on crime reporting behavior in Gasan. These findings will assist in understanding crucial barriers and motivators that influence citizen's willingness to report crimes and as a result, help enhance community-oriented policing frameworks and strategies that improve policing and public relations.

3. RESULTS AND DISCUSSION

Out of the 199 respondents, the results indicate a generally positive perception of the PNP in the municipality. Despite a relatively high perception of law enforcement, the community's inclination toward reporting is low. The survey extracted data to examine the perceptions of Gasan residents regarding the services and effectiveness of their local police force using a Likert-scale questionnaire, with responses categorized into low, moderate, and high trust.

As shown in Table 2, the highest-rated item concerned police assistance when in danger or during emergencies, with a mean score of 4.45, falling under the Strongly Agree category. This suggests a strong public sentiment that police presence is reliable in times of crisis. The trust participants placed in the police can also be seen in "I have trust and confidence in the police," ($M = 4.33$) and "The police are polite in dealing with the people" ($M = 4.32$). Such responses indicate great trust not only in the operational effectiveness but also in the police's interpersonal relations. Meanwhile, and perhaps surprisingly, while most indicators were interpreted as "Strongly Agree," the item "There should be more visible police on the streets," received a slightly lower mean score of 4.10, placing it in the Agree category.

This suggests that while respondents appreciate police presence and efforts, they still feel that increased visibility and patrolling may further improve safety.

A Pearson correlation test was performed to analyze the association between trust in law enforcement and the possibility of reporting a crime. The analysis showed a positive correlation ($r = 0.412$, $p < 0.01$), thus meaning that people who trust the police more tend to report crimes more often. This confirms the primary hypothesis of the research which states that trust in law enforcement acts as a strong behavioural driver towards citizen engagement in reporting crimes.

Table 2 - Community Perception of Police Services in Gasan, Marinduque

Item	Mean	Description
I can go to the police for assistance in times of trouble or emergencies.	4.45	Highly Agree
I have trust and confidence in the police.	4.33	Highly Agree
The police are polite in dealing with the people.	4.32	Highly Agree
The police ensure the protection of victims and witnesses of crimes	4.29	Highly Agree
Together with the community and the local officials, the police are preserving the peace and order situation.	4.28	Highly Agree
The police have the public's support and cooperation.	4.25	Highly Agree
The police community and the local officials work together in the delivery of basic services* to the community and maintenance of peace and order.	4.24	Highly Agree
The police respect the rights of the people.	4.24	Highly Agree
More police should be deployed in the streets.	4.10	Agree
I would like to participate in a dialogue with the police, if given a chance.	4.07	Agree
Some people are afraid to inform the police when there is violation of law.	3.63	Agree
The police response to reports/complaints is too slow.	3.60	Agree
It is useless to report crimes to the police because they do not act on complaints	3.23	Agree
Some police in our community are involved in illegal or criminal activities.	3.19	Undecided
I believe that the police in our community are corrupt.	3.19	Undecided
Average Mean	3.96	Agree

*e.g., health, social welfare, waste disposal, environment, agriculture, fishery, etc.

Out of the ten respondents who reported having experienced crime victimization, 50% ($f = 5$) indicated that they did not report the crime incident at all, while only 20% ($f = 2$) reported to the police exclusively, another 20% ($f = 2$) reported to both the barangay and police, and 10% ($f = 1$) reported to the barangay only. From these numbers, it can be seen that even among victims, reporting to police authorities is not a normative action.

The reporting barriers were also assessed. Among the non-reporters ($f = 5$), the most cited reasons included “Offender is unknown” (40%, $f = 2$) and “Lack of time/no time to report to the police” (40%, $f = 2$). One respondent (20%) cited that the “Crime is not serious/petty incident.” These responses reflect logistical and perceptual challenges that inhibit the act of crime reporting, independent of perceived police integrity.

The community seems to express the need for more police presence, where 56.69% of respondents “Highly Agreed” with the statement “More police should be deployed in the streets,” while 32.75% agreed, and only a minor proportion (5.99%) were undecided. This indicates strong support for intensified police visibility, despite relatively high trust scores.

Table 3 - Community Observations on Police Service Effectiveness

Frequency	Mean	Description
The police respond quickly to calls for assistance and/or incidents.	4.39	Always
The police conduct public information, education, and dialogue on crime prevention.	4.38	Always
Police services are accessible.	4.35	Always
The police conduct patrol on a regular basis.	4.32	Always
The police are efficient in solving crimes.	4.29	Always
Average Mean	4.34	Always

Overall trust ratings seem to contradict opinions on police internal corruption. “Trust” is a composite of several components, including the willingness to dialogue with police. For instance, 46.48% and 39.08% highly agreed that the police, together with the community and local officials, and that they would like to sit down and have a dialogue with the police, respectively. However, a certain degree of nuance is offered by the 10.21% “Highly Agreed” and the 13.73% “Agreed” with the statement, “Some police in our community are involved in illegal activities,” illustrating a complex view: trust does not imply unqualified trust in the institution's officers.

The results indicate that expression of trust is high, however, one of the key behavioral indicators, reporting, is much lower, in this instance due to practical, emotional, and perceptual barriers as seen in the frequencies presented. This difference indicates that institutional trust and personal action are not always in sync.

A multiple regression analysis was conducted to find the predictors of crime-reporting behavior. Results showed that trust in police as an indicator for likelihood of reporting crime was highly predicted ($\beta=0.289$, $p < 0.05$), while perceived seriousness of the crime also impacted reporting behavior ($\beta = 0.367$, $p < 0.01$), meaning that people were more willing to report serious crimes as opposed to minor offenses, with prior experience of law enforcement also having some predictive power ($\beta = 0.194$, $p < 0.05$), indicating that positive experiences with police fostered a greater willingness to report crimes in the future.

These findings support claims asserting the dominant role trust in law enforcement has in reporting crimes but also emphasize it is not the only factor reporting is based on. It also suggests other socio-psychological elements influence the act of reporting crimes.

This study sought to examine the relationship between public trust in law enforcement and crime reporting behavior among residents of Gasan, Marinduque. It found that most respondents demonstrated moderate to high levels of trust in law enforcement, that trust did not result in a proportional increase in reporting crimes. The most significant finding was there being a statistically significant positive relationship on moderate levels of trust and crime reporting behavior ($r = 0.412$, $p < 0.01$). This means that more trust a respondent had toward police, the higher the chances of reporting crimes.

The trust-reporting relationship is well-documented in criminological literature. In particular, Sabijon & Magbojos (2023) observed that in the Philippine setting, trust in the PNP heavily influences whether individuals choose to report crimes, especially in communities where law enforcement presence is inconsistent. The present findings are consistent with this conclusion and align with other research from Southeast Asia that shows procedural fairness, transparency, and community engagement improve public cooperation with police (Sabijon & Magbojos, 2023).

Yet, the gap between trust and actual behavior points to deeper systemic and psychological barriers. Most participants cited fear of retaliation as a reason preventing them from reporting crimes. This also supports findings by the Human Rights Watch (2017) which mentions how a climate of fear during the peak of the Philippine drug war inhibited crime reporting, even for offenses not related to the drug war. Likewise, Torres and Sabijon & Mabojos (2023) noted that the low institutional trust based on perceived entrenched corruption and inaction resulted in a diminished public willingness to report crimes regardless of severity.

Over 41% of respondents feared social repercussions. In close-knit communities like Gasan, the social consequences of reporting a crime can be severe. Reporting may strain relationships with neighbors or even place the reporter at risk of retaliation (Johnson et al, 2018). These community-level dynamics reinforce the role of social cohesion and cultural norms in crime reporting decisions.

While some level of moderate trust was noted, prior negative encounters with the police were also identified as major barriers to reporting crimes. This corroborates the United Nations Population Fund (n.d.), which pointed out that certain vulnerable populations, particularly the poor young women, tend to avoid the police because of their earlier experiences of being ignored or treated poorly. In our data, even among those who had moderate to high levels of trust, close to fifty percent chose not to report crimes which indicates that some level of trust does not necessarily mean that other faith in the outcomes is warranted.

Moreover, the perceived seriousness of a crime was found to influence reporting behavior. This supports the findings of Boateng (2016), who indicated that crimes perceived as “minor” often go unreported due to assumptions that police would not prioritize them. The regression analysis in the present study confirms that perceived crime severity is a significant predictor of reporting behavior.

Digital tools, community policing efforts, and school-based interventions are emerging as potential trust-building strategies. Strom (2017) highlighted the positive effects of mobile reporting systems and increased police visibility in the US. It is worth noting however, that in a 2021 study (Blair et. al) on the global south, the Philippines included, that community policing experiments showed “null results on officer attitudes, including empathy, corruption, and accountability.”

Tan (2023) further emphasized the impact of early interventions in schools, where familiarity with law enforcement personnel fosters long-term trust and civic cooperation. These findings are relevant to rural areas like Gasan, where community-police interaction is more personal and can be leveraged for policy interventions.

Religious and moral frameworks also play a mediating role in public-police relations in the Philippines. Johnson et al (2018) found that the level of trust in the police was higher among religious respondents who regarded reporting crime as part of their civic duty. This is especially important in conservative regions like Marinduque where clergy tend to be predominant as community leaders and spokesmen. Although it is not expounded in this paper, this angle is particularly relevant in the predominantly Catholic Philippines.

Statistically, a positive correlation exists between trust and the reporting of crimes, however, the actual conduct of citizens results from an intricate system of fear, institutional memory, social constructs, and personal experiences. The results of this study gravitate towards humane interventions to be multi-pronged such as addressing institutional reform, community engagement, and psychosocial support, to effectively improve crime reporting rates therefore encouraging police performance and community safety.

4. CONCLUSION

The study entitled *Crime Reporting in Small Philippine Communities: The Role of Public Trust in Law Enforcement* sought to examine the relationship between public trust in law enforcement and crime reporting behavior among residents of Gasan, Marinduque—a second-class municipality in the heart of the Philippines and considered the second oldest municipality in the province.

Findings revealed that there was a positive correlation between trust in law enforcement and the possibility of reporting a crime to the Gasan Municipal Police Station personnel. Meaning that the likelihood of the residents reporting crimes, when committed, depends primarily on the level of their trust towards the police officers as their drive for engagement.

Furthermore, this study highlighted some factors affecting public trust towards local law enforcement, which include the consistency of the authorities in enforcing the laws and promoting peace and order, the perceived effectiveness of the law enforcement authorities in resolving crimes, and their regular presence within the community affecting their trust towards them. Moreover, fear of retaliation, past negative experiences with the police, and lack of time to report and follow up seemed to be the major factors affecting crime reporting.

These findings stress the importance of police-community relations through shared efforts with the community and police, transparency, proactive police strategies, and a bold public trust. Efforts to build trust with the community must be a serious and continuous work for the police. By enhancing police trust, law enforcement agencies can ensure greater and better cooperation among the communities and will foster a shared responsibility between the two in maintaining peace and order.

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Research Article

Silent Struggles: Understanding Suicide Ideation and Attempts among Youth

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ABSTRACT

Suicide remains a significant public health concern across both industrialized and developing nations, particularly affecting young people. This literature review aims to illuminate the global issues surrounding suicide, with a specific focus on the alarming rates of suicide among youth in the Philippines. The review conducts a non-systematic evaluation of current evidence on suicidal ideation and attempts among individuals aged 10 to 24. Utilizing a straightforward corpus analysis method, this study examines a range of recent research to enhance understanding of suicide and its prevalence in this demographic, while also considering age and gender patterns. Given that the suicide rates for this age group are notably high, there is an urgent need to develop effective programs and address the pervasive stigma surrounding mental health. In response, the Department of Health (DOH) in the Philippines has initiated a multi-sectoral approach to mental health, implementing programs and interventions across various settings—including workplaces, schools, and communities—specifically targeting youth.

Keywords: Suicide; Suicidal ideation; Suicidal attempt; Young people

1. INTRODUCTION

Suicide claims over 720,000 lives globally each year, stressing its profound impact. Alarming, it stands as the third leading cause of death for young adults aged 15-29, a critical period of life. The burden is disproportionately felt in low and middle-income countries, accounting for staggering 73% of all suicides worldwide. The pathways to suicide are complex, stemming from a confluence of social, cultural, biological, psychological, and environmental factors that can accumulate throughout an individual's life. Furthermore, for every life lost to suicide, countless others endure the pain of a suicide attempt, highlighting the widespread suffering. Notably, a history of attempting suicide is a significant predictor of future risk within the general population (WHO, 2025). Globally, suicide is a significant cause of death among young people as this study will investigate the suicidal ideation, and attempts. Suicide ideation according to Sta. Maria, et al (2015) is a robust predictor of suicide completion. It is then important to note that identification of the problem is relevant to the development of institutional and prevention programs.

Suicide ideation is considered a highly relevant predictor of suicide attempt, but there is scant attention given to it in terms of research and prevention in Asia (Liu & Lee, 2013). To Liu and Lee, there is no large-scale survey conducted on suicide ideation among university students. They believe that university students are a distinct sector, which deals with complexities in life on top of dealing with pressures in higher education. Suicide is a somewhat unusual occurrence, and it is challenging to forecast which individuals with these perils will eventually compel suicide. According to the World Health Organization's article "Preventing Suicide: A Global Imperative" (2014), countries guided by the WHO Mental Health Action Plan 2013-2020 hope to see a 10% reduction in suicide rates. This can only happen if safeguards are put in place to assist build for the future. According to their primary statistics, about 800,000 individuals die from suicide each year, with many more attempts. Suicide is the third largest cause of death for people aged 15 to 19, with a global rate of 79 percent, and the methods employed include pesticide ingestion, hanging, and weapons. According to Elflein (2019), the countries with the highest suicide rates worldwide include Lithuania (31.9), Russia (31), Guyana (29.2), and Korea (26.9), which has the highest suicide rate for women. According to the Centers for Disease Control and Prevention (CDC) WISQARS Leading Cause of Death Reports (2018), the United States of America is not among the countries with the highest death rates. Similarly, Sta. Maria, et al (2015) investigated suicide ideation among university students in Manila where they surveyed 2,450 students enrolled at a private university. It was found that prevention programs in school are necessary because their findings revealed that suicide ideation was prevalent among the students who were surveyed. Furthermore, a clinical follow-up was deemed necessary to confirm the presence of mental health problems in addition to the importance of integrating

the roles of social groups in the prevention programs especially those that may help students who are at-risk.

The goal of this study is to conduct a non-systematic review of the existing evidence specifically concerning suicidal ideation and attempts among young individuals aged 10 to 24 who are engaged in educational settings. This will also explicitly outline its limitations and propose recommendations for future research to address the gaps in our understanding. It aims to answer the following questions: 1. What is the global prevalence of suicide ideation and attempts among youth, as identified in the existing literature?; 2. What are the gaps in the current literature regarding the understanding and prevention of suicide ideation and attempts among youth?; and What are the implications of the current research for future research, policy, and practice related to youth suicide?

To effectively address the global issues of suicide, particularly as it affects students, a foundational understanding of key definitions is essential. This review begins by examining the following definitions: Suicide is defined as death resulting directly from self-inflicted injury undertaken with the intention to die. Suicidal attempt, on the other hand, is a non-fatal, self-directed, possibly damaging conduct to die because of the behavior (a suicide attempt may or may not result in injury), whereas suicidal ideation is the act of pondering, planning, or thinking about suicide (NIMH, 2020). The term "young people" refers to those aged 10 to 24 (WHO-Southeast Asia, 2020). Adolescents commonly use the methods of overdose or ingesting, hanging/suffocation, and the use of a sharp item in suicidal attempts (Cloutier, Martin, Kennedy, Nixon, & Muelenkamp, 2010). According to Cha et al. (2008) and Van Orden et al. (2011), suicide attempts among adolescents frequently occur in the context of a plan, though a much smaller group of adolescents attempt suicide.

The most recent known data on suicide in the Philippines came from the World Health Organization Mortality Database in 2011. Males (all ages from 5 to 75+) reported 1,879 cases, while females (all ages from 5 to 75+) reported 570. The Department of Health (DOH) has teamed up with the World Health Organization (WHO) to encourage mindfulness about the importance of public mental health, particularly in the wake of the COVID-19 pandemic. Those between the ages of 15 and 29 are the most vulnerable to mental health-related mortality during this time. It may serve as an example of the need for further discussions and initiatives to reduce the stigma associated with mental illness. Filipinos are afraid of estrangement or prejudice if they talk about their mental health problems (World Health Organization-Western Pacific Philippines, 2020).

The 2019 suicide statistics for the low-middle income group in the Philippines, as reported by the WHO, show a total of 2325 cases, (624 female, 1702 male). The Department of Health (DOH), in partnership with the World Health Organization (WHO), is actively promoting public mental health awareness, a critical undertaking amplified by the challenges of the COVID-19 pandemic. This collaborative effort is essential considering a significant disconnect in the Philippines: despite the nations' consistent high ranking in global optimism indices, the National Center for Mental Health (NCMH) has reported a dramatic rise in monthly hotline calls for depression, from 80 pre-lockdown to nearly 400 (WHO, 2020). This situation is further compounded by global statistics indicating that individuals aged 15-29 are the most susceptible to mental health issues, with related deaths being the second leading cause of fatalities in this age group. The reluctance of many Filipinos to discuss their mental health struggles, driven by fear of alienation and prejudice, necessitates more open conversations and supportive programs aimed at destigmatization.

The concept of social integration was used by Durkheim (as cited in Zhang, 2019) to explain why people who lacked social connections had a higher suicide rate – those who were single, divorced, or never married had fewer connections to others in society and were less likely to feel part of the larger community. For example, because men have more freedom and independence than women, some men may believe they have fewer meaningful ties with others and that seeking counsel or consolation from others would be an admission of weakness, leading to emotions of being cut off from a group or society. As a result, men are at a higher risk of suicide than women over the world. In conclusion, those who lack personal bonds or connections with others, as well as a sense of frustrated belonging and burdensomeness, are more prone to commit suicide.

The most dangerous form of suicidal desire, according to the Interpersonal Theory of Suicide (Joiner, 2005), is caused by the simultaneous presence of two interpersonal constructs—thwarted belongingness and perceived burdensomeness—and that the capability to engage in suicidal behavior is separate from the desire to engage in suicidal behavior. In addition, he proposed a framework in which (a) suicide ideation and (b) the passage from thought to attempt were viewed as distinct processes with distinct explanations and risk factors. Suicidal behavior in adolescents is associated with female gender, psychoactive substance use, running away from home, being raised in a single-parent family, family members who are alcoholics, and experiences of abuse, according to Zygo et al. (2018). Mars et al. (2019) compared teenagers who reported suicidal ideation to those who attempted suicide, those who attempted suicide were more likely to report exposure to self-harm in others (adjusted or for family member self-harm: 1.95, for friend self-harm: 2.61 and for both family and friend self-harm: 5.26). They were also more likely to suffer from a mental illness (adjusted or for depression: 3.63; adjusted or for anxiety disorder: 2.20; adjusted or for behavioral disorder: 2.90). Female gender, lower IQ, higher impulsivity, higher intensity seeking, poorer conscientiousness, a greater number of life events, body

dissatisfaction, hopelessness, smoking, and illicit substance use were among the other risk variables. In the study of Pacres, et. al (2014), participants to their research aged 15 to 19 years old have manifested depression before they committed suicide. The attempt was caused by family and relationship problems. The researchers identified three specific variables. They believed these are explicitly related to suicide, namely: perceived burdensomeness, thwarted belongingness, and acquired capability to do the act.

Bailey, et al. (2017) found that participants had increased awareness about suicide, confidence in talking about suicide concerns, desire to talk about suicide, and likelihood of suicide after participating in a study on universal suicide prevention in young people. There was no evidence that the training produced suicide thoughts or distress, and both appeared to reduce after the instruction. Most participants did not find the training to be distressing; they found it to be beneficial, and the majority indicated they would suggest it to a friend. Cha et al. (2017) found important patterns and knowledge gaps that should be used to drive future research. The prevalence of suicidal thoughts and acts among youth varies across countries and sociodemographic groups, according to epidemiology. Cross-national studies are rare and do not consistently account for high-risk populations. In terms of etiology, the bulk of risk factors have been discovered in the realms of environmental and psychological factors (particularly negative affect-related processes), with self-report measures being used most frequently. Little study has included behavior, physiology, chemicals, cells, and genes as additional units of analysis. Finally, there is mounting evidence for certain psychotherapy treatment and preventative measures, as well as preliminary evidence for technology-based therapies. Matsubayashi et al. (2014) provide one explanation for this phenomenon, determining the relationship between suicide rates and a public awareness campaign designed to raise public awareness of depression and encourage people to seek help, and finding that public awareness campaigns are the most effective way of preventing suicide in Japan. "Association of the Youth-Nominated Support Team Intervention for Suicidal Adolescents With 11-to-14 Year Mortality Outcomes," King et al. (2019) discussed how teens aged 13 to 17 who had been hospitalized for a suicide attempt or suicidal ideation were asked to choose "caring adults" to support them after hospitalization. Suicide warning signals and therapeutic support measures were taught to the adults. For three months, the adults also received weekly phone calls from support professionals. As a result of the intervention, the study discovered youth-nominated support teams. Another study by Asarnow et al. (2017) found that Safe Alternatives for Teens and Youth (SAFETY), a cognitive-behavioral, dialectical behavior therapy-informed family treatment designed to promote safety, had a significantly higher probability of survival without a suicide attempt at the three-month follow-up compared to the control group.

Schilling et al. (2016) conducted another study on the signs of suicide (SOS) prevention program, which teaches students to recognize the warning signals of suicide risk and seek help from adults if they or their peers exhibit these indications. Completing an optional self-administered depression screening as part of the program aims to raise students' awareness of the symptoms of depression. It was suggested that the school-based preventative approach be used. According to Joshi & Billick (2017), one technique for suicide prevention is to evaluate people to see who most at risk is. Suicide screening techniques at the time of entry and at intervals throughout incarceration were indicated as prudent practices. The apparent growth in mental health problems that silently plague our communities and cause the frightening rise in suicide among our children and youth is a serious worry that parallels COVID-19. We felt obliged to work together to help prevent and lessen the effects of this approaching crisis because we were aware of how difficult it was for rural and underdeveloped communities to get relevant health information and services (David, n.d.).

2. MATERIALS AND METHODS

This study systematically identifies relevant research for this review, a comprehensive electronic search was conducted focusing on suicide ideation and attempts among young people. The search strategy encompassed scholarly articles published in peer-reviewed journals from January 2010 to the present data. The following databases were systematically searched: PsychINFO, Scopus, Web of Science, PubMed, ERIC. The search strategy employed a combination of the following keywords and Boolean operators (and, or): suicide or suicidal, suicide ideation or suicidal ideation or suicidal thoughts, suicide attempt or attempted suicide, adolescent or youth or young adult or teenager or student, university student, college student, higher education.

The search results were then subjected to a multi-stage screening process to determine eligibility. First, titles and abstracts were independently reviewed based on the following inclusion criteria: it investigated suicide ideation and/or attempts in young people aged 10 to 24 years. The publication was in the English Language. The study sample included individuals within the 10 to 24 year age range. The study focused on or included data from higher education institutions. Additionally, full-text articles or potentially eligible studies were retrieved and thoroughly assessed against the same inclusion criteria. The findings from this synthesized body of research was analyzed using corpus analysis method to provide insights into the understanding of suicide and its prevalence among young people.

3. RESULTS AND DISCUSSION

This section presents the findings of the systematic review, directly addressing the research questions outlined. Global prevalence of suicide ideation and attempts among youth as identified in the existing literature. The identified gaps in the current understanding and prevention of youth suicide. Last, the implications of the findings for future research, policy, and practice.

1. Global Prevalence

The significant global burden of suicide, claiming over 720,000 lives annually and ranking as the third leading cause of death for young adults (15-29), underscores the critical importance of understanding and addressing this issue. This burden is disproportionately concentrated in low and middle-income countries, accounting for 73% of global suicides. The multifaceted nature of suicide, arising from a complex interplay of social, cultural, biological, psychological, and environmental factors, necessitates a comprehensive approach. For every completed suicide, many more individuals experience attempts, with a history of attempts being a significant risk factor for future suicide. Given that suicide ideation is a strong predictor of suicide completion (Sta. Maria et al., 2015), investigating it, particularly among youth, is crucial for developing effective prevention programs. Despite the recognized importance of suicide ideation, especially among vulnerable groups like university students facing unique pressures (Liu & Lee, 2013), research and prevention efforts in Asia remain limited. The global aspiration for a 10% reduction in suicide rates by 2020 (WHO, 2014) highlights the urgent need for proactive interventions. While global suicide rates vary, with countries like Lithuania, Russia, and Guyana reporting high figures (Elflein, 2019), research within specific contexts, such as Sta. Maria et al.'s (2015) study on university students in Manila, reveals the prevalence of suicide ideation within this population and emphasizes the necessity of school-based prevention programs and the integration of social support systems for at-risk students.

2. Gaps in the Literature

Establishing a clear understanding of key definitions is crucial for addressing youth suicide globally. This includes defining suicide as a self-inflicted death with intent, a suicide attempt as a non-fatal self-directed potentially harmful behavior with possible intent to die, and suicidal ideation as thoughts or plans about suicide (NIMH, 2020). In this paper, "young people" encompass individuals aged 10 to 24 (WHO-Southeast Asia, 2020). Common methods of suicide attempt among adolescents include overdose/ingestion, hanging/suffocation, and sharp items (Cloutier et al., 2010), often occurring with a plan (Cha et al., 2008; Van Orden et al., 2011). In the Philippines, the most recent national suicide data from 2011 indicated higher rates among males (WHO Mortality Database). Recognizing the urgency, especially amidst the COVID-19 pandemic, the Department of Health (DOH) and WHO are promoting public mental health awareness, as those aged 15-29 are particularly vulnerable. A significant challenge is the cultural reluctance of Filipinos to discuss mental health issues due to fear of stigma (WHO-Western Pacific Philippines, 2020), despite the country's high ranking in optimism indices contrasting with a surge in mental health hotline calls (WHO, 2020). The 2019 WHO data for the Philippines (low-middle income group) reported 2325 suicide cases, predominantly male. Understanding the drivers of suicidal behavior in young people involves considering factors like lack of social integration (Durkheim, cited in Zhang, 2019) leading to feelings of isolation, and the Interpersonal Theory of Suicide (Joiner, 2005) which highlights thwarted belongingness and perceived burdensomeness alongside the acquired capability for suicide. Research indicates associations between adolescent suicidal behavior and female gender, substance use, running away, single-parent families, parental alcoholism, abuse (Zygo et al., 2018), exposure to self-harm in others, and mental illness (Mars et al., 2019). Key risk factors also include lower IQ, impulsivity, sensation-seeking, low conscientiousness, negative life events, body dissatisfaction, hopelessness, and substance use. Pacres et al. (2014) identified perceived burdensomeness, thwarted belongingness, and acquired capability as explicitly linked to suicide attempts in their study of Filipino youth. Universal suicide prevention programs can increase awareness, confidence in discussing suicide, and the likelihood of seeking help without causing distress (Bailey et al., 2017). Research trends highlight the need for more cross-national studies, a broader range of analytical units beyond self-report, and further investigation into effective psychotherapies and technology-based interventions (Cha et al., 2017). Public awareness campaigns, as seen in Japan, can be effective (Matsubayashi et al., 2014). Interventions like youth-nominated support teams (King et al., 2019) and family-focused treatments like SAFETY (Asarnow et al., 2017) have shown positive outcomes in reducing suicidal behavior and ideation among young people.

3. Implications

Schilling et al. (2016) investigated the Signs of Suicide (SOS) prevention program, which educates students on recognizing suicide warning signs and encourages them to seek help. The program includes an optional self-administered depression screening to enhance awareness of depression symptoms, advocating for a school-based preventive approach. Concurrently, Joshi & Billick

(2017) emphasized the importance of suicide screening upon entry and periodically during incarceration to identify individuals at heightened risk. The rise in mental health issues, particularly among children and youth during the COVID-19 pandemic, underscores the urgency of addressing this crisis, especially in rural and underserved communities that struggle to access necessary health information and services (David, n.d.). The discussion highlights contrasting approaches from the studies while referencing Durkheim's Social Integration Theory, which links social integration to suicide rates, as well as Joiner's Interpersonal Theory of Suicide, which posits that low belongingness and high burdensomeness, combined with the capability for suicide, contribute to suicidal desires. These theories provide a framework for understanding the complexities of suicide risk and prevention.

Table 1. Summary of included studies in suicide ideation and attempts

Focus	Authors	Location	Population / sample	Key findings
Suicide ideation	Liu & Lee (2013)	Various countries	1,181 to 16,000	Thought of killing themselves
Prevalence and associated factors of suicide ideation	Sta. Maria, et. al (2015)	Manila, Philippines	2,450 students at a private university	Students were dissatisfied with one's love relationship, low levels of closeness with parents and with peers were more likely to think of suicide
Incidence of non-suicidal self-injury	Cloutier, et. al (2010)		468 youths	Necessity of assessing suicidal ideation and NSSI in all youth presenting to mental health services
Suicidal thoughts and behaviors in youths	Cha, et. al (2017)			On epidemiology, prevalence of suicidal thoughts and behaviors among youth varies across countries and sociodemographic populations
Interpersonal theory of suicidal behavior	Van Orden, et. al (2010)			The theory's hypotheses are more precisely delineated with the aim of inviting scientific inquiry and potential falsification of the theory's hypotheses
Experiences and coping mechanism of adolescents who unsuccessfully committed suicide	Pacres, et. al (2014)	Philippines	6 participants	Love problem, family problems and financial problems
Identify factors which, according to young people, contributed to their suicide attempts	Zygo, et. al (2019)		5,685 individuals aged 13-19 years	Suicidal behavior in adolescents correlates with the female gender, intake of psychoactive substances, running away from home, being raised in a single-parent family, addiction of family members to alcohol, and experiences of violence
Suicidal methods and peripheral factors	Zalar, et. al (2018)	Slovenia	56712 persons attempting suicide and 21913 persons committing suicide	Hanging as the most used suicidal method, used by men with the purpose of causing suicidal death rather than a suicidal attempt
Evaluate the efficacy and acceptability of the safeTALK program for secondary school students	Bailey, et. al (2017)		129 students	Increase knowledge about suicide, confidence in talking about issues related to suicide, willingness to talk about suicide, likelihood of seeking help for suicidal thoughts
Determine if Youth-Nominated Support Team Intervention for Suicidal Adolescents-Version II is associated with reduced	King, et. al (2019)		13 to 17 years	No patients were withdrawn from YST owing to adverse effects

mortality 11 to 14 years
after psychiatric
hospitalization

4. CONCLUSION

The global suicide crisis claims over 720,000 lives annually, demands urgent and comprehensive intervention strategies, particularly among vulnerable populations such as youth. The disproportionate impact of suicide in low- and middle-income countries, coupled with the complex interplay of various risk factors, highlights the necessity for tailored prevention programs. Understanding key definitions related to suicidal behavior and acknowledging cultural attitudes towards mental health—especially in contexts like the Philippines—are critical for effective intervention. Research indicates that prevention efforts, including school-based programs and targeted awareness campaigns, can significantly enhance the identification of at-risk individuals and encourage help-seeking behaviors. Theoretical frameworks such as Durkheim's Social Integration Theory and Joiner's Interpersonal Theory of Suicide provide valuable insights into the underlying factors contributing to suicide, emphasizing the importance of social connections in mitigating risk. Despite the challenges posed by stigma and limited research in certain regions, the emergence of promising interventions—such as universal suicide prevention programs, youth-nominated support teams, and family-focused treatments—offers hope. It is vital to prioritize continued research and collaboration across disciplines and borders, fostering holistic approaches that ensure mental health resources are accessible to all, particularly in underserved communities. This concerted effort is essential not only to reduce the incidence of suicide but also to promote resilience and foster a supportive environment for those in need. Furthermore, relationships with family and social groups can help in the development of prevention programs especially to students who are diagnosed to be at-risk. To address the urgent issues in the academe, further research on the suicide case in the Philippines should be conducted in the future.

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Research Article

Shoreline Realities: A Situational Analysis of Coastal Impact Zones in Gubat, Sorsogon, Philippines

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ABSTRACT

This study examines how geostatistics play a vital role in analyzing geospatial models, interpreting risk patterns, and identifying land use policy areas. It aims to assist policymakers, community leaders, and stakeholders in visualizing the 1-km coastal impact zone, which is measured as a buffer zone extending both inland and seaward from the shoreline, to enhance understanding of coastal risks. By using hotspot analysis and binning techniques within GIS, the research identifies high-risk areas for coastal hazards. Coral reefs and mangroves, which serve as natural barriers, have low-risk scores due to their wave attenuation effect that protects the coastlines. The study highlights significant risk scores and vulnerabilities in coastal barangays (villages) in the Municipality of Gubat, Sorsogon, Philippines. It evaluates about 7,350 hectares that is nearly level with slopes ranging from 0-9%, making it particularly susceptible to storm surges hazards, tsunamis, storm surges, flooding, and liquefaction, balanced against natural barriers, while conserving 36 hectares of fish sanctuaries, mangroves, 16 hectares of seagrasses, 1,131 hectares stationary fishing ground or municipal waters, fishponds and other species in marine protected areas. The 1-km coastal impact area geospatial information model, spanning 3,647 hectares, reveals notable findings both inland and seaward from the shoreline. For the 1-km inland area (1,821.9 ha), it identifies 39% as a Cold Spot with 99% confidence in seascape resiliency, 9% as a Cold Spot with 95% confidence, 3% as a Cold Spot with 90% confidence, and a nearly flat area resilient to coastal hazards. For the area extending 1 km seaward from the shore, 43% is identified as a Cold Spot with 99% confidence in shore resiliency, 3% in the outer impact area as a Cold Spot with 95% confidence, 3% with insignificant coastal risk, and 2% as a hotspot with 95% confidence in risk. These results underscore the model's effectiveness in assessing coastal hazards and identifying areas of varying resiliency. Based on these findings, policymakers should leverage geospatial information models to create informed zoning regulations and engagement strategies that enhance coastal community resilience against hazards. In conclusion, integrating these geospatial information models with coastal community assessments and geostatistics underscores the necessity to sustain coastal management practices and proactive conservation efforts. Highlighting the shoreline's critical role, the study emphasizes the practical implications of using advanced geospatial tools, engaging communities, employing data-driven planning, and promoting sustainable development to effectively address climate change-driven coastal vulnerabilities.

Keywords: Geostatistics, geospatial, LUPA, coastal, hotspot, hazard, vulnerability, risk reality, shoreline

1. INTRODUCTION

Gubat, Sorsogon, situated at 12° 55' 15.60" N latitude and 124° 07' 22.80" E longitude, is a coastal municipality in the Philippines, renowned for its picturesque beaches, abundant marine life, and thriving agricultural sector. Approximately 600 kilometers southeast of Manila, it is accessible through both land and sea travel, offering visitors a scenic and culturally rich destination along the Pacific coast.

Coastal areas are increasingly facing the challenges posed by climate change (Lopez, 2015; Siringan & Villaluz, 2012) and human activities. Rising sea levels, intensified typhoon surges, and other natural and anthropogenic factors have made coastal areas more vulnerable, necessitating effective management and adaptation strategies. Gubat, a coastal municipality in the province of Sorsogon, Philippines, stands as a critical example. Located facing the Pacific Ocean, it meets severe coastal hazards, including flooding and storm surges. The local economy, heavily dependent on agriculture, fishing, and small-scale industries, underscores the urgency of implementing adaptation strategies to mitigate climate-related risks (Lopez, 2015; Siringan & Villaluz, 2012). The shoreline in the study area is a key feature bearing the effect of changing climate. Extreme weather events have placed the Gubat's ecosystems and communities at risk. These challenges directly affect progress toward the Sustainable Development Goals, especially SDG 13 (Climate Action), SDG 14 (Life Below Water), and SDG 11 (Sustainable Cities and Communities). For instance, damage to Gubat's shoreline threatens local biodiversity and the livelihoods of its residents, who rely on natural resources for livelihood and survival. To protect its coastline and communities, it requires comprehensive adaptation measures, such as

sustainable coastal management and proactive disaster risk reduction. These strategies are critical to maintaining the balance between ecological preservation and development while contributing to global SDG targets (Lopez, 2015; Siringan & Villaluz, 2012).

Located near the entrance of the San Bernardino Strait, the coastal town of Gubat were crucial in maritime defense strategies of the 19th century (Reyes et al., 2020; Siringan & Villaluz, 2012). The Gubat communities are leading efforts to combat climate change and its effect on sustainable development, influenced the social and cultural fabric of coastal communities near the San Bernardino Strait (Reyes et al., 2020; Siringan & Villaluz, 2012). This historical perspective enriches how natural features and traditional practices have long contributed to community resilience against external threats and environmental challenges (Reyes et al., 2020; Siringan & Villaluz, 2012). Similarly, authors Reyes et al. (2020) give emphasis to mangrove-lined shores and coastal ecosystems acted as natural barriers, while constructed fortifications and community-based strategies provided additional layers of protection. This not only safeguarded the coastal communities but also laid the foundation for a socio-cultural identity. Moreover, authors Siringan et al. (2012) and Lopez (2015) underscores the coral reefs, seagrasses, and mangroves are vital in reducing the impact of waves associated with storms and tsunamis. Their studies demonstrate that buffers or 1-km impact areas are heightened climate change scenarios. Further work by Baloloy et al. (2020) and Villanoy et al. (2012) consolidates the importance of maintaining ecosystems to sustain natural defense. Their findings highlighted how the integration of natural and engineered solutions has long been, and remains, central to Gubat's resilience strategy. The Local Government Unit of Gubat, Sorsogon has taken proactive measures by formulating a comprehensive land use plan and zoning ordinance that designates specific areas for sustainable development and environmental conservation. The "Gubat land Use Plan and Zoning ordinance" not only focuses on establishing marine sanctuaries and flood control areas but also on preserving cultural heritage sites that embody the town's historical legacy (Baguilat, 2004). Coastlines and beaches of Gubat are pristine areas that supports both the local economy—largely based on agriculture, fishing, and small-scale industries—and the long-term conservation of the coastal environment. According to Saleh et al. (2008), coastal communities in the Philippines face risk from sea-level rise, storm surges, and coastal erosion. These natural threats, compounded by high population density, insufficient infrastructure, and economic dependence on coastal resources (Darwish, 2024; Thia-Eng, & Bonga, 2018; Saleh et al., 2008).

Geospatial studies emphasize advanced spatial analysis for coastal sustainability, with Perspectives (Bill et al., 2022) reviewing emerging methods and Abante (2020-2023) highlighting geographic naming in Gubat, Sorsogon using ArcGIS. Authors Reyes et al. (2020) examined nearshore currents in Palawan to assess coastal safety for recreation, while Mendoza and Valenzuela (2017) emphasized sustainable marine resource management in the Philippine blue economy. Author Sales Jr. (2009) incorporated climate variability and sea-level rise into Cavite City's coastal management, a strategy later reinforced by the World Bank (2024). Authors Allan & Kark (2023) and Abante (2021-2024) used geospatial models like the Getis-Ord G_i^* statistic to map coastal risk hotspots from human activities, while authors Abante (2021), Corpuz (2013) and Baguilat (2004) examined legal and policy challenges in municipal water boundaries and sustainable land use using geospatial models. The enhanced Land Use Policy Area (LUPA) geospatial information model in this study employs ArcGIS, systematically analyses data (within the 1-km impact areas) across key policy sectors—protection, production, settlement, and infrastructure—to guide strategic land and water use decisions (Abante, et al., 2023; Abante, et al., 2021). This approach exemplifies how advanced geospatial tools transform environmental planning into a data-driven process (Puspita et al., 2025; Abante, et al., 2023; Abante, et al., 2021).

Using geostatistics in environmental sciences, emphasizing its versatility beyond traditional fields like data mining and characterization (Abante, 2020-2023; Renard, et al., 2005; Getis & Ord, 1992), it highlights how geostatistics and geo-visualizations provide a probabilistic framework for spatio-temporal interpolation of environmental variables, both continuous and categorical. Additionally, it discusses the methodology's role in optimizing sampling and its relevance across diverse domains.

Figure 1. Illustrate how documents, maps, and geospatial shall guide coastal management, assess risks, and improve resilience. It reviews coastal vulnerability studies (Sales, 2009), categorizes land and water uses (NAMRIA & DENR, 2023; Downing et al., 1993), and ensures municipal water regulation follows standards (Baguilat, 2004). Using geospatial analysis, it identifies risk hotspots (Abante, 2020-2023; Getis & Ord, 1992) and highlights adaptation strategies that merge traditional methods with modern technologies to protect coastal communities (Siringan et al., 2012; Lopez, 2015; Reyes et al., 2020). It integrates several key components to assess and manage coastal areas including municipal waters within the study area: (i) vulnerability assessment and document review includes a comprehensive evaluation of potential risks and a thorough review of relevant documents. The land classification map, provided by the government, essential for vulnerabilities and understanding risk realities within the 1-km coastal impact area part of the municipal waters in the study area; (ii) exposure assessment to identify geographic locations vulnerable or at risk; (iii) capability concept model to promote sustainable development; (iv) Establishing risk realities and its significance. Additionally, the rubrics helped measure or described the significance of various risks and vulnerabilities hinting the challenges faced by the communities; (v) addressing gaps in land and water use policy maps essential for effective land use and

disaster risk reduction. Interpreting and measuring resilience across these contexts remain crucial for strategies to address the challenges and vulnerabilities; (vi) understanding resilience of host environment, planners, engineers, policymakers, and researchers can employ context-specific approaches to get prepared and sustain local development; and (vii) recontextualizing LUPA elements with emphasis on municipal waters and its coast: protection, production, settlement and infrastructure, involves integrating gaps related to climate change adaptation by implementing measures to address its impacts on land use (Abante, et al., 2023; Abante, et al., 2021).

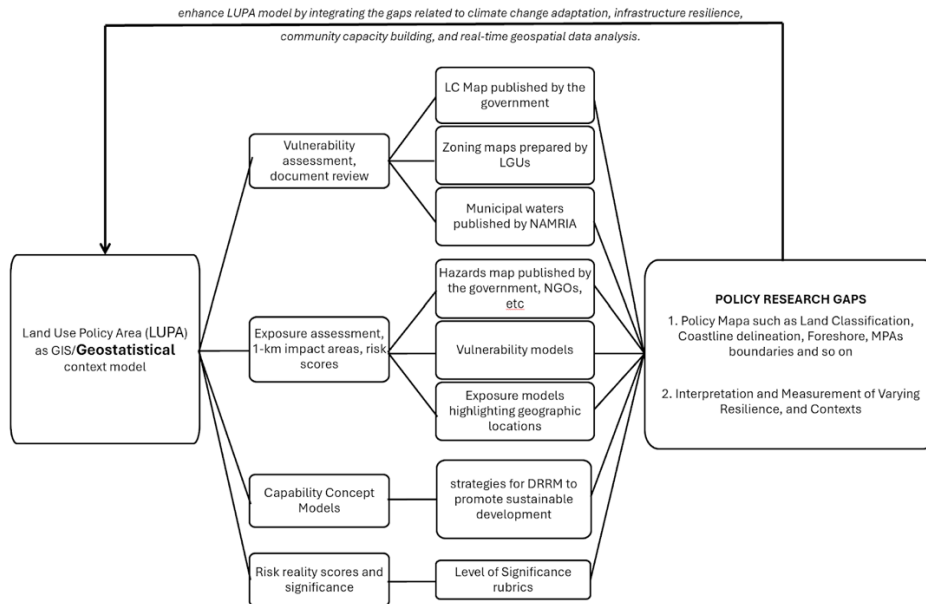


Figure 1. Land Use Policy Area (LUPA) recontextualized model for coastal regions (Abante, 2024)

Figure 1. Illustrate how documents, maps, and geospatial shall guide coastal management, assess risks, and improve resilience. It reviews coastal vulnerability studies (Sales, 2009), categorizes land and water uses (NAMRIA & DENR, 2023; Downing et al., 1993), and ensures municipal water regulation follows standards (Baguilat, 2004). Using geospatial analysis, it identifies risk hotspots (Abante, 2020-2023; Getis & Ord, 1992) and highlights adaptation strategies that merge traditional methods with modern technologies to protect coastal communities (Siringan et al., 2012; Lopez, 2015; Reyes et al., 2020). It integrates several key components to assess and manage coastal areas including municipal waters within the study area: (i) vulnerability assessment and document review includes a comprehensive evaluation of potential risks and a thorough review of relevant documents. The land classification map, provided by the government, essential for vulnerabilities and understanding risk realities within the 1-km coastal impact area part of the municipal waters in the study area; (ii) exposure assessment to identify geographic locations vulnerable or at risk; (iii) capability concept model to promote sustainable development; (iv) Establishing risk realities and its significance. Additionally, the rubrics helped measure or described the significance of various risks and vulnerabilities hinting the challenges faced by the communities; (v) addressing gaps in land and water use policy maps essential for effective land use and disaster risk reduction. Interpreting and measuring resilience across these contexts remain crucial for strategies to address the challenges and vulnerabilities; (vi) understanding resilience of host environment, planners, engineers, policymakers, and researchers can employ context-specific approaches to get prepared and sustain local development; and (vii) recontextualizing LUPA elements with emphasis on municipal waters and its coast: protection, production, settlement and infrastructure, involves integrating gaps related to climate change adaptation by implementing measures to address its impacts on land use (Abante, et al., 2023; Abante, et al., 2021).

The study aims to integrate essential components—vulnerability assessment, exposure analysis, capability modeling, risk reality scoring, policy gap identification, resilience evaluation, and recontextualization of LUPA elements—to effectively assess and manage coastal areas and municipal waters within the study area. It focuses on coastal vulnerability from climate change and shoreline changes, by leveraging the LUPA geospatial information model alongside ICT, GIS, and remote sensing technologies. Grounded in insights from Abante et al. (2023), Puspita (2025), and Abante et al. (2021), the study seeks to support the development of strategic land use policies that promote resilience and sustainability. By employing a comprehensive geospatial framework, this

research enables policymakers, community leaders, and stakeholders to visualize the 1-kilometer coastal impact zone, measured as a buffer extending both inland and seaward from the shoreline, and identify risks, vulnerabilities, hazards, hotspots, and cold spots. The approach also incorporates geostatistics, hotspot analysis, and binning techniques to pinpoint high-risk areas, guide mitigation strategies, and leverage natural barriers to enhance coastal resilience.

2. MATERIALS AND METHODS

This study employed shoreline delineation to establish a 1-km landward and seaward impact area within a Geographic Information Systems (GIS) platform, identifying hotspot areas using Abante (2020-2023) binning technique to pinpoint coastal risk realities. The coastal situational analysis focus on the 1-km impact area landward and seaward and the coverage of the municipal waters, not the elevated areas of Gubat. The coastal situational analysis focuses on the 1-km impact areas both landward and seaward, as well as the coverage of the municipal waters, excluding the elevated areas of Gubat.

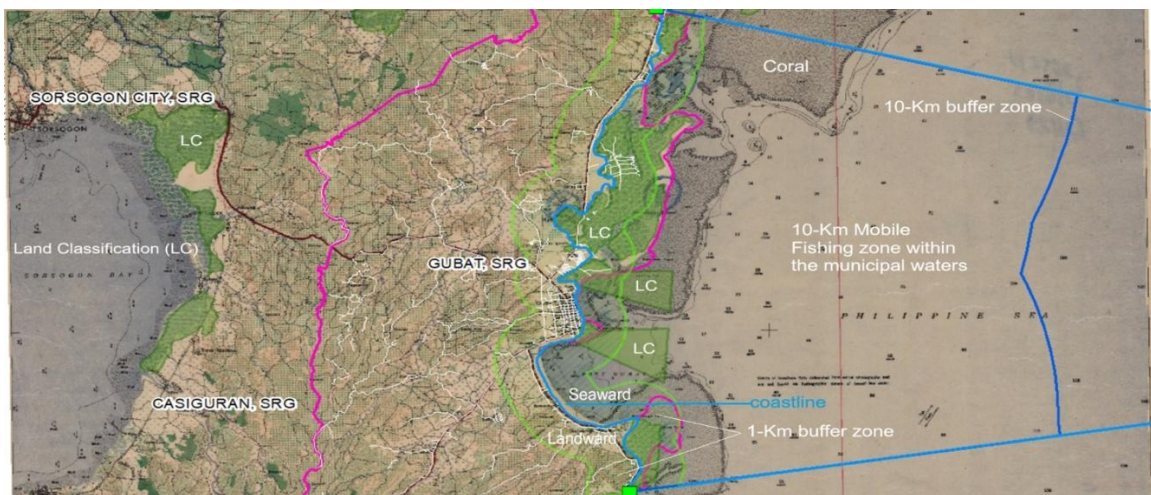


Figure 2. Beyond the Shoreline: Visualizing unreliable Land Classification (LC) in 1-Km coastal impact zone

Source: National Mapping and Resource Information Authority, 1950. Topographic Map of Gubat with 1:50,000, and Municipal Waters of Gubat, Sorsogon; Department of Environment and Natural Resources Region V. Land Classification Map of Gubat Sorsogon. Retrieved from <https://www.namria.gov.ph/downloads.aspx#gsc.tab=0>.

Figure 2 shows the landward impact area covered 3,647 hectares within the 1-km buffer, including (i) the landward impact area with 1,821.9 hectares having slopes ranging from 0-9%, and (ii) the seaward impact area with 1,825.1 hectares featuring natural barriers like coral reefs and mangroves, which contributed to low-risk scores due to their wave attenuation effects. This approach enabled a detailed assessment of coastal vulnerabilities by collecting and analyzing geostatistical or geospatial data (Abante, 2020-2023; Renard, et al., 2005); Getis & Ord, 1992), including climate conditions, land classification, shoreline characteristics, tidal patterns, and municipal water boundaries. Geostatistical in this study refers to the application of statistical methods to geospatial data, enabling the analysis, modeling, and interpretation of geographic patterns and relationships. It encompasses tools and techniques to identify hotspots, assess risks, and make data-driven decisions for land use, disaster preparedness, and sustainable development. Geostatistical analysis, as a specialized application of statistical techniques to spatial data, played a crucial role in studying the model interpreting geographic risk reality patterns and LUPA relationships (Abante, 2020-2023; Renard, et al., 2005); Getis & Ord, 1992). It utilizes various tools to identify risk-prone areas, evaluate vulnerabilities, and support data-driven decision-making in fields like land use planning, disaster preparedness, and sustainable development. As a focused subset of geospatial data, geostatistical data integrates statistical processes to analyze spatial patterns, while geospatial data, in a broader sense, provides locational information without necessarily involving statistical analysis as shown in Figure 1 and Figure 3.

Advanced tools, including ArcGIS, topographic maps, and hazard maps extracted from Project NOAH data and Hazard Hunter, supported this process to generate base and analytical maps to simulate risk realities as shown in Figure 3. Additionally, input from Local Government Unit of Gubat and co-researchers' inputs provided valuable information pointed out in Table 5. The study also included municipal waters and a 10-km coastal buffer designated for municipal ground fishing, beyond which commercial fishing is permitted as shown in Figure 2. This visualization approach ensured a thorough understanding of coastal

risks and the necessary resilience strategies.

Table 1 outlines the importance of preparedness for coastal hazards. The following are the contextualized levels of preparedness for this study: (i) at the highest level of preparedness (Level 5), measures include the protection of existing mangroves as indicated by 2020 Land Classification (LC) maps, proposed Marine Protected Areas (MPAs) in Pinontingan, Bagacay, and Rizal, and tourism and beach areas in Ariman, Buenavista, and Rizal. These resources provide critical benefits such as reducing wave energy, trapping sediments, and preventing shoreline erosion.

Table 1. Situational Analysis: Preparedness based on the factors outlined in the Risk Reality Scores

Preparedness Level	Description of	Assumptions used in geospatial modeling
Highest Level (5)	Assumes an advanced preparedness, supported by various protective measures. Abante (2023) described advanced preparedness as an strategic approach to disaster risk reduction, emphasizing the use of geospatial information models to mitigate risks and promote sustainable growth.	- Protected by Land Classification (LC) maps, these mangroves provide critical benefits such as reducing wave energy, trapping sediments, and preventing shoreline erosion (Bunting, et al., 2023; Fajardo, 2001). - Proposed Marine Protected Areas in Pinontingan, Bagacay, and Rizal, as indicated by the water use map of LGU-Gubat. These examples are essential for conserving marine biodiversity and reducing the impacts of human activities. They continue to provide essential benefits to people and the environment by enhancing resilience against coastal hazards (Beger, et al., 2004) - Tourism and beach areas in Ariman, Buenavista, and Rizal, identified on the LGU-Gubat water use map, boosting economic activities while serving as vital zones for coastal protection. - Marine resource protection based on Land Classification (LC) Map, Land Use and Zoning, MPAs, and Mangrove Satellite imagery in Gubat. 10-km mobile fishing zone and/or stationary fishing areas as hown in Figure 2, designated municipal waters where fishing activities are conducted sustainably. - Coral reefs and potential seaweed areas, as illustrated in Figure 1 through topographic and Comprehensive Land Use Plan (CLUP) maps, are essential for sustaining and protecting marine ecosystems. - Navigational zones designated for safe navigation and maritime activities as described in the comprehensive land use plan and zoning ordinance of Gubat, Sorsogon
Moderate Levels (2 to 4)	Getting prepared includes natural resources visible in Mangrove Satellite imagery from 2020 but not explicitly protected by LC Maps. (Land Cover Map of Region 5, Philippines. NAMRIA. https://www.geoportal.gov.ph/	The mobile fishing zone, depicted in Figure 2 within the municipal waters, lacks sufficient infrastructure and protective measures, rendering it highly susceptible to coastal hazards
Low Level (1)	Insufficient preparedness represents minimal preparedness within the Mobile Fishing zone. Abante (2018, 2019) defined insufficient preparedness as a state where communities or systems fail to effectively transition between receptiveness (prevention) and responsiveness (action).	

They are safeguarded based on LC Maps, Gubat Land Use and Zoning, and Mangrove Satellite imagery from 2020; (ii)

moderate preparedness levels (Levels 2 to 4) involve natural resources visible in Mangrove Satellite imagery from 2020 but not explicitly protected by LC Maps, including stationary fishing areas, coral and seaweed areas, and navigational areas that maintain marine ecosystems and support local economies; and (iii) the lowest level of preparedness (Level 1) represents the Mobile Fishing zone within the municipal waters, with limited infrastructure and protective measures, making these areas highly vulnerable to coastal hazards. Implementing and maintaining high levels of preparedness is crucial for reducing the impact of coastal hazards and enhancing the resilience of coastal regions in Gubat Sorsogon.

While Table 1 illustrates a tiered preparedness framework for coastal hazards in Gubat where protected mangroves, proposed MPAs, and designated tourism areas mitigate risks, Table 2 highlights the concept of coping capacity levels, emphasizing the ability of coastal communities to adapt to challenges or adverse situations.

Table 2 reflects the coping capacity to balance priorities by addressing immediate needs while strengthening strategies to enhance resilience, as assumed and categorized as follows: (i) the highest level (4 to 5) is observed in areas outside the 1-km landward buffer zone with well-established road networks, enabling efficient movement of people, goods, and emergency services. These areas benefit from robust early warning systems, comprehensive disaster response plans, and effective community education programs, ensuring resilience to hazards; (ii) moderate levels (2 to 3) are found within the 1 km Coastal Impact Area, which faces greater risks from storm surges, flooding, and sea-level rise. While these areas have some infrastructure and preparedness measures, they are less equipped compared to higher-level zones; and (iii) in contrast, the low level (1) of coping capacity is associated with the Mobile Fishing Zone within municipal waters, where minimal infrastructure and limited access to emergency services heighten vulnerability to coastal hazards. These areas require substantial support and intervention to reduce risks and build resilience effectively.

Table 2. Assumptions on coping capacity level

Coping Capacity Level	Description	Characteristics (Assumptions used in geospatial modeling)	Rating
Highest Level	Found in areas outside the 1 km landward zone with well-established road networks. These areas have the highest capacity to cope with coastal hazards due to their infrastructure and accessibility.	▪ Efficient movement of people, goods, and emergency services (Kazimierczuk, et al., 2023; NDRRMC, 2024) ▪ Comprehensive disaster response plans (Domingo & Manejar, 2018). ▪ Effective community education programs (Joseph & Said, 2020)	4 to 5
Moderate Levels	Observed within the 1 km Coastal Impact Area. These areas have some capacity to handle coastal hazards but are not as well-equipped as those in the highest level. Proximity to the coast increases risks from storm surges, flooding, and sea-level rise.	▪ Some infrastructure and preparedness measures in place (NDRRMC, 2024). ▪ Limited resources and accessibility compared to areas outside the 1 km landward zone. • Lack of permanent structures. • Limited access to emergency services and resources (NDRRMC, 2024).	2 to 3
Low Level	Found within the Mobile Fishing zone within the municipal waters. These areas have minimal infrastructure and are highly vulnerable to coastal hazards.	• Require more extensive support and intervention to enhance coping capacity and reduce vulnerability (NDRRMC, 2024)	1

Tables 2 and 3 further emphasize the importance of coping capacity and natural resource competency in enhancing coastal resilience. Mangroves and coral reefs absorb wave energy, shielding coastal communities from storm surges and erosion, supporting the Climate Change Commission's call to combine natural resource management with infrastructure development for better disaster preparedness. This harmonious interaction between environmental conservation and infrastructure advancements is essential for mitigating risks and fostering sustainable coastal development (Thia-Eng & Bonga, 2018). Furthermore, the researchers highlight the significance of these strategies in safeguarding ecosystems while tackling socio-environmental challenges specific to Gubat (refer to Table 5).

Table 3 highlights the assumptions on levels of competency in terms of risk mitigation, emphasizing the role of natural resources in protecting coastal areas from hazards. It outlines the assumptions used in the geospatial modelling to categorize competency levels based on the presence or absence of natural coastal features. The assumptions on competency scale for this study, are: (i) a scale of 5 represents the highest competency level, where natural resources like mangroves and coral reefs help reduce coastal hazards. Mangroves and coral reefs absorb wave energy, prevent erosion, and protect coasts, ensuring resilience; and (ii) a scale of 1 indicates minimal competency, with the absence of coastal features such as mangroves and coral reefs leading to heightened vulnerability to hazards like storm surges, tidal waves, and sea-level rise. These areas face increased risks of erosion, flooding, and damage to infrastructure and livelihoods, requiring significant human-made interventions and adaptive strategies to build resilience.

Table 3. Assumptions on competency scale

Competency Scale	Description	Characteristics (Assumptions used in geospatial modeling)
Scale of 5	Indicates a high level of competency, where natural resources such as mangroves and coral reefs effectively mitigate coastal hazards.	▪ Mangroves: Reduce wave energy, trap sediments, and prevent shoreline erosion (Sanches, et al., 2019; Spalding, et al., 2014) ▪ Coral Reefs: Act as natural barriers, absorbing wave energy and diminishing the impact of storm surges and tidal waves (Villanoy, 2t al., 2012; Sheppard, et al., 2005) ▪ Provide substantial protection against coastal hazards, making areas with such resources highly resilient (Mcleod, 2010; Woodroffe, 1990) ▪ Absence of Natural Features: No mangroves or coral reefs (Nichols, et al., 2019; Honda, et al., 2013) ▪ High susceptibility to coastal hazards like storm surges, tidal waves, and sea-level rise (Lapidez, et al., 2015; McInnes, et al., 2003)
Scale of 1	Represents a low level of competency, where there are no coastal physical features to mitigate risks posed by coastal-related hazards.	▪ Increased risks of erosion, flooding, and damage to infrastructure and livelihoods (Siringan, & Sta. Maria, 2024; Acosta, et al., 2016) ▪ Requires more extensive human-made interventions and adaptation measures (I.e, et al., 2019; Moya, 2018)

3. RESULTS AND DISCUSSION

The assessment of vulnerabilities and resilience in coastal areas of Gubat, Sorsogon, Philippines, using geospatial information models and techniques like hexagonal binning, is supported by studies such as those by Abante, et al. (2023) and Abante, et al. (2021), which emphasize the importance of spatial analysis in identifying high-risk zones prone to coastal hazards. Additionally, the integration of geospatial modeling for disaster risk reduction is highlighted in guidelines by United Nations Global Geospatial Information Management for Asia and the Pacific (UN-GGIM-AP), which advocate for the use of advanced geospatial technologies to enhance resilience and inform policy (ESCAP, 2020; Miyazaki, et al., 2015).

The researchers concur that these works collectively highlight the transformative role of spatial analysis in mitigating coastal hazards. By integrating multiple data layers, including climate information, land classification, coastline features, tidal patterns, and municipal waters, the model provided a comprehensive approach to identifying areas at risk from coastal hazards. The analysis supported targeted mitigation strategies and highlighted the importance of engaging local communities in resource management. Additionally, implementing strict development regulations was identified as crucial for enhancing the sustainable management and protection of coastal regions against the impacts of climate change and human activities. The recontextualized Land Use Policy Area (LUPA) model, embedded within an advanced geospatial information framework as shown in Figure 1, Figure 5 and Table 1 to 5, offers critical insights into the vulnerabilities along Gubat, Sorsogon's dynamic coastline, where climate change and rapid anthropogenic activities threaten key Sustainable Development Goals—particularly SDG 13 on Climate Action and SDG 14 on Life Below Water (Abante, et al., 2023; Abante, et al., 2021). By systematically analyzing data on floods, storm surges, sea-level rise, tsunamis, liquefaction, and coastal erosion, this integrated approach highlights how shifts in the coastline amplify disaster risks and ecosystem degradation (PAGASA, 2021; PHIVOLCS, 2023). For instance, severe storm surges, evidenced during Typhoon Pepito (Saudel) in 2020, and a high probability of tsunamis underscore the urgency for enhanced coastal

defense measures (Agpalo, 2024). In 2024, Tropical Storm Kristine, internationally known as Trami, impacted the Philippines, particularly Luzon, and later affected Vietnam, Thailand, and China.

Mangroves and corals, depicted in Figures 3 and 1 respectively, are vital for shoreline stabilization and mitigating the effects of climate-induced hazards. These ecosystems offer significant protection against flooding and erosion, while aligning local land use policies with Sustainable Development Goals (SDGs). Specifically, SDG 13 (Climate Action) is advanced by enhancing resilience to natural disasters, SDG 14 (Life Below Water) is supported through the conservation and sustainable management of marine ecosystems, and SDG 15 (Life on Land) promotes the sustainable protection of coastal habitats. Geospatial information is equally critical in achieving SDGs by enhancing environmental conservation and resilience-building efforts. It enables the evaluation of vulnerabilities and adaptive capacities related to SDG 13 (Climate Action), aids in the mapping of marine ecosystems for SDG 14 (Life Below Water), and supports the strategic management of ecosystems as outlined by SDG 15 (Life on Land). Allan, Levin, and Kark (2023) underline the value of delineating coastal impact areas for analyzing interactions between natural processes, human activities, and climate change.

Tables 1 to 3 establish a comprehensive framework that categorizes coastal zones based on preparedness, coping capacity, and natural resource competency, providing critical criteria for assessing how well coastal areas can mitigate hazards. When combined with the quantitative findings in Table 4—detailing the spatial distribution of risk and resiliency in inland and seaward areas—this integrated approach validates the model's effectiveness in informing targeted coastal management and sustainable development strategies. Advanced GIS and remote sensing techniques have been employed to develop Coastal Risk Models, as noted by Seitz et al. (2014), within defined impact zones, facilitating the mapping of flood-prone areas and forecasting future risks. For example, the Ariman-Panganiban Coastal Road and Shore Protection project in Gubat, Sorsogon—a 374-meter road dike equipped with robust structural protections—exemplifies how development can be harmonized with conservation. The recontextualized LUPA framework exemplifies integrated approaches that guide policymakers and planners in achieving sustainable development, resilience, and infrastructure growth while safeguarding against hazards and fostering ecological and societal strength.

Table 4. Significant findings for both inland and seaward areas:

<i>Impact Area</i>	<i>Attribute</i>	<i>Percentage</i>	<i>Confidence Level</i>	<i>Key role of recontextualized LUPA</i>
Inland Area (1,821.9 ha)	Cold Spot (inland/seascape resiliency)	39%	99%	Protection against hazards and risks
	Cold Spot	9%	95%	Production for economic sustainability
	Cold Spot	3%	90%	Settlement planning that supports resilient communities
	Nearly flat areas resilient to coastal hazards	N/A	N/A	Infrastructure development to sustain ecological and societal resilience
	Cold Spot (shore resilience)	43%	99%	
Seaward Area (1,825.1 ha)	Cold Spot	3%	95%	Protection against hazards and risks
	Insignificant Coastal Risk	3%	N/A	Production for economic sustainability
	Hotspot (Risk regions)	2%	95%	

Table 4 presents the results that underscore the model's effectiveness in assessing coastal hazards and identifying areas of varying resilience. These findings support policymakers, community leaders, and stakeholders in making informed decisions to enhance coastal resilience and sustainability. The GIS analysis identified the inland region, characterized as a cold spot or resilient environment, spanning a total area of 1,821.9 hectares. The findings showed that 39% of the area is a cold spot with 99% confidence, 9% with 95% confidence, and 3% with 90% confidence. These results suggest that the nearly flat areas exhibit significant resilience to coastal hazards. Likewise, in the seaward area, which spans 1,825.1 hectares, 43% was classified as a cold spot with 99% confidence in shore resilience, 3% as a Cold Spot with 95% confidence, 3% as having insignificant coastal risk, and 2% as a hotspot with 95% confidence in risk. These findings demonstrate the model's capability in evaluating coastal hazards and pinpointing areas with differing levels of resilience in the coastal region of Gubat Sorsogon including its municipal waters. Tables 1 to 4 provide the critical empirical foundation for the insights and strategic directives outlined in Table 5. Together, these tables

quantify coastal preparedness, coping capacity, competency in risk mitigation, and the spatial distribution of hazards and resilience, which inform the identification of key issues, guide precise policy interventions, and underscore the need for robust planning measures—such as updated mapping, zoning ordinances, and community engagement—to effectively manage and conserve coastal areas. Table 5 provides a thorough overview of the critical issues, proposed policy actions, and their practical benefits for protecting marine and mangrove (Baloloy, et al., 2020) ecosystems, along with additional contextual information to support effective land use and development planning.

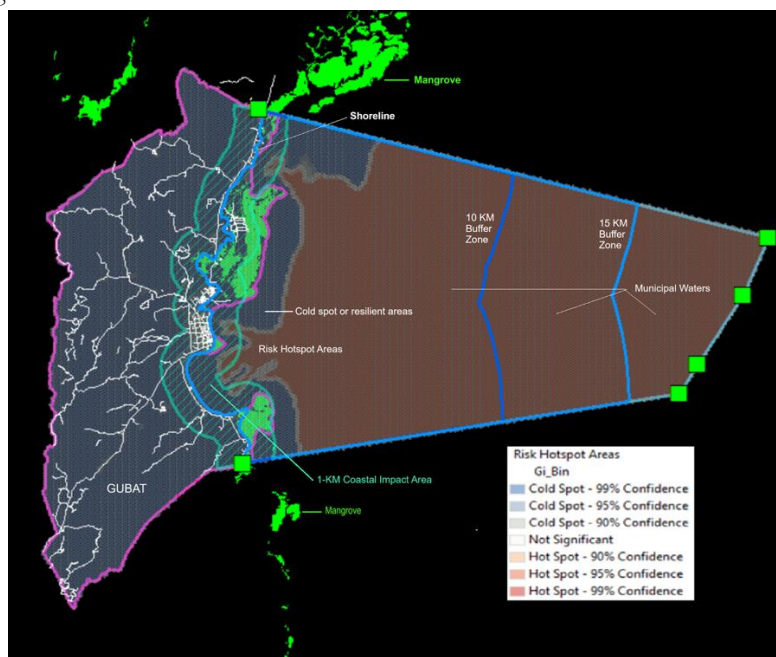


Figure 3. Shoreline Realities: A Situational Analysis of 1-km Coastal Impact area (Abante, 2024)

Source: All Hazard maps were retrieved from Project NOAH. <https://noah.up.edu.ph/>, and HazardHunterPH. <https://hazardhunter.georisk.gov.ph/>; National Mapping and Resource Information Authority, Municipal Waters of Gubat, Sorsogon; Department of Environment and Natural Resources Region V. Land Classification Map of Gubat Sorsogon. Retrieved from <https://www.namria.gov.ph/downloads.aspx#gsc.tab=0>. Gubat baseline and hazards maps were retrieved from Zoning Ordinance, Volume 3, Gubat. Retrieved from <https://www.scribd.com/document/612403824/CLUP-Gubat-Volume-3-Zoning-Ordinance-2021-2>

Figure 3 demonstrates the coastline as a reference, this study delineates a 1-km coastal impact area—extending inland from the shoreline as a critical zone serve as the basis for analyzing ecological and socio-economic stressors, such as flooding, erosion, storm surges, and sea-level rise, thereby emphasizing the risks that threaten the achievement of SDGs 13 to 15.

Table 5. Shoreline realities: Overview of critical issues, policy actions, and practical benefits

<i>Aspect</i>	<i>Findings</i>	<i>Policy Recommendations</i>	<i>Practical Implications</i>
Identification of Critical Areas	Unreliable maps may fail to accurately identify and delineate critical habitats, leading to insufficient protection measures for sensitive marine and mangrove areas. Current methods need adjustment to ensure robustness and reliability of data.	Invest in accurate and up-to-date land classification maps using advanced technologies like remote sensing and GIS. Use methodological triangulation combining LIT and photo-transect approaches.	Facilitate identification of critical habitats ensures targeted and effective protection measures. Advances results-based monitoring and evaluation techniques
Policy Decisions	Policies and conservation strategies based on inaccurate	Develop policies and conservation strategies based on reliable and	Policy Map: Guides land use and development within a specific area, ensuring alignment with community goals and regulations. Enhance techniques for gathering data Gubat zoning ordinance defines how land within

	maps may not target the most vulnerable areas, resulting in ineffective or misplaced efforts. Fair diversity in MPA and non-MPA areas; target species contribute 49% of reef fish biomass. Current MPAs cover only 31 hectares (<1% of municipal waters), below the mandated protection level.	precise data to ensure efforts are appropriately directed. Enhance fishery management to sustain ecological stability and improve biomass. Expand MPAs to cover ideal reef sites and meet R.A. 10654 requirements.	marine conservation efforts, maximizing resource allocation and impact. Enhance fishing restrictions in high-biomass zones to ensure decisive disaster risk reduction, and empower fisherfolks inclusive participation and culturally sensitive practices Legislate and enforce expansion of MPAs to adapt to changing risks	certain zones can be used, specifying allowed activities and maintaining community character by preventing incompatible uses. A database or profile facilitates tracking the distribution of target species and their biomass and identify suitable reef areas for MPA expansion and conservation.
Environmental Degradation	Without accurate maps, harmful activities such as illegal logging, overfishing, and land conversion may go unchecked, leading to further degradation of marine and mangrove ecosystems. Erratic trends in live coral cover despite current results being the highest recorded. Climate change intensifies threats to coral reefs and ecosystems, creating interconnected risks that amplify their vulnerabilities.	Implement monitoring and enforcement mechanisms to ensure that activities within critical areas are regulated and sustainable Continue long-term monitoring using both LIT and photo-transect methodologies for triangulation. Implement adaptive management to mitigate climate change effects.	Reduce negative environmental impact on marine and mangrove ecosystems' health and biodiversity. Establish consistent monitoring protocols Integrate resilience strategies, including Cold spot analysis, into reef conservation plans, as illustrated in Figure 3.	A zoning map visually represents various zones and outlines permitted land uses, serving as a crucial tool for comprehending land use and development Map spatial trends in coral cover and analyze changes over time Model impacts of climate change on reef ecosystems.
Environmental Awareness	Limited awareness and technical knowledge in mangrove assessments and monitoring. Significant differences in coral lifeforms and habitat quality between Rangas and Namantaw reefs.	Reinforce environmental consciousness and community awareness through engagement and technical education. Utilize science-based protocols and backyard nurseries to grow sufficient, healthy seedlings.	Implement capacity-building programs for communities Develop adaptive reef management plans. Develop standards for mangrove rehabilitation	Map awareness and participation levels to identify areas needing intervention. Map reef biodiversity and habitat features to inform targeted actions. Identify and monitor site-specific requirements like soil type and species suitability.

Economic and Social Impacts	Communities that rely on these ecosystems for their livelihoods may suffer economically and socially due to the mismanagement of resources.	Engage local communities in conservation planning and decision-making processes to address their needs and concerns.	Improved economic and social well-being of communities through sustainable resource management and conservation efforts.	Gubat zoning allocates distinct areas for economic, environmental, and tourism purposes, promoting sustainable development and the responsible use of coastal resources
	Poverty and lack of alternative livelihoods leading to unsustainable practices.	Provide alternative livelihood opportunities through LGUs and organizations.	Support economic programs for community resilience.	Identify and map regions where livelihoods and mangrove conservation overlap
Conservation Efforts	Conservation programs and initiatives may be less effective if they are based on flawed data, reducing their overall impact on preserving biodiversity and ecosystem services.	Ensure that conservation programs are grounded in accurate, up-to-date, and comprehensive data.	Enhanced effectiveness of conservation efforts, leading to better preservation of biodiversity and ecosystem services.	Policy maps and zoning ordinances collaboratively regulate land use and development, fostering organized growth, community well-being, and sustainable progress
	Insufficient coordination and funding for sustainable management programs.	Collaborate with agencies, NGOs, and private sectors for resource and funding support.	Establish multi-agency partnerships and funding mechanisms.	Track collaborative projects and resource allocations.
Mangrove/Coral Rehabilitation Plan	Inadequate strategies to conserve, protect, and sustainably utilize mangroves.	Create an intensive rehabilitation plan focusing on conservation and coastal protection.	Formulate long-term conservation strategies.	Monitor the effectiveness of rehabilitation efforts and evaluate coastal protection.
	Seven assessments in 10 years highlight rare efforts but point to inconsistent methodologies.	Establish standardized, long-term frameworks for reef monitoring.	Allocate resources to support regular assessments.	Track monitoring sites and results for consistency and analysis.

Source: Dioneda, R., Sr. (2024). Unpublished paper entitled "ASSESSMENT OF CORAL REEFS AND REEF-ASSOCIATED FISHES IN GUBAT, SORSOGON, PHILIPPINES"; Peregrino, J (2024). Unpublished paper entitled "ASSESSMENT OF MANGROVE COMMUNITIES IN GUBAT, SORSOGON;

Table 5 provides a comprehensive overview of shoreline realities by categorizing critical issues, policy actions, and their corresponding practical benefits. It serves as a valuable tool for understanding the challenges faced by coastal areas, the strategies needed to address them, and the positive impacts these measures can achieve. It is designed to inform evidence-based decision-making and promote sustainable shoreline management.

Unreliable maps hinder the accurate delineation of critical habitats, exposing sensitive marine and mangrove areas to insufficient protection. To address this, the use of advanced technologies like remote sensing and GIS for creating accurate land classification maps is recommended. Incorporating methodological triangulation, such as line intercept transect and photo-transect approaches, can ensure data reliability and robustness. These strategies facilitate precise identification of critical habitats, enabling targeted and effective conservation measures and guiding land use policies for community alignment. Conservation policies, as detailed in Table 5, may fall short in protecting vulnerable areas if they depend on flawed delineation methods to distinguish between zones designated for land and water protection or production. Table 5 outlines the current marine protected areas in Gubat cover only 31 hectares, below the mandated protection level, and target species contribute only 49% of reef fish biomass. Reliable data-driven policies are essential for expanding MPAs in Gubat to ideal reef sites, meeting national requirements to sustain

ecological stability. Introducing fishing restrictions in high-biomass zones and legislating MPA expansion can optimize resource allocation and conservation impact while ensuring proper zoning and monitoring.

The lack of geostatistics and geospatial data hinders efforts to identify and mitigate harmful activities like overfishing and land conversion, leaving ecosystems vulnerable to exploitation. Without accurate mapping tools, enforcing environmental regulations becomes increasingly difficult. By integrating geospatial technology, communities and policymakers can effectively protect coastal environments and promote sustainable practices. Furthermore, unpredictable coral cover trends and climate change-induced threats underscore the need for robust monitoring and enforcement mechanisms. In this context, zoning maps of Gubat are invaluable for visualizing land use and development patterns, supporting climate impact modeling, and guiding conservation planning.

Limited knowledge of geostatistics and geospatial data hampers accurate assessments of ecosystems within the critical 1-km coastal impact area, as illustrated in Figure 3. Variations in coral habitat quality emphasize the significance of community education and involvement (see Figure 2). Capacity-building programs, standardized approaches to mangrove rehabilitation, and science-based strategies are essential to strengthening conservation efforts.

Biodiversity mapping within the coastal impact area enables the development of targeted action plans, while soil assessments ensure the success of mangrove rehabilitation initiatives. Communities dependent on coastal resources face challenges stemming from poverty and resource mismanagement. Conservation planning, alternative livelihoods, and zoning for environmental, economic, and tourism purposes are key to fostering sustainable resource use, particularly within the 1-km coastal impact zone. Mapping the intersection of livelihoods and conservation priorities within this area promotes a balance between ecological preservation and economic growth.

Conservation initiatives often encounter setbacks due to data inaccuracies and limited coordination. Accurate and comprehensive data is critical to enhancing biodiversity conservation and ecosystem service management. Collaborations among government agencies, NGOs, and private sectors can boost resources and funding. Intensive mangrove and coral rehabilitation plans, supported by standardized long-term monitoring frameworks, ensure consistent progress. Tracking rehabilitation sites and evaluating effectiveness strengthen sustainable coastal protection strategies. Multi-agency partnerships amplify the impact of conservation programs, aligning land use policies with community well-being and sustainability goals.

4. CONCLUSION

This study emphasizes how the interface between scientific innovation and community-based action, through the use of geospatial information systems (GIS), information and communication technologies (ICT), and remote sensing, establishes a solid framework for evidence-based policies and precise zoning regulations, advancing effective coastal land use planning. These tools enable the identification of risk areas (hotspots or cold spots) while guiding conservation efforts, such as mangrove rehabilitation and marine ecosystem protection. Active community participation strengthens resilience against environmental and socio-economic vulnerabilities. Furthermore, fostering multi-agency collaboration and leveraging accurate, up-to-date data maximizes resource allocation and addresses pressing concerns such as environmental degradation and unsustainable practices.

In conclusion, this study effectively leveraged the recontextualized LUPA model within an advanced geospatial framework to demonstrate that the combined impacts of climate change and rapid anthropogenic activities along Gubat, Sorsogon's dynamic coastline—especially within its critical 1-km impact zone—exacerbate hazards such as floods, storm surges, tsunamis, liquefaction, and erosion; these insights not only underscore the urgent need for precise hazard mapping, enhanced coastal defenses, and sustainable land use policies aligned with SDG 13 (Climate Action), SDG 11 (Sustainable Cities and Communities) and SDG 14 (Life Below Water), but also equip policymakers, community leaders, and stakeholders with the critical spatial data necessary to implement targeted risk mitigation and sustainable development strategies that fortify long-term coastal resilience.

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Research Article

Development and Validation of Stress-Related Tool for Continuing Professional Education (CPE) Students in the Post Pandemic Era

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ABSTRACT

Stress can be helpful and stimulating if mild and well-managed. It stimulates the thinking processes and helps people stay alert and be productive and do their daily tasks. It can also result in personal growth and facilitate development. However, how people react to stress depends on how they view and evaluate the impact of the stressor, its effect on their situation and support at the time of the stress, and their usual coping mechanisms. According to Yazdani (2010), stress is a multidimensional phenomenon which is focused on dynamic between individual and environment and because of the magnitude of stress to students, it is vital and timely to understand how this phenomenon can affect our aspiring teachers. The development of the stress-related tool was anchored on a relevant framework that indicated internal and external stressors and validation of this tool using a quantitative correlational design was applied. Findings of this study have revealed that students of Professional Continuing Education (CPE) experience a higher stress level to both internal and external factors and that there is a significant relationship between stress and sex, civil status and monthly family income. Recommendations focus on the development of stress management and empowerment program that will ensure their holistic well-being despite the challenges of the dynamic trends of the current educational landscape.

Keywords: Continuing professional education, post-pandemic era, stress, stress-related tool

1. INTRODUCTION

The post-pandemic era has introduced unprecedented challenges to the educational landscape, particularly for adult learners engaged in Continuing Professional Education (CPE). These students, who often balance academic responsibilities with professional and personal obligations, face heightened stress levels due to both internal and external factors. Stress among CPE students are exacerbated by the lingering effects of the pandemic, including economic instability, shifts in educational delivery methods, and increased academic pressure. Such stress can significantly impact their psychological well-being, academic performance, and overall quality of life.

Stress assessment tools have traditionally focused on younger, full-time students in higher education institutions. However, these tools often fail to capture the unique stressors experienced by adult learners in CPE programs. Traditional methods of stress evaluation, such as self-assessment scales and manual interviews, are limited by their reliance on active participation and subjective reporting. Moreover, continuous assessment methods introduced in the post-pandemic era, while aimed at enhancing learning outcomes may inadvertently increase stress by creating a sense of constant monitoring and evaluation. This underscores the urgent need for a validated tool specifically designed to assess stress levels in CPE students.

This study aims to address this gap by developing and validating stress-related assessment tool tailored to the needs of CPE students. The research explores the relationship between stress levels and demographic factors such as sex, civil status, and monthly family income. By identifying these correlations, the study seeks to provide actionable insights for policymakers and educators to mitigate stress among CPE students. Ultimately, this research contributes to the broader discourse on improving mental health support for adult learners in the evolving educational environment.

2. MATERIALS AND METHODS

The Stress-Strain Paradigm was used as the basis for the development of the stress-tool because it considers both objective events (external stressors) and students' perceptions of those experiences (internal stressors). It acknowledges that the environment can exert an independent force on individuals, with consequences that may not always be immediately apparent. Further, the Academic Stress theory was also used in the illustration of academic stress including personal inadequacies, fear of failure, interpersonal difficulties with teachers, teacher-student relationships, and inadequate study facilities.

The questionnaire was self-constructed following the rudiments of quantitative research process. In terms of how it was made, the researcher observed both validity and reliability testing. Further, data triangulation was also used where all the contents/ideas that are found on the specific items of the questionnaire were anchored through interview with the respondents, observation, and literature review. This process further explored ideas to come up with very suitable data that represent stressors among Continuing Professional Education (CPE) students

After a thorough analysis of the contents of the questionnaire, 2 main categories were formulated. These are Internal Stressors and External stressors. The Internal Stressors composed of 10 items namely; currently in a state of tension and nervousness while in school, rushing and hurrying from one activity to another, inability to relax due to a lot of work /assignments, feeling of tension during examination, never getting in top of things, never being well-organized, unclear understanding of priorities and goals in life, poor physical health (frequent illness), diagnosed disability (presence of debilitating conditions) and negative thinking. These represent the antecedents of stress among students. Several empirical studies have shown that these can affect their physical, emotional, and academic performance. Further, Alvarez et al. (2019) emphasized that prolong exposure to stressors may affect the physical, behavioral, and environmental aspects of a person, that is why this condition must be taken seriously as a matter of concern.

For the External stressors, there are 2 sub-categories. The academic that has 7 items namely, low academic grades, hectic class schedules, unapproachable professors/Instructors, unapproachable staff, pressure in beating deadlines of submitting projects and other requirements. On the other hand, the items that represent the stressors among CPE students for the non-academic are family relationship problems, peer pressure, long travelling hours from work to school, delayed remittance of allowances for tuition fees and other monetary needs and extreme hot or cold weather. Furthermore, the researcher consulted with an expert in terms of item validation to prove its veracity in terms of applicability. A pilot study was also conducted using Cronbach alpha with a .90 result indicating that the questionnaire is reliable for distribution.

3. RESULTS AND DISCUSSION

Table 1. shows that the following items in the internal stressors: rushing and hurrying from one activity to another, inability to relax due to a lot of work & assignments, feeling tension during examinations, never being well-organized, unclear understanding of priorities and goals in life and negative thinking affected the respondents in a moderate extent. This implies that the mentioned items are predominant stressors in their day-to-day lives while taking their CPE program. The seriousness and extent of the aftermath of these internal stressors that include physiological and psychological manifestations must not be taken for granted for the student's well-being. Furthermore, Alkhawaldeh et. al. (2023) emphasized that students are prone not only to internal stresses but also to distress and that despite their coping skills, students' experiencing academic related stress must be properly and seriously addressed.

On the other hand, Serrano (2022) articulated those students coping mechanism in the advent of exposure to different stressors during the post pandemic era and the transition context of the academic landscape is evident and a phenomenal occurrence as part of their academic life. Despite the tremendous effects of many stressors in their academic lives, they have remained resilient and adaptive in overcoming stress and distress.

Table 2. shows that the following items in the external stressors: low academic grades, hectic class schedules, unapproachable professors/instructors, poor internet connections, pressure in beating deadlines in submitting papers, family problems, peer pressure, long travelling hours from work to school, monetary problems, and extreme hot and cold weather has affected the respondents into moderate and a slight extent implying that these items have different degree of affect to the respondents.

Reddy et al. (2011) emphasized the need to address academic stress and its sources among students to empower students. Understanding these stressors would be able to facilitate development of stress program and counselling modules that can help students alleviate stress and its manifestations. Though stress and academic stressors are not a new phenomenon, ignoring these may lead to more serious problems for students, especially that the now normal demand is bigger where the landscape of education and its environment is fast-changing. (Pascoe, 2019)

Table 1. Internal stressors for CPE Students

Internal Stressors	Mean	Interpretation
1. Currently in a state of tension or nervousness	2.44	Slight extent
2. Rushing and hurrying from one activity to another	2.62	Moderate extent
3. Inability to relax due to a lot of work & assignments	3.03	Moderate extent
4. Feeling tension during examinations	2.82	Moderate extent
5. Never getting on top of things	2.41	Slight extent
6. Never being well-organized	2.60	Moderate extent
7. Unclear understanding of priorities and goals in life	2.60	Moderate extent
8. Poor physical health (frequent illnesses)	2.48	Slight extent
9. Diagnosed disability (debilitating conditions)	2.21	Slight extent
10. Negativizing thinking	2.84	Moderate extent

Likert scale: 1.00-1.74 (not affecting), 1.75-2.49 (slight extent), 2.50-3.24 (moderate extent), 3.25-4.00 (great extent)

Table 2. External stressors for CPE Students

External Stressors	Mean	Interpretation
1. Low academic grades	2.95	Moderate extent
2. Hectic class schedules	3.00	Moderate extent
3. Unapproachable professors/instructors	3.03	Moderate extent
4. Poor internet connections	2.21	Slight extent
5. Pressure in beating deadlines in submitting papers	2.90	Moderate extent
6. Family problems	2.61	Moderate extent
7. Peer pressure	2.41	Slight extent
8. Long travelling hours from work to school	2.47	Slight extent
9. Monetary problems	2.48	Slight extent
10. Extreme hot and cold weather	2.20	Slight extent

Likert scale: 1.00-1.74 (not affecting), 1.75-2.49 (slight extent), 2.50-3.24 (moderate extent), 3.25-4.00 (great extent).

4. CONCLUSION

The researchers have concluded that students of Continuing Professional Education (CPE) experience stress in both internal and external factors during the post pandemic era where the landscape of education is fast changing. Significantly, the creation and validation of stress-related tool is significant in determining the type of stress of CPE students in the creation and implementation of programs that can alleviate stress and empower students.

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Research Article

Restaurant Employees' Organizational Citizenship Behavior and Environmental Sustainability of Locally-owned Restaurants in the Province of Batangas

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ABSTRACT

This study explores how restaurant managers' Organizational Citizenship Behavior for the Environment (OCBE) influences sustainability in Batangas' locally-owned restaurants. It will present demographic (age, sex, education, service length, position) and firmographic (years in operation, employee count) profiles. The research evaluates managers' OCBE aspects, such as organizational identification and Green HRM, and assesses restaurant sustainability practices like food sourcing, waste reduction, and eco-friendly participation. It will identify significant differences in OCBE based on demographics and sustainability practices based on firmographics, and propose an action plan based on these findings. The researcher used quantitative method and descriptive research design. The respondents of the study were 365 employees in different locally-owned restaurant. The instrument was adapted from two different studies. Further, the Statistical test used for the study was based on the Shapiro Wilk test, Kruskal Wallis Test, Mann Whitney U-test to test the significant differences while, Spearman Rho for the test of relationship. The study focuses on young Generation Z employees with high school or bachelor's degrees working in small, newer restaurants committed to sustainability. These employees support local food sourcing, waste reduction, and eco-friendly practices, though the link between their Organizational Citizenship Behavior for the Environment (OCBE) and actual sustainability practices is weak to moderate. Larger and newer restaurants show a stronger commitment to environmental initiatives, and Generation Z is more engaged in sustainability than Generation X. To improve OCBE in Batangas' locally-owned restaurants, the study suggests implementing regular training on sustainable practices, fostering staff engagement through discussions and hands-on experiences, integrating green goals into performance reviews, and linking sustainability to job satisfaction.

Keywords: Organizational Citizenship Behavior, Environmental Sustainability, Sustainable Practices, Locally-owned Restaurants

1. INTRODUCTION

In recent years, the global discourse surrounding environmental sustainability has reached unprecedented heights. With increasing awareness of climate change and resource depletion, stakeholders across various industries are reevaluating their practices to minimize their ecological footprint. According to Cuevas (2020), the restaurant industry, as a significant contributor to environmental degradation through food waste, energy consumption, and packaging, is under growing pressure to adopt sustainable practices. In Batangas province, Valdez et al. (2020), this trend is evident as consumers become more environmentally conscious and demand eco-friendly dining options. Consequently, restaurants are exploring innovative strategies to align their operations with sustainability goals, ranging from sourcing local and organic ingredients to implementing energy-efficient technologies. However, despite these efforts, challenges such as cost implications and resistance to change persist, underscoring the need for further research to understand the dynamics at play and identify effective solutions.

To comprehensively investigate the impact of restaurant employees' organizational citizenship behavior (OCB) on environmental sustainability, it is essential to define and operationalize key variables. Verlinden (2023) defines organizational citizenship behavior (OCB) as encompassing all positive and constructive actions and behaviors performed by employees that go beyond their formal job duties. These behaviors are voluntary and aim to support colleagues and benefit the organization as a whole. On the other hand, Patterson (2024) defines environmental sustainability as the responsible management of natural resources to meet current needs without jeopardizing the ability of future generations to meet their own needs. It encompasses a balance of ecological, economic, and social objectives, including efforts to reduce carbon emissions, promote renewable energy, and ensure equitable access to resources. By clearly delineating these variables, researchers can develop robust methodologies to

measure and analyze their interrelationships effectively.

The significance of exploring the relationship between restaurant employees' organizational citizenship behavior (OCB) and environmental sustainability finds resonance within the framework of social exchange theory. According to this theoretical perspective, individuals engage in voluntary actions, such as OCB, when they perceive a favorable exchange relationship with their organization. In the context of environmental sustainability, restaurant employees may exhibit OCB by advocating for eco-friendly practices, participating in sustainability initiatives, and fostering a culture of environmental responsibility among staff members. In return, they may expect tangible and intangible rewards, such as recognition, career advancement opportunities, and enhanced job satisfaction. Kim et al. (2020) investigated why hospitality employees engage in organizational citizenship behaviors (OCBs) related to sustainability efforts, expanding on existing literature linking employee motivation to environmental practices. Their study found that employees' environmental beliefs partially mediated the influence of environmental-transformational leadership and environmental policies on OCBs toward the environment. Additionally, environmental training fully mediated the association between environmental belief and OCBs. Moreover, employees' perception of organizational support moderated the relationship between environmental belief and OCBs, indicating that hospitality workers were more likely to engage in environmentally friendly OCBs as their environmental beliefs increased, with organizational support moderating this association.

By understanding the social exchange dynamics underlying OCB, researchers can elucidate the motivations driving employees' engagement in sustainable behaviors and identify strategies for enhancing organizational support and incentivizing eco-conscious actions. This theoretical lens provides a valuable framework for analyzing the reciprocal relationship between organizational behavior and environmental sustainability, offering insights into how businesses can foster a culture of environmental stewardship that benefits both employees and the broader ecosystem.

Despite the growing interest in sustainability within the restaurant industry, a noticeable research gap persists in understanding the specific role of restaurant employees' OCB in driving environmental sustainability initiatives, particularly within the context of Batangas province. While existing literature has explored various aspects of sustainable practices in hospitality settings, such as green marketing and consumer behavior, few studies have delved into the organizational dynamics that influence the adoption and implementation of sustainability initiatives among employees. (Mele et al., 2019; N. Khan et al., 2024) This gap presents an opportunity for researchers to contribute new knowledge and insights that can inform organizational practices and policy interventions aimed at promoting environmental sustainability within the restaurant sector in Batangas and beyond.

Batangas province, with its rich culinary heritage and diverse natural landscapes, provides an intriguing setting for examining the intersection of organizational behavior and environmental sustainability within the restaurant industry. As a popular tourist destination known for its vibrant food culture and picturesque scenery, Batangas attracts a diverse clientele, ranging from local residents to international visitors. Consequently, restaurants in Batangas face unique challenges and opportunities in balancing the demands of the market with the imperatives of environmental stewardship. Factors such as seasonal fluctuations in tourism, availability of local produce, and regulatory frameworks governing waste management and environmental protection shape the landscape within which restaurant managers operate. By profiling the topic in the study locale, researchers can gain insights into the contextual factors that influence managerial decision-making and organizational behavior, informing targeted interventions tailored to the needs of local stakeholders.

The rationale for conducting this study lies in the pressing need to align organizational behavior with environmental imperatives in the restaurant industry. As concerns about climate change, resource depletion, and environmental degradation continue to escalate, businesses are under increasing pressure to adopt sustainable practices that minimize their ecological footprint and contribute to broader sustainability goals. By investigating the role of restaurant employees' OCB in driving environmental sustainability initiatives, this research aims to fill a critical gap in the literature and provide actionable insights for promoting eco-conscious behavior within the industry. By elucidating the mechanisms through which OCB influences environmental outcomes, researchers can inform organizational practices and policy interventions that foster a culture of environmental stewardship and contribute to the long-term viability of the restaurant sector in Batangas and beyond.

This study focuses on the impact of Organizational Citizenship Behavior (OCB) on environmental sustainability within the restaurant industry in Batangas Province. The research will primarily investigate locally-owned restaurants and examine how employees' pro-environmental actions, driven by OCB, contribute to the implementation of sustainable practices such as waste reduction, energy conservation, and resource management. Data will be collected from restaurant employees, managers, and potentially customers through surveys and interviews. However, this study is limited to restaurants in Batangas and may not be fully generalizable to larger restaurant chains or international establishments with different organizational structures. The research will also be constrained by the available sample size and participants' willingness to engage in the study. External factors, such as economic conditions or government regulations that may also influence sustainability efforts, are beyond the scope of this research.

The output of this study will provide empirical evidence on how OCB contributes to environmental sustainability within the restaurant sector. The findings will bridge the gap between organizational behavior and sustainability practices, offering actionable recommendations for restaurant managers to foster a culture of environmental consciousness. The research will also highlight specific OCB behaviors that are most effective in promoting sustainability initiatives, contributing to the broader literature on green HRM (Human Resource Management) and environmental leadership.

The benefactors of this study include a diverse group of stakeholders. Restaurant owners stand to gain valuable insights into how to encourage employees to voluntarily adopt eco-conscious behaviors that support sustainability initiatives. This can result in operational improvements, reduced costs, and more efficient resource management. Employees will also benefit, as the study provides a clearer understanding of how their actions contribute to environmental goals, which may lead to enhanced job satisfaction and a greater sense of purpose. For policymakers, the study offers a foundation for developing guidelines and incentives that promote sustainable practices in the restaurant industry, helping shape policies that align with environmental imperatives. Researchers and academics can use the findings to further explore the link between Organizational Citizenship Behavior (OCB) and environmental sustainability, fostering new research directions in both organizational behavior and the hospitality sector. Finally, the community and the environment will benefit as more restaurants adopt sustainable practices, reducing environmental degradation and conserving resources, thus contributing to long-term ecological well-being.

2. MATERIALS AND METHODS

The study used a quantitative-descriptive method to assess how restaurant employees' Organizational Citizenship Behavior (OCB) affects environmental sustainability in Batangas. Surveys measured OCB and sustainable practices, with descriptive statistics providing insights into patterns and trends. Structured surveys were used to assess OCB and its effect on sustainability practices.

Descriptive and correlation analyses revealed patterns and predictors, offering practical insights into how employee behavior impacts sustainability in local restaurants. Participants included restaurant employees in Batangas in roles such as managers, chefs, and waiters with at least 6 months to 1 year of experience. Consent and language proficiency were required to ensure relevant, ethical, and reliable responses. All 49 participating restaurant managers were included. A total of 365 dining and kitchen employees were selected using the Raosoft calculator to ensure statistical representation of the broader employee population.

The questionnaire was adapted from studies by Manuel et al. (2024) and Kim & Hall (2020), focusing on OCB and sustainable practices in restaurants. Experts in business and hospitality validated the questionnaire. Pilot testing with 34 employees confirmed its clarity and cultural suitability. Cronbach's alpha values for both OCB and sustainability practices showed excellent reliability. Restaurants were selected using purposive sampling. Surveys were distributed in person with a 100% retrieval rate. Data focused on employee perceptions of OCB and sustainability, and confidentiality was assured.

Frequency and percentage were used for Objective 1; weighted mean and ranking for Objectives 2 and 3. Due to Shapiro-Wilk Test, non-parametric tests like Mann-Whitney U, Kruskal-Wallis, and Spearman rho were used, with SPSS 28 for analysis.

Ethical standards were followed by securing informed consent, maintaining confidentiality, respecting participant dignity, and addressing cultural and language barriers. Risks were minimized, and transparency with stakeholders was emphasized to ensure integrity and community trust.

3. RESULTS AND DISCUSSION

The survey reveals several key trends in the hospitality sector workforce, including a large representation of Generation Z and Millennials, highlighting the need for digital skills and innovation to manage turnover and intergenerational dynamics. Women make up 60.5% of employees, indicating a gender imbalance with women in lower-level positions and underrepresented in senior roles. Employees have varying educational backgrounds, suggesting a workforce with mixed skill levels. The majority of employees have short to mid-range tenures, signaling the need for improved retention strategies. Most respondents work in operational roles, especially as Kitchen and Dining Staff, emphasizing the importance of adequate staffing and a supportive work environment to improve performance and morale.

The survey also highlights the age of businesses within the hospitality sector. Most respondents work for organizations with 5 to 9 years of operation, indicating that many businesses are still in their early stages. Smaller portions of respondents come from older businesses, suggesting newer companies need to focus on factors like location, pricing, and cost control for success. The dominance of small organizations with fewer than 10 employees requires efficient operations and effective management.

Environmental awareness among employees is evident, with high ratings for behaviors that minimize harm to the environment, and co-worker encouragement for eco-friendly practices. However, participation in events like tree planting ranked lower, indicating that time constraints and limited incentives may hinder engagement. This suggests the need for stronger strategies

to increase employee involvement in sustainability efforts.

Employees show strong organizational identification, taking pride in their work and aligning personal goals with company values, including sustainability. However, a lower score for public representation suggests that better internal communication and empowerment are needed to reinforce organizational identity and accountability.

Sustainability practices are embedded in the organizational culture, with employees supporting waste reduction, energy conservation, and local sourcing. These practices align with employee values, indicating a genuine commitment to sustainability. However, organizations should integrate sustainability more into their core mission to enhance its centrality to their identity.

Green Human Resources Management (GHRM) practices are well-established in many organizations, with employees receiving training, participating in goal-setting, and having sustainability included in performance appraisals. These practices foster a culture of shared responsibility. However, the link between green behavior and rewards is weaker, suggesting that strengthening this connection could further motivate employees.

The restaurant sector demonstrates strong support for sustainability, with a focus on local sourcing, waste reduction, and water conservation. However, there is less emphasis on organic and plant-based foods, indicating an opportunity to educate employees and customers on the environmental benefits of these options. Customers are generally supportive of sustainability initiatives, but further efforts are needed to encourage broader engagement in pro-environmental behaviors.

Waste reduction is recognized as contributing to customer value by lowering costs and enhancing competitive pricing. However, while customers appreciate sustainability, they may not fully recognize the economic benefits, suggesting a need for better communication. Sustainability efforts positively influence customer loyalty, especially when customers identify with the restaurant's environmental values.

Despite efforts to reduce food waste, the reliance on unsustainable food supplies and meat-heavy dishes remains a challenge. While plant-based options are desired, respondents recognize that this alone may not fully address environmental concerns. The restaurant could benefit from integrating plant-based options with other sustainable practices to create a more comprehensive strategy.

Finally, the survey shows significant differences in sustainability responses based on organizational size, age, and years in operation. Larger organizations typically have more resources to implement comprehensive sustainability initiatives, leading to higher assessments of Organizational Citizenship Behavior for the Environment (OCBE). Smaller organizations face challenges due to limited resources. Additionally, generational differences show that younger employees are more engaged in sustainability efforts than older generations, suggesting that sustainability strategies should be tailored to the characteristics of different organizations and employee demographics.

Table 1. Demographic Profile of the Respondents

Profile Variables	Frequency	Percentage
Age		
Baby Boomers: Born between 1946 and 1964	10	2.7
Generation X: Born between 1965 and 1980	47	12.9
Millennials: Born between 1981 and 1996	147	40.3
Generation Z: Born between 1997 and 2012	161	44.1
Sex		
Male	144	39.5
Female	221	60.5
Educational Attainment		
High School Diploma	104	28.5
Junior High School	7	1.9
Senior High School	63	17.3
Vocational or Technical Training Certificate/Diploma	83	22.7
Bachelor's Degree	104	28.5
Post Graduate (Master's or Doctorate Degree)	4	1.1
Length of Service		
6 months - 11 months	140	38.4
1 - 5 years	163	44.7

6 - 10 years	42	11.5
11 years and above	20	5.5
Position		
Supervisor/Manager	49	13.4
Kitchen/Dining Staff	316	86.6

Table 2. Firmographic Profile of the Locally-owned Restaurant**4.**

Profile Variables	Frequency	Percentage
Number of years in operation		
5 - 9 years	264	72.3
10 - 14 years	55	15.1
15 years and above	46	12.6
Number of employees		
Less than 10 employees	208	57.0
10 - 20 employees	112	30.7
21 employees and above	45	12.3

Table 3. Difference of Responses on Organizational Citizenship Behavior on Environmental Sustainability When Grouped According to Profile

Profile Variables	U/H	p-value	Interpretation
Demographic Profile			
Age			
Organizational Citizenship Behavior for the Environment	4.025	0.259	Not Significant
Organizational Identification	2.554	0.466	Not Significant
Environmental Responsibility	6.277	0.099	Not Significant
Green Human Resources Management	0.072	0.995	Not Significant
Sex			
Organizational Citizenship Behavior for the Environment	14893.000	0.232	Not Significant
Organizational Identification	15506.000	0.672	Not Significant
Environmental Responsibility	15614.000	0.723	Not Significant
Green Human Resources Management	15873.000	0.964	Not Significant
Educational Attainment			
Organizational Citizenship Behavior for the Environment	6.812	0.235	Not Significant
Organizational Identification	9.713	0.084	Not Significant
Environmental Responsibility	2.087	0.837	Not Significant
Green Human Resources Management	4.298	0.507	Not Significant
Length of Service			
Organizational Citizenship Behavior for the Environment	3.111	0.375	Not Significant
Organizational Identification	5.219	0.156	Not Significant
Environmental Responsibility	0.657	0.883	Not Significant
Green Human Resources Management	1.084	0.781	Not Significant
Position			
Organizational Citizenship Behavior for the Environment	7571.500	0.774	Not Significant
Organizational Identification	6719.000	0.126	Not Significant
Environmental Responsibility	6938.500	0.170	Not Significant
Green Human Resources Management	7479.000	0.659	Not Significant
Firmographic Profile			

Number of years in operation			
Organizational Citizenship Behavior for the Environment	0.010	0.995	Not Significant
Organizational Identification	0.495	0.781	Not Significant
Environmental Responsibility	0.914	0.633	Not Significant
Green Human Resources Management	3.641	0.162	Not Significant
Number of employees			
Organizational Citizenship Behavior for the Environment	11.277	0.004	Significant
Organizational Identification	1.786	0.409	Not Significant
Environmental Responsibility	3.491	0.175	Not Significant
Green Human Resources Management	2.692	0.260	Not Significant

Significant at p-value<0.05

Table 4. Difference of Responses on Environmental Sustainability Practices When Grouped According to Profile

Profile Variables	U/H	p-value	Interpretation
Demographic Profile			
Age			
Food Sustainability Practices	1.474	0.688	Not Significant
Waste Reduction Practices	2.367	0.500	Not Significant
Hedonic Value on Waste Reduction	3.369	0.338	Not Significant
Utilitarian Value on Waste Reduction	0.978	0.807	Not Significant
Participation in Sustainable Practices	1.628	0.653	Not Significant
Loyalty to Sustainable Restaurants	8.614	0.035	Significant
Environmental Concern	11.285	0.010	Significant
Sex			
Food Sustainability Practices	15552.500	0.682	Not Significant
Waste Reduction Practices	15759.500	0.873	Not Significant
Hedonic Value on Waste Reduction	15436.000	0.563	Not Significant
Utilitarian Value on Waste Reduction	15649.500	0.753	Not Significant
Participation in Sustainable Practices	15742.500	0.844	Not Significant
Loyalty to Sustainable Restaurants	14469.000	0.081	Not Significant
Environmental Concern	14913.500	0.298	Not Significant
Educational Attainment			
Food Sustainability Practices	1.391	0.925	Not Significant
Waste Reduction Practices	3.148	0.677	Not Significant
Hedonic Value on Waste Reduction	6.218	0.286	Not Significant
Utilitarian Value on Waste Reduction	2.802	0.730	Not Significant
Participation in Sustainable Practices	3.781	0.581	Not Significant
Loyalty to Sustainable Restaurants	5.500	0.358	Not Significant
Environmental Concern	2.008	0.848	Not Significant
Length of Service			
Food Sustainability Practices	2.297	0.513	Not Significant
Waste Reduction Practices	0.545	0.909	Not Significant
Hedonic Value on Waste Reduction	1.630	0.653	Not Significant
Utilitarian Value on Waste Reduction	6.267	0.099	Not Significant
Participation in Sustainable Practices	3.296	0.348	Not Significant
Loyalty to Sustainable Restaurants	7.147	0.067	Not Significant
Environmental Concern	3.625	0.305	Not Significant
Position			

Food Sustainability Practices	6736.500	0.100	Not Significant
Waste Reduction Practices	7230.500	0.442	Not Significant
Hedonic Value on Waste Reduction	7272.000	0.413	Not Significant
Utilitarian Value on Waste Reduction	7599.000	0.806	Not Significant
Participation in Sustainable Practices	7532.000	0.726	Not Significant
Loyalty to Sustainable Restaurants	7598.000	0.803	Not Significant
Environmental Concern	7596.500	0.828	Not Significant
Firmographic Profile			
Number of years in operation			
Food Sustainability Practices	1.703	0.427	Not Significant
Waste Reduction Practices	4.810	0.090	Not Significant
Hedonic Value on Waste Reduction	6.346	0.042	Significant
Utilitarian Value on Waste Reduction	8.478	0.014	Significant
Participation in Sustainable Practices	6.040	0.049	Significant
Loyalty to Sustainable Restaurants	10.864	0.004	Significant
Environmental Concern	5.344	0.069	Not Significant
Number of employees			
Food Sustainability Practices	7.631	0.022	Significant
Waste Reduction Practices	4.295	0.117	Not Significant
Hedonic Value on Waste Reduction	2.851	0.240	Not Significant
Utilitarian Value on Waste Reduction	5.685	0.058	Not Significant
Participation in Sustainable Practices	5.675	0.059	Not Significant
Loyalty to Sustainable Restaurants	3.561	0.169	Not Significant
Environmental Concern	5.370	0.068	Not Significant

Significant at p-value<0.05

Table 5. Relationship Between Organizational Citizenship Behavior on the Environment Sustainability and Environmental Sustainability Practices

Variables	rho	p-value	Interpretation
Organizational Citizenship Behavior for the Environment			
Food Sustainability Practices	0.378**	<.001	Highly Significant
Waste Reduction Practices	0.392**	<.001	Highly Significant
Hedonic Value on Waste Reduction	0.388**	<.001	Highly Significant
Utilitarian Value on Waste Reduction	0.470**	<.001	Highly Significant
Participation in Sustainable Practices	0.416**	<.001	Highly Significant
Loyalty to Sustainable Restaurants	0.353**	<.001	Highly Significant
Environmental Concern	0.419**	<.001	Highly Significant
Organizational Identification			
Food Sustainability Practices	0.332**	<.001	Highly Significant
Waste Reduction Practices	0.468**	<.001	Highly Significant
Hedonic Value on Waste Reduction	0.508**	<.001	Highly Significant
Utilitarian Value on Waste Reduction	0.475**	<.001	Highly Significant
Participation in Sustainable Practices	0.434**	<.001	Highly Significant
Loyalty to Sustainable Restaurants	0.399**	<.001	Highly Significant
Environmental Concern	0.434**	<.001	Highly Significant
Environmental Responsibility			
Food Sustainability Practices	0.341**	<.001	Highly Significant
Waste Reduction Practices	0.446**	<.001	Highly Significant
Hedonic Value on Waste Reduction	0.472**	<.001	Highly Significant

Utilitarian Value on Waste Reduction	0.457**	<.001	Highly Significant
Participation in Sustainable Practices	0.378**	<.001	Highly Significant
Loyalty to Sustainable Restaurants	0.433**	<.001	Highly Significant
Environmental Concern	0.496**	<.001	Highly Significant
Green Human Resources Management			
Food Sustainability Practices	0.377**	<.001	Highly Significant
Waste Reduction Practices	0.383**	<.001	Highly Significant
Hedonic Value on Waste Reduction	0.383**	<.001	Highly Significant
Utilitarian Value on Waste Reduction	0.347**	<.001	Highly Significant
Participation in Sustainable Practices	0.401**	<.001	Highly Significant
Loyalty to Sustainable Restaurants	0.245**	<.001	Highly Significant
Environmental Concern	0.388**	<.001	Highly Significant

** . Correlation is significant at the 0.01 level

5. CONCLUSION

The study highlighted the significant role of restaurant employees' Organizational Citizenship Behavior (OCB) in promoting environmental sustainability in locally-owned restaurants in Batangas. Most respondents were young Generation Z employees, predominantly female, with high school or college education, working in kitchen and dining roles. These employees demonstrated strong environmental awareness and a sense of pride in their organizations, supported by training and performance evaluations focused on sustainability. The restaurants were mostly small to medium-sized and had been operating for 5 to 9 years, creating collaborative environments ideal for implementing green practices. Employees actively engaged in sustainable actions such as sourcing local food and minimizing waste through the use of durable items, which also enhanced customer satisfaction.

Larger restaurants showed higher OCB for the environment, while older establishments exhibited lower commitment to waste reduction. Younger generations were more eco-conscious compared to Generation X. Although the relationship between OCBE and sustainability practices was only moderately strong, it was still meaningful. To strengthen this connection, an action plan was proposed to improve employee engagement and commitment to sustainability. The study recommended integrating environmental practices into employee training, evaluations, and communication to achieve long-term sustainability goals.

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Research Article

Factors Influencing the Job Dedication and Psychological Identity among Employees in Shandong Xinjian Sporting Goods Company

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ABSTRACT

This paper takes Shandong Xinjian Sports Goods Co., Ltd. as the research object, and uses a questionnaire survey method to explore the influencing factors of employee job dedication and psychological identification and the relationship between the two. The study found that employees generally believe that cognitive, emotional and behavioral factors affect their level of job dedication; psychological identification significantly affects employee job dedication, and the higher the employee's identification with compensation management, leadership style and performance appraisal, the higher the job dedication; the difference in job dedication and psychological identification between employees with different characteristics is not significant; there is a significant positive correlation between employee job dedication and psychological identification; compensation identification, decision-making participation identification and performance system identification all significantly affect employee job dedication, with decision-making participation having the greatest impact. Based on the research results, this paper puts forward suggestions for optimizing the compensation and benefits system, improving the performance management mechanism, and strengthening employee participation in decision-making, in order to provide a useful reference for improving employee job dedication and promoting high-performance management in enterprises

Keywords: Organizational Citizenship Behavior, Environmental Sustainability, Sustainable Practices, Locally-owned Restaurants

1. INTRODUCTION

Driven by the global economy and trade, China's "One Belt, One Road" initiative, and the increasing attention from international events such as the Olympic Games, the sporting goods industry has experienced one of the fastest sustained growth in history from 2016 to 2022. According to the 2023 annual financial report of China's Ministry of Industry and Information Technology, the output of the sporting goods market shows that the industry's annual growth rate continued to fluctuate around 4.5% in the five years from 2018 to 2023 (China Economic Net, 2023). In such a competitive market environment, employees' job dedication and psychological identity are crucial to the company's sustainable development and success.

Shandong Xinjian Sporting Goods Co., Ltd., established in 2015, is a company specializing in selling high-quality sporting goods. The company has more than 500 employees and its products cover sportswear, sports shoes, fitness equipment and other categories. Since its establishment, the company has followed the trend of the times and quickly opened up regional sales routes in Shandong, Tianjin and Xinjiang, and achieved an annual sales capital turnover of 20 million yuan in 2022 (this information comes from a 2024 researcher's interview with the company's chairman interview). Amid the existing business trade war, companies have been focusing on improving employee productivity and satisfaction to stay ahead of market competition.

However, as the market environment continues to change and internal management challenges increase, companies find that enhancing employee participation and psychological identity has become an urgent task. A recent anonymous survey on the company's internal employee mental health assessment showed that about 30% of employees expressed dissatisfaction with the current working environment and management system, which directly affected their work performance and loyalty to the company.

The purpose of this study is to investigate the factors affecting job dedication and psychological identity of employees of Shandong Xinjian Sporting Goods Company, and to propose an effective management plan based on the findings. Through

quantitative research methods, using Likert scale questionnaires to collect data, this study will provide an in-depth analysis of the internal and external factors that influence employees' work attitudes and behaviors.

By exploring these issues, this study hopes to provide targeted management suggestions for newly established sporting goods companies in Shandong to promote active participation and recognition of employees, thereby improving the company's overall performance and competitiveness.

Literature Review

Psychological identification reflects employees' sense of belonging and identification with the organization. When employees have a strong psychological identification with the company, they are more inclined to show positive work attitudes, such as high loyalty, strong organizational commitment, and good teamwork (Wu, 2020). Psychological identity is also closely related to employees' job satisfaction and personal performance. Wu (2020) showed that employees with high psychological identity are more likely to be actively engaged in work and make greater contributions to company goals.

Cognitive Dedication

In exploring the cognitive dimension of employee engagement, we first need to understand the concept of "cognitive engagement". Cognitive engagement refers to the degree of an employee's understanding, knowledge, and awareness of his or her job, i.e., the employee's knowledge and understanding of his or her job role, responsibilities, goals, and the value of the job to the organization and the individual (Nie, 2018). This dimension is the basis of employee engagement and has a profound impact on employees' work attitudes and behaviors.

The level of cognitive dedication directly affects the degree of employees' job dedication. When employees have a clear understanding of their work and understand its role and importance in the organization, they are more likely to put more energy and enthusiasm into their work (Shi et al, 2023). On the contrary, if employees lack awareness of their work and are not clear about their responsibilities and goals, they may feel confused and unmotivated, which may affect the efficiency and quality of their work (Ding, 2018).

Perceived dedication is also related to employees' self-efficacy. Self-efficacy refers to an individual's confidence in his or her ability to accomplish a task. When employees have a deep understanding of their job and understand how to accomplish tasks effectively, their self-efficacy increases, resulting in more confidence to face challenges and difficulties at work (Zigarmi, Galloway, & Roberts, 2018). This positive mindset contributes to improved job performance and personal and organizational development.

Cognitive dedication is also related to the career development of employees. Understanding one's job and industry trends can help employees plan their career paths and look for opportunities to enhance their skills and knowledge for greater success in their careers (Ma, 2019). Employees' deeper understanding of their jobs also helps them better adapt to organizational changes and meet future challenges.

Increasing the perceived dedication of employees is not an easy task and it requires a concerted effort from both the organization and managers. Organizations should provide adequate training and learning resources to help employees gain a deeper understanding of their jobs and related fields (Liu, 2023). At the same time, managers should encourage employees to actively participate in work discussions and decision-making processes, so that employees can feel the contribution and value of their work to the organization, thus increasing their perceived engagement (Guo, 2021).

Cognitive engagement is an important part of employee engagement and has a significant impact on employees' work attitudes, behaviors, and career development. Improving employees' perceived dedication requires the joint efforts of organizations and managers to help employees gain a deeper understanding of their work by providing training resources, encouraging participation, and recognizing contributions, thereby stimulating their work enthusiasm and engagement (Chen, 2018).

Emotional dedication

Emotional engagement is one of the important dimensions of employee engagement, which focuses on employees' emotional engagement and enthusiasm for their work. Emotional engagement not only affects employees' work attitudes and behaviors but also has a significant impact on the overall atmosphere and performance of the organization (Zhang & Luo, 2013).

Emotional engagement is reflected in employees' love and satisfaction with their work. When employees are passionate about their work and believe that it is meaningful and brings a sense of accomplishment and satisfaction, their affective engagement increases (Huang, 2023). This positive affective attitude stimulates employees' creativity and initiative, making them more willing to invest their time and energy in accomplishing their work tasks, and to remain persistent and positive even in the face of difficulties and challenges (Kim & Beehr, 2021).

Emotional engagement is closely related to employee loyalty and sense of belonging. Employees' emotional engagement in their work enhances their loyalty to the organization and makes them more willing to contribute to the organization's goals and success. At the same time, employees with high affective engagement usually feel that they are important members of the

organization and have a strong sense of belonging, which contributes to the formation of a positive work atmosphere and promotes teamwork and synergy.

Emotional engagement is also related to employees' mental health and job satisfaction. When employees are enthusiastic and satisfied with their jobs, they usually have better mental health and lower levels of job stress and anxiety. This not only contributes to employees' personal development and well-being but also helps to reduce negative emotions and conflict in the workplace and improve productivity and teamwork (Chang, Rui, & Wu, 2021).

Improving employees' emotional engagement is not an easy task, and it requires a concerted effort from both the organization and managers. To increase employees' emotional engagement, organizations should create a positive, supportive, and respectful work environment where employees feel valued and recognized for their work (Cheng, 2019). Managers should pay attention to employees' emotional needs and expectations, provide appropriate incentives and rewards, encourage employees to express their thoughts and feelings, and establish open and trusting communication channels.

Emotional dedication is an important part of employee dedication and has a significant impact on employees' work attitude, behavior and the overall atmosphere of the organization. Improving employees' emotional dedication requires the joint efforts of organizations and managers to stimulate employees' enthusiasm and satisfaction by creating a positive work environment, paying attention to their emotional needs and providing appropriate incentives to improve overall work efficiency and performance (Zigarmi, 2018).

2. MATERIALS AND METHODS

This study uses quantitative research methodology with the aim of exploring the factors affecting the job dedication and psychological identity of employees in Shandong Xinjian Sporting Goods Company and proposing management strategies based on the findings. According to the topic adaptation of the research, this research will use quantitative research method.

According to the sample calculator, the sample calculation for this study used a 5% deviation value, 95% confidence level, and 50% population size value. Based on the number of 537 employees at the study site, the final sample size was calculated to be 225. Further controls were made on the gender ratio of the study participants, with 113 males and 112 females.

This company was chosen because it is one of the leading companies in the sports equipment sales industry in Shandong Province and agreed to cooperate with the researchers in conducting the study. The company needed an objective study conducted by a third party to predict and solve potential problems in the company's future development and internal employee problems.

3. RESULTS AND DISCUSSION

Based on the results, this paper puts forward suggestions for optimizing the compensation and benefits system, improving the performance management mechanism, and strengthening employee participation in decision making in order to provide a useful reference for improving employee job dedication and promoting high performance management enterprises.

The results suggest that the company has successfully cultivated a strong sense of pride and loyalty among employees. This is consistent with existing literature, where Nie (2018) and Guo (2021) noted the importance of cognitive engagement in driving employee performance. Unlike other studies that focus primarily on training and development, this research emphasizes the significance of emotional and cognitive identification with the organization. Employees' positive outlook and strong emotional connection to the company contribute significantly to their overall job dedication and performance. Insights from this cognitive engagement assessment suggest that maintaining a positive and supportive work environment is critical to sustaining employee loyalty and engagement. The company's ability to meet these needs plays a vital role in enhancing employee satisfaction and ensuring long-term success in a competitive marketplace. The strong consensus on pride and loyalty toward the company is a key strength for Shandong Xinjian Sporting Goods Company. By continuing to nurture this emotional connection, the company can ensure a highly engaged and dedicated workforce, contributing to its long-term growth and competitive advantage.

Table 2.2 Emotional dedication Assessment of Emotional dedication Mean Sd. I 47 I am proud to be a member of the company; I speak highly of the company I work for to others I am willing to tell people outside the company about the benefits of working here; I will not resign from the company easily. 4.467 1.009 Strongly agree 4.462 1.018 Strongly agree 4.467 0.977 Strongly agree 4.396 1.013 Strongly Overall averages and interpretation agree 4.448 Strongly agree.

The assessment of emotional dedication among Shandong Xinjian Sporting Goods Company employees shows a strong consensus on their positive emotional connection to the company. The mean score for the statement "I am proud to be a member of the company" is 4.467, with a standard deviation of 1.009, indicating that respondents strongly agree. Similarly, the statement "I speak highly of the company I work for to others" has a mean score of 4.462 and a standard deviation of 1.018, further reflecting strong agreement and pride in the company.

Assessment of Behavioral dedication Behavioral dedication Mean Sd. I I put a lot of energy into my work; When I work

there are very few distractions; When I am working, time always passes quickly; I often do more than is required of me; I am often tireless in my work; I don't leave work until the job is done. 4.480 0.987 Strongly agree 4.396 1.026 Strongly agree 4.516 0.982 Strongly agree 4.436 1.021 Strongly agree 4.422 0.993 Strongly agree 4.476 0.959 Strongly Overall averages and interpretation agree 4.454 Strongly agree.

By assessing the behavioral dedication of the employees of Shandong New Construction Sporting Goods Company, the researcher found that there was a strong consensus that the employees were highly engaged and committed to their work. The mean score for "I put a lot of effort into my work" was 4.480 with a standard deviation of 0.987, indicating that respondents strongly agreed with this view. Similarly, the mean score of 4.396 with a standard deviation of 1.026 for "When I work, I am seldom distracted" reflects that respondents are able to stay focused and minimize distractions at work. The mean score of 4.516 with a standard deviation of 0.982 for the statement "When I work, time always goes by quickly" indicates that employees are highly engaged in their work and experience a state of flow where time seems to go by quickly. This level of engagement is further confirmed by employees' strong agreement with the statement "I often do more than is asked of me," which had a mean score of 4.436 with a standard deviation of 1.021, indicating that employees are willing to go above and beyond in their work. The data also revealed high levels of agreement with the statements "I am often tireless in my work" and "I don't leave work until my work is done," with mean scores of 4.422 (with a standard deviation of 0.993) and 4.476 (with a standard deviation of 0.959), respectively. These responses highlight a strong work ethic and dedication to getting things done, even if it means putting in extra effort or time.

In conclusion, the data suggests that the employees of Shandong Xinjian Sporting Goods Co. have a strong level of behavioral dedication, reflecting a high level of commitment, dedication, and commitment to their work. This behavioral dedication is critical to driving individual and organizational performance, fostering a culture of excellence, and increasing overall productivity. The findings are consistent with the existing literature on behavioral engagement and underscore the importance of behavioral engagement in achieving sustained high performance and creating a positive work environment. The insights derived from the Behavioral Dedication assessment emphasize the value of maintaining and encouraging this dedication to support the long-term success and competitiveness of the company.

For compensation package identity indicate no significant difference in how their compensation package based on their working hours. This suggests that employees, regardless of their hours, generally view their compensation packages similarly. Literatures suggest that employees across working hours value fair and transparent compensation practices as they contribute to perceived equity and job satisfaction (Qi & Yang, 2019).

In the case of decision making interaction style identity implies that employees perception of how their supervisor involved them in decision making do not significantly vary with the working hours. Respect, compassion and inclusivity in decision making are appreciated equally by employees (Shao & Wang, 2022).

Job performance system identification showed further rejected the hypothesis. This indicates that employees satisfaction with the performance evaluation and feedback system is not significantly influenced by their working hours. Effective performance management system perceived as fair, transparent, and supportive are crucial for employee engagement and are valued across all working hours (Yu et Al, 2019).

The findings aligned with the broader literatures indicating that while working hours can influence certain aspects of work life balance and stress levels, they may not significantly differentiate perceptions of organizational practices related to compensation, decision making, and performance management. Organizational culture, leader's quality and transparency play more significant roles in shaping these perceptions (Zhao et Al, 2021).

4. CONCLUSION

The study of employee engagement and psychological identity in Shandong New Construction Sporting Goods Company yielded important findings that provide valuable insights into the factors that influence employee engagement and commitment. Data analysis revealed a strong positive correlation between aspects of psychological identity, such as pay package identity, decision-making interaction style identity, and work performance system identity, and the cognitive, affective, and behavioral dimensions of job dedication. Employees' perceptions of the fairness and transparency of their compensation package, their involvement in the decision-making process, and the supportiveness of their performance management system were found to significantly influence their job engagement. Notably, decision-making interaction style identity had the greatest impact on job engagement, highlighting the importance of inclusive and respectful decision-making practices in promoting employee engagement.

Interestingly, the study also found that factors such as salary, position, and Working hours did not have a significant impact on employees' assessment of job engagement and psychological identity. This finding suggests that the key drivers of

employee engagement lie in organizational practices and culture rather than individual employee characteristics. Based on these findings, this study proposes a comprehensive set of high-performance management programs to improve employee engagement and commitment. These programs include implementing a fair and transparent compensation system, fostering an inclusive decision-making culture, improving the performance management system, enhancing training and development, promoting work-life balance and physical and mental well-being, encouraging open and frequent communication, and building a positive organizational culture. Insights from this study emphasize the need for a holistic approach to employee engagement that addresses multiple aspects of psychological identity. By focusing on creating a supportive, inclusive, and transparent work environment, organizations can significantly increase employee engagement and drive overall organizational success.

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Research Article

Operationalization of the Local Culture and Arts Council (LCAC) in the Municipality of Guinobatan: An Assessment

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ABSTRACT

The study employed qualitative-descriptive method and made use of the Systems Theory of Organizations by Kantz and Khan anchored on Creative Economy Model of Economic Growth. The objective was to determine LGU Guinobatan's extent of compliance to DILGMC2017-133, titled Creation of Local Culture and Arts Council. Three-point Likert Scale was utilized to find out the compliance to the identified dimensions. Guinobatan is a first-class municipality in Albay, conveniently situated near growth areas: air and land accessible with progressing amenities and nature sights ideal for tourism cultural experience. LGU Guinobatan is moderately compliant to the composition of LCAC, accomplishments of programs and plans and members' relevant trainings. However, it posted fair compliance to the sustainability plan and involvement of grassroot communities. The study recommends to strengthen the functions of Guinobatan Culture and Arts Council through: Appreciation of geographic, historical, cultural and socio-economic town's asset, converting viable/sustainable tourism and cultural programs; Ordinance institutionalizing organizational structure, budget allocation for development conservation plans and programs; Demonstrate strong political will in creation and implementation of sustainability plan; Bottom-up approach in tourism and heritage planning/programming.

Keywords: Plans, Programs, Profile, Good governance, Extent of Compliance, Creative economy, Cultural heritage

1. INTRODUCTION

An assessment of the status of operations of the Local Culture and Arts Council (LCAC) in Guinobatan, Albay, the "birthplace of General Simeon Arboleda Ola, a revolutionary leader, hero of the Philippine Revolution and last general to surrender to the American forces in 1903", in compliance to the provisions and requirements of Memorandum Circular (MC) 2017-133 of the Department of the Interior and Local Government (DILG). The MC empowers Local Government Units (LGUs) to create and maintain a functional LCAC which shall oversee all initiatives, plans and programs on culture, arts and related fields. The MC's issuance is in line with the Philippine National Development Agenda and the Seal of Good Governance, and the Sustainable Development Agenda, which all recognize culture as an essential pillar in people-centered development.

The study objectives were: 1.) Present a profile of the Municipality of Guinobatan in terms of: Location, History, Demographics, Economic Status and Literacy Rate; 2.) Analyze the extent of compliance of the LGU – Guinobatan to MC 2017-133 in terms of: Composition of the LCAC, Plans and Programs, Extent of Accomplishment vis-à-vis its plans and programs and corresponding budget allocation, and Relevant Trainings and Work Experience of Members; 3.) Analyze what plans for sustainability of the LCAC and its programs are in place, including during times of calamities and pandemics; 4.) Determine the extent of involvement of grassroot communities including vulnerable sectors in the plans and program of the LCAC; 5.) Draw out and analyze the issues that hinder or facilitate the full implementation of the plans and programs of the LCAC in terms of: Organizational Structure, Legislative Support, Plans and Programs, Strategic Allocation of Resources, Resource Inventory and Management, Artistic Development and Support to Artists and Cultural Workers, Promotion and Marketing, Audience Development, Involvement of Stakeholders and the Grassroot, and Others; and 6.) Propose possible strategies and interventions that may be adapted to assist the LCAC in the implementation of its plans and programs.

2. MATERIALS AND METHODS

The study made use of the qualitative-descriptive method of inquiry into the set-up and compliance of the Guinobatan Culture and Arts Council (GCAC) of the LGU of Guinobatan. Literature and documents such as plans and programs, legislative issuances, organizational chart and profile of council members were investigated and analyzed. To find out the relevant trainings and work experience of members, a questionnaire was developed and distributed. A SWOT template was used to elicit insights and information on the factors which impact on and affect the different dimensions and areas of the overall plans and program from among members of the GCAC. A three-point likert scale was used to find out the level of compliance of the GCAC along these identified dimensions, with 3 being highly compliant, 2 - moderately compliant, and 1- compliant. Prior to the conduct of the actual study, in addition, unstructured interview was conducted to ferret out more information that would help answer the study objectives. The researcher tapped the endorsement of the Department of Interior and Local Government or DILG-Albay Province to ensure full cooperation of the respondent LGU. Proper coordination with the Office of the Mayor and the LCAC was likewise done.

3. RESULTS AND DISCUSSION

The general objective of the study was to determine the status of the operations of the GCAC by looking into its compliance to the requirements of the MC 2017-133. Specifically, it aimed to accomplish the following objectives: 1.) Present a profile of the Municipality of Guinobatan in Albay in terms of: a. Location, b. History, c. Demographics, d. Economic Status, and e. Literacy Rate; 2.) Analyze the extent of LGU-Guinobatan to MC 2017-133 in terms of: a. Composition of the LCAC, b. Plans and Programs, c.) Extent of Accomplishment vis-à-vis the plans and programs and corresponding budget, d.) Relevant Trainings and Work Experience of Members; 3.) Analyze what plan for sustainability of the LCAC and its programs are in place, including during times of calamities/pandemics.; 4.) Determine the extent of involvement of grass root communities including vulnerable sectors in the plans and programs of the LCAC.; 5.) Draw out and analyze the issues that hinder or facilitate the full implementation of the plans and programs of the LCAC in terms of: a.) Organizational Structure, b.) Legislative Support, c.) Plans and Programs, d.) Strategic Allocation of Resources, e.) Resource Inventory and Management, f.) Artistic Development and Support to Artist and Cultural Workers, g.) Promotion and Marketing, h.) Audience Development, i) Involvement of Stakeholders and the Grassroot, and j.) Others.; and 6.) Propose possible strategies and interventions that may be adapted to assist the LCAC in the implementation of its plans and programs.

Profile of LGU-Guinobatan. Location. The Municipality of Guinobatan in Albay Province is approximately 17 kilometers from the City of Legazpi, and is 510 kilometers from Metro Manila, the capital of the Philippines. It is clustered in the third congressional district of the province. Geographically the town is bordered by a number of municipalities: Camalig on the east, Jovellar on the South, Pio Duran on the south-west, and Ligao on the north-west. On the north-east, the town shares with Malilipot, Santo Domingo, Daraga, Tabaco and Legazpi, a common point in the crater of Mayon Volcano. It has 6 partly urban barangays and 38 rural barangays.

History. The Franciscans considered Guinobatan as a barrio or Visita of Camalig. But from 1672 to 1678 when the Christianity gained foothold in the place, it was subsequently recognized as a permanent Visita (settlement) and designated as Christianity's outpost and is known as, "birthplace of General Simeon Arboleda Ola"

Demographics. Based on the population census of 2020, Guinobatan has over 85,000 residents. The population density was 350 inhabitants per square kilometre (910/sq mi).

Economic Status. Guinobatan is 1st Municipal Income class with 25.61% Poverty Incidence (2018) with a Revenue of Php 273.4 million pesos (2020).

Literacy Rate. Census as of 2015 registered 99.24% Literacy Rate for 10 years old and over.

Extent of Compliance of the LGU-Guinobatan to the requirements of the MC 2017-133

Composition of the LCAC. LGU Guinobatan has its annual plans and programs related to tourism, culture, creative industries, and the development, promotion and marketing and protection of the cultural assets of the town. However, no created ordinance, and only a resolution was the basis, though already expired, but there was the existence of a loosely organized culture and arts Council. There are 18 Members of the Local Culture and Arts Council comprised of the mandatory members such as the Local Chief Executive, the Tourism/Cultural Officer, the Local Planning and Development Officer and Budget Officer, and the Chair of the Legislative Committee on Culture and the Arts, and the 13 sectoral representatives.

Plans and Programs. The office conducts quarterly meeting to thresh out matters important to its programs and functions. In terms of organizational composition, the office was found to be moderately compliant to the requirements of MC 2017-133. Likewise, on the basis of its plans and programs, Guinobatan was found to be moderately compliant despite the existence of a resolution only, in order to continue with the planned programs. No cultural development plan was initiated because of the high turnover of personnel due to change in the administration.

Extent of Accomplishment of the LCAC vis-à-vis its plans and programs and corresponding Budget Allocation. Guinobatan has achieved a moderate degree of accomplishment, that at least 50% of the targets, are accomplished with the corresponding budget allocation.

Table 1
LGU GUINOBATAN'S
 Budget Allocation and Utilization for the Conduct of Arts and Cultural Programs from 2015 – 2021

Year	Budget Allocation	Budget Utilization	Remarks
2015	Php 7,455,400.00	Php 7,088,259.08	Budget not fully utilized
2016	6,449,991.73	6,225,429.86	Budget not fully utilized
2017	8,845,286.00	7,550,907.06	Budget not fully utilized
2018	5,980,000.00	5,798,529.37	Budget not fully utilized
2019	5,498,000.00	5,326,789.36	Budget not fully utilized
2020	350,000.00	225,080.00	Budget not fully utilized
2021	640,000.00	360,845.00	Budget not fully utilized

It can be gleaned based from the data supplied by the Budget Office and the Accounting Office, the budget intended for the conduct of Arts and Cultural Programs from 2015-2021 were not fully utilized. The reason behind as explained by the designated head, has other functions to deal with, considering the high turn-over of assigned personnel in GCAC because they are on coterminous appointment. At the invasion of the Covid-19 Pandemic (2020-2021), the funds for culture and arts were not scrap off, but was lowered compared to the non-Pandemic years, and yet was not fully utilized. The unutilized budget for culture and arts programs and some other funds of the LGU has been realigned to other projects and health needs caused by the COVID-19, thru a Resolution.

Relevant Trainings and Work Experience of Members. The designated head of the Guinobatan Culture and Arts Council has the relevant work experience, education and trainings to enable him to function effectively in his position, however he has other functions like PESO Manager and Youth Development Officer. Other members of the council have their own expertise and work experiences to the council, but are still needing more advance trainings in cultural and heritage works - in particular, trainings on utilization of the cultural resource inventory, and festival management and development, creative industry development, audience development for more culturally-nuanced activities and projects.

As part of the strategy for the fulfillment of the plan, the LGU had resorted to outsourcing funds for the implementation of identified projects and activities such as infrastructure support. However, the two-year COVID Lockdown and the occurrence of natural calamities had forced the LGU to deviate needed funds to other pressing concerns. Despite these, the GCAC has on-going projects like cultural mapping, and the Tourism Office is on for the identification of possible areas for cultural tourism destination/development.

Plans For Sustainability, including during times of Pandemics and Calamities

There is no Sustainability Plan identified or crafted. The invasion of the pandemic made it more difficult to continue with the plan of identifying possible areas for cultural tourism destination/development.

Extent of Involvement of Grassroot and Vulnerable Sectors in the Plans and Programs of the GCAC

There was no clear indication that there was a bottom-up approach to planning and programming by the GCAC. The grassroot communities are engaged in the conduct of the activities but do not necessarily have a direct or indirect input into the process of crafting the tourism and cultural program of the municipality. Their level of involvement is limited to the occasional festivities. Involvement of vulnerable sectors were also not factored into the plans and programs hence, is fairly compliant.

Issues that Hindered /facilitated the full implementation of the plans and Programs of the GCAC in terms of:

1.Organizational Structure. There is the presence of a semblance of Culture and Arts Council, however it is a loosely organized council due to expired resolution. No Municipal Ordinance has been passed by the Sangguniang Bayan to institutionalize the existence of the Local Culture and Arts Council. A number of members are new due to the high turnover of employees because of the change in Administration. However, these new members with fresh perspectives can be a very viable opportunity for the formal organization of the LCAC.

2. Legislative Support. The present administration of the LGU-Guinobatan has the awareness of the need for a strong legislative support, considering that the resolution for the culture and arts programs has already been expired. It seems that there is a continuing disregard for local artists. An ordinance is timely needed to give due recognition to local artists.

3.Plans and Programs. The Plans and Programs centered on discovering sites for tourism destination. While there is a plan crafted for the entire municipality, there is no clear indication of the participation of the barangay in the formulation of the plan. At the barangay level, there is no separate budget allocated for the culture and arts program. The funds allocated in the municipal level are not adequate. Whatever funds are available are usually diverted to other projects deemed more important. Ordinance clearly delineating funds for cultural programs needs to be enacted, so as to compel the grassroot communities to develop their own distinct heritage programs and projects, creation of livelihood and job opportunities, and preservation of sites by designated government agencies.

4. Strategic Allocation of Resources. LGU-Guinobatan has identified key priority areas for funding. These are: 1.) Improvement of Access, Connectivity and Support Infrastructure, 2.) Improvement of Tourism Products and Services Standards, and 3.) Improvement of Tourism Institutional Governance. In the first area, funding for construction of access road circuits

important to tourism were outsourced. Frontline service providers were provided trainings and orientations under the second area. In the third area, the tourism office designated has other two major functions, being the PESO Manager and Youth Development Officer. The plan has not been fully implemented yet because of the change in administration with new visions and programs. Other priority areas like intensive trainings for rescuers, construction of a community college, and construction of typhoon-proof museum and cultural center are yet to be addressed.

5. Resource Inventory and Management. Guinobatan has a cultural inventory submitted to the NCCA. There was a donation of artifacts to museum not covered by deed of donation encouraging donors to take them back and loss of artifacts. In this aspect, the trust of donors is compromised. The process of proper documentation and donation is necessary and the utilization of cultural heritage for various uses would be helpful.

6. Artistic Development and Support to Artists/Cultural Workers. There is the presence of cultural artists and workers and the availability of on-call artists yet no organized group was identified. Due to no funds provided and no recognition/accreditation is instituted, these artists have no opportunities for their artistic growth hence they resorted to work elsewhere. There is the potential of organizing cultural and artistic groups through the LCAC backed up by the ordinance.

7. Promotion and Marketing. The presence of modern multi-media and social media platforms is one of the essential tools in promotion and marketing of what Guinobatan has to offer, as reflected in their website and Facebook Page. However, the Culture and Arts programs are not backed-up by research and public consultation in planning and development, so it tends to be coterminous with the Local Chief Executive. Aside from that, no sustainability and maturation of culture and arts programs/festivals and has no distinct brand has been identified. The LGU Guinobatan is working on institutionalizing the brand identity by engaging in research, consultation and in planning and development.

8. Audience Development. Audiences are mostly from education and government sectors and there is limited participation of other sectors and stakeholders. The creation of Culture and Arts Programs and activities to cater to other sectors are not fully explored. The opportunities identified are: Profiling of audience thru LCAC and Barangay Culture and Arts Council; Livelihood and tourism opportunities out of disaster may increase the participation of the community and can lead to creating a sense of ownership, belonging and pride of the place.

9. Involvement and Participation of Stakeholders and Grassroot. No specific budget identified for culture and arts programs and activities. The grassroot was neither involve and did not participate in the planning and programming of activities for culture and arts. Sidelining of culture and arts programs and activities and earmarking of funds to non- Culture and Arts activities. Alignment and allocation of budget should be covered by legislative measures in order to safeguard the funds intended for culture and arts.

Possible Strategies and Interventions may be adapted to assist the GCAC in Implementation of its plans and programs.

In coordination with the National Commission for Culture and the Arts and established LCACs, DILG, DOT, TESDA, CHED, DepEd, KWF, and academic institutions like Bicol University, the following strategies may be adapted to assist the GCAC in the implementation of its plans and programs; Conduct of Trainings and Workshops on the identified related Trainings that need to be acquired by the cultural workers specially prospective members of GCAC, culture based planning and development, legislative action, entire community mobilization, conduct of inventory of cultural resources through cultural mapping, utilization of cultural resources and strengthening the organizational structure. The LGU Guinobatan has expressed verbally the intent to be the recipient of Extension Work provided by Bicol University.

4. CONCLUSION

1. The Municipality of Guinobatan represented by the LGU-Guinobatan is conveniently situated in Albay, being near growth areas like Ligao City, Camalig, Pio Duran and Jovellar; accessible by land, and air, with progressing amenities and interesting nature sights ideal for tourism and cultural experience. In terms of location, socio-economic status, history and culture, it has what it takes to become a first-class tourist destination.

2. The LGU-Guinobatan has moderately complied with the requirements of the MC2017-133 in terms of composition of its culture and arts council. The LGU posted a moderate compliance when it comes to the accomplishments vis-à-vis its plans, due to the pandemic and occurrence of natural calamities. It was also moderately compliant in terms of the relevant trainings of members.

3. LGU-Guinobatan has no Sustainability Plan identified or crafted and the invasion of the pandemic made it more difficult to continue with the plan of identifying possible areas for cultural tourism destination/development.

4. The crafting of the plans and programs for tourism and cultural heritage of LGU-Guinobatan did not indicate a bottom-up approach involving grassroot communities and the vulnerable sectors. The participation of these sectors in the planning and programming for tourism and heritage is not considered.

5. Factors which facilitated the operations of the GCAC were: Presence of a semblance of Culture and Arts Council though loosely organized council due to expired resolution, effective use of modern means of communication and social media to market and promote the tourism and cultural program of Guinobatan, proposed linkage with culture agencies. Factors which posed hindrance to the operations of the GCAC were inadequate funding due to diversion of funds for other projects and activities deemed more urgent and essential especially during times of pandemics and calamities; lack of compensation and continuing education and training program for cultural workers and artists, high turnover of employees due to change in administration, absence of indication of a bottom-up approach to planning and programming to include inputs from the grassroot and vulnerable

sectors, and the lack of strategies for developing alternative markets and audiences for its tourism and heritage programs.

6. There is an immediate need for the institutionalizing the creation of a training and education program for the GCAC and other stakeholders on areas such as: cultural resource inventory utilization, culture-based governance, sustainable festival management for cultural workers and artists, audience development, development and management of interactive museum, development and management of arts and culture-based industries.

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Research Article

Non-Pharmacological Interventions for Middle-Aged People with Chronic Non-Specific Low Back Pain: A Systematic Review

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ABSTRACT

Non-pharmacological therapies have greater emphasis and consideration of management of chronic non-specific LBP (CNLBP) because of its safety and effectiveness without significant side effects. However, there are few studies on CLBP in the middle-aged, and the intervention effect is controversial. Objective: This review aimed to evaluate the effects of non-pharmacological therapies for management of CNLBP in the middle-aged people. Methods: Five databases namely Science Direct, Google Scholar, Pubmed, Wiley, and ProQuest Central were searched for qualitative studies published from January 2018 to December 31, 2023. The publication languages were English. Randomized controlled trials (RCTs) of non-pharmacological intervention in the middle-aged people (mean age 40-60) with CNLBP were included. Two reviewers independently extracted the data and evaluated them using the Revised Cochrane Risk of Bias Tool for Randomized Trials 2 (RoB2). The pooled effect sizes on different aspects of outcome measures were calculated. Results: Nineteen articles (19 RCTs) were included, comprising a total of 1895 participants. The quality of included studies was relatively high. The review showed that the most common outcome measurements used were pain intensity, disability, and quality of life. The most investigated interventions were from the group of exercise programs, others were multimodal intervention, manual therapy and acupuncture. Conclusion: Non-pharmacological interventions for low back pain were associated with lower pain intensity, improvement disability and better quality of life. Studies highlighted the effectiveness of exercise therapy and multimodal intervention, but there was a high heterogeneity across the studies. Hence, more high quality researches are needed in future to identify the most effective combination of multidisciplinary treatments for non-specific CLBP.

Keywords: Middle-aged people, non-specific CLBP, non-pharmacologic, systematic review, randomized control trial

1. INTRODUCTION

Low back pain (LBP) is one of the most common health problem worldwide, affecting up to 84% of adults at some point throughout their lifetime (Violante et al., 2015). In 2020, LBP affected 619 million people globally, and it is estimated that the number of cases will increase to 843 million cases by 2050 (Global Burden of Disease, 2023). In Vietnam, a study reported that back pain was the second common positions of pain, with 27.75% of the respondents (Chuong et al., 2019). LBP is known to be at high risk of becoming chronic with global prevalence of almost 20% of people with acute LBP develop chronicity (National Institutes of Health, 2020). The prevalence of LBP gradual increase with age, with the highest number of LBP cases occurs at the age of 40–50 years, and then progressively declining. Generally, the age between 35 and 64 years occupied approximately 50% of all LBP cases and disability-adjusted life years (DALYs) (Mattiuzzi et al., 2020).

Chronic LBP (CLBP) leads to increases in disability, which associated with poorer physical function, more limitations in performing major life tasks and social activities as well as more work-place absenteeism (Ge et al., 2022; Grabovac & Dorner, 2019). Consequently, it places a serious financial burden both in the family and society (Urits et al., 2019), with the national cost estimates of CLBP ranged from \$259 million to \$71.6 billion per year (Zemedikun et al., 2021). In addition to its physical effects, CLBP has a considerable psychological impact with an increased prevalence of depression, anxiety, insomnia and sleep disturbances on patients with CLBP (Singhal et al., 2021; Wang et al., 2023).

LBP can be classified as specific or non-specific. Specific LBP is caused by a certain disease or structural problem in the spine, or when the pain radiates from another part of the body, while non-specific LBP is defined as a condition when the pathoanatomical source cannot be identified. Non-specific LBP is the most common presentation of LBP, up to 90% of cases

(Maher et al., 2017). Because there is no precise pathoanatomical cause, management of non-specific LBP focuses on reducing pain and its consequences. There are different approaches recommended for people with chronic non-specific LBP, involving pharmacological therapy and non-pharmacological therapy (Nicol et al., 2023). However, most international guidelines do not advise opioids for chronic low back pain, because this approach provides small effect on pain and function (Maher et al., 2017). Furthermore, using nonsteroidal anti-inflammatory drugs (NSAIDs) and opioids long term can cause significant risks and side effects, including addiction, tolerance, dependence, gastrointestinal bleeding and renal dysfunction (Alorfi, 2023).

By contrast, non-pharmacological therapies including exercise therapy, physical activity, physiotherapy and education have greater emphasis and consideration of management of chronic non-specific LBP (CNLBP) because of its safety and effectiveness without significant side effects (Nicol et al., 2023; Qaseem et al., 2017). Nevertheless, limited evidence is available about the effectiveness of commonly recommended treatments for middle-aged population. Due to few existing studies and uncertainty regarding its effects, interventions in CLBP of the middle-aged patients are not clear. Based on the above considerations, in this study, we aimed to evaluate the effects of non-pharmacological therapies for management of CNLBP in the middle-aged people. This review is expected to provide a better evidence-based basis for decision-makers involved in CNLBP treatment.

2. MATERIALS AND METHODS

The systematic review was developed following the standard protocol outlined in the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA)

Search strategy. Studies were identified by searching multiple data-bases, including Science Direct, Google Scholar, Pubmed, Wiley, and ProQuest Central. The retrieval period was from January 2018 to 31st December 2023, and the languages was English. Search themes included the following keywords: “chronic” “persistent” “low back pain” “lumbago” “Low Backaches” “CLBP” and “non-pharmacological therapy” or “non-invasive” or “physical therapy” or “mind-body therapy” or “exercise therapy” or “physical therapy” or “psychological therapy” or “cognitive-behavioral therapy” or “multidisciplinary rehabilitation” or “acupuncture” or “meditation” or “music therapy” or “massage” or “relaxation techniques” or “manipulation” and “middle” or “middle aged” and “randomized control trial”.

Eligibility criteria. Study inclusion criteria: The inclusion criteria of this study adhered to the "PICOS" principle. The specific inclusion criteria were as follows: (1) Participants: All middle-aged people (mean age 40-60), diagnosed with non-specific CLBP (≥ 3 months); (2) Interventions: the intervention measures included non-pharmacological management; (3) Comparison: Clinical trials comparing non-pharmacological management with no intervention (waiting-list, unaltered lifestyle, control), placebo/sham intervention, usual care or other interventions; (4) Outcomes: all outcomes used for non-specific CLBP. The outcomes were group in long-term (≥ 1 year) or short-term (≤ 6 months); (5) Study type: randomised control trials (RCTs), the article language was limited to English.

Study exclusion criteria: Exclusion criteria were as follows: (1) studies with a mean age of patients < 40 or > 60 years; (2) articles reporting pilot, feasibility or preliminary studies; (3) participants with suspected or confirmed specific spinal conditions (i.e., fracture, cancer, inflammatory or infectious diseases of the spine, cauda equina syndrome/widespread neurological disorder, radiculopathy) were excluded.

Data extraction. Data extraction was performed independently by two co-authors. Data were extracted on: (1) information of the study, including first author name, year of publication, and nationality; (2) information about included subjects: sex, number, and mean age of subjects in the experimental and control groups; (3) content of intervention and control group, follow-up; (4) outcome indexes and outcome measurements (5) results of the studies.

Risk of bias. The potential bias was estimated independently by two co-authors using Revised Cochrane Collaboration Risk of Bias Tool for Randomized Trials (RoB2). The quality of included RCT studies was structured into five domains, each domain was classified into three levels, including low risk, some concerns, or high risk. If there were any disagreements between the reviewers, it was resolved through discussion and consensus.

Data synthesis and analysis. Data was extracted to identify the outcomes and examine the effect of non-pharmacological therapies on chronic non-specific LBP. Each study was analyzed independently in their domains by the reviewers, and then the research team discussed to aggregate consistent findings. Summary tables were created to organize these findings.

3. RESULTS AND DISCUSSION

Study selection

A total of 2493 articles were identified by searching five databases, and 2315 papers were remained after duplicates removed. After screening the title and abstract based on the eligibility criteria, 2187 articles were excluded. Therefore, 128 full-text articles were assessed, and 109 were excluded for the following reasons: age not meeting the inclusion criteria, wrong setting, lack of relevant outcomes, and non-RCTs. Finally, 19 articles were included for systematic review. The selection process of the studies was showed in a flow-chart diagram based on to the PRISMA protocol (Fig.1).

Fig. 1 The PRISMA flowchart for included RCTs

Characteristics of included studies

The characteristics of the included studies is shown in the Table 1. A total of 19 articles were selected for this systematic review. Studies were published between 2019 and 2022. Based on the data of the included studies, a total of 1895 participants were treated for CLBP. Sample sizes of the trials ranged from 20 to 274 participants. Eighteen trials reported the sex of the participants (1158 out of 1810 participants were female, occupied 63.98%). One trial involved only male participants (Khodadad et al., 2020), and one article included only female (Ansari et al., 2021). The mean age of participants at the time of treatment ranged between 40.63 (In et al., 2021) and 57.9 (Ansari et al., 2021). Most of studies were conducted in European countries (9 studies), other studies were reported in Iran (4 studies), Korea (4 studies) and Brazil (2 studies).

Outcomes. Among the 19 included studies, the most common outcome measurements used were pain intensity (18 studies), disability (18 studies), and quality of life or life satisfaction (8 studies). This finding was consistent with the core outcome set for non-specific LBP by Chiarotto (Chiarotto et al., 2015). Pain intensity was measured using the Visual Analogue Scale (VAS) (11 studies), Pain Numerical Rating Scale (PNRS) (6 studies) or Short Form McGill Pain Questionnaire (SF-MPQ) (1 study). LBP disability was evaluated using the Roland Morris Disability Questionnaire (RMDQ) (9 studies), Oswestry Disability Index (ODI) (8 studies) or Quebec Back Pain Disability Scale (QBPDS) (1 study). The outcome measures used to evaluate quality of life or life satisfaction included the 36-Item Short Form Health Survey (SF-36) (2 studies), 12-Item Short Form Survey (SF-12) (3 studies), European quality of life 5dimension (EQ-5D) (2 studies), and Patient Satisfaction Questionnaire (PSQ) (1 study). Among 19 studies, only two studies reported long term outcomes which were important in monitoring chronic conditions.

Risk of bias in included studies. A total of 6 papers mentioned that the overall assessment was carried out at "high risk;" 8 had "some concerns," and 5 were at "low risk". In the included literature, 18 were assessed as having low risk in the randomization process, while 1 showed some concerns. For deviations from intended interventions, 8 had some concerns and 11 were rated as low risk. In terms of missing outcome data, 13 had low risk, 1 was at some concerns and 5 studies were classified as high risk. For the measurement of the outcome, 11 were at low risk, 7 were rated as some concerns and 1 showed high risk. The selection of the reported result showed that 16 studies had low risk, while 3 were some concerns.

Table 1. Characteristics of the included studies

Study	Country	No of participant s, Mean Age	Interventions	Control	Outcomes	Instruments	Main Results
Dadark hah et al. 2020	Iran	n = 56 M = 24, F = 32 Mean age ($\pm$ SD): 49 $\pm$ 8.9	Remote exercise: core stability exercises lasting 45 min at home twice/day x 4 weeks, followed by telephone calls, 3 months follow-up	In-person exercise: at the clinic, three times a week x 4 weeks	Intensity of the low back pain; Disability	10 cm VAS; Persian version of the ODI	Pain, disability decreased in 2 groups. No statistically significant differences between 2 groups in VAS and ODI
Michals en et al., 2021	Germany	n = 274 M = 87, F = 187 Mean age ($\pm$ SD): 54. 6 $\pm$ 11.3	Yoga, Eurythmy therapy and Physiotherapeutic exercises: 75-min x once/week x 8 weeks, 16 weeks follow-up.	No control group	Physical disability; Pain intensity and pain-related bothersomen ess; Health- related QoL; Life satisfaction	RMDQ; 10 cm VAS; SF-12 physical score; BMLSS	Disability, pain intensity and pain-related bothersomeness decreased, while quality of life increased in all 3 groups. No significant differences between the three groups
Godfre y et al., 2019	UK	n = 248 M = 101, F = 147 Mean age ($\pm$ SD): 47.9 ($\pm$ 14.3)	PACT: 60 min face to-face x 2 weeks apart + 20 minutes telephone call 1 month later, 3 and/or 12 months of follow-up	Usual care physical therapy (UC)	Disability; Depression; Anxiety; Functioning; Life satisfaction; Pain severity	RMDQ; PHQ - 9; GAD-7; PSFS and WSAS; SF 12 physical health; PNRS	PACT participants reported better outcome for disability, functioning, SF12 physical health at 3 months, but not 12 months. No group differences for pain, mood at 3 and 12 months

Study	Country	No of participants, Mean Age	Interventions	Control	Outcomes	Instruments	Main Results
Rabiei et al., 2021	Iran	n = 73 M = 34, F = 39 Mean age (±SD): G1 = 42.46±9.7, G2 = 44.19±8.79	PNE + MCE: 3 PNE sessions + 2 MCE sessions/ week x 8 weeks GE: strengthening exercises, twice/ week x 8 weeks	No control group	Pain intensity; Disability; Fear-avoidance beliefs; Self-Efficacy	10 cm VAS; RMDQ; FABQ; Persian version of PSEQ	Both groups showed significant improvements in all the outcome measures. The PNE plus MCE group showed greater improvements in VAS and RMDQ compared to the GE group.
Khodadad et al., 2019	Iran	n = 52 All male Mean age (±SD): 44.3 ± 2.46 years	CFT: 60 min x 3 days/week x 8 weeks LST: 60 min x 3 days/week x 8 weeks	Traditional physical therapy	Pain intensity; LMC	10 cm VAS; Luomajoki LMC battery tests	Both CFT and LST groups reduced VAS. There was no difference between the 2 groups
Kim et al., 2020	Korea	n = 66 M = 34, F = 32 Mean age (±SD): 47.72	Stretch group: CSE 30 min, 3times/ week x 6 weeks + hip muscle stretching exercises 15 min Strengthen group: CSE 30 min, 3times/ week x 6 weeks + hip muscle strengthening exercises for 15 min	Sham group : CSE 30 min, 3times/ week x 6 weeks + sham treatment for 15 min	Pain intensity; Lower back instability; Hip muscle flexibility; Disability; Balance ability; Quality of life	10 cm VAS; The passive straight leg raising test; The toe-touch test; ODI; The one-leg standing test; The SF-36	There were significant within-group changes for all measurements The Stretch and Strengthen groups had greater improvements in VAS, ODI, and SF-36 than the Sham group.
Ansari et al., 2020	Iran	n = 20 All female Mean age (±SD): 57.90 ± 4.44 years	Aquatic exercise: 3 sessions/ week x 8 weeks	No intervention	Functional disability; Flexibility	Quebec Back Pain Disability Scale (QBPDS); The sit and reach test	QBPDS of participants in the experimental group significantly improved compared to the control group
de Oliveira Meirelles et al., 2020	Brazil	n = 38 M: 10, F: 28 Mean age (±SD): 48 ± 10 years	OMTG: osteopathic manipulation treatment 1 sessions/ week x 5 weeks	ACG: 2 sessions per week x 5 weeks of active control therapeutic exercises	Pain; Disability; Kinesiophobia; Depression	10 cm VAS; ODI; Tampa Scale of Kinesiophobia; Beck Depression Inventory	The treatments were effective in both groups OMTG was significantly lower than that of the ACG
Hrkać et al., 2022	Croatia	M = 66, F = 114, Mean age (±SD): 49.3 (± 11.7)	Integrative-behavioral therapy + group-based combined ET and education Enriched group-based combined ET and education, 60 min x 2 sessions/ week x 4 weeks, 3 and 6 months follow-up	Control group	Pain intensity; Functional Disability; Quality of life; Fear of pain and activity	10 cm VAS; RMDQ; SF 12; FABQ	Enriched group showed a statistically significantly better effect in VAS, RMDQ, and SF 12 compared to SET and the control group at 3 and 6 months of follow-up,
O'Keefe et al., 2020	Ireland	n = 206 M = 54, F = 152 Mean age (±SD): 48.7 (± 14.1)	CFT: varied, mean=5 treatments Group-based exercise and education: 6 classes, mean=4 classes, over 6–8 weeks, 6 and 12 months follow-up	No control group	Functional disability; Pain intensity; Fear-avoidance; Coping; Pain self-efficacy; Number of pain sites; Risk of chronicity;	ODI; PNRS; FABQ; Coping strategies questionnaire; PSEQ; Nordic musculoskeletal questionnaire; 10-item short form Orebro musculoskeletal; Subjective health complaints	CFT reduced disability, more than the group-based intervention, but not pain, at 6 and 12 months

Study	Country	No of participant s, Mean Age	Interventions	Control	Outcomes	Instruments	Main Results
					Sleep, depression and anxiety; Stress, Satisfaction	inventory; 7- item stress subscale of the depression, anxiety and stress scale; PSQ	
Verbrugghe et al., 2019	BELGIUM	n = 38 M = 12, F = 36 Mean age (±SD): 44.1 (±9.8).	High-intensity training (HIT): exercise therapy program twice sessions/ week x 12-week	Moderate-intensity training (MIT)	Disability; Pain severity; Function; Exercise capacity; Abdominal/ back muscle strength	Modified OD; PNRs; Patient Specific Functioning Scale; Cardiopulmonary exercise test; Maximum isometric muscle strength test	HIT shows greater improvements on disability and exercise capacity than MIT.
Calatayud, et al., 2020	Spain	n = 85 Mean age (±SD): Intervention: 52 ± 11 years Control group: 50 ± 12 years	Group-based progressive strength training program: 3 days/ week x 8 weeks	Back School program: core strengthening exercise 2 times/week x 3 weeks in group + daily x 5 weeks at home	Pain exacerbation episode; Pain intensity; Widespread Pain Sites; Analgesics; Disability; Isometric Lumbar Extension; Handgrip Strength	Episode in primary care; PNRs; Nordic; The number of days used analgesics; RMDQ; Biering-Sorensen test; TKK digital hand dynamometer	The intervention group showed a lower recurrence rate, increased lumbar extensor strength, left-hand handgrip strength, and reduced the number of pain sites, reducing pain intensity and disability than control group
Matarán-Peñarocha et al., 2020	Spain	n = 64 M = 32, F = 32 Mean age (±SD): 54 (± 7.88)	Supervised exercise group: stability and control motor pelvic exercise + trunk muscle strengthening and stretching, 3 sessions/week x 8 weeks, six months of follow-up	Non-supervised group: informative session of the exercises at home without supervised, 3 sessions/week x 8 weeks.	Disability; Daily life activity limitations; Intensity of pain; Fear of movement; Health-related quality of life.	RMDQ; ODI; 10 cm VAS; Tampa Scale; SF-36	There were statistically significant differences between groups for pain, and disability at 8 weeks immediately post treatment No differences between the groups in patient-rated pain, functionality, fear of movement and quality of life at six months of follow-up
Suh et al., 2019	Korea	n = 48 M = 15, F = 33 Mean age (±SD): 54.81 (±14.66)	Flexibility exercise (FE): stretching exercise Walking exercise (WE): fast walking Stabilization exercise (SE): individualized graded lumbar stabilization exercise (IGLSE) Stabilization with WE (SWE): IGSE + WE Frequency: 5 times/ week x 6 weeks, 6-weeks follow-up.	No control group	VAS during rest and physical activity; VAS of radiating pain; Frequency of medication; Endurances of specific posture; Strength of lumbar extensor muscles; Disability; Psychosocial aspects	VAS; VAS of radiating pain; Number of taking medications/day; 3 postures (supine, side-lying, and prone); Manual muscle tester; ODI; Beck depression inventory	SE and WE significantly improved chronic LBP. The SE and WE groups showed more continuous improvement in LBP during rest and physical activity than the FE group
Arguisu	Spain	n = 36	Myofascial release	Sham MFR	Electromyogr	Bipolar Ag/AgCl	There was a significant

Study	Country	No of participant s, Mean Age	Interventions	Control	Outcomes	Instruments	Main Results
elas, et al., 2019		M = 12, F = 24 Mean age (±SD): G1= 47.2 (±9.8) G2 = 48.6 (±10.1)	(MFR): twice/ week x two weeks	treatment	aphic (EMG); Kinematic; Pain intensity; Disability	surface lectrodes; a 3-Space Fastrak motion-analysis system; SF-MPQ; RMDQ	reduction in pain in the myofascial release group and disability, compared with control group No differences between groups for the kinematic variables
de Oliveira et al., 2020	Brazil	n = 148 M = 33, F = 115 Mean age (±SD): G1= 45 (±13), G2 = 45 (±14)	Directed manipulation at the vertebral level: 3 sessions/ week x 2 weeks + 2 sessions/ week x 2 weeks, 12 and 26 week follow up	Generic manipulation in the middle thoracic region: 3 sessions/ week x 2 weeks + 2 sessions/ week x 2 weeks, 12 and 26 week follow up	Pain intensity; Disability; Global perceived change; Pressure pain threshold	PNRS; RMDQ; Global Perceived Effect Scale; Pressure algometer	No clinically important between-group differences for PNRS, RMDQ or global perceived effect at any time point
Schmidt et al., 2020	Denmark	n = 165 M = 45, F = 120 Mean age (±SD): 50 (± 13) years	Integrated rehabilitation program: 8-10h/ day x 3 weeks of inpatient stay + 12 weeks of home-based activities, 26-week follow-up	Existing rehabilitation program: four weeks of inpatient stay, 26-week follow-up	Disability; Pain intensity; Pain self-efficacy; Health-related quality of life; Depression	ODI; PNRS; PSEQ; EQ-5D; Major Depression Inventory	Both arms of the trial improved from baseline to the 26-week follow-up on all outcomes No significant between-group differences were found in all outcomes.
Sung, et al., 2020	Korea	n = 38 M = 13, F = 25 Mean age (±SD): G1: 45.6 (±14.6) G2: 44.1 (± 14.1)	Combine acupuncture (AT) 20 min twice/ week x 8 weeks + thread embedding acupuncture (TEA) once/week x 8 weeks, 12 weeks follow up.	Only AT 20 min twice/ week x 8 weeks	Pain intensity; Clinically relevant improvement; Disability level; Quality of life; Global assessment	10cm VAS; Minimal clinical important difference (MCID); Korean version of RMDQ; Korean version of EQ-5D; Patient global impression of change	The treatment group showed a significant reduction in VAS scores when compared with the control group No significant differences were found in disability and quality of life
In, et al., 2021	Korea	n = 60 M = 38, F = 22 Mean age (±SD): G1: 41.13 (±11.49) G2: 40.63 (±11.3)	Multidimensional treatment (MT): core stability exercise 40 min/session x 2 sessions /day x 2days/ week x 12 weeks + additional education 4h x 2 sessions, 3-	No control group	Pain intensity; Disability; Thoracolumbar kyphosis (TK) and lumbar lordosis (LL)	10 cm VAS; ODI; Motion capture system	The pain, disability and thoraco lumbar kyphosis and lumbar lordosis in the MT group improved significantly greater than the UT group. The pain relief effect in the MT group persisted 3 months after the end of training.

Study	Country	No of participants, Mean Age	Interventions	Control	Outcomes	Instruments	Main Results
			month follow- up Unimod al treatme nt (UT): core stability exercise twice a day				

Note: Visual Analogue Scale (VAS), Oswestry Disability Index (ODI), Roland-Morris Disability Questionnaire (RMDQ), Quality of Life (QoL), Short Form-12 (SF-12), Short Form-36 (SF-36), Brief Multidimensional Life Satisfaction Scale (BMLSS), Physical therapy informed by Acceptance and Commitment Therapy (PACT), Patient Health Questionnaire-9 (PHQ-9), Generalized Anxiety Disorder-7 (GAD-7), Patient Specific Functional Scale (PSFS), Work and Social Adjustment Scale (WSAS), Pain Neuroscience Education (PNE), Motor Control Exercise (MCE), Group-Based Exercise (GE), Fear-Avoidance Beliefs (FAB), Pain Self-Efficacy Questionnaire (PSEQ), Pain Numeric Rating Scale (PNRS), Cognitive functional treatment (CFT), Patient Satisfaction Questionnaire (PSQ), lumbar stabilization treatment (LST), Lumbar Movement Control (LMC), Core Stability Exercise (CSE), Osteopathic Manipulation Treatment Group (OMTG), Active Control Group (ACG), Graded Activity (GA), Supervised Exercise Therapy (SET), Short Form McGill Pain Questionnaire (SF-MPQ), Quebec Back Pain Disability Scale (QBPDS), EuroQol-5 Domain 5-level (EQ-5D).

Effects of non-pharmacological therapies in middle-aged people with CNLBP

The type of intervention varied substantially across the studies (Table 1). We categorized four types of non-pharmacology interventions in this study, including exercise program, multimodal intervention, manual therapy approach and acupuncture. Our findings were generally consistent with the prior review (Chou et al., 2017). In particular, there remains evidence supporting the effectiveness of exercise therapy, multidisciplinary rehabilitation, spinal manipulation, massage, and acupuncture for individuals with chronic low back pain.

The most investigated interventions were from the group of exercise programs (8 studies). Six studies indicated that exercise had a greater improvement in pain, functioning and health-related quality of life than sham or control group (Ansari et al., 2021; Calatayud et al., 2020; Dadarkhah et al., 2021; Kim & Yim, 2020; Michalsen et al., 2021; Verbrugghe et al., 2019). Otherwise, two study reported an improvement in pain, reduction of disability and increasing quality of life, but not statistically significant if compared with different types of excises, as well as compared between exercise at home and at the clinic (Godfrey et al., 2020; Mataran-Penarrocha et al., 2020). The existing literature suggests that physical activity tends to improve pain and disability in people with CNLBP (Vadala et al., 2020; Zhang et al., 2023). However, no type of activity seems to be superior to another, and heterogeneity among studies may result in an overestimation of these positive outcomes (Nicol et al., 2023; Vadala et al., 2020).

For multimodal intervention, seven RCT studies presented multimodal therapy including six studies with short-term outcomes and 1 long-term outcome study. All seven studies presented a combination of two or more components such as exercises, education program, and cognitive behavioural therapy. We found a significant reduction of disability ad pain intensity, while improving quality of life. However, the statistically significant differences between modality interventions was not clear. There were four studies reported statistically significant improvement in patients treated by different types of multimodal intervention (Hrkac et al., 2022; In et al., 2021; O'Keeffe et al., 2020; Rabiei et al., 2021), while no difference was found in other three studies (Khodadad et al., 2020; Schmidt et al., 2020; Suh et al., 2019). Along with this, the extreme variability of type, duration, intensity, and execution modality of the proposed multimodal intervention made it impossible to recommend a specific treatment for the middle-aged people. Similarly, a systematic review by Nicol et al. showed that there is inconsistency in the content of multimodal program, which differs from one country to another (Nicol et al., 2023).

Spinal manipulation was evaluated in 3 trials and acupuncture was presented in one study. Result indicated that manipulation was associated with better short-term pain relief and improvement in function compared with sham manipulation (Arguisuelas et al., 2019), which was consistent with prior review (Chou et al., 2017). However, compared between different type of manipulation, and manipulation with other active interventions like therapeutic exercises, there was no significant differences in pain and disability (de Oliveira Meirelles et al., 2020; de Oliveira et al., 2020). Furthermore, study found that acupuncture combined with thread embedding acupuncture had greater effect on pain, but not disability and quality of life compared with acupuncture alone (Sung et al., 2020). In general, there was limited evidence about the effect of acupuncture in this review.

4. CONCLUSION

In conclusion, several non-pharmacological treatments for CNLBP have shown small to moderate benefits, mainly providing short-term relief from pain, improvements in physical function, and better quality of life. Studies highlighted the effectiveness of exercise therapy and multimodal intervention, but there was a high heterogeneity in terms of follow-up, type of intervention, and standardization of protocols, which make the estimate of the effect of intervention extremely challenging. Therefore, further research is needed to determine the incremental benefits of combining interventions, as well as the most effective treatment combinations and sequences.

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Research Article

The Social Amelioration Program (SAP) Effects on the Academic Performance of Business Administration Students of Universidad de Manila

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ABSTRACT

The Social Amelioration Program (SAP) of the City of Manila was implemented as a response to the economic distress brought about by the COVID-19 pandemic. It aimed to provide financial assistance to low-income families, including students, to alleviate the economic burden and ensure continuity in education. This study explores the effects of SAP on the academic performance of the College of Business Administration (CBA) students of Universidad de Manila. Moreover, this research investigates whether the financial aid provided by SAP has contributed to the students' requirements to regular attendance, and enhance learning engagement. The study employs a mixed-methods approach, combining quantitative data from student surveys with qualitative insights from interviews with beneficiaries. The quantitative aspect evaluates changes in students' grades, attendance records, and financial stress levels before and after receiving SAP. The qualitative segment focuses on students' perceptions regarding the sufficiency and accessibility of the financial aid, as well as the ability to allocate the resources effectively for educational expenses. Preliminary findings suggest that SAP has played a crucial role in alleviating financial stress among Business Administration students. The aid enabled students to afford essential academic resources such as internet connectivity, books, and school supplies, which contributed to their overall academic performance. Additionally, the program has indirectly improved mental well-being by reducing anxiety related to financial constraints, thereby allowing students to focus more on their studies. However, challenges remain in the disbursement process, with some students reporting delays in receiving funds or issues regarding eligibility criteria. Despite its positive impact, the study highlights that SAP alone may not be sufficient to fully address the academic challenges faced by students in business administration programs. Other socio-economic factors, including family responsibilities and employment obligations, continue to affect students' academic outcomes. The findings suggest that while SAP serves as a critical short-term intervention, long-term solutions such as sustainable scholarship programs and employment opportunities for students should be explored to ensure consistent academic success. This study contributes to the ongoing discourse on student welfare policies and economic assistance programs in Manila. It emphasizes the importance of government support in higher education and the need for efficient, transparent, and sustainable financial aid systems. Future research may expand on comparative analyses between SAP recipients and non-recipients to further validate its impact on student academic performance.

Keywords: Social Amelioration Program (SAP), Academic Performance, Financial Assistance, COVID-19 Pandemic, Business Administration Students, Universidad de Manila, Student Welfare, Mixed-Methods Research, Educational Aid, Financial Stress, Learning Engagement, Government Support, Higher Education, Scholarship Programs, Socio-economic Factors

1. INTRODUCTION

Education serves as a cornerstone for personal growth, societal development, and national progress. In the Philippines, where economic inequality remains a pressing issue, government initiatives aimed at reducing the financial burden on students have become essential. One such initiative is the Social Amelioration Program (SAP) of the City of Manila. Designed to provide financial assistance and social support to marginalized and low-income families, the program gained significant attention during the height of the COVID-19 pandemic. It was during this period that the challenges of distance learning, digital access, and economic hardship exposed the vulnerabilities of students, particularly those enrolled in public institutions such as the Universidad de Manila (UDM).

The Universidad de Manila, a city-funded institution offering free tertiary education, has a large population of students from low-income families. Many of these students, especially those in the Business Administration program, face daily struggles

balancing academic responsibilities with financial realities. The City of Manila's SAP was implemented to provide temporary relief to residents affected by economic disruptions. Initially aimed at helping families cope with pandemic-related losses, its continued distribution of financial support—whether through cash aid, food packs, or tuition subsidies—has become a lifeline for many students. This support is presumed to have various effects on students' well-being, academic motivation, and performance.

This study seeks to explore the extent to which the Social Amelioration Program influences the academic performance of Business Administration students at Universidad de Manila. While financial support is generally assumed to have positive effects on student performance, there remains a gap in understanding how this specific local government initiative affects academic outcomes in a sustained and measurable way. It is crucial to determine whether SAP directly contributes to improved grades, reduced dropout rates, or better classroom engagement—or if the effect is negligible due to other overriding factors such as family responsibilities, mental health issues, or lack of academic preparedness.

The rationale behind this study is grounded in the need for evidence-based assessments of government assistance programs. By focusing on Business Administration students, the research narrows its scope to a specific and significant segment of UDM's population. These students are often expected to be future entrepreneurs, public administrators, or corporate professionals. Their educational success—or lack thereof—could directly influence the city's long-term economic landscape. Therefore, understanding how well SAP supports their academic journey could inform future policy decisions, not only within Manila but also in other urban centers implementing similar programs.

Moreover, this study contributes to the broader discourse on social welfare and education. With many countries grappling with the long-term effects of the pandemic on their educational systems, localized studies like this can provide insight into the real-world effectiveness of social amelioration efforts. If financial support programs such as SAP are shown to significantly improve academic outcomes, local governments may be encouraged to invest further in student-centered welfare programs.

The objectives of the study are threefold: first, to assess the perception of the Social Amelioration Program among Business Administration students at UDM; second, to determine the Effect of SAP on students Academic Performance and third, to identify possible suggestions and comments from students in relation to the program.

To achieve these goals, the research will employ a mix method of quantitative and qualitative method wherein data will be gathered through surveys and interviews. This will allow the study to capture not only measurable outcomes but also the live experiences and personal narratives of the student beneficiaries.

In conclusion, the study on the "Social Amelioration Program of the City of Manila and its Effect on the Academic Performance of Business Administration Students of Universidad de Manila" is both timely and relevant. It aims to bridge the gap between social policy and educational outcomes by analyzing the real-world impact of local government aid. Through this research, stakeholders—from city officials to academic administrators—can gain valuable insights into how best to support the academic journey of students who rely on public assistance, ensuring that no student is left behind in the pursuit of higher education.

2. MATERIALS AND METHODS

The methodology of the study, the participants of the study, the instruments used in the study and justifications for their use, the procedures followed and the timeline for each stage of the study, how the data was analyzed, and ethical considerations of the research as well as its issues and limitations are all covered in this chapter.

Research Design. This study employs a mix method of qualitative and quantitative approach, combining data from student surveys with insights from interviews with beneficiaries. This will allow the study to capture not only measurable outcomes but also the live experiences and personal narratives of the student beneficiaries.

Sample and Sampling Techniques. This study was conducted in the College of Business Administration of Universidad de Manila during the 2nd Semester School Year 2024-2025. The respondents of this study are selected Business Administration students of UDM who are the beneficiaries of the Special Amelioration Program of the City of Manila currently. Purposive sampling was used wherein 15 students were selected to represent the sample size.

Data Gathering Procedure. The researchers utilized survey questionnaires and conducted interviews among selected students in order to gather information needed in the study. Twenty students from the College of Business Administration were given a survey form and several students were interviewed to gather additional information.

3. RESULTS AND DISCUSSION

The researchers present and analyze the results derived from the research conducted in the previous chapter of this study. This section aims to provide a comprehensive overview of the results obtained through survey followed by a critical discussion that contextualizes these results within the existing body of literature.

Table 1: Perception of the Respondents to the Social Amelioration Program

Item No.	Statement	Mean
1	The SAP of Manila is accessible to students and their families	4.53
2	The financial aid provided by the SAP is sufficient for our household needs	2.73
3	I am aware of the eligibility requirements for SAP	4.73
4	The distribution of SAP funds is fair and transparent	4.13
5	The SAP helps reduce the financial stress in the family	3.9

The results presented in Table 1 show the mean responses of the participants regarding their perceptions of the Social Amelioration Program (SAP) in Manila. The highest mean score of 4.73 was recorded for the statement, "I am aware of the eligibility requirements for SAP," indicating that the respondents are well-informed about the program's qualifications. This is followed by a mean of 4.53 for the statement, "The SAP of Manila is accessible to students and their families," suggesting that the program is generally accessible to its intended beneficiaries. Moreover, the statement, "The distribution of SAP funds is fair and transparent," obtained a mean of 4.13, reflecting a favorable view of the program's implementation and trust in its processes.

Meanwhile, the statement, "The SAP helps reduce the financial stress in the family," had a mean of 3.93, showing that most respondents agree with its positive impact, though not as strongly as with other aspects. Notably, the lowest mean of 2.73 was recorded for the statement, "The financial aid provided by the SAP is sufficient for our household needs." This indicates that while the financial assistance is appreciated, it is perceived as inadequate in fully meeting the economic demands of beneficiary families. Overall, the data reveals that although students have a high level of awareness and accessibility to SAP and generally view the program positively, concerns remain about the sufficiency of the aid provided.

Table 2: Effect of SAP on Academic Performance

Item No.	Statement	Mean
1	The SAP has helped me afford school-related expenses	4.40
2	Because of SAP, I can focus better on my studies without financial worries	3.60
3	The SAP has allowed me to attend school more regularly	4.13
4	My academic performance has improved due to the support provided by SAP	4.53
5	I feel motivated to perform well in school because of the financial assistance	4.47

The data on Table 2, shows that the Social Amelioration Program (SAP) has had a strong positive effect on students' academic performance, as reflected in the mean ratings of their responses. The highest mean score is 4.53 for the statement "My academic performance has improved due to the support provided by SAP." This indicates that most respondents strongly agreed that the financial assistance directly contributed to their academic success, likely by easing their financial burdens and allowing them to concentrate on their studies.

Closely following this is a mean score of 4.47 for the statement "I feel motivated to perform well in school because of the financial assistance." This suggests that SAP not only supported students financially but also served as a source of motivation, pushing them to do better academically to maintain eligibility or as a form of gratitude for the support received.

The statement "The SAP has helped me afford school-related expenses" received a mean of 4.40, showing that the program successfully addressed the practical needs of students by making school expenses more manageable. This financial help played a crucial role in reducing stress and enabling students to sustain their education.

Furthermore, the statement "The SAP has allowed me to attend school more regularly" had a mean of 4.13, indicating that students experienced increased class attendance as a result of SAP. This could mean fewer absences due to lack of funds for transportation, materials, or other school-related costs.

Lastly, the statement with the lowest mean of 3.60, "Because of SAP, I can focus better on my studies without financial worries," still reflects a generally positive agreement, although with more variation among responses. While many felt the SAP helped them focus, some may still face other financial challenges beyond what SAP can cover.

Overall, the results affirm that SAP has a significant and positive impact on students' academic experiences—improving performance, motivation, attendance, and the ability to afford education.

Suggestions and Comments from the Respondents

Qualitative Feedback on SAP and its Effect on Academic Performance

The feedback gathered from students about the Social Amelioration Program (SAP) revealed a mixture of appreciation and concern. While many students were grateful for the support they received, others pointed out areas where the program could still improve.

Positive Effects. Many students shared that the SAP served as a much-needed source of financial support. It eased their day-to-day worries about how to afford school-related expenses like tuition, internet, and books. With these basic needs addressed,

they found it easier to focus on their studies, knowing they didn't have to stress about where the next peso would come from.

Several students also mentioned how the SAP reduced financial pressure not just on themselves, but on their families. For some, it meant they didn't have to ask their parents for money as often—a small but meaningful relief for households already struggling with daily expenses. Because of the financial aid, they were able to stay motivated in class, maintain good grades, and meet the eligibility requirements needed to continue receiving support.

Most importantly, many students said that SAP helped them stay on track academically. Whether it was being able to attend school more regularly or simply having peace of mind, the assistance played a key role in helping them stay focused and committed to their education.

Challenges Encountered. Despite these benefits, some students expressed that the amount of aid wasn't always enough to meet all their needs. While they were thankful, they felt that the support could be more substantial, especially with the rising costs of education and living.

Another common concern was the delayed release of funds. Several students emphasized how important it is for the aid to arrive on time, especially when deadlines for school expenses are approaching. When the release is late, the stress returns—and with it, distractions from their studies.

Some students also pointed out that the distribution process could be improved. They described it as disorganized, time-consuming, and even confusing at times. To make things easier, they suggested depositing the funds directly into bank accounts—similar to what other universities like PLM are doing. This, they felt, would make the process more convenient and less stressful.

Lastly, students recommended making better use of technology to speed up transactions and create a clearer, more reliable distribution schedule. For them, a faster and more transparent system would not only help with planning but also ensure that the aid truly supports their academic progress.

4. CONCLUSION

- a) Overall, the data reveals that although students have a high level of awareness and accessibility to SAP and generally view the program positively, concerns remain about the sufficiency of the aid provided.
- b) Overall, the results affirm that SAP has a significant and positive impact on students' academic experiences—improving performance, motivation, attendance, and the ability to afford education.
- c) Many students shared that the SAP served as a much-needed source of financial support. It eased their day-to-day worries about how to afford school-related expenses like tuition, internet, and books.
- d) Several students also mentioned how the SAP reduced financial pressure not just on themselves, but on their families. For some, it meant they didn't have to ask their parents for money as often—a small but meaningful relief for households already struggling with daily expenses.
- e) Many students said that SAP helped them stay on track academically. Whether it was being able to attend school more regularly or simply having peace of mind, the assistance played a key role in helping them stay focused and committed to their education.
- f) Several students emphasized how important it is for the aid to arrive on time, especially when deadlines for school expenses are approaching. When the release is late, the stress returns—and with it, distractions from their studies.
- g) Some students also pointed out that the distribution process could be improved. They described it as disorganized, time-consuming, and even confusing at times.
- h) Students recommended making better use of technology to speed up transactions and create a clearer, more reliable distribution schedule. For them, a faster and more transparent system would not only help with planning but also ensure that the aid truly supports their academic progress.

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Research Article

Local Governance Review: The Case Of Marinduque Island, Philippines

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ABSTRACT

Enacted in 1991, the Local Government Code (LGC) aimed to decentralize power and enhance local autonomy. It devolved responsibilities from the national government to local government units (LGUs), allowing them to manage local resources and services more effectively. Over the three decades of decentralization, this paper looked into the significant challenges and strategies faced by local government units in the lens of the Province of Marinduque. This review highlights the recurring problems and issues and responsive local governance practices in the areas of social, economic, environmental, and governance and politics, and responses made by the LGUs and the citizens of Marinduque to those problems experienced. Using survey questionnaire, key informant respondents were identified to represent sectors of farmer, fisherfolk, women, labor, youth, LGU, NGA, CSO and academe. The analysis reveals that although areas are seen to have notable gains of development, it is still beset by issues, problems and challenges. Identified challenges include limited resources and capacity of LGUs, financial constraints that hindered service delivery and community responsiveness, and incompetent leadership and governance including framework of policies. While local governance is grounded by challenges, LGUs and citizens of Marinduque continued to respond with innovative strategies focused on coordination between NGAs and LGUs, citizen empowerment to increase public support and participation, strengthening economic sustainability and resiliency, and policy-driven leadership for stable governance. The groundwork for effective decentralized governance has been laid but realization of the goal still requires continuous reforms in the praxis of local governance.

Keywords: Local governance; Decentralized government; Local challenges; Local governance strategies; Marinduque; Local governance review

1. INTRODUCTION

The creation of the Local Government Code (LGC) of the Philippines in 1991 envisioned a self-reliant community that contributes to the national development. Its passage created more opportunities than heretofore imagined (Brillantes & Cabo, retrieved 2025). The Code through decentralized governance devolved powers and responsibilities from the national government to local government units, including provinces, cities, municipalities, and barangays, aimed to bring governance closer to the people and make it more responsive to local needs. Local autonomy principle enshrined in the Code granted LGUs the authority to create their own policies, enact ordinances, and manage local resources with the intention to empower local leaders and communities to address the unique challenges and needs of their community. It also provided LGUs with the financial independence to generate their own revenues through local taxes, fees, and charges that is crucial in funding local development projects and services. The Code likewise emphasized the importance of citizen involvement in local governance, calling for establishment of public participation mechanisms that ensure hearing of community voices in decision-making processes. For Brillantes and Cuachon (2003), the intent of the LGC aligns with the core characteristics of good governance of creating a participatory, transparent, responsive, equitable, effective and efficient and accountable government.

While the LGC played a significant role in shaping local governance in the Philippines, its implementation is confronted with question on whether it has significantly contributed to the improvement and promotion of a more responsive and resilient local government system. While, mechanisms are enshrined in the Code, they are not always implemented or followed all the time (Atienza & Go, 2023). Thus, the effectiveness of the Code has been a long ongoing discourse on local governance reform in the Philippines.

Capuno (2005) in his review of the decentralization status in the country concluded that the uneven quality of local governance may have contributed to imbalanced regional growth. Such economic condition determines the unacceptability of local governance under local autonomy in the LGC of 1991. He furthered that development and quality of governance has

empirical linkage. As shown in the status of poverty incidence in most provinces of the country from 1991 to 2000, five provinces, including Marinduque, listed in the top 10 province with the highest poverty incidence were still included when censused in 2000. As the 1987 Constitution granted LGUs greater local fiscal autonomy, it is expected that it has allowed them to respond more appropriately and faster to the needs of their constituents.

In 2017, Capuno wrote what he called tug of war between local and national government under a decentralized government. This includes: 1) financial, that the devolved functions did not include additional money for the LGUS resulting to many unfunded mandates; 2) local health system that became fragmented. Health services in the different levels of local government became a separate part of supposed to be one whole system of health services; 3) management of shared resources requiring cooperation between two or more affected localities; 4) proliferation of infrastructure due to duplication of services delivered by both national and local government; and, 5) inter-alliances, or coordinated planning, financing, and provisions, which partnership work only if it is mutually benefiting and self-enforcing. He then suggested a good principle to heed, that for decentralization to work, consideration and decision should be made first made in favor of appropriate public service to be devolved and be given priority of funding.

Daquioag (2025), during a policy forum on review of local governance in the Philippines expressed that included in the gaps of the 30-year-old local governance are: 1) use of outdated statistics and data to support various government programs; 2) absence of a modern and centralized mechanism to notify Local Government Units (LGUs) of legislative changes; 3) lack of standardized Monitoring and Evaluation (M&E) for Government Programs; 4) Local Government Code 1991's lack of relevance to the needs or priorities of LGUs today; and 5) necessity of further research into the implications of the Mandanas-Garcia Ruling. Because local governments deal directly with individuals and must provide more specialized services, they are frequently under more strain. According to Pujono et.al. (2024), the effective implementation by local governments is severely hampered by a few problems, such as shifting regulations, a lack of experience, and a lack of integration between the planning and budgeting processes.

As local governance in the Philippines plays a crucial role both in the implementation of national policies and the delivery of public services, the challenges the LGUs face caused significant gaps in policy and implementation. Capuno (2011), as mentioned by Kikuchi (2018), believed that developing the capacity of government officials is key to improving governmental performance at the local level. Thus, this review serves as a critical assessment of the current state of local governance in the Philippines, in the lens of the Province of Marinduque, aiming to identify the pressing and recurring problems and the interventions mutually initiated by the people and the government that possibly enhanced local governance framework, ultimately contributing to a more responsive and inclusive governance at the local level.

2. MATERIALS AND METHODS

The study seeks to analyze the implementation status of governance structure by looking at the recurring problems of local governance in the province of Marinduque, the reasons of the recurring problems, and the actions taken by the local government units and the citizen in addressing the problems. The research study was carried out in the Province of Marinduque, one of the islands that make up the MIMAROPA Region. Boac, Buenavista, Gasan, Mogpog, Sta. Cruz and Torrijos are the six municipalities that make up the single district of Marinduque.

The research employed a quantitative approach as one of the methodologies applied by the researcher in gathering data on the status of local governance in the Province of Marinduque. To show the different aspects of local governance, the study used a descriptive approach to gather information. To provide a comprehensive understanding of the local governance landscape from the perceptions of various stakeholders, survey questionnaires were individually distributed among thirteen (13) key representatives of basic sectors of farmer, fisherfolk, women, labor/OFW and youth. While, from the intermediary sectors were represented by elected official and appointed employee from local government units, employees from national government agency present in the province of Marinduque, civil society representative, and from the academe. The recurring problems of local governance enumerated in the options of answers of the key informant were based on the study Review of the Local Governance in the Philippines from 1991 to 2021 initiated by the Philippine Society for Public Administration (PSPA). The researcher served as partner of the PSPA, through Romblon State University for data gathering in the Province of Marinduque.

3. RESULTS AND DISCUSSION

Table 1. Status of Recurring Problem in Local Governance in the Province of Marinduque

CLASSIFICATION	LEVEL OF DEVELOPMENT	VERBAL DESCRIPTION
Social	3.71	<i>Notable Gain</i>
Economics	3.14	<i>Erratic</i>
Environment	3.6	<i>Notable Gain</i>
Governance and Politics	3.13	<i>Erratic</i>
Grand Mean	3.39	<i>Erratic</i>

When the local governance of the Province of Marinduque for the past three decades was assessed, data revealed notable

gains in the areas of Social and Environment, while, posed erratic development on areas of Economics and Governance and Politics.

The assessment of local governance in the Province of Marinduque over the past three decades reveals a mixed picture of development across different areas. Social Development showing the most significant progress, suggests that initiatives related to social welfare, education, health, and community engagement have been relatively successful, leading to improvements in the quality of life for residents. While, Governance and Politics receiving the lowest score, indicates that governance structures, political stability, transparency, and public trust may be lacking. This could point to issues such as bureaucratic inefficiencies, corruption, or a lack of citizen engagement in political processes.

Overall, local governance in the province of Marinduque displayed erratic progress of gains or development. While Marinduque has made commendable strides in social and environmental areas, the erratic nature of economic growth and the lower performance in governance and politics indicate that there is still work to be done to ensure comprehensive and equitable development across all sectors.

Table 2.1. Status of Recurring Problem on Social Area

ISSUES OF LOCAL GOVERNANCE	Mean	Verbal Interpretation
Poor Inter-Local Coordination on Health	3.46	<i>Notable Gains</i>
Inactive LDCs and Weak CSO Presence	3.69	<i>Notable Gains</i>
Peace and Order	4.38	<i>Sustained Progress</i>
Lack of Capacities	3.31	<i>Erratic</i>
Grand Mean	3.71	<i>Notable Gains</i>

The data regarding the Social area of governance in the Province of Marinduque over the past three decades of decentralization provides a nuanced understanding of the province's progress and challenges.

The province of Marinduque for the past three decades of decentralization revealed to have notable gain with 3.71, indicating significant improvements in various aspects of social governance. This suggests that the decentralization efforts have positively impacted the delivery of social services and the overall well-being of the community.

The issue of peace and order stands out with a high score of 4.38, reflecting sustained positive progress. This indicates that the province has made effective strides in enhancing safety and security, which is crucial for fostering a stable environment for social development. Improved peace and order can lead to greater community trust, increased investment, and enhanced quality of life for residents. In contrast, the issue of capacity to deliver social services received a score of 3.31, indicating erratic or inconsistent development. This suggests that while there have been improvements in some areas, challenges remain in effectively delivering social services. Factors contributing to this inconsistency may include inadequate resources, insufficient training for personnel, or bureaucratic hurdles that hinder the efficient implementation of social programs.

Table 2.2. Reasons and Responses on the Recurring Issues in Social Area

Category	Reasons: Key Issues/Problems/Challenges	LGUs/Citizen Responses: Best Practices/Innovative Policies/Programs
Resources	1. Kulang ng BHWs	1. The LGU provides additional incentives to the Health Personnel deployed to the LGU to complement its human resources
	2. Lack of medical staffs	2. Nagpamigay ng mga maintenance medicine para sa isang buwang konsumu
	3. Kulang sa mga gamot (maintenance)	3. Citizens resolve to going outside the province to get proper treatment
	4. Mga gusaling pang-medisina	4. Provision of Incentives to Barangay Tanods
	5. Lack of funds	5. Sponsor Training of Katarungang Pambarangay
	6. Functionality of MPOC	6. Empowerment of barangay particularly in times of Community Quarantine.
	7. Limited capacity for several facilities such as hospitals, schools, course and buildings	7. One good program of the LGU is the installations of CCTV camera and street lights
	8. Availability of personnel and funds to attend and utilize in capacity, capability building trainings and seminars	8. LGU asked help from the National Government in funding improvements to the province
	9. Some incompetent official	
	10. Increasing cases of rape	

		9. Effective HRM Plan on Capacity Building (Inventory of Seminars/ Trainings of each and every employee in their 201 file)
Process	1. Patients complains or improper treatment done in the produce 2. Information dissemination. 3. Politics 4. Palakasan system	1. Present ang BHW services sa barangays 2. Peace is maintained due to proper information and awareness programs of the officials as well as people in the province were culturally nice people. 3. Aktibo ang kapulisan sa pagpunta sa mga paaralan
Policy & Guidelines	1. Issuance of MC of the DILG setting the guidelines and procedures in the Accreditation and Recognition of CSOs, and its memberships to the LGUs Local Special Bodies 2. Organized program on peace and order 3. Peace and order and public safety plan with funding 4. Regular role oath of policies/guidelines in LGU operation by concerned NGA	1. Government always invite CSOs to forums/meetings 2. Conduct of CSO Assembly for their assignment to the different Local Special Bodies 3. Conferring of Certificate of Accreditation to each and every organization who met and complied with the standards set in the application for accreditation
Linkaging/Partnership	1. Linkaging among LGUs and the national government (DOH) for the clear implementation of programs, projects and activities on health 2. Support to the PNP and Barangay	1. Mayroong mga partnership sa ibang pribadong indibidwal 2. Given the help of the DOH, PGM is better now with projects and programs implemented in the province 3. LGU is in well coordination to directives released by the national agency as seen during the pandemic 4. Coordination of PNP and the LGUs

The analysis of recurring problems in the social area of governance in the Province of Marinduque reveals several underlying reasons for the challenges faced, as well as the strategies employed to address these issues.

On *resources*, respondents commonly answered challenges on insufficient supplies, personnel, training to equip the available personnel on delivering the basic services mandated from them, and lack and/or unfunctional social facilities like hospital and school. However, these issues are addressed either of the LGU and the citizens by seeking help from the national government, especially in funding; availing the needed social service like medical outside the province; and providing additional incentives to individuals who served the LGUS to complement their manpower need.

On problem related to *process*, Social area according to respondents is still affected by influence of politics, and this is addressed by active engagement of personnel delivering social services in the barangays and the community.

Social area, on aspect of *policy and guidelines*, is challenged on the presence of appropriate guidelines related to public participation, definite program or plan on peace and order, and defined role of NGA over operation of the LGUs. These are addressed by implementing mechanisms that creates wider participation from public organization.

On aspect of *linkaging/ partnership*, Social area struggle on engaging partnership and support with NGA for proper program implementation. LGU addressed this by establishing strong coordination with partner-NGA and even with private individuals or organizations.

Table 3.1. Status of Recurring Problem on Economic Area

ISSUES OF LOCAL GOVERNANCE	Mean	Verbal Interpretation
IRA Dependency	2.69	<i>Erratic</i>
Underspending	3.08	<i>Erratic</i>
Low Revenue Generation	3.31	<i>Erratic</i>
LGU Taxation	3.85	<i>Notable Gains</i>
Low International Funding	2.92	<i>Erratic</i>
No fund for NGA programs mandated to be implemented by	2.92	<i>Erratic</i>

LGUs		
Poor Inter-local Coordination on Fisheries Management	3.00	<i>Erratic</i>
Low Agricultural Productivity	3.38	<i>Notable Gains</i>
Grand Mean	3.14	<i>Erratic</i>

Legend: 5.00 – 4.21 Sustained Progress, 3.40 – 2.61, Erratic 1.80 – 1.00 Getting Worse, 4.20 – 3.41, Notable Gains, 2.60 – 1.81 No Progress

The assessment of the Economic area in the Province of Marinduque over the past three decades reveals a complex picture of progress and challenges. The area has generally shown erratic development, indicating inconsistent progress. While data displays that taxation and agricultural productivity had significantly improved, all others on the other hand reported no progress or erratic development. This indicates that economic growth has been inconsistent, and some areas may have even regressed.

The issue of IRA (Internal Revenue Allotment) dependency has received a predominantly negative response, indicating that the situation has worsened or shown no progress. This suggests that the province's reliance on IRA funding has not decreased, and Marinduque LGUs may still be struggling to generate sufficient revenue from local sources. In contrast, the issue of taxation has shown high significant improvement. This indicates that local government of Marinduque have made efforts to enhance their tax collection systems, leading to increased revenue and greater financial autonomy.

Table 3.2. Reasons and Responses on the Recurring Issues in Economic Area

Category	Reasons: Key Issues/Problems/Challenges	LGUs/Citizen Responses: Best Practices/Innovative Policies/Programs
Resources	1. Unavailability of other source of income for LGUs	1. Strengthening the local income – generating program/project of their LGU
	2. Majority of funds comes only from IRA	2. Establishment of Local Economic Enterprises
	3. Incompetent Officials/Lack of competence of public officials to address the problem	3. Income generating initiatives on basic services such as water and market services
	4. There are no income generating initiatives	4. Strict implementation of IGP projects of the municipality and the excellent performance of our public officials to secure high revenue of the municipality
	5. Citizens that are not paying taxes.	5. Double Designation of LGU
	6. Fund is still a problem in decentralization	6. Personnel/Hiring Job Order
	7. No budget	7. Citizens shift to livestock management
	8. Source of fund	8. Ayuda mula sa agriculture at DAR, PCIC, NFA on Seeds, abono
	9. Expensive fish and marine products	9. One time-Food supply during disaster (typhoon)
	10. Provision of Farm Implements to the local farmers (seeds, fertilization, equipment/tools, water system, etc.)	
	11. Low yield ng mga magsasaka dahil sa sunod-sunod na bagyo	
	12. Lugi ang mga magsasaka	
	13. Force majeure/Kalamidad	
	14. Agricultural products are from Quezon Province	
Process	1. Politics	1. Tight/Bureaucratic guidelines and procedures in the utilization of Government Funds
	2. Personal interest	2. Posting of proposed projects for public information
	3. Corruption	3. LGU prepare everything so that when the budget is release it will be awarded quickly and the project will process quickly
	4. No proper utilization of profit/ Notable to create an income – generating profit.	4. Conduct of regular Inventory of Business Establishment
	5. Exercise of Fiscal Autonomy and Taxing Power of the LGU	5. The LCE shall be transparent to the constituents. The LGUs as reminded them to be transparent and remit the money generated from these projects
	6. Slow process	
	7. Budget release on the central government takes so much time	
	8. Transparent leadership	
	9. Projects are not evident	
	10. No consultation to the people.	
	11. NGAs are not that visible to the public	
	12. Lack of Vision	

	13. No information on International Funding 14. Illegal fishing 15. No efforts to utilize the abandoned land for Agri purposes	6. Effective Collection 7. Nakapaskil ang mga hindi pa bayad sa buwis sa lupa 8. Mayroong mga amnesty 9. Napunta sa mga barangay ang munisipyo 10. Citizens here in our LGU submits their tax reports on time and have the public officials who are with integrity and honesty 11. Mayroong public consultation 12. The most response of LGUs to this problem is primarily to adopt it on their AIP or Future targets for them to become complaint. 13. Despite the lack of funds local officials improvise and really works beyond their discretion to deliver the NGA 14. Based on experience, whenever there are concerns of LGU to be coordinated internationally, it shall stand to the LGUs initiatives. It's gonna be a letter or a report for meeting 15. All fisherman were warned/oriented to safe and sustainable fishing 16. Management Council to effectively implement local and national laws on the utilization, management and conservation of marine resources
Policy & Guidelines	1. Lack of Local revenue Plan and Non-Updating of Revenue Code 2. Mataas na buwis 3. Defined scope of taxing power of the LGU (Book II, Title One, RA7160) 4. Everything is being taxed even the certifications needed prior to returning to the province due to pandemic 5. PS Limitation (Sec. 325, RA 7160) 6. Interpretation in the implementation of Fishery Code 7. Lack on rules 8. No programs to help the local farmers 9. No plan	1. Regular Revision of Revenue Code of the LGU 2. Creates monitoring Committee that wise oversee the implementation of the Provides clear policies in the utilization of funds in the General Provision of the enacted Animal Budget (CDF) 3. Enactment of Tourism and Investment Code 4. Enactment of Ordinance to levy taxes, fees and charges 5. Strengthening of the Local Fisheries and Aquatic Resources 6. Enacted Guidance Institutionalizing the Farmers and Fisherman Month Celebration in Boac every May show casing the Best 7. Programs such as; free corps, LAV loan, free livestock dispersal, sagip saka and other livelihood programs
Linkaging/Partnership	1. Localized insurgency and criminality from off international organizations and corporations that seek to partner with the Philippines (SOCIAL) 2. Non support of the citizens 3. Lack of support to the local farmers 4. Weak support from the LGU	1. Localized partnerships with international organizations and corporations within generally peaceful areas

-
5. Rivalry among stakeholders of the marine resources
 6. Coordination of LGUs to concerned International Agencies
-

The analysis of the Economic area in the Province of Marinduque highlights several underlying reasons for the recurring issues, categorized into resources, processes, policies and guidelines, and linking/partnerships.

For *resources*, it was established unanimously by the respondents that the problem is on budget brought by weak source of income with majority dependent only on IRA from the national government, low income by farmers due to natural calamities, and unpaid taxes by the residents. These challenges are addressed by strengthening the local enterprises initiated by the LGUs, providing support to famers through related NGA, and hiring additional personnel to perform functions including taxation.

On *process*, politics, unethical practices, incompetent exercise of function, and lack of economic-related plans were some of the identified reasons of the recurring problems. These are addressed by the LGU, in particular, by establishing thorough planning, informational activities, coordination, and strict implementation of rules and procedures.

While for *policy and guidelines*, problems of absence of revenue plan and rules, and restrictions given by approved policies, including taxation are challenges that bring the recurrence of economic problems in Marinduque. The LGU address these by revisions of the Revenue Code, creation of monitoring committees, initiating contextualized local programs and projects, and enacting new local policies to back up the existing.

Lastly, on linking/partnership, Economics is affected by none-support from the people, the public partners and other government agencies. These are addressed through establishing local partnerships among various stakeholders.

In summary, the economic area in Marinduque faces significant challenges related to resources, processes, policies, and partnerships. However, the proactive measures taken by the LGUs to address these issues—such as strengthening local enterprises, enhancing planning and coordination, revising policies, and fostering partnerships—demonstrate a commitment to improving economic governance. By continuing to address these challenges through strategic initiatives and collaboration, the province can work towards achieving more sustainable and inclusive economic growth.

Table 4.1. Status of Recurring Problem on Environmental Area

ISSUES OF LOCAL GOVERNANCE	Mean	Verbal Interpretation
Poor Inter-Local Coordination on Watershed and Marine	3.00	<i>Erratic</i>
Poor Inter-Local Coordination on Pollution Control	4.08	<i>Notable Gains</i>
Poor Inter-Local Coordination on Forest Management	3.69	<i>Notable Gains</i>
Poor Inter-local Coordination on Solid Waste Management	3.69	<i>Notable Gains</i>
Environmental Degradation	3.54	<i>Notable Gains</i>
Grand Mean	3.6	<i>Notable Gains</i>

Legend: 5.00 – 4.21 Sustained Progress, 3.40 – 2.61, Erratic 1.80 – 1.00 Getting Worse, 4.20 – 3.41, Notable Gains, 2.60 – 1.81 No Progress

The assessment of the Environmental area of local governance in the Province of Marinduque indicates a generally positive trend, with notable gains reported at 3.6. However, a closer examination of specific issues reveals a mixed picture of progress and ongoing challenges.

The issue on pollution control has shown the most positive improvement over the past three decades. This is probably due to the reason that Marinduque for the past three decades remain to be industry-free and minor contributors to pollution are immediately addressed by the LGUs. In contrast, the concern regarding poor inter-local coordination on watershed and marine management has received a negative assessment, indicating that the situation is getting worse, showing no progress, or exhibiting erratic improvements. This suggests that despite some successes in environmental governance, there are significant challenges in collaboration among LGUs and other stakeholders regarding the management of shared resources like watersheds and marine areas.

Table 4.2. Reasons and Responses on the Recurring Issues in Environment Area

Category	Reasons: Key Issues/Problems/Challenges	LGUs/Citizen Responses: Best Practices/Innovative Policies/Programs
Resources	1. Lack of personnel /No regular employee to do the job 2. Lack of technical capacity of the duty designated personnel to do the job	1. LGU has prioritized the conservation/protection of marine resources as well as its habitat for sustainable use

	- Expensive wet goods which is the result of the non-regulation marine resources management - There still some barangay in our municipality who are still sufferings for the lack of water supply. - Budget - Under appreciated workers - Double Designation - Local government are given little resources. It remained concentrated with the DENR. - Tamad na mamamayan ng barangay/People - people who are constantly dumping waste/burning forest. - Kaunting basurahan sa lugar - MENRO, optional position (PS Cap) - Responsibilities of contactors on projects that affect the environment - Kakulangan ng wastong kaalaman ng mga tao - Flash flood	- Double designation of an employee in compliance to PS Cap Limitation - MENRO, designated position
Process	- Lack of vision - Lack of prioritization - Failure to plan - Maling pagtatapon ng basura - Waste management - Politics - Certain efforts on solid waste management segregation - Pagsisiga ng mga plastic - Illegal Logging - Solid waste output steadily increasing with urbanization and development - Coordination of proper waste disposal - Poor implementation of National and Local Laws (Arbor Day and Tree farming and Butterfly Propagations Guidance)	- Citizens got used to it - May nag-orient tungkol sa pagsisiga o pagsusunod ng plastic - Pagsisiga - Mayroong MRF - Pagandahan ng Purok - May nag-orient/Mga orientation/seminar - Localized approach to Forest management without any or little cooperation with other agency or offices - Pagrecycle - Paligsahan sa barangay - May mga poster na ipinapaskil sa barangay - One of the best practices in our municipality is the strict implementation. - Coastal Clean Up (once a year)
Policy & Guidelines	- No policies/laws/ordinances were made by the LGU to protect marine resources - PS Cap Limitation - Efforts on using legislation to oblige people to plant trees - Wala masyadong batas - Development vs. The Environment - Kaunting batas - Illegal mining and even legal one - Local legislative policies are used to preserve the environment - No advocacies and laws to conserve the environment	- Ordinance declaring facts of Central Marinduque or Marinduque Wildlife Sanctuary - Ordinance on requiring the graduates to plant trees - One of the best of our LGU is the yearly tree planting and tree caring activity - Ordinances in relations to solid waste management - Strong advocacy chosen laws were passed to protect the environment, especially the ordinances that will make

Linkaging/Partnership	1. In relation to marine resources, there is no proper coordination with the people in regards to the law that officials implement 2. LGUs individually implement solid waste management programs, without much consideration for the advantages of pooling resources and implementing joint projects therefor.	6. Local ordinance such as the solid waste management and planting trees as requirement for graduation
		1. LGU with partnership with different civic organization to maintain pollution control. In addition is the conducts and seminars and conference to people by the LGU spread awareness in regards to pollution control 2. Strengthening coordination with all of the other LGUs in the province for a cleaner, greener and safer forest. 3. Stronger coordination to LGUs. Laws to promote a greener environment 4. Pagsali sa MACEC.

The assessment of the Environmental area of local governance in the Province of Marinduque reveals several recurring problems, categorized into resources, processes, policies and guidelines, and linkaging/partnerships.

On *resources*, the study revealed the following reasons of the environmental area's recurring problem with: insufficient number of personnel, the capability of the available personnel to perform given function, unavailable environmental support-resources, environmental-related behavior of people, irresponsible implementation of public projects by private contractors. The LGU meagerly responded on the issues, as expressed in the gathered responses which is limited to prioritizing marine resource's protection, giving dual function to available manpower, and designating acting officer to lead the LGU in environmental.

On *process*, recurring problems are caused by either absence of rules and priority, and poor implementation both of the LGU and the residents of environmental rules and regulations. These was addressed by LGUs and the residents, particularly in the barangay level, with implementing local environmental activities like purok beautification contest, conduct of environmental-related orientation, continuing implementation of usual environmental projects ie. material recovery facility, recycling.

On *policy and guidelines*, similarly with the *process*, respondents expressed that the problem on environment that continuously recurred is due to absence of corresponding local laws and on the existing legislations, is the enforcement power embodied by the law. These issues were addressed by the LGUs creating ordinances, directing localized implementation of national laws.

On *linkaging/partnership*, the concern of LGUs having no coordination with other concerned agency and the people was expressed. This was anyway countered by initiating partnership with private organizations advocating for environmental protection, as well as strengthening coordination with other LGUs in the province.

In summary, the Environmental area of governance in Marinduque faces several challenges related to resources, processes, policies, and partnerships. While the LGUs have made some efforts to address these issues, more comprehensive and coordinated actions are needed. By enhancing personnel capacity, improving enforcement of environmental regulations, fostering community engagement, and strengthening partnerships, Marinduque can work towards more effective and sustainable environmental governance.

Table 5.1. Status of Recurring Problem on Governance and Politics Area

ISSUES OF LOCAL GOVERNANCE	Mean	Verbal Interpretation
Too much partisan	2.85	<i>Erratic</i>
Control of national to LGU	3.08	<i>Erratic</i>
Capacity of LGU to implement NGA's projects	2.85	<i>Erratic</i>
Harmonization of planning between central and LGUs	3.46	<i>Notable Gains</i>
Support from NGA in the devolved functions	3.23	<i>Erratic</i>
Consultation between NGA and LGUs	3.00	<i>Erratic</i>
Overlapping programs and functions	3.00	<i>Erratic</i>
No clear accountabilities	3.23	<i>Erratic</i>
Lack of Human Resource	2.85	<i>Erratic</i>
Lack of Qualified People	3.38	<i>Erratic</i>

Problems in the Delivery of Basic Services	3.38	<i>Erratic</i>
Low Citizen's Participation	3.62	<i>Notable Gains</i>
Grand Mean	3.13	<i>Erratic</i>

Legend: 5.00 – 4.21 Sustained Progress, 3.40 – 2.61, Erratic 1.80 – 1.00 Getting Worse, 4.20 – 3.41, Notable Gains, 2.60 – 1.81 No Progress

The assessment of the Governance and Politics area in the Province of Marinduque presents a nuanced picture of local governance, highlighting both achievements and ongoing challenges.

Governance and Politics area in the Province of Marinduque indicates a complex and somewhat erratic development trajectory, with a score of 3.13 reflecting inconsistencies in governance over the decades of decentralization. The result suggests that while there have been some advancements in governance and political processes, these improvements have not been consistent. This erratic development may reflect fluctuations in political stability, changes in leadership, or varying levels of commitment to governance reforms.

The issue of low citizen participation has shown the highest positive development. This suggests that there may be ongoing efforts to engage citizens more actively in governance processes. This could involve initiatives aimed at increasing public involvement in decision-making, community programs, or local governance. On the other hand, with the lowest development and revealed to be erratic as observed over the past three decades are too much partisan, capacity of LGU to implement NGA's projects, and lack of human resource. These results suggests that political divisions and party loyalty may be hindering effective governance, leading to conflicts that detract from the focus on community needs and service delivery. The low capacity of LGU may indicate a lack of resources, training, or support necessary for LGUs to carry out these projects successfully. And, the shortage of qualified personnel within LGUs can hinder their ability to deliver services effectively and manage projects.

Table 5.2. Reasons and Responses on the Recurring Issues in Politics and Governance Area

Category	Reasons: Key Issues/Problems/Challenges	LGUs/Citizen Responses: Best Practices/Innovative Policies/Programs
Resources	1. Infrastructure Projects 2. Funds (not included in the devolved functions in the LGU) 3. Funding specifically are not evident for to resolved agencies 4. Lack of personnel to do the job 5. LGU requests for Placement Program from the National Government but still the LGU provides honorarium to the personnel 6. Lack of time 7. Low wages offered 8. People with skills tend to leave the province 9. job creation. 10. Education, accessible, free to all 11. Qualified people tend to leave the province to seek for greener pasture 12. incompetent public officials 13. Number of Basic Services and Facilities that shall be delivered and maintained by the LGU -versus- The meager funds and resources of the LGU 14. LGU Programs vs. National Programs of the devolved functions/services 15. Low yield 16. Problems on health function 17. Worst health services due to lack of funds and knowledge and also water and electricity 18. Equipment 19. Incompetent officials 20. Public officials who are not approachable.	1. Maximization of LGU Fund/Budget to implement priority projects than effective learning 2. Maraming infrastructure projects 3. May mga improvements, FMRs 4. Multi-tasking (Double designation) 5. Launch of new projects and programs funded help the government that will give birth to jobs 6. Existing human resources are sent to trainings and even graduate studies 7. Networking to facilitate the out-sourcing of the necessary funds in the delivery of Basic Services 8. Mayroong medical mission at ayuda, seeds, abono, etc. 9. New equipment were bought and communication to people who are in need are extended had for them to call the authority when in need
Process	1. Devolution of functions without the necessary funding resulting to lack of personnel to do the job	1. Launches programs/projects or activities that will benefit their constituent 2. They do this with transparency.

2. Funding receives from higher LGU to implement projects because of too much politicking among government officials
3. The function is decentralized but the budget is not
4. Fund dependent
5. Monopoly of politicians
6. Political dynasty
7. Palakasan system
8. Local politics is very limited to those who can afford electoral expenses
9. Personal Interest
10. Vote buying
11. Prioritization
12. LGU Priority Projects vs. National Development Agenda
13. No proper monitoring and feedback
14. The main concern here is the national government does not really address the needs of LGU. In addition due to national control projects were not delivered on time and most of the time is delayed
15. Some power and accountabilities of the LGU and National Government continue to overlap
16. Planning process mandated in section 114 (b) (RA 7160) is not observed
17. LGUs specialized on their jurisdiction
18. As observe during calamities, rehabilitation took years instead of rapid action.
19. Doble doble ang natatanggap ng isang tao
20. Misused of funds and corruption
21. Hindi well-announced sa publiko ang transparency board
22. The law and implementation of law is soft due to different reasons such as padrino and sometimes the head is also the one involve.
23. Unfunded created positions (waiting for the availability of funds)
24. Creation of Plantilla Position entails an increase in the PS Cap.
25. The very reason why others leave government is because they do not regularized employee.
26. Hiring of the right person, at the right position, at the right qualification, at the right time, at the right cost.
27. Kaunting komunikasyon sa mga tao
28. Kulang sa aksiyon
29. Education, Awareness to certain information
30. The main problem here is once na magsalita ka againts the current administration you will be red tag at ikaw ang babaliktarin kahit pa your just speak for what you observe. if the comments and suggestions were good accept it for improvement
31. Selection of qualified beneficiaries for the short programs
32. Compliance to a lot of requirements
3. Effective Development Planning and Receptive/Functional Local Development Council
4. Proof of proper planning are the projects particularly on infrastructure
5. Since LCEs have their own decisions when it comes to PPAs, based on experience PGM has always complied and adhere to what the National Government has to say
6. There are various programs that are launched to maximize the policies from the national government
7. Lobbyings is the key since having national connections will fastrack the release of funds and projects of the LGU.
8. LGU has their own local planning council that address the concerns and followed by the LGU in their future projects and activities
9. The best practice of LGU is to refer local development plan to stay with their direction to what they want to achieve
10. Inasigurado naman kung tama ang listahan ng mga benepisyaryo
11. Counterparting scheme to implement the project
12. Complementation of personnel to the LGU thru Placement Program
13. Proper delegation of function through temporary designation of employees of LGUs
14. Through certain designation, although temporary, will state that an employees is accountable
15. Double Designation
16. Instead of taking action on a certain issue, finger-pointing has become the norm
17. Massive Campaign in the Activities, Reactivation of Sectional Organizations (Women, Children, Farmer, Fisherman, PWD, LGBTQ, etc.)
18. Madalas na mga pagpupulong
19. Hinihikayat ang mga tao sa Clean-Up Drive
20. LGU – only tap 4Ps and other stakeholders wherein participation is required
21. Open forums, social media platforms where netizens/citizens, even the simple ones can voice out their concerns
22. Citizens have the freedom here to speak and at the same time people help the government in achieving its goal.

		23. Effective and Sound Planning to maximize the utilization of LGU funds. 24. Coordination with BHWs 25. One good practice of our LGU is the creation social media platform for faster transactions and inquiry. In addition is the addition of public desk to assist the public. 26. Consultation 27. LGU and NGAs meetings are also done na online platforms.
Policy & Guidelines	1. Rapid changes in administration and lack of competitive and knowledgeable officials are the main reasons for this overlapping and duplication and programs. With this overlapping of programs and function it leads 2. One problem i see is the rapid changes in leadership since local officials is only given 3 years per term until 3 terms. It is too short to really address and give solution to the problem of every LGU 3. Mandanas ruling; change of leader in the national government 4. Mandanas ruling; Lack of guidelines and clarity of the function from NGAs 5. There are certain limitations in terms of policies 6. Latitude of power of LCEs 7. NGA has their non-set of Survey Tools which data gathered is use to implement programs without presenting it to the LGU. 8. No laws/IRR/Other supporting laws to state the accountabilities 9. PS cap Limitation (Sec 325, RA 7160) 10. Established HRM Policies in Recruitment	1. Of course the best practice of the citizens is to reelects those officials that they believe will really help them in addressing their concerns in their respective localities. 2. The LGU established a Monitoring Committee which assess the implementation of programs by the NGA 3. Several laws were passed by the NGAs to support incapable people who wish to study and employed in the future 4. Enacted Municipal Ordinance Creating the Positions and Setting the Qualification Standards and Duties and Functions to hire the most qualifies person to the position 5. Enactment of Municipal Ordinance No. 2022-70 Peoples Participation Ordinance of Boac as mandated by Sec. 34, RA 7160 which promote the establishment of POs and CSOs to become active partners in the pursuit of local autonomy
Linkaging/Partnership	1. This is chaotic, the lack of planning and proper coordination is the main challenge. In addition central government does not know what is the real situation on the ground not until they go there. 2. Communication/Coordination to the right National Agency. 3. People do not just participate without getting something in return immediately.	1. Government and LGUs are collaborating in planning 2. Proper coordination with the authority is a must, sending communications, and meeting them is a plus. Through these, some LGUs were able to ask for help effectively. 3. Sending letters/communications to NGA for them to ask for assistance/approval

The assessment of the Politics and Governance area in the Province of Marinduque over the past three decades reveals a rich and complex landscape, characterized by a variety of recurring problems and responses from both local government units (LGUs) and the community.

On *resources*, prominent in the responses is the deficiency of needed budget, personnel and their capability, also of the LGUs to perform or deliver the devolved function of the national government. LGUS are also uncertain on whether to prioritize implementation of local programs and projects or those of the national agency. These issues were addressed by simply implementing priority projects out of the meager fund, giving double function to available personnel, and outsourcing needed fun for the delivery of basic services.

On *process*, politized implementation was expressed by the respondents, with presence of palakasan, personal interests over the public, and monopoly. The process of devolving the functions of national government to local government without the corresponding resources is a repeatedly expressed reason. The devolution also led to overlapping functions between LGUs and NGAs, delayed implementation of programs and projects by the NGA, duplicated services/benefits received by beneficiaries, and

NGAs implementation of projects not based on needs of the local community. This situation was worsened in the issuance of Executive Order 138, directing the implementation of full devolution under Republic Act No. 7160. As to the solutions made by both LGUs and the people, embracing the good governance principles of transparency and consultation in planning to implementation of priority programs and projects. The process is said to include creation of special working committees which involve people and sectoral organizations of the community. Use of social media platforms in information dissemination, communication and even in the delivery of basic services to the people were also pointed.

On *policy and guidelines*, the short term of local leaders (three years) which issued to rapid changes in leadership, priority programs and projects, opportunity to address problems and situations in the community is at the top of the reasons given by the respondents. The Executive Order 138 itself, issued in June 1, 2021, directing the full devolution of executive functions to local government caused the recurring problems in Politics and Governance area. To address the given reasons, it is said that they greatly depend on the people re-electing the most suited to the position, passing national legislations that support the needs of the LGUs, and the LGUs enacting ordinance on upgrading the qualifications of personnel to deliver the devolved functions of the LGUs.

Lastly, on *linkaging/partnerships*, communication and coordination between LGUs and NGAs played the main reason, as well as people's participation. These was addressed by institutionalizing coordination activities both with other agencies and the people.

In summary, the Politics and Governance area in Marinduque faces a range of challenges related to resources, processes, policies, and partnerships. While there are efforts to address these issues, significant barriers remain. By focusing on enhancing resource allocation, improving processes, enacting supportive policies, and fostering collaboration, Marinduque can work towards a more effective and inclusive governance framework.

4. CONCLUSION

The local governance of the Province of Marinduque indicates a mixed picture of progress and challenges across different governance areas. While the areas of Social and Environmental poses positive developments over the decades of local autonomy, Economic and Politics and Governance areas revealed to have inconsistent advancement.

Success in Social and Environmental areas suggests that Marinduque has made significant strides in improving the well-being of its citizens and addressing environmental issues. The reference to "decades of local autonomy" implies that the province has benefited from having more control over its governance, allowing for tailored solutions that address local needs effectively. In contrast, the economic and political governance areas are described as having "inconsistent advancement." suggests that while there may have been some progress, it has not been steady or uniform. The inconsistency in these areas could hinder overall development and affect the province's ability to sustain improvements in social and environmental governance. Despite local government units (LGUs) and citizens are taking proactive steps to improve all areas of governance there are still ongoing challenges in resources, processes, policies, and partnerships.

The situation in Marinduque illustrates a critical interconnectedness between social, economic, environmental, and political governance. The proactive measures taken by local government units (LGUs) and citizens in the social and economic areas highlight a commitment to improvement, yet the persistent challenges in resources, processes, policies, and partnerships across all sectors suggest that without a holistic approach, progress may be limited. If Marinduque continues to address its governance challenges in a fragmented manner, the gains made in social and economic areas may not be sustainable, as they are intricately linked to environmental and political stability. Therefore, a comprehensive strategy that integrates efforts across all governance areas—enhancing collaboration among LGUs, engaging communities, and aligning policies—will be essential for fostering resilience and achieving long-term, inclusive growth. This integrated approach will not only strengthen the province's capacity to tackle current challenges but also ensure that improvements in one area positively influence the others, creating a synergistic effect that benefits the entire community

ACKNOWLEDGMENT

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Research Article

Cow-cuddling: A Two-Way and True Way towards Wellbeing

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ABSTRACT

Human-animal interactions have been unique and pivotal forms of existence since the cradle of human civilisation. The nexus between the two is well established through domestication and friendly interactions wherever possible. This interaction modifies human and animal behaviour and illustrates the positive change in their defined behaviours through natural connections established as a consequence of mutualism and its resultant mutual benefits. The present research is aimed at shedding light on achieving overall well-being through human-animal interactions through cow-cuddling. The present research portrays positive mutual benefits for both cows and humans, obtained by positive mental benefits and relaxation. The Gopali Ashram Gaushala of Kharagpur, India, is used as our sample case study. The current research finds that the heart rate of cows declines significantly after cow cuddling and hugging by human beings. This generates a positive aura and is often considered good for the cow's health and milk production as well. The cows show definite positive mental peace and calmness, well exhibited by their ears, tail, and other body language. On the other hand, humans also obtain benefits like mental peace and calmness and a feeling of satisfaction and connection with nature through cow cuddling. Human beings also show distinct decrements in their pulse rates as more mental peace and relaxation are obtained. These characteristics were measured and analysed using statistical analysis and word cloud analysis. The findings portray positive benefits for both cows and humans through positive interactions. Therefore, cow-cuddling offers a new, diverse alternative form of cow-pathology or treatment of humans through cows in the long run. Thus, in the era of a cosmopolitan world, cow cuddling offers a unique way of establishing a natural connection through human-animal interactions, which ultimately is important for attaining sustainable development in the future.

Keywords: Cow-cuddling, human-animal interactions, benefits, relaxation, heart rate, sustainable development

1. INTRODUCTION

One of the most defining moments of the history of homo-sapiens, which has also traced the antediluvian history of life on earth, is human and animal interactions. One of the most pronounced forms of such expression is the domestication of animals by human beings. Such activity has always been an important factor in the survival of human beings to supplement their needs apart from just plant-based foods, as animals were significant sources of milk, meat, skin, and so on. The ubiquitous nonhuman animals offer a diversity of social aspects, providing food and clothing to humans, as well as leisure, entertainment, companionship, and healing (Amiot and Bastian, 2015). The domain of human-animal interactions largely focuses on human and pet relationships and their consequent health benefits, both physical and mental, to the owners and to the animal-assisted therapies (Wells, 2019; Steklis et al., 2023). Wells (2019) has studied the health benefits of human-animal companionship in older adults, like depression and associated cardiovascular diseases. They provide both social benefits and improvements in physical fitness. The hormone Oxytocin plays a vital role in this type of interaction. Compitus and Bierbower (2024) illustrate that “Koeknufflen” a Dutch word, directly means “Cow hugging” or “Cow cuddling”. In the Netherlands, there's a tendency observed among people travelling from urban areas to the countryside areas to spend quality time with non-human animals with the objective of decompressing and recalibrating of emotional setup (McGiffin, 2022). This type of planned activity or interaction is often called animal-assisted interaction (AAI) (Fine et al., 2013).

Some studies have been done on the welfare benefits of therapeutic animals (Serpell et al., 2010), where the care quality of the animal may directly impact the results on human beings (VanFleet and FaaThompson, 2017). Although equine-assisted therapy has a longstanding history as an effective treatment modality for numerous diseases, there are limited additional farm animal species, such as pigs and llamas, permitted to serve as certified therapy animals (Wesley et al., 2009; Fine, 2011; Waite et al., 2018). Thus far, minimal studies have been undertaken with farm animals as prospective therapy animals. No existing research has

investigated the cognitive consequences of therapeutic practice on farm animals. This study investigated the capacity of cows in a sample cow shelter or "Gaushala" to participate in Animal-Assisted Therapy (AAT) together with its cognitive benefits and welfare advantages stemming from animal participation. Animal-Assisted Interventions (AAI) encompass a range of structured and goal-oriented activities that leverage the human-animal bond. Due to deliberate design, these therapeutic interventions embed animals purposefully within health systems and educational institutions while social work establishments deliver therapeutic outcomes to patients (Fine et al., 2013, p. 5). Therapy dog-handler pairs work as an example of AAI through their visits to hospitals with the goal of bringing joy to sick patients. The definition of animal-assisted activity (AAA) describes it as a "planned and goal-oriented informal interaction combined with human-animal team visitation performed specifically for motivational, educational and recreational purposes" (Fine et al., 2013, p. 5).

The research conducted by Hartwig and Smelser (2018) showed that 91.7% of mental health professionals considered Animal-Assisted Therapy (AAT) to be a valid therapeutic approach, and they wanted to use a therapy animal in their practice sometime in the future. Numerous studies show that integrating animals into healthcare treatment can boost the capabilities of people suffering from autism (O'Haire, 2013) as well as pain (Silva and Osório, 2018) and depression. Peretti (1990), anxiety (Virués-Ortega et al., 2012), and substance abuse (Fine, 2011; Wesley et al., 2009; Waite et al., 2018). The research by Jones et al. (2019) showed that AAT produces substantial improvements in patient symptoms, whereas studies demonstrate that AAT participants experience considerable betterment in both self-efficacy and coping strategies and life quality (Berget et al., 2008). Medical practitioners within Animal-Assisted Interventions (AAI) state that interspecies animal interactions increase both social support networks and therapeutic motivation as well as support empathy development (Jaspersen, 2010; Fine, 2011). AAT functions within multiple therapeutic approaches which integrate psychodynamic treatment and cognitive as well as behavioural therapy and assists in the treatment of different mental health conditions. Research by Friedmann and Son (2009), O'Haire (2013) confirms that Animal-Assisted Therapy (AAT) delivers notable treatment results, yet AAT methodology receives ongoing scientific investigation to identify possible weak points (Herzog, 2014; Charry-Sanchez et al., 2018).

The measurement of animal social behaviours is crucial for assessing their suitability for therapy work. Cattle are recognised as social animals, and research by Boissy and Le Neindre (1997) indicates that social isolation leads to significant psychological stress in these animals. Indicators of stress in cattle can manifest as increased vocalisations, elevated heart rates, and heightened cortisol levels. Additionally, ears pinned to the head and more prominent sclera may be observed (Boissy and Le Neindre, 1997; VanFleet and FaaThompson, 2017). Stress signals in cattle, such as reduced vocalisations, tend to diminish when they are reintroduced to a social group. This reversal is more pronounced when the cattle can recognise the group members. Cattle exhibiting discomfort in the presence of humans will demonstrate heightened stress indicators, such as vocalisations, during therapy activities. Conversely, cattle that appreciate human interaction will display diminished stress signals. Additional significant behaviours observed in cattle during AAT may encompass lying down and engaging in licking or smelling of the individual. Cattle possess a stay apparatus like other large farm animals; however, in contrast to horses, they frequently lie down when they perceive safety, facilitating deeper sleep (Sturtz and Asprea, 2012; Temple et al., 2016). Cow licking and smelling behaviour may reflect their comfort level with humans, as cows engage in allogrooming (social grooming) (Tresoldi et al., 2015). This licking behaviour may signify familiarity or a desire to establish rapport. Dugatkin (2020) posits that socially relevant cues can facilitate quicker acclimatisation of animals to new individuals and environments, characteristics deemed advantageous for therapy animals.

Historically, across various cultures, animals have been regarded as vital contributors to human lives and survival, healing and health. Numerous spiritually characteristic traditions recognise connections between humans and animal life, viewing these relationships as integral to the interconnectedness of the natural world, including a bridge to the spiritual realm (Serpell, 2006). 'Cow snuggling' or cuddling is a type of animal-assisted therapy that involves brushing, patting, or conversing with a cow, facilitated by qualified psychological practitioners. The elevated body warmth, reduced heart rate, and substantial size of the cow can render the act of hugging them a profoundly calming experience, while providing backrub, leaning against them, and even being licked are integral components of therapeutic interaction (Sharma, 2021). Oxytocin, commonly referred to as the 'love hormone' or 'cuddle hormone', facilitates trust and fosters giving. The substance is naturally produced from the brain into the bloodstream of humans and other mammals in times of various sexual and social behaviours. It is generated by females during labour in order to facilitate bonding with the infant, to induce lactation. The molecule is released during intimate relations, earning it the moniker 'the cuddle hormone'. Additional affectionate gestures, such as embracing a teddy bear or caressing your beloved dog, can stimulate the release of the hormone (Sharma, 2021).

Moreover, it can be said that although plenty of research has focused on animal-assisted therapies and behaviours, studies are scant with regard to human-cow interactions and their mutual benefits to both cows and humans in a holistic framework. The present research aims to address this issue by addressing the uniqueness of both the human and cows' behaviour and their approach towards each other in a more comprehensive and inclusive framework. These types of interactions attain mutualism in terms of benefits of both physical and psychological in an inclusive framework. The statistical analysis, consisting of 60 cows and 120 humans as a total sample size of Gopali Ashram Gaushala (Cow shelter) of Kharagpur, India, and the word cloud analysis further validates the fact that cows have significant positive benefits for humans as well as cows themselves through cow-cuddling and cow-human interactions. This is beneficial for both dairy outputs of increased milk supply from the cows and the promotion of satisfaction and connections with the root of nature for human beings. Therefore, in the current world of megacities and cosmopolitan cultural characteristics, cow cuddling is expected to yield positive results for both cows and human beings and must be promoted as a therapy or a practice for the flow of human emotions through natural connections and worldly interventions. Therefore, medical practitioners, administrators, planners and policymakers should look into the promotion of these aspects to

achieve long-term sustainable growth with the inclusive framework and also inculcate positive vibes and mental growth to provide mental growth sustaining in relationships with our unavoidable cosmopolitan surroundings.

The objectives of the current investigation are described below: To study the basic structure of cow-human interactions and their nature; To study the significance of cow-cuddling as a method of cow-human interrelationship; and, To examine the health benefits and overall well-being of both cows and human beings through their interactions.

Sample. The sample case study of the present investigation is the cows of the Gopali Ashram Gaushala (Cow Shelter). The shelter or the ashram is located in Gopali village of Kharagpur city of West Midnapore district of the state of West Bengal in India. The ashram was built in the post-independence period in the 1970s with the objective of protecting and giving shelter to the cows. The ashram currently has a total of 60 cows. These cows are of various breeds like Ongole, Konkan Kapila, Red Sindhi, Sahiwal, Rath, Dangi, Mewati and so on. These are local species of cows. Some mixed species are also present, like Holstein, Jersey and so on, but are less in number. For the present investigation on the welfare of humans and cows through cow cuddling, all 60 cows were considered, and the number of individual respondents was 120. This sample was considered for investigation of the positive benefits of animal-human interaction through cow cuddling in a “gaushala” or cow shelter.



Figure 1: Gopali ashram gaushala (cow shelter), Kharagpur, West Bengal, India

2. MATERIALS AND METHODS

The data and its associated information regarding the examination of human-animal interaction and its positive mutual benefits were collected mainly in the form of primary data. The methods of data collection include in-depth interviews, questionnaire surveys, Focus Group Discussion (FGD), participant observation and Participatory Rural Appraisal (PRA). The data on the heart beats per minute (bpm) of the cows were measured by using stethoscopes at two different and distinct periods, one before cuddling and the other after cuddling. Their averages were computed for all 60 cows and are shown in bar graphs for illustration of pre-cuddling and post-cuddling results. The findings were further validated by a dependent samples t-test computation in the SPSS Software platform for all 60 cows in two different periods, i.e. pre and post cuddling. The positive resultant effects of cow cuddling on the 120 human individuals were further validated by word cloud analysis in the QSR NVIVO software platform. After this, the 120 individual responses were measured in Human-Animal Interaction Scale (HAIS) (Fournier et al., 2016, p. 24) consisting of a set of questions and the respondents' responses were recorded in Likert Scales ranging from 0 to 4. 0 being “not at all”, 2 being “moderate” and 4 being “A Great Deal”. These methods were chosen by keeping in mind the nature of human-cow interactions.

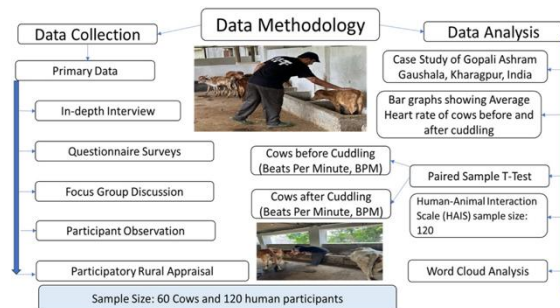


Figure 2: Methodologies observed in the current investigation

3. RESULTS AND DISCUSSION

Analysis of Heart Rate in Pre and Post-Cuddling Sessions among Cows

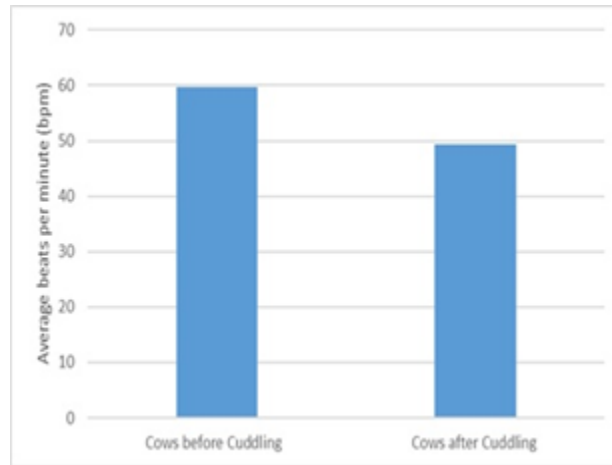


Figure 3: Heartbeats per minute of the cows before and after cuddling.

Figure 3 displays that the heartbeats per minute lowered significantly for the cows after cuddling by the human individuals. The average heart rate was close to 60 bpm before cuddling, while it dipped to almost 50 in the post-cuddling sessions.

This finding is further validated by the application of the Paired Sample T-Test. The results obtained are depicted below.

T-Test

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Cows before Cuddling (beats per minute, bpm)	59.73	60	3.517	.454
Cows after Cuddling (beats per minute, bpm)	49.42	60	1.369	.177

Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 Cows before Cuddling (beats per minute, bpm) & Cows after Cuddling (beats per minute, bpm)	60	.228	.080

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Cows before Cuddling (beats per minute, bpm) - Cows after Cuddling (beats per minute, bpm)	10.317	3.471	.448	9.420	11.213	23.020	59	.000

Figure 4: Dependent samples t-test results for the heartbeats analysis of cows before and after cuddling.

The paired samples t-test results are analysed by using the Null and Alternative Hypotheses. The results were analysed over the sample of 60 cows in the Gopali Ashram Gaushala.

These hypotheses are described as: Null Hypothesis (H_0): There is an insignificant or no significant difference between the average heart rate of cows before cuddling and the average heart rate of cows after cuddling; Alternate Hypothesis (H_1): There is a significant difference between the average heart rate of cows before cuddling and the average heart rate of cows after cuddling.

The findings from the above analysis through a paired sample t-test suggest or indicate that there is a statistically significant difference between the average heart rate of cows before and after cuddling. This indicates that the null hypothesis is strongly rejected in favour of our alternative hypothesis, where the value of significance is very low. In other words, the fall in the heart rates of cows after cuddling is statistically significant and is not due to random chance. This validates the fact that the cow cuddling by humans has a positive effect on cows.

Human-Animal Interaction Scale (HAIS). This analysis has been performed over 120 human respondents who physically came to the Gopali Ashram Gaushala and physically and mentally interacted with the cows. These human individuals were handed a questionnaire consisting of a set of questions designed according to the requirements of HAIS analysis. The respondents answered in Likert Scale Scores from 0 to 4 in a five-point Likert Scale. The HAIS analysis was performed on the basis of these responses and was expressed in percentages, i.e. percentage of response to points 0 to 4. This HAIS scale was previously used in some studies, like the measurement of animal response to humans by Compitus and Bierbower (2024) and Fournier et al. (2016, p. 24).

Table 1: Average scores obtained during the time of human response experience. Most participants opted to spend time near the animals, which are the cows.

	Not at all or nothing 0	1	Medium amount 2	3	A great deal or amazing 4
Watch the animals		9.16	6.66	12.5	71.66
Spend time near the animals		1.66	5	7.5	85.83
Pet the animals		3.33	2.5	12.5	81.66
Talk to the animals		1.66	6.66	26.66	65
Hug the animals		12.5	58.33	20.83	8.33
Play with the animals		18.33	50.83	15	15.83
Kiss the animals	70	16.66		5	8.33
Groom the animals	84.16	4.16	5		6.66
Offer food to the animals	6.66	8.33	21.66	30	33.33
Attempt tricks or training with the animals	75	25			
Hold the animals	54.16	25	1.66	10.83	8.33
Take pictures with the animals	6.66	4.16	10	16.66	62.5
Decline or avoid interaction with the animals	83.33	1.66	4.16	8.33	2.5
Behave aggressively toward the animals	100				

“During the session, how much did YOU...” (Fournier et al., 2016, p. 24).

As per table 1, majority of the participants choose to spent time with the cows, watch them, pet them, talk to them, take photos, but majority opined against grooming, holding the animals, or to train them, avoid interaction with the cows and so on. This clearly portrays the positive benefits of cow cuddling as the above analysis.

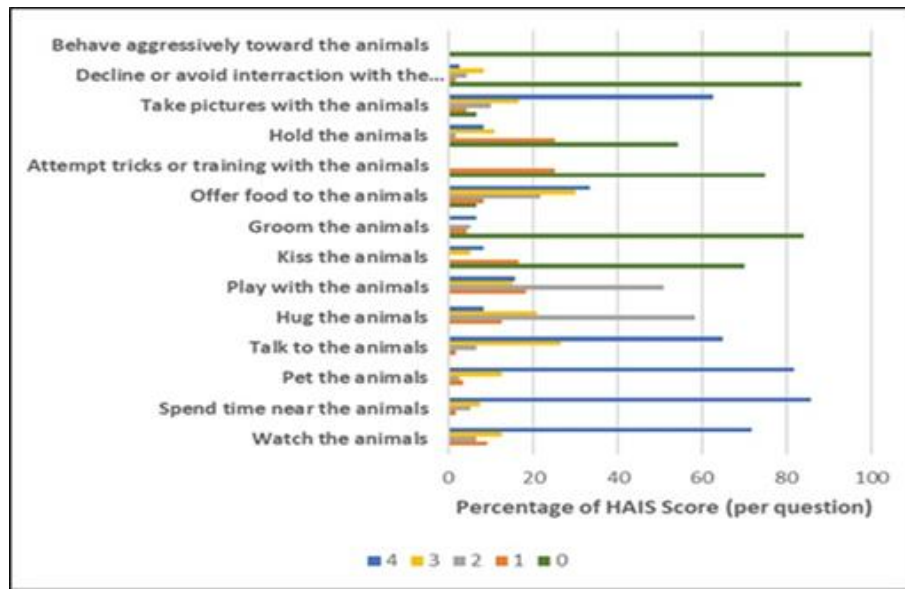


Figure 5: Response of Human Experience (overall percentage score for each question)

Now the study measures the cow responses as per opinions received from the questionnaire from the human respondents in Table 2.

Table 2: Average scores of animal response experience. The participants mostly reflected that cows were friendly, made friendly sounds, accepted food and licked.

	Not at all or nothing 0	1	Medium amount 2	3	A great deal or amazing 4
Initiate friendly interaction with you		1.66	5.83	16.66	75.83
Make friendly sounds	5	6.66	8.33	11.66	68.33
Accept food from you		3.33	8.33	1.66	86.66
Obey tricks or training	82.5	0.83	3.33	4.16	9.16
Sniff or smell you			5.83	29.16	65
Lick you	6.66	13.33	15.83	15.83	48.33
Make unfriendly sounds	95	1.66	0.83	2.5	
Behave aggressively toward you	92.5	5	2.5		
Cause a mess or inconvenience for you	77.5	10.83	10	1.66	
Decline or avoid interaction with you	66.66	12.5	15	5.83	

“During the session, how much did THE ANIMAL(S)...” (Fournier et al., 2016, p. 24).

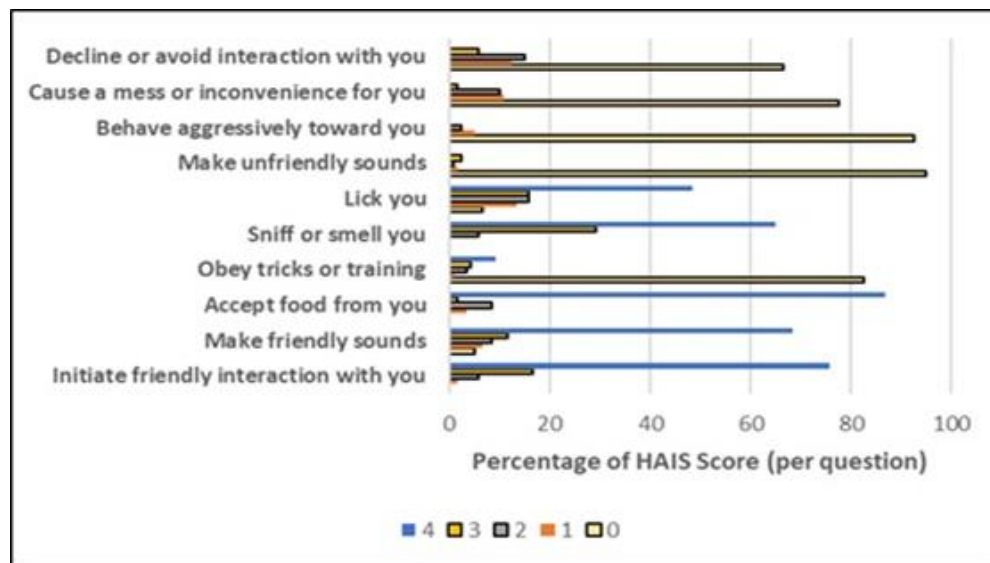


Figure 6: Response of Animal Experience (Overall percentage score for each question)

As per table 2 and figure 6, the participants mostly said that cows were friendly, made friendly sounds, accepted food and licked, and almost no one wanted to avoid interaction with the cows. The cows were not aggressive and were calm. There was also no report of unfriendly noise from the cows. These are very important and significant findings of the positive mutual benefits of human-cows interactions.

Word Cloud Analysis. The word cloud analysis illustrates the words used most frequently during an interview by respondents. These are very diagrammatic and illustrative ways of reflecting the common opinions of the public. As reflected in Figure 7, words like cows, relaxed, feel, relaxation, experience, human, pleasure, cuddling, psychological and so on were most frequently used by the respondents. This highlights a strong positive effect of human-cow interaction upon the human mind and its overall well-being.

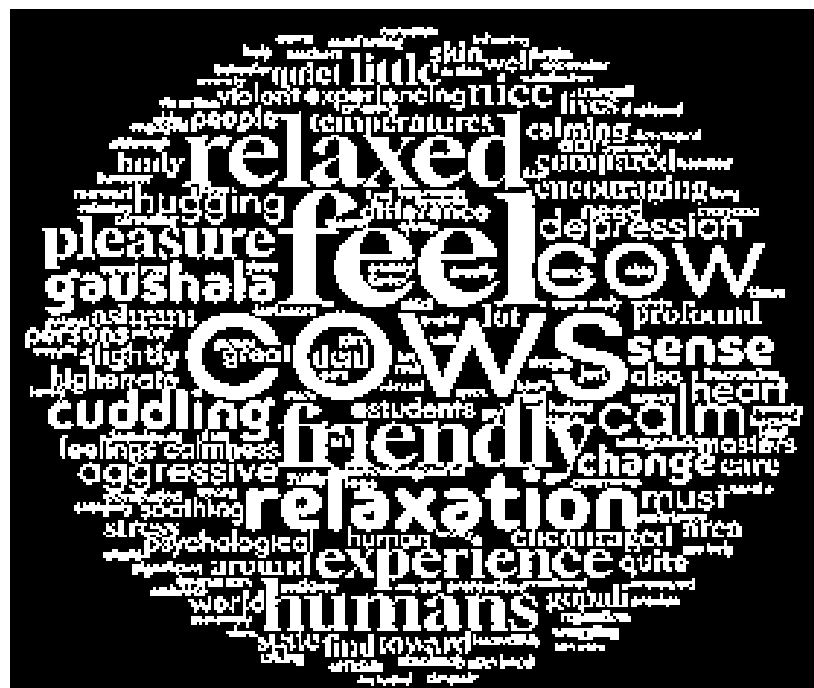


Figure 7: Word Cloud Analysis of 120 respondents.

Redefining wellbeing through human-cows interaction. The human-cow interaction is a new domain in animal-assisted therapies. There are several potential health benefits for both cows and humans through such interactions. The humans get rid of negative feelings, stress, anxiety and emotions as revealed from the word cloud analysis of figure 7. The cows also get positive benefits in the form of reduced heart rates and an increase in milk production, as reflected by the paired sample t-test in Figure 4 and bar graphs in Figure 3. Therefore, human-cow interactions help to redefine the concept of wellness by establishing a connection with nature. It must be borne in mind that there are certain stages of human-cow interactions. These are reflected in Figure 8.

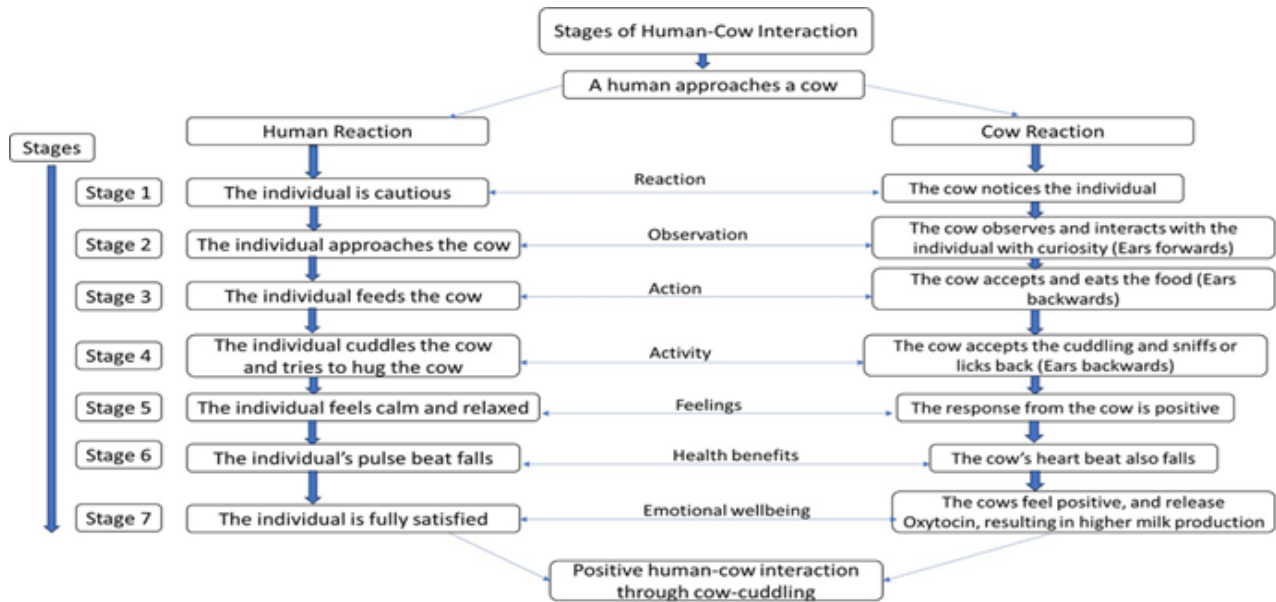


Figure 8: Stages of Human-cow interactions.

It is worth noting that during this interaction, the cow's feelings can be comprehended by studying their ear positions. Cows are intelligent bovine animals and can exhibit a wide range of emotions, feelings and personalities. The backwards-facing ears are signs of a relaxed state of cows, while the forward-facing position of the ears is a sign of potential alertness, anxiety and discomfort of the cows (figure 9).



Figure 9: Different types of feelings associated with different ear positions of cows



Figure 10: Cow cuddling by our human respondents

Mutualism: the well-being of both cows and human beings. It is noteworthy that the human-cow interaction is beneficial for both species through mutualism. The cows show reduced heart rates, which are considered good for their health. Similarly, the interactions also showed reduced pulse rates of our human respondents as well. Therefore, cow cuddling is mutually beneficial for the overall well-being of both cows and humans. This fact has been proven by the statistical analysis and analysis by the HAIS scale. The findings of the present research on cows in gaushalas also validate the findings of Compitus and Bierbower (2024). Figure 8 aptly describes the various stages of cow-human interactions. One of the most defining outcomes of such interaction is emotional well-being for both humans and cows. When the cows feel relaxed and are calm, their ear positions become backwards-facing. In contrast, if the concerned cow is in a state of stress and alertness, they have forward-facing ears (figure 9). Therefore, cows' feelings can be reckoned by their ear movements, tail movements, head movements and so on.

Cow cuddling: a redefining component of cowpathy. The existing research has focused on aspects like “panchagavya”, cow urine, and cow dung as alternate ways of medical treatment. However, cow cuddling can redefine the concept of human treatment through cows. The human participants in the current study showed reduced levels of stress, anxiety and negative thoughts after cow cuddling. Many participants come for cow cuddling at the gaushala to obtain these potential benefits for mental health and well-being. The pulse rate of many participants fell considerably after cow cuddling. Therefore, cow cuddling is a new domain of research, where more findings and observations are required to obtain and validate the existing knowledge.

Getting rid of anxiety, fear and other negative feelings. Cow cuddling sessions offer a wide range of emotional benefits to mankind. This fact has been well established by the current study. We are all surrounded by an urban set-up and mostly live and work in a cosmopolitan world. Most of the time, we end up with depression, anxiety and other negative feelings. These negative feelings encapsulate us like vicious cycles. In order to get rid of these chains of negativities, cow cuddling is mostly considered with a high value in therapeutic treatments, like in AATs (Animal Assisted Therapies). The participants of the current study have reported much improved mental health with reduced stress and anxiety after human-cow interactions through cow cuddling.

Establishment of human-nature interrelationship in affirmative ways. The cow-cuddling process is not just a therapy. It helps us to re-establish the long-lost connections of humans with nature or the environment. Cows have lower heart rates and higher body temperatures compared to humans. Due to which they inculcate positive vibes and energies through positive feelings for humans. The participants of the current research exhibited more peace and calmness when they hugged the dewlap of the cows. Moreover, as cows are peace-loving bovine animals, the human mind becomes calmer after a positive interaction with a cow. The participants of the present investigation reported much more mental satisfaction and positivity after a cow cuddling session.



Figure 11: Mutual benefits of Cows-Human Interaction

4. CONCLUSION

Lastly, it can be concluded by describing that cow cuddling is a very important form of AATs. These days, people suffer a lot from negative emotions. The cow cuddling process can help to get rid of them in many ways, which needs more exploration, research and investigation. The concept of cows is deeply enshrined in the Indian Vedas, exhibiting its value as a rich heritage of traditions and culture of the ancient world. The present research observes mutual or two-way benefits for both humans and cows through human-cow interactions. The current study has attempted to statistically establish this facet of well-being. Therefore, cow-cuddling must be encouraged as a therapeutic value and cultural value in all societies of the world. The medical practitioners, administrators, policymakers and planners must look into the fact of promotion of cow cuddling to provide the development of both mind and body in an inclusive and holistic framework.

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Research Article

The Influence of the Timeliness of Goods Delivery, The Speed of Goods Delivery Time, The Transparency of Goods Delivery Information on Customer Satisfaction and Company Performance Case Study at Posind Kendari Main Branch Office

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ABSTRACT

This study aims to determine the effect of timeliness of goods delivery on customer satisfaction and company performance with a case study on PosIND KCU Kendari which in the current era of globalization, the development of businesses engaged in the goods delivery industry is increasing. So that consumers have many choices in using shipping services that can be trusted with good service quality. One way to increase competitiveness is to provide quality service in accordance with the interests of consumers by understanding the needs and desires of consumers (Tjiptono, 2012). There are several service considerations that can create customer satisfaction for goods delivery services, including speed of delivery time, timeliness of delivery, and transparency of delivery information. As one of the oldest logistics companies in Indonesia, Pos Indonesia has played an important role in supporting economic activity, both at the local and national levels. With an extensive distribution network covering urban areas to remote areas, Pos Indonesia has a competitive advantage in reaching all corners of the country. One of the main challenges faced by Pos Indonesia is competition with similar technology-based logistics companies, which offer faster and more flexible delivery services. In addition, changes in consumer behavior that are increasingly oriented towards digital platforms, such as e-commerce, require Pos Indonesia to continuously adapt to remain relevant in the market. Operational constraints, such as efficient route management, limited infrastructure in some areas, and high distribution costs, one of which is the imbalance between the increasing demand for distribution services and the limited availability of infrastructure in some areas, are also issues that require serious attention. However, the challenges of managing distribution channels in the digital era are increasingly complex. This research is a quantitative study that aims to determine the effect of on time delivery of goods on customer satisfaction and company performance. The population in this study were POSIND KCU Kendari service users. The study population was 150 customers with a sample size taken as many as 109 respondents determined by the Slovin formula, using the random sampling method. Data collection is done through the distribution of questionnaires. The analysis technique used is the PLS (Partial Least Square) analysis method with SmartPLS3.2 software. The results of this study indicate that the T-Statistic value for the variable speed of delivery time is 4.289 where the T-Statistic > 1.96, p-value = 0.001. This means that there is a positive and significant influence on customer satisfaction. There is a positive and significant influence on the timeliness of delivery of 3.286 where the T-Statistic > 1.96, p-value = 0.001. There is a positive and significant effect of information transparency of 2.896 where the T-Statistic > 1.96, p-value = 0.004. There is a positive and significant effect of customer satisfaction of 29.174 where the T-Statistic > 1.96, p-value = 0.000.

Keywords: On Time Delivery, Speed of Delivery, Transparency of Delivery Information, Customer Satisfaction and Company Performance.

1. INTRODUCTION

In the era of digital and globalization, the logistics industry is experiencing rapid development that requires service providers to improve the quality of service in order to remain competitive in the market. As one of the main players in the logistics sector in Indonesia, PT Pos Indonesia has a strategic role in providing efficient, fast, and reliable goods delivery services. However, in an effort to maintain relevance amidst increasingly tight competition, service quality as measured by the Service Level Agreement (SLA) is an important indicator that influences customer satisfaction and, ultimately, impacts company performance. SWP performance of PosInd Kendari Main Branch Office in 2023 was 96% while SWP performance in 2024 was 95.5% and this performance decreased slightly by 0.40% compared to 2023 while the number of shipments received in 2024 was 534,771 items and in 2023 the number of shipments was 583,240 items, a decrease of 48,469 items compared to 2023, while the income generated in 2024 was IDR 9,892,166,480, and in 2023 it was IDR 9,730,215,814 this is inversely proportional to the productivity of the

delivery produced so that the author wants to know the effect of punctuality in delivery of goods on customer satisfaction and company performance

As one of the oldest logistics companies in Indonesia, Pos Indonesia has played an important role in supporting economic activities, both locally and nationally. With a wide distribution network covering urban areas to remote areas, Pos Indonesia has a competitive advantage in reaching all corners of the country. However, the challenges in managing distribution channels in the digital era are increasingly complex. One of the main challenges faced by Pos Indonesia is competition with similar technology-based logistics companies, which offer faster and more flexible delivery services. In addition, changes in consumer behavior that are increasingly oriented towards digital platforms, such as e-commerce, require Pos Indonesia to continue to adapt to remain relevant in the market. Operational constraints, such as efficient route management, limited infrastructure in some areas, and high distribution costs, one of which is the imbalance between the increasing demand for distribution services and the limited availability of infrastructure in some areas, are also issues that require serious attention. In major cities such as Jakarta, Surabaya, and Bandung, Pos Indonesia can easily provide fast delivery services, but in remote areas and more inaccessible regions, deliveries are often hampered due to a lack of transportation facilities and accessibility. As a state-owned logistics company, Pos Indonesia also has a strategic role in ensuring goods and information can be distributed evenly, even in areas that are difficult to reach by other companies. This is both a plus and a challenge, as distribution in remote areas often costs more and takes longer than distribution in urban areas. These factors not only affect customer perceptions, but are also key components in creating a positive customer experience. When a customer is satisfied with the service provided, the likelihood of continuing to use the service and providing recommendations to others increases, which in turn supports improved company performance.

On the other hand, the high expectations of customers in this modern era pose significant challenges for companies like Pos Indonesia. Many customers now compare Pos Indonesia's services with those of other companies that may be more innovative in their use of technology and operational efficiency. Customer dissatisfaction due to failure to meet SLAs can have a negative impact on the company's reputation, reduced customer loyalty, and decreased competitiveness.

According to Moerdiyanto (2024), company performance is the result of a series of business processes that utilize various resources. The dimensions/indicators of company performance according to Moerdiyanto (2024) consist of financial performance, operational performance, customer performance, market share, and level of innovation. According to SK Singh, et al. (2020), Yanto R (2020), MA Khan, et al. (2020), JM Lee, et al. (2020), Seshadri (2001), company performance is influenced by purchasing decisions. According to Yanto R (2020), purchasing decisions are the main aspect of consumer behavior that leads to the purchase of a product or service. Indicators of purchasing decisions include: perceived quality, customer satisfaction, brand loyalty, purchase intention, perceived value for money.

Soegoto (2013) defines that customer satisfaction is the feeling of customers that arises when comparing a product in relation to customer expectations of existing products, the feeling is pleasure or disappointment. Customers will feel dissatisfied if the expected product appearance does not match reality, if the product appearance is better or as expected, the customer will feel satisfied. That customer satisfaction or dissatisfaction is a response of customers to the evaluation of discrepancies that have been felt by previous expectations after using service products.

According to Haryanti (2012) adds that the level of customer satisfaction is highly dependent on the quality of an existing product. The large diversity of different customer desires results in individual customer satisfaction being very difficult to achieve, this requires an approach in order to get an optimal solution.

Aminah et al, in the journal Sakti and Mafudz (2018), explained that the timeliness of delivery is the period of time when the customer orders the product until the product can arrive at the buyer's hands.

Then Pujawan in the journal Aminah et al., (2017), provides a definition of timeliness is the ability of suppliers to deliver packages on time with small delivery lots. There will be an assessment between suppliers and companies, their production capacity and delivery capabilities in a timely manner.

Supported again timeliness according to Chairil and Ghozali (2001) in the journal Lisnasari et al., (2016) timeliness is, a utilization of information by decision makers before the information loses its capability.

Dikaprio Dewantoro, Lina Aryani, Faisal Marzuki in the journal Proceedings of Biema Business Management, Economic, And Accounting National Seminar Volume 1, 2020 | Hal. 278 - 293 Transparency of Shipping Information is access provided from companies to consumers in order to create a convenience that aims to pamper consumers, with the hope that consumer satisfaction will be achieved. Tracing system itself is a facility based on the use of GPS (global positioning system) according to Hasanuddin (2007) GPS is a satellite navigation and positioning system using satellites. So the tracking system is certainly needed to monitor the whereabouts of the package.

According to Setiawan (2014: 60) Delivery Speed is to deliver the agreed day and overcome delivery problems and quantity reliability such as accuracy and conformity of delivery quantity. The suitability of the contents of the package and the delivery time of the delivered goods Conformity to the quantity and packaging requirements is also guaranteed.

According to Riley and Klein (2019) Delivery Speed is a time interval that includes the period to transport the next order to the position desired by the consumer, this illustrates one of the many critical aspects of the delivery service procurement capability, because delivery speed is considered an additional service of an e-commerce platform.

From some of the theories above, researchers synthesize that Delivery Speed is a vital component in delivery services that includes timeliness, quantity accuracy, and suitability of package contents as promised to customers. This factor is very important in increasing customer satisfaction and business competitiveness, especially in the context of e-commerce, where speed and reliability of delivery are significant added values.

Previous delivery speeds have been widely researched by (Maslikhan et al., 2020), (Wati et al., 2022), (Anggraeni et al., 2024).

This study aims to analyze how the effect of timeliness of delivery, speed of delivery time and transparency of goods delivery information on customer satisfaction and its implications for company performance. By knowing the relationship between these three variables, the research is expected to provide strategic input for companies to improve service quality, create customer satisfaction, and strengthen company performance in the midst of increasingly competitive competition.

2. MATERIALS AND METHODS

This research uses a quantitative approach to test the hypothesis that has been set. According to Creswell (2014), quantitative research is a systematic approach to testing theory by examining the relationship between variables, expressed in numbers and analyzed using statistical techniques. Data collection was carried out through distributing questionnaires to respondents who were customers of PT PosIND Kendari Main Branch Office.

In determining the sample size, researchers used the Slovin formula with a margin of error of 5%, so that a sample size of 109 respondents was obtained from a population of 150 PosIND KCU Kendari customers. Data collection was carried out by distributing questionnaires both directly. The questionnaire used in this study is in the form of structured questions designed to measure variables such as timeliness of delivery, speed of delivery, transparency of delivery information, and customer satisfaction. The collected data is then processed using the PLS-SEM (Partial Least Squares Structural Equation Modeling) application.

According to Hair et al. (2019), PLS-SEM is a structural equation modeling technique suitable for analyzing data with small sample sizes and non-normal data distributions. Furthermore, Ramayah et al. (2021) emphasized that PLS-SEM is particularly advantageous in exploratory research because of its flexibility in handling complex models with multiple indicators and constructs. The SmartPLS application is used to analyze the relationship between variables in the research model, including testing the validity and reliability of research instruments and hypothesis testing.

3. RESULTS AND DISCUSSION

The research Model in this study is presented in figure 1.

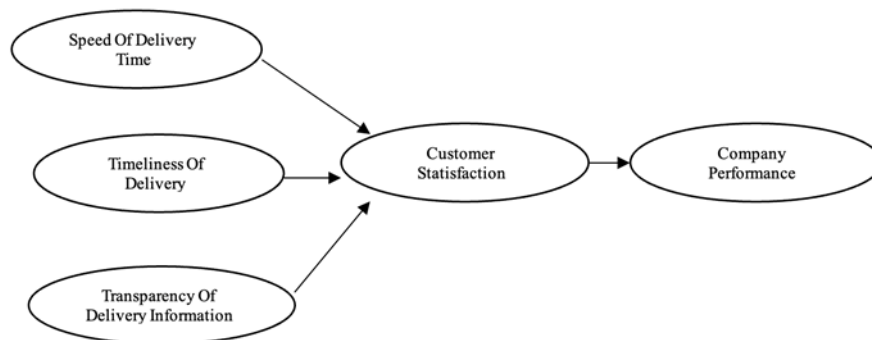


Figure 1. Research Model

Hypothesis: The authors set the following hypotheses:

1. H1: The speed of delivery time of goods has a positive influence on customer satisfaction at Pos Indonesia KCU Kendari.
2. H2: Timeliness of delivery of goods has a positive influence on customer satisfaction at Pos Indonesia KCU Kendari.
3. H3: Transparency of information in shipping has a positive influence on customer satisfaction at Pos Indonesia KCU Kendari.
4. H4: Delivery time speed, delivery timeliness and transparency of delivery information have a positive influence on customer satisfaction at Pos Indonesia KCU Kendari.
5. H5: Customer satisfaction has a positive influence on company performance at Pos Indonesia KCU Kendari, both directly and through customer satisfaction as a mediating variable.

Construct Reliability and Validity

Matrix	Cronbach's Alpha	rho_A	Composite Reliability
	Cronbach's ...	rho_A	Composite ...
KECEPATAN...	0.937	1.061	0.956
KEPUASAN ...	0.836	0.856	0.903
KETEPATAN ...	0.814	1.014	0.869
KINERJA PE...	0.796	0.805	0.883
TRANSPAR...	0.830	0.849	0.897

Uji Validitas	Kriteria Pengujian	Sumber
Validitas Convergent	Loading Factor > 0.70	Chin & Dibbern, 2010
	AVE > 0.50	
Validitas Discriminant	HTMT < 0.90	Website SmartPLS

Uji Reliabilitas	Kriteria Pengujian	Sumber
Cronbach's Alpha	>0.70	Chin & Dibbern, 2010
Composite Reliability (rho_c)		

The results of the research on the Validity and Reliability test show that: Speed of Delivery Time (x1): Passed the Validity and Reliability Test, Timeliness of Delivery (x2): Passed the Validity and Reliability Test, Transparency of Delivery Information (x3): Passed the Validity and Reliability Test, Customer Satisfaction (Y): Passed the Validity and Reliability Test, Company Performance (Z): Passed the Validity and Reliability Test

Path Coefficients

Mean, STDEV, T-Values, P-Values	Confidence Intervals	Confidence Intervals Bias Corrected	Samples	
	Original ...	Sample Me...	Standard D...	T Statistics (...)
KECEPATAN WAKTU PENGIRIMAN_ -> KEPUASAN PELANGGAN	0.337	0.334	0.077	4.366
KEPUASAN PELANGGAN -> KINERJA PERUSAHAAN_	0.941	0.942	0.032	29.148
KETEPATAN WAKTU PENGIRIMAN -> KEPUASAN PELANGGAN	0.259	0.262	0.081	3.204
TRANSPARANSI INFORMASI -> KEPUASAN PELANGGAN	0.241	0.249	0.090	2.689

After the calculation results with bootstrapping were carried out, the following results were found: Speed of Delivery Time x1 to customer satisfaction Y 0.337, Timeliness of Delivery x2 to Customer Satisfaction y 0.259, Transparency of Delivery Information X3 to Customer Satisfaction Y 0.241, Customer Satisfaction Y to Company Performance Z 0.941. As for R Square, namely the price of goods X1 X2 X3 has an influence on customer satisfaction Y of 0.319 or 31% and R Square Against y Queen company performance has an influence of 0.885 or 88%

R Square

Matrix	R Square	R Square Adjusted
	R Square	R Square A...
KEPUASAN PELANGGAN	0.319	0.300
KINERJA PERUSAHAAN_	0.885	0.884

The results of the study indicate that the average value for each indicator ranges from 2.488 to 2.806 which falls into the category of fairly good to good variables. Given that these variables have average values that are not yet very good, it can be explained that the variables in this study meet the criteria for further study and refer to the opinion of Waskito (2024) which states that variables that are worthy of study are variables that have an average value of 1,000 to 3,400, it can be explained that the variables in this study meet the requirements for study.

The validity test is a questionnaire test tool to ensure that respondents are given the opportunity to convey the respondent's opinion that the respondent strongly agrees, agrees, moderately agrees, disagrees, and strongly disagrees with the statement on each questionnaire question as well as to test whether the respondent really uses his/her rights by giving an opinion strongly agreeing, agreeing, moderately agreeing, disagreeing, and strongly disagreeing with the questions in the questionnaire.

The tools used to test the quality of the questionnaire were validity and reliability tests. The validity test ensures that respondents are given the opportunity to express their opinions by rating each statement in the questionnaire on a scale of strongly agree to strongly disagree. The validity test also ensures that respondents are correct in exercising their right to provide opinions ranging from strongly agree to strongly disagree. The results showed that the load factor value of all indicators on the variables

studied was greater than 0.700. Therefore, according to Hasnita (2021), all indicators in this study are declared valid. Hasnita (2021) explains that a variable is said to be reliable if each variable has a Cronbach's Alpha value greater than 0.700. All variables have a Cronbach's Alpha value above 0.700 so they are reliable for this study.

The results showed the T-Statistic value for the variable speed of delivery time was 4.289 where the T-Statistic > 1.96, p-value = 0.001. This means that there is a positive and significant influence on customer satisfaction. There is a positive and significant influence on the timeliness of delivery of 3.286 where the T-Statistic > 1.96, p-value = 0.001. There is a positive and significant effect of information transparency of 2.896 where the T-Statistic > 1.96, p-value = 0.004. There is a positive and significant effect of customer satisfaction of 29.174 where the T-Statistic > 1.96, p-value = 0.000. The overall research model can be explained in picture 2 below

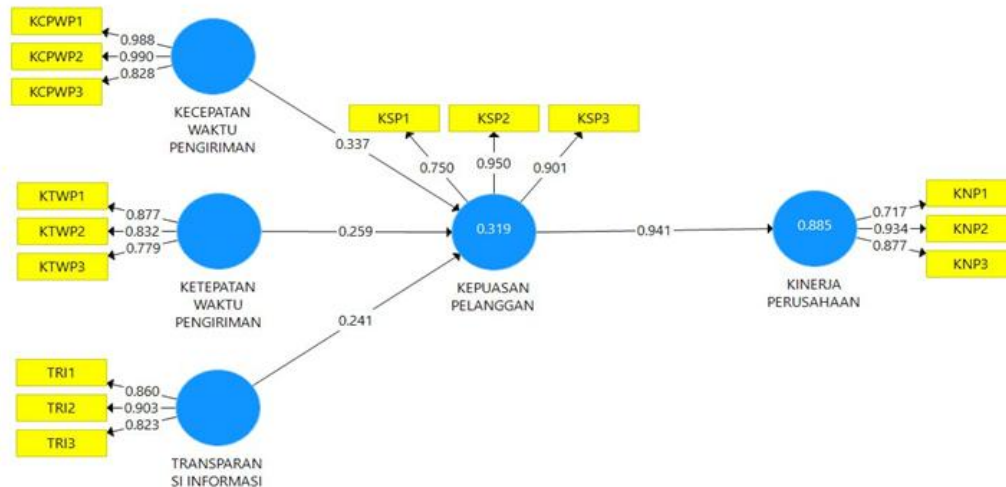


Figure 2. Research Result

From the model/diagram above, it can be concluded that speed of delivery, timeliness of delivery, and transparency of information all contribute positively to customer satisfaction. In addition, customer satisfaction has a very strong influence on company performance, meaning that increasing customer satisfaction will have a significant impact on company performance.

From research conducted at PT PosIND KCU Kendari, the authors succeeded in proving that delivery time speed, delivery timeliness and transparency of delivery information have a positive effect on customer satisfaction, and customer satisfaction has a positive and significant effect on company performance. Given that the variables used in this study still have a relatively small influence on customer satisfaction, the authors suggest that future researchers look for or add other variables that can have a stronger influence on customer satisfaction, such as innovation, technology, customer feedback, and so on.

4. CONCLUSION

From the results of the study, it was found that all variables had a positive effect on customer satisfaction. However, considering the T Statistic value for the information transparency variable 2.922 which is the smallest value, it is necessary to re-evaluate whether the application of information transparency to customer satisfaction will have a significant impact on the performance of PT PosIND KCU KENDARI. Alternatively, the company can provide other options that can encourage customers to continue using services at PosIND KCU Kendari.

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Research Article

Retrospective Analysis of Project Rewards Program Towards A Proposed Practical Guidelines

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ABSTRACT

This retrospective analysis investigates how effective the Project REWARDS program has been in improving the comprehensive literacy skills of Grade 6 students at West Rembo Elementary School over the past three years. This study aims to evaluate student performance in reading comprehension, writing skills, and arithmetic proficiency within the 3Rs framework. The findings demonstrate a consistent enhancement in all domains, particularly with respect to the growing number of students reaching higher levels of literacy proficiency. Nonetheless, ongoing difficulties were recognized in areas such as drawing inferences and critical reading, maintaining coherence in writing, and tackling mathematical problems. The research underscores the importance of support mechanisms that were put in place, including remedial programs, differentiated instruction, and enhanced collaboration between home and school, all of which aided students' advancement. Practical guidelines are proposed to further enhance the Project REWARDS program, based on the findings. This encompasses improving ongoing formative assessments, bolstering differentiated and remedial teaching, incorporating interactive and tech-based activities, and fostering closer collaboration between home and school. To guarantee that teachers can adequately meet new literacy needs and challenges, ongoing professional development is also stressed. The study concludes that although Project REWARDS has made a significant contribution to the literacy development of Grade 6 students, it is necessary to implement sustained efforts and adaptive strategies to fully address ongoing learning gaps. The program can more effectively prepare students with the essential literacy skills required for academic achievement and lifelong learning by concentrating on enhancements in instruction as well as systemic support.

Keywords: Project REWARDS, literacy development, 3Rs strategy, reading comprehension, writing skills, arithmetic proficiency, differentiated instruction, remedial programs, literacy intervention, home-school collaboration, formative assessment, technology integration.

1. INTRODUCTION

The cornerstone of academic achievement is literacy, which gives students the necessary tools for reading, writing, and math. Nevertheless, despite its importance, many sixth graders still struggle with basic literacy abilities for a variety of reasons, including low engagement, little exposure to reading, and inadequate support. A methodical and creative strategy that supports literacy development and cultivates a love of learning is needed to address these issues.

Recognizing this need, Project REWARDS (Reading, Writing, and Arithmetic Reinforcement through Developmental Strategies) was designed to boost reading skills through an integrated 3Rs strategy. This technique leverages the interconnection of reading, writing, and arithmetic to increase learners' understanding, analytical thinking, and capacity to apply gained knowledge across diverse subject areas. Project REWARDS seeks to reduce literacy gaps and foster higher-order thinking abilities that are critical for academic success by making learning more interesting and organized.

The purpose of this study is to assess how well Project REWARDS has improved the literacy abilities of sixth-grade pupils at West Rembo Elementary School. It specifically investigates the ways that structured interventions—like writing workshops, guided reading sessions, and numeracy drills—help children enhance their literacy. The study also looks at how the curriculum affects students' ability to think critically and solve problems, two abilities that are crucial for both academic and practical applications in the future.

Additionally, this study offers insightful information about how Project REWARDS might be used as an organized literacy intervention to decrease the achievement inequalities among elementary school students. This study adds to the expanding corpus of research on literacy teaching and curriculum development by examining its effects on students' writing skills, mathematical reasoning, and reading comprehension. The study's conclusions might also improve already-existing literacy programs or guide the creation of comparable efforts in other elementary schools.

The ultimate goal of this study is to ascertain how well Project REWARDS has worked to raise the general literacy proficiency of students in Grade 6 at West Rembo Elementary School. The research attempts to find best practices that can be modified or extended to enhance literacy instruction in comparable school contexts by offering empirical proof of its effects. The findings will help educators, school officials, and legislators create focused interventions that give students the literacy skills they need to succeed and learn throughout their lives.

A child's ability to engage with the outside world and cultivate critical thinking abilities is shaped by literacy, which is still a fundamental component of schooling. Even though the 3Rs method has long been acknowledged as essential to cognitive growth, there are still difficulties in guaranteeing that every student becomes proficient. By using Project REWARDS as an evidence-based framework for improving literacy instruction, this study seeks to close these gaps. This research supports national educational goals by methodically assessing its implementation and results, guaranteeing that students gain the skills necessary to succeed in the twenty-first century.

Supporting continued initiatives to decrease literacy disparities and advance fair access to high-quality education is the main objective of this study. This study lays the groundwork for enhancing literacy education and encouraging academic achievement among primary school students by identifying successful literacy tactics and interventions.

2. MATERIALS AND METHODS

2.1 Research Design

This study uses a descriptive research design with document analysis to investigate how well Project REWARDS has improved literacy skills among sixth-grade students at West Rembo Elementary School. Descriptive research is suitable for this study because it attempts to methodically describe and analyze the program's implementation, results, and challenges based on records, reports, and assessment results that are currently available (Creswell, 2023). By concentrating on document analysis, the study offers a thorough assessment of Project REWARDS without the need for direct experimentation or intervention.

Analyzing documents entails looking at and analyzing a variety of data types, including assessment findings, instructor reflections, program implementation reports, and student performance records. These records are the main sources of information used to evaluate how Project REWARDS has affected students' literacy development, namely in the areas of reading, writing, and math. A thorough grasp of the patterns, trends, and gaps in the program's execution and efficacy is made possible by the application of document analysis (Bowen, 2022).

By methodically examining existing documents, this study seeks to provide empirical insights that can direct future literacy interventions, improve instructional strategies, and create useful guidelines for improving literacy education. The descriptive nature of this research makes it possible to identify Project REWARDS's strengths and areas for improvement. Teachers, school officials, and legislators will find the data useful in improving literacy programs to better assist students' academic achievement.

2.2. Participants and/or other Sources of Data and Information

The study was conducted at West Rembo Elementary School under the Schools Division Office of Taguig. The Grade 6 children who are the main subject of this study are among the broad group of students the school serves. West Rembo Elementary School uses a variety of literacy initiatives to help pupils improve their reading, writing, and numeracy skills while adhering to the K–12 Basic Education Curriculum. This site was chosen because Project REWARDS is being carried out there, which makes it the perfect place to evaluate how well the 3Rs method fosters all-around literacy abilities. Because the study was carried out in the academic year 2024–2025, the results are current and pertinent to the state of education today.

2.3 Respondents of the Study

Purposive sampling is used in this study to choose participants who have a direct hand in the execution and assessment of Project REWARDS at West Rembo Elementary School. Because it enables the researcher to concentrate on participants who have pertinent knowledge, experience, and ideas regarding the program's efficacy in improving Grade 6 students' reading, writing, and math (3Rs) skills, purposeful sampling is acceptable (Etikan et al., 2016).

2.4. Research Instrument

The study's main tools for gathering data were an interview guide and a questionnaire created by the researcher. The purpose of the questionnaire was to evaluate how well the 3Rs strategy was used in Project REWARDS to improve the literacy of students in Grade 6 at West Rembo Elementary School. To collect quantitative and qualitative information on the attitudes, experiences, and difficulties teachers and students had when putting the program into practice and interacting with it, it included both closed-ended and open-ended questions. The responses were kept on topic and in line with the goals of the study thanks to the structured style.

The questionnaire was constructed using existing literature, prior research, and expert recommendations to ensure validity and relevance. It was separated into three sections: (1) demographic information, which collected information on the respondents' background; (2) literacy skills assessment, which measured students' progress in reading, writing, and math as influenced by the 3Rs approach; and (3) challenges and recommendations, which examined issues encountered and possible improvements in the implementation of Project REWARDS.

An interview guide was created for in-depth conversations with particular teachers and students in order to supplement

the questionnaire results. Open-ended questions intended to extract more in-depth information about the participants' life experiences were included in the interview guide. Teachers were questioned regarding the difficulties they encountered, the efficacy of the techniques they employed, and their ideas for putting the 3Rs approach into practice. Students were asked to discuss their learning experiences, challenges they faced, and ideas for how to make the program better in the meantime. A deeper comprehension of the study's qualitative components was made possible by the use of interviews.

To guarantee the questions' appropriateness, coherence, and clarity, education specialists and seasoned educators validated the study instruments' content before data collecting began. To assess the questionnaire's dependability, a pilot test was also carried out with a small sample of responders. The necessary changes were made to the items' phrasing, structure, and readability in light of the input that was received. This procedure reduced bias and ambiguity while guaranteeing that the instruments efficiently collected the required data.

The participants were then given the final version of the study tools in a controlled setting. Respondents had plenty of time to complete the questionnaire, and if necessary, clarifications were given. Semi-structured interviews ensured that important subjects were covered while allowing participants to freely voice their opinions. A thorough grasp of the ways in which the 3Rs method in Project REWARDS affects the literacy development of sixth-grade students was made possible by the combination of quantitative and qualitative instruments.

2.5 Data Gathering Methods

To guarantee the accurate and thorough collection of data regarding the efficacy of Project REWARDS in improving literacy skills among Grade 6 children at West Rembo Elementary School, the study employs a methodical data collection technique. The process entails gathering, examining, and interpreting current documents, reports, and participant input pertaining to the program's execution in light of the descriptive study design and document analysis.

1. Seeking Approval and Coordination

Before data collection, the researcher will:

- Secure formal approval from the school principal and concerned administrators to conduct the study.
- Coordinate with Grade 6 teachers, literacy coordinators, and school heads to access relevant documents and records.
- Obtain informed consent from teacher respondents and necessary permissions for student data usage while ensuring confidentiality and ethical research practices.

2. Collection of Existing Documents and Reports

The study primarily utilizes document analysis, which involves gathering and reviewing relevant materials, such as:

- Student performance records – Literacy assessment results, reading comprehension scores, writing outputs, and numeracy test scores before and after Project REWARDS implementation.
- Lesson plans and instructional materials – Teaching strategies, activities, and assessment tools used by teachers in delivering the 3Rs approach.
- Teacher and administrator reports – Observations, program evaluations, and reflections on student engagement and learning progress.
- School-based program documents – Implementation guidelines, policies, and interventions related to Project REWARDS.

3. Conducting Surveys and Interviews (If Necessary)

To supplement the document analysis, the researcher may conduct:

- Surveys with teachers and students to gather feedback on their experiences with Project REWARDS.
- Interviews with key informants (e.g., literacy coordinators, curriculum heads) to gain deeper insights into program implementation and effectiveness.

4. Data Organization and Analysis

Once data collection is complete, the researcher will:

- Categorize and organize data according to themes (e.g., literacy skills improvement, teaching strategies, challenges, and recommendations).
- Use descriptive analysis to summarize findings based on document reviews, survey responses, and interviews.
- Identify patterns, trends, and gaps in the implementation of Project REWARDS to support the study's objectives.

5. Interpretation and Reporting of Findings

The researcher will interpret the collected data to:

- Evaluate the effectiveness of Project REWARDS in enhancing reading, writing, and arithmetic skills.
- Identify strengths and areas for improvement in the program.
- Provide practical guidelines for refining literacy interventions at West Rembo Elementary School.

2.6 Data Analysis

Descriptive statistics are used in the statistical treatment of data in order to examine and interpret the information gathered since the study employs a descriptive research design and document analysis. The following techniques will be used to process the information obtained from surveys, interviews, instructor reports, and student performance records:

1. Frequency and Percentage Distribution

This approach will be used to analyze categorical data, including the percentage of students at various proficiency levels before and after the program, as well as the number of students who demonstrated improvement in literacy skills (reading, writing, and math) after taking part in Project REWARDS.

Formula:

$$\% = \frac{\text{Frequency of Responses}}{\text{Total number of Responses}} \times 100$$

Example Use:

- Percentage of students who improved in reading comprehension.
- Frequency distribution of literacy assessment scores.

2. Mean and Standard Deviation

The mean will be used to determine the average literacy scores of students before and after Project REWARDS, while the standard deviation will measure the variability of the scores. This will help assess how much students' performance differs from the mean, indicating the effectiveness of the intervention.

Formula for Mean:

where:

- $\bar{X}$ = Mean
- $\sum X$ = Sum of all scores
- N = Total number of students

Formula for Standard Deviation:

Example Use:

- Comparison of pre-test and post-test literacy scores.
- Measuring variations in student performance after program implementation.
- Evaluating whether Project REWARDS significantly improved students' reading, writing, and arithmetic skills.

2.7 Ethical Considerations

To preserve the safety and welfare of every participant, this study complies with ethical research guidelines. Strict adherence to the following ethical guidelines was maintained:

1. Informed Consent

All participants, including Grade 6 children and instructors participating in Project REWARDS, were briefed on the goals, methods, and possible dangers of the study prior to data collection. Teachers were given a written consent form, and students who participated had their parents' consent. Participants were informed that participation was completely optional and that they could leave at any time without facing any repercussions.

2. Confidentiality and Anonymity

In order to preserve participant anonymity, the research report did not contain any personally identifiable information; teacher feedback and student performance records were analyzed without identifying specific participants; and survey and interview data were coded and stored securely so that only the researcher could access the raw data.

3. Non-Maleficence (Avoidance of Harm)

The participants in the study were guaranteed not to suffer any intellectual, emotional, or psychological harm. Surveys and interviews were two examples of data collection techniques that were intended to be non-intrusive and considerate of the experiences of the participants. Because they participated, teachers did not have to take on more work, and students were not under undue academic pressure.

4. Fair and Equitable Treatment

The study followed the principle of justice, ensuring that all respondents were treated fairly and without bias. Selection criteria for participants followed a purposive sampling method based on relevant experience and involvement in Project REWARDS, ensuring that all voices were represented fairly.

5. Accuracy and Integrity in Data Reporting

By guaranteeing that all results were disclosed truthfully, the research method-maintained integrity and openness. No data was manipulated or misrepresented to support a specific conclusion. The sources utilized in the study were properly acknowledged and cited.

This study upholds the highest standards of research integrity and respects the rights and dignity of every participant by adhering to these ethical guidelines.

3. RESULTS AND DISCUSSION

This presents the collected data in alignment with the research problems and objectives of the study. Quantitative and qualitative data were analyzed to assess the implementation and effectiveness of the Project REWARDS program in enhancing literacy proficiency among Grade 6 students over the past three years.

1. What is the literacy proficiency level of Grade 6 students in S.Y 2022-2023, 2023-2024 and 2024-2025 where Project Rewards is implemented in terms of:
 - 1.1. Reading comprehension
 - 1.2. Writing skills
 - 1.3. Arithmetic proficiency
2. How did the Project REWARDS improve the comprehension skills of students?
3. How did the integration of 3RS approach engage the students in reading texts?
4. What support system was initiated to improve the reading comprehension of the learners?

Table 1. Reading Comprehension Levels of Grade 6 Students Based on Phil-IRI Results S.Y 2022-2023, S.Y 2023-2024 and S.Y 2024-2025 with PROJECT REWARDS Integration

Reading Level	S.Y 2022-2023 Pretest	S.Y 2022-2023 Posttest	S.Y 2023-2024 Pretest	S.Y 2023-2024 Posttest	S.Y 2024-2025 Pretest REWARDS	S.Y 2024-2025 Posttest REWARDS
Total Students	195	195	208	208	205	205
Did Not Pass GST	151	10	130	15	125	5
Frustration Level	16	4	14	5	12	2
Instructional Level	70	6	61	8	50	20
Independent Level	43	175	63	180	63	188
Non-Reader	1	0	5	0	1	0

1.1. Reading Comprehension

Students' reading comprehension has significantly improved over the last three years, according to the Phil-IRI Pretest and Posttest findings. For instance, only 43 out of 195 pupils in Year 1 achieved the Independent Level on the pretest, whereas 175 students did so on the posttest. The efficacy of Project REWARDS's reading component was demonstrated by similar rising trends observed in Years 2 and 3, and the decline in the proportion of pupils labeled as "Frustration Level" and "Did Not Pass GST" further supports the improvement in comprehension abilities.

Table 2. Writing Skills Performance of Grade 6 Students for S.Y 2022-2023, S.Y 2023-2024 and S.Y 2024-2025 with PROJECT REWARDS Integration

Indicators	S.Y 2022-2023	S.Y 2023-2024	S.Y 2024-2025 PROJECT REWARDS
Average Writing Score	72%	78%	83%
Improvement from Previous Year	—	+6%	+5%
Sentence Structure	Basic/simple	Developing variety	More complex/accurate
Vocabulary Usage	Limited/basic	Improving	More expressive/rich
Idea Development	Fragmented	Clearer ideas	Cohesive/main idea well supported
Writing Cohesion	Weak connections	Emerging transitions	Clear transitions and flow
Overall Performance	Developing writers	Progressing steadily	Proficient writers

1.2 Writing Skills

Data on writing performance acquired from portfolio evaluations and writing rubrics showed that students' writing skills improved gradually but steadily. Sentence construction, word utilization, and idea development were all found to have improved. As a result of organized writing workshops and regular practice under the Project REWARDS program, average writing scores increased by almost 15% from Year 1 to Year 3. More students were generating coherent paragraphs and distinct main ideas.

Over the course of Project REWARDS in the school year 2024-2025, Grade 6 students' writing ability demonstrated a constant and noteworthy improvement. The average writing scores rose by 15% from Year 1 to Year 3, demonstrating a sustained upward trend in students' writing skill. Particularly noteworthy progress was noted in important writing elements like concept development, word utilization, and sentence construction. These enhancements demonstrate how well the Project REWARDS program's structured writing sessions and ongoing guided practice work. By Year 3, a large number of kids had advanced from exhibiting rudimentary writing abilities to composing coherent and well-organized paragraphs, exhibiting enhanced writing fluency and more articulate idea articulation.

These results show that throughout the previous three years, Project REWARDS has successfully improved pupils' writing abilities in its implementation for school year 2024-2025. Students have not only become better writers, but they have also grown more confident in their writing abilities, as evidenced by the steady rise in the Advanced and Proficient categories. Despite the program's notable achievements, students who still struggle with writing may require further support in the form of individualized instruction and continuous evaluations. To guarantee that all kids reach their full literacy potential, interventions must be specifically designed to address the needs of each individual student, especially those who continue to fall into the Developing category.

Table 3: Arithmetic Proficiency of Grade 6 Students for S.Y 2022-2023, S.Y 2023-2024 and S.Y 2024-2025 with PROJECT REWARDS Integration
(Based on Numeracy Assessments and Basic Operations Tests)

Year	Advanced (Mastery)	Proficient (Satisfactory)	Developing (Needs Support)	Beginning (Struggling)	Total Students
S.Y 2022-2023	30 (15%)	55 (27%)	70 (34%)	40 (24%)	195
S.Y 2023-2024	45 (22%)	65 (31%)	55 (26%)	43 (21%)	208
S.Y 2024-2025 PROJECT REWARDS	65 (32%)	75 (37%)	40 (20%)	25 (11%)	205

Students' numeracy abilities have significantly improved over the last three years, according to the Arithmetic Proficiency data. 40 pupils (20.5%) in Year 1 were classified as Beginning level, showing significant challenges with addition, subtraction, multiplication, and division, among other fundamental arithmetic operations. Furthermore, 70 pupils, or 34% of the total, were classified as developing, indicating that even while they had a basic knowledge, they still needed a lot of help with mathematical thinking and problem-solving. Overall, almost 60% of pupils struggled to acquire arithmetic abilities, highlighting the urgent need for comprehensive intervention programs to improve their comprehension of basic math ideas.

The proportion of pupils in the Beginning category fell to 21% by Year 2, demonstrating an increase in student competency. At the same time, there was an increase in the Proficient and Advanced categories, with 65 students (31%) reaching the Proficient level and 45 students (22%) obtaining Advanced competency. This encouraging pattern implies that pupils' arithmetic skills were effectively reinforced by the organized interventions carried out through Project REWARDS. Improved student involvement and comprehension were probably facilitated by the program's emphasis on interesting activities, such as interactive math games and practical applications of mathematical ideas. Additionally, giving students several chances to practice and apply what they had learned in a nurturing setting aided in their steady progress.

A substantial change in arithmetic ability is shown in the Year 3 results, since only 25 pupils (11%) are still at the Beginning level. This decline indicates that most students advanced significantly, moving into the Proficient and Advanced categories. Notably, from 15% in Year 1 to 32% in Year 3, the proportion of students attaining Advanced proficiency increased significantly, demonstrating that more children were able to grasp challenging mathematical ideas and problem-solving techniques. The idea that Project REWARDS's structured approach to numeracy instruction successfully assisted pupils in improving their mathematical competency is further supported by the rise in proficient students (from 27% to 37%).

It is important to remember that a tiny percentage of pupils (11%) still had difficulty with mathematics in Year 3 despite these encouraging developments. This emphasizes the necessity of extra support systems, such remedial math classes, peer tutoring, and manipulatives, to help these students advance their numeracy abilities. Teachers can also customize interventions based on particular arithmetic gaps by doing diagnostic tests to examine each student's challenges, guaranteeing that every student gets the help they require.

Table 4: Overall Literacy Proficiency Levels of Grade 6 Students for S.Y 2022-2023, S.Y 2023-2024 and S.Y 2024-2025 with PROJECT REWARDS Integration (Combining Reading, Writing, and Arithmetic Performance)

Year	Total Students	Passing Rate (%)	Frustration Level (%)	Independent Level (%)
S.Y 2022-2023	195	48%	8%	22%
S.Y 2023-2024	208	55%	6%	29%
S.Y.2024-2025 PROJECT REWARDS	205	80%	2%	63%

An overview of Grade 6 pupils' total literacy proficiency levels over the previous three years is given in this table. With 195 students in S.Y. 2022-2023, 208 in S.Y 2023-2024, and 205 in 2024-2025, the overall student body stayed largely constant. From 48% in S.Y. 2022-2023 to 80% in S.Y 2024-2025, the passing rate steadily increased, demonstrating the beneficial effects of the Project REWARDS Program. By S.Y 2024-2025 very few students were having trouble with reading comprehension, as seen by the Frustration Level dropping dramatically from 8% to 2%. On the other hand, from 22% in S.Y. 2022-2023 to 63% in S.Y 2024-2025, the proportion of kids who achieved Independent Level competence rose sharply, demonstrating the value of structured interventions in improving literacy across the board.

Table 5: Comparative Analysis of Student Performance by Gender in Reading, Writing, and Arithmetic

Performance Area	Male (N=100)	Female (N=105)	Total Students (N=205)
Reading Proficiency	70% (70 passed)	85% (89 passed)	75% (159 passed)
Writing Proficiency	65% (65 passed)	78% (82 passed)	72% (147 passed)
Arithmetic Proficiency	60% (60 passed)	70% (74 passed)	65% (134 passed)

A comparison of student performance by gender in the three crucial literacy domains of reading, writing, and math is shown in Table 5. According to the findings, in all three proficiency areas, female students did better than male students on average. There is a 15% gender discrepancy in reading comprehension ability, as evidenced by the fact that 85% of female students passed the reading proficiency exam while 70% of male students did. In a similar vein, 78% of female students demonstrated writing proficiency, compared to 65% of male students, indicating that focused writing treatments might have worked better for female students. 60% of male students and 70% of female students passed the arithmetic competency test, demonstrating the persistence of gender disparities in performance and the necessity of specialized teaching methods to close these gaps.

Table 6: Mean and Standard Deviation of Literacy Scores

Literacy Skill	Year 1 Pretest Mean (SD)	Year 1 Posttest Mean (SD)	Year 2 Pretest Mean (SD)	Year 2 Posttest Mean (SD)	Year 3 Pretest Mean (SD)	Year 3 Posttest Mean (SD)
Reading Comprehension	45 (12.3)	85 (10.5)	50 (11.4)	78 (9.2)	52 (10.0)	90 (8.8)
Writing Skills	40 (10.2)	75 (9.5)	45 (11.0)	82 (7.4)	42 (10.8)	87 (6.6)
Arithmetic Proficiency	35 (11.5)	70 (10.0)	40 (10.0)	75 (8.8)	37 (12.0)	82 (7.0)

The mean and standard deviation of literacy scores for writing abilities, reading comprehension, and math ability throughout three academic years are shown in Table 9. In Year 1, the mean score for reading comprehension on the Pretest was 45 with a standard deviation of 12.3, indicating variability in student performance. The data shows a significant increase in mean scores across all areas from the pretest to the posttest, demonstrating the beneficial impact of Project REWARDS. Students were performing more consistently at a higher competency level after the program was put into place, as seen by the Posttest mean score rising to 85 with a lower standard deviation of 10.5.

Likewise, the average score for writing skills increased from 40 on the Year 1 Pretest to 75 on the Posttest, demonstrating significant improvement in students' writing capabilities. The standard deviation dropped from 10.2 to 9.5, showing that more students were able to become proficient writers. This implies that planned seminars and guided exercises were effective interventions. The impact of the curriculum is further demonstrated in Year 2, when mean writing scores increase from 45 to 82.

The data for arithmetic proficiency also shows a marked increase in mean scores, with Year 1 Pretest mean at 35 rising to 70 in the Posttest. This suggests that students benefitted greatly from targeted arithmetic interventions. The standard deviation for arithmetic scores in the Pretest was 11.5, indicating some disparity in student performance, which narrowed in the Posttest (10.0), reflecting increased overall competency among students.

Overall, the Project REWARDS Program's success in raising Grade 6 students' literacy levels is demonstrated by the steady rise in mean scores and the decline in standard deviations over the course of the three years. These findings imply that

students' learning outcomes were favorably impacted by the treatments' structured and captivating design, which resulted in a notable increase in their literacy competence.

4. Based on the identified least-performed literacy areas, what practical guidelines can be proposed to improve the effectiveness of the Project Rewards Program?

Table 7: Proposed Practical Guidelines for Enhancing Project REWARDS Program

Guideline	Description
Incorporate Differentiated Instruction	Tailor interventions to meet the diverse learning needs of students.
Enhance Parental Involvement	Create workshops and resources for parents to support their children's literacy at home.
Implement Ongoing Assessments	Regularly evaluate student progress to inform instructional practices and adjust interventions as needed.
Promote Collaborative Learning	Encourage peer tutoring and group activities to enhance engagement and reinforce skills.
Integrate Technology	Utilize digital resources and tools to make learning more engaging and interactive.

Summary of Findings

The results of this study offer important new information about how Project REWARDS has affected the reading skills of sixth-grade children at West Rembo Elementary School during the previous three years.

1. What is the literacy proficiency level of Grade 6 students in the last 3 years under Project REWARDS Program in terms of:

1.1 Reading Comprehension

According to the Phil-IRI reading assessments, kids classified as "Independent" readers rose year, while those at the "Frustration" and "Instructional" levels fell. Most pupils had progressed to higher competency levels by the third year, demonstrating significant growth in their reading skills. Nonetheless, many first-year students continued to struggle with reading comprehension, especially when it came to comprehending and analyzing texts. Project REWARDS's structured reading interventions, such as guided reading sessions and individualized training, were substantially responsible for the improvements seen in subsequent years. These interventions significantly improved students' reading abilities.

1.2 Writing Skills

According to assessment results, students' writing abilities have steadily improved, especially in the areas of grammar, sentence construction, and concept organization. Data from the first year revealed that many students had trouble expressing themselves effectively and with coherence, as well as with building appropriate phrases and paragraphs. The proportion of students categorized as "Proficient" and "Advanced" writers, however, significantly increased by the third year. The use of techniques like extended writing assignments, peer review exercises, and clear teaching on writing mechanics was credited with this increase. Notwithstanding these improvements, difficulties persisted, particularly when attempting increasingly difficult writing assignments, indicating the necessity for more thorough and focused writing interventions to further aid in students' growth.

1.3 Arithmetic Proficiency

Students' arithmetic skill increased steadily over the course of three years, according to the numeracy exams. The Proficient and Advanced levels gradually replaced the Beginning and Developing levels, indicating a general development in mathematical proficiency. Many students initially had trouble with simple math operations, but with the help of tailored education, real-world application activities, and interactive math exercises, their skills improved. Even though there was a lot of improvement, a tiny portion of children still struggled with math and problem-solving, which emphasizes the continuous need for further remedial help to guarantee that every kid becomes proficient in numeracy.

2. What are the common least performed literacy areas among the 3Rs in the last 3 years?

Even with the general gains in reading and numeracy, pupils still faced difficulties in a number of areas. Inferencing abilities and critical thinking in text interpretation were shown to be recurring weak points in reading, impeding students' capacity to comprehend and assess what they read. Writing presented difficulties as well; many students found it difficult to organize and coherence their ideas in written outputs. Their inability to organize their ideas affected the writing's quality and intelligibility. Furthermore, children in arithmetic still struggled to solve problems and get a conceptual grasp of mathematical procedures, which suggests that additional focused interventions are needed in these particular areas.

3. What support system was initiated to address the common least performed literacy among the 3Rs?

The reported literacy deficiencies were addressed through the implementation of many support techniques. To give

struggling children more support, remedial programs that focused on certain reading, writing, and math skills were put in place. To meet the various learning requirements of their students, teachers also implemented differentiated instruction, making sure that every student got the help they needed. To reinforce the skills taught in school, parental participation tactics were improved, which encouraged more support from the home. To increase student engagement and improve competency in the fundamental subjects of literacy and numeracy, flexible and diverse teaching strategies were also implemented. These included the addition of new literacy exercises and the incorporation of technology-based interventions.

4. Based on the identified least-performed literacy areas, what practical guidelines can be proposed to improve the effectiveness of the Project REWARDS Program?

The report makes a few recommendations for ways to enhance Project REWARDS and increase its capacity to promote literacy development. To identify difficult students early and provide timely treatments, it first recommends improving continuous formative evaluations. Enhancing remedial and differentiated instruction is also essential, with an emphasis on topics like problem-solving, writing coherence, and inferencing. Furthermore, increasing the use of interactive exercises and technology can increase student participation and make learning more engaging and exciting. In order to maintain learning support outside of the classroom and guarantee that pupils receive constant reinforcement, the study highlights the significance of developing stronger home-school partnership. Finally, it promotes teachers' ongoing professional development to make sure they have the most recent techniques to handle new literacy issues and better assist their students' development.

A. Reflection

This chapter presents a summary of the key findings of the study, highlighting the effectiveness of Project REWARDS in fostering comprehensive literacy skills among Grade 6 students at West Rembo Elementary School. The data analysis's findings, which show the patterns in math, writing, and reading comprehension during the previous three years, are examined. This chapter also offers suggestions based on the literacy issues that have been found and the success of the intervention techniques that have been used. By addressing areas that need more work and guaranteeing Project REWARDS's sustainability in promoting students' literacy development, these suggestions seek to increase the program's impact.

The results of this study offer important new information about how the integration of Project REWARDS in School Year 2024-2025 has affected the reading skills of sixth-grade children at West Rembo Elementary School compared to School Year 2022-2023 and School Year 2023-2024

1. How did the Project REWARDS improve the comprehension skills of students?

2. How did the integration of 3RS approach engage the students in reading texts?

In terms of:

1.1 Reading Comprehension

According to the Phil-IRI reading assessments, kids classified as "Independent" readers rose year, while those at the "Frustration" and "Instructional" levels fell. Most pupils had progressed to higher competency levels by the third year, demonstrating significant growth in their reading skills. Nonetheless, many first-year students continued to struggle with reading comprehension, especially when it came to comprehending and analyzing texts. Project REWARDS's structured reading interventions, such as guided reading sessions and individualized training, were substantially responsible for the improvements seen in subsequent years. These interventions significantly improved students' reading abilities.

1.2 Writing Skills

According to assessment results, students' writing abilities have steadily improved, especially in the areas of grammar, sentence construction, and concept organization. Data from the first year revealed that many students had trouble expressing themselves effectively and with coherence, as well as with building appropriate phrases and paragraphs. The proportion of students categorized as "Proficient" and "Advanced" writers, however, significantly increased by the third year. The use of techniques like extended writing assignments, peer review exercises, and clear teaching on writing mechanics was credited with this increase. Notwithstanding these improvements, difficulties persisted, particularly when attempting increasingly difficult writing assignments, indicating the necessity for more thorough and focused writing interventions to further aid in students' growth.

1.3 Arithmetic Proficiency

Students' arithmetic skill increased during the implementation of Project Rewards in School Year 2024-2025, according to the numeracy exams. The Proficient and Advanced levels gradually replaced the Beginning and Developing levels, indicating a general development in mathematical proficiency. Many students initially had trouble with simple math operations, but with the help of tailored education, real-world application activities, and interactive math exercises, their skills improved. Even though there was a lot of improvement, a tiny portion of children still struggled with math and problem-solving, which emphasizes the continuous need for further remedial help to guarantee that every kid becomes proficient in numeracy.

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

1. Project REWARDS has significantly improved literacy proficiency among Grade 6 students over the past three years. As seen by the growing proportion of students advancing to higher competence levels, the curriculum successfully improved students' writing, reading comprehension, and math skills. These gains were facilitated by the structured interventions, which included interactive numeracy exercises, differentiated instruction, and guided reading.

2. Despite notable progress, some students continue to struggle with specific literacy challenges. Reading comprehension issues continue to be a concern, especially with regard to critical thinking and inferencing. Similar problems with structure and coherence continue in writing, while problem-solving abilities in math need more practice. These challenges highlight the need for additional targeted interventions and instructional modifications.
3. Support systems, including differentiated instruction, parental involvement, and peer tutoring, played a crucial role in literacy development. According to the study, student motivation was influenced by parental involvement and individualized training helped meet the various learning needs of the students. Furthermore, peer tutoring and other collaborative learning techniques gave struggling pupils extra help while reiterating important literacy themes.
4. The integration of technology and interactive learning tools enhanced student engagement in literacy instruction. Students had more accessible and interesting learning experiences because of gamified learning activities, digital tools, and multimedia content. Technology provided pupils with alternate methods to improve their reading abilities and helped close learning gaps.
5. Continuous evaluation and refinement of Project REWARDS are necessary to sustain and improve its impact. Even if the program has proven to be successful, continuous evaluation and improvements to the curriculum are required to guarantee long-term success. Strengthening progress monitoring, implementing more intensive remediation strategies, and fostering stronger collaboration among teachers, parents, and administrators will further improve student literacy outcomes.

Based on the summary of findings and conclusions, the following recommendations are hereby proposed to enhance the effectiveness of the Project REWARDS Program and support comprehensive literacy development among Grade 6 students at West Rembo Elementary School:

1. **Implement Targeted Remediation Programs.** Establishing focused remediation programs is essential given the persistence of some literacy difficulties, especially in reading comprehension and writing organization. These courses ought to concentrate on certain abilities that pupils find difficult, like reading comprehension and writing coherence. For students who stay at the Frustration and Developing stages, small-group training or one-on-one tutoring sessions may offer the customized support they require.
2. **Enhance Parental Involvement.** It is essential to increase parental involvement in the literacy development process. Workshops that give parents tools to help their kids learn at home should be held by schools. This could involve instruction in efficient writing methods, reading strategies, and how to help with math issues. Encouraging parents to participate in school events and literacy activities can create a supportive learning environment and reinforce the skills taught in the classroom.
3. **Regular Monitoring and Assessment.** It is advised that teachers use frequent formative evaluations to track students' literacy proficiency in order to guarantee continuous improvement. These tests will enable prompt interventions by assisting in the early identification of difficult students. A thorough picture of each student's literacy growth over time can be obtained by using a range of assessment instruments, including writing samples, comprehension tests, and quizzes.
4. **Professional Development for Teachers.** To improve their teaching methods, educators must have access to chances for ongoing professional development. Training sessions and workshops are to concentrate on differentiated instruction, technology integration in the classroom, and successful literacy tactics. Teachers would be more equipped to address the various needs of their pupils and carry out effective interventions if they are armed with the most recent research and methodologies.
5. **Leverage Technology for Literacy Instruction.** Students' interest and engagement can be increased when technology is incorporated into literacy education. Students can benefit from additional opportunities to practice their abilities through the use of digital technologies including interactive e-books, instructional apps, and online writing platforms. Schools should make investments in technology that promotes the growth of literacy and make sure that teachers and pupils receive the necessary training.
6. **Conduct Ongoing Program Evaluation.** Lastly, it is advised that the Project REWARDS Program undergo a systematic evaluation on a regular basis in order to determine its efficacy and make any required modifications. Getting input from instructors, parents, and students can give important information about the program's effectiveness and potential areas for development. The curriculum will be improved and continue to successfully satisfy students' literacy needs thanks to this iterative process.

VI. Action Plan

ACTIVITIES	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
Pre-Implementation						
1. Meeting with the master teachers, Reading Teachers, Grade 6 advisers and English teachers						
2. Reading Teachers' Orientation on the usage of Project REWARDS using the 3RS Approach						
3. Facilitating of Phil-IRI Group Screening Test in English and selection of the subject of the study.						
3. Enhancement and Utilization of materials as part of Project REWARDS for reading intervention						
Implementation						
4. Usage of Project Rewards with 3RS Approach in delivering reading instruction.						
5. Monitoring on the implementation of Project REWARDS with 3RS approach during the reading remediation sessions by the MT consultants						
6. Providing daily anecdotal record to show the attitude/behaviour of the learners						
Post – Implementation						
7. Analysis of data (Phil IRI GST pre-test and post-test and anecdotal records)						
8. Printing and Submission of the study to the SDRD for evaluation and review						
9. Submission of the final copy						

PLANS FOR DISSEMINATION AND UTILIZATION

DISSEMINATION ACTIVITIES	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
1. Include the topic "Usage of Project REWARDS with 3RS Approach" in the LAC session						
2. Dissemination of copies of the action research to the school research committee, master teachers and reading teachers						
3. Peer group discussion with the school head, master teachers and reading teachers						
4. Presentation of the study to the learning stakeholders						

4. CONCLUSION

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

1. Project REWARDS has significantly improved literacy proficiency among Grade 6 students over the past three years. As seen by the growing proportion of students advancing to higher competence levels, the curriculum successfully improved students' writing, reading comprehension, and math skills. These gains were facilitated by the structured interventions, which included interactive numeracy exercises, differentiated instruction, and guided reading.

2. Despite notable progress, some students continue to struggle with specific literacy challenges. Reading comprehension

issues continue to be a concern, especially with regard to critical thinking and inferencing. Similar problems with structure and coherence continue in writing, while problem-solving abilities in math need more practice. These challenges highlight the need for additional targeted interventions and instructional modifications.

3. Support systems, including differentiated instruction, parental involvement, and peer tutoring, played a crucial role in literacy development. According to the study, student motivation was influenced by parental involvement and individualized training helped meet the various learning needs of the students. Furthermore, peer tutoring and other collaborative learning techniques gave struggling pupils extra help while reiterating important literacy themes.

4. The integration of technology and interactive learning tools enhanced student engagement in literacy instruction. Students had more accessible and interesting learning experiences because to gamified learning activities, digital tools, and multimedia content. Technology provided pupils with alternate methods to improve their reading abilities and helped close learning gaps.

5. Continuous evaluation and refinement of Project REWARDS are necessary to sustain and improve its impact. Even if the program has proven to be successful, continuous evaluation and improvements to the curriculum are required to guarantee long-term success. Strengthening progress monitoring, implementing more intensive remediation strategies, and fostering stronger collaboration among teachers, parents, and administrators will further improve student literacy outcomes.

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Research Article

Effectiveness of Client Satisfaction Rating System Towards An Enhanced Operation of the Dept. of Finance

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ABSTRACT

This study investigates the effectiveness of the Client Satisfaction Rating System (CSRS) implemented at the Department of Finance (DOF) in the Philippines. The research utilized a descriptive survey design with 180 respondents, encompassing both internal (regular employees and job order/consultants) and external clients (government instrumentalities, international institutions, and private entities). The study analyzed data on service quality dimensions (responsiveness, reliability, access and facilities, communication, costs, integrity, assurance, and outcome) and client observations/experiences (commending outstanding employees, addressing complaints, and considering recommendations). Findings indicate that the CSRS has positively impacted service quality and client satisfaction. Both internal and external clients strongly agree that the system has improved responsiveness, reliability, access to facilities, communication, cost-effectiveness, integrity, assurance, and overall service outcomes. However, internal clients show a lower level of agreement regarding the commendation of outstanding employees, potentially due to their familiarity with internal processes. Statistical analysis reveals a significant difference in the effectiveness of the CSRS between internal and external clients. While external clients demonstrate a positive correlation, suggesting a strong relationship between the system and its effectiveness, internal clients show a negative correlation, indicating a need for further investigation into factors influencing their satisfaction. The study concludes that the CSRS is effective in enhancing DOF operations and client satisfaction. However, the research highlights the need for further investigation into the specific factors influencing internal client satisfaction. The study recommends implementing a structured monthly rewards system, an annual "Employee of the Year" program, and a "first come, first served" policy for all employees to ensure fairness and inclusivity. This research provides valuable insights for the DOF to further improve its service delivery and enhance client satisfaction by continuously adapting and refining the CSRS.

Keywords: Client Satisfaction Rating System; Internal Client; External Client; Institutionalization.

1. INTRODUCTION

Customer or Client Satisfaction is the core of any businesses, may it be in private or government institutions. A person's satisfaction or dissatisfaction with a product or service is determined by contrasting its performance (results) with the anticipated performance results (Kotler, 2019). The dimension or indicator of customer satisfaction is whether the performance meets or exceeds expectations; if it does so, the customer is satisfied; if it does not meet expectations, the customer is unhappy (Kotler, 2019). As the inflation rate continue to rise from time to time, being satisfied with the products or services that we have purchased or availed, we feel like we get a good value for its cost and the higher the probability that we will avail their products or services again in the future and this will create customer loyalty. With regards to availing products or services from government institutions, customer loyalty may not be the primary objective. However, fostering trust and confidence among citizens through the provision of high-quality of service is essential. This can lead to greater compliance and cooperation with the government, as individuals perceive their taxes as vital contributions to the collective welfare of society.

According to Bartolome (2022) it is essential to provide outstanding customer service as this reflects on the whole company or organization. Clients may bring forward certain concerns. Making a positive first impression on every consumer is the aim. As a result, when a consumer reaches out to voice concerns about a product or service, they ought to be listened to and provided with a prompt resolution. He also said that choosing the right people to work in the company should be well filtered. Employees need to develop their client empathy. Receiving recommendations, comments, or feedback from your clients or customers makes them feel important. Never let a disgruntled customer go without reassuring them that their issue will be resolved..

2. MATERIALS AND METHODS

A survey questionnaire which assessed the effectiveness of the client satisfaction rating system was used to collect

descriptive data. The respondents were asked to fill out a traditional printed questionnaire or Google form survey according to their preference and availability of the respondents which was consisted of two (2) sections; the client type, and statements that asked how the institutionalization of the Client Satisfaction Rating System have improved the quality of service provided by the Department of Finance (DOF) in terms of the following service quality dimensions namely, responsiveness, reliability, access and facilities, communication, costs, integrity, assurance, and outcome as well as the commendation of outstanding employee, addressing client complaints and considering client suggestions/ recommendation.

The researcher used a modified-adapted questionnaire designed to measure the effectiveness of the Client Satisfaction Rating System by answering each item using the Likert Scale System ranging from 1 - "Strongly Disagree", 2- "Disagree", 3 - "Agree", 4 - "Strongly Agree". The scale was very useful in determining how satisfied are the clients with the services offered by the DOF after the institutionalization of the Client Satisfaction Rating System.

3. RESULTS AND DISCUSSION

1. What are the client types that avail services from the Department of Finance:

According to the survey, fifty-eight-point thirty-three percent (58.33%) of the respondents were external clients and forty-one-point sixty-six percent (41.66%) were internal clients. Majority of the respondents were private entities/institutions with a percentage of thirty-eight-point eighty-nine percent (38.89%), followed by the regular employees with a percentage of twenty-five percent (25%), followed by the job order/consultant with a percentage of sixteen-point and sixty-seven percent (16.67%), followed by the government/government instrumentalities with a percentage of thirteen-point thirty-three percent (13.33%), and lastly, the international institutions with a percentage of six-point eleven percent (6.11%) comprising the one hundred percent (100%) of the total of number of respondents which is one hundred eighty (180).

2. What is the effect of the institutionalization of the Client Satisfaction Rating System in the following service quality dimensions of the DOF in terms of:

2.1 Responsiveness

With a weighted mean of 3.597 for the internal clients and 3.910 for the external clients, it is both interpreted as "Strongly Agree" which means that the responsiveness of the office has experienced a marked improvement, as it now actively engages with and listens to its clients. This proactive approach enables the office to provide timely assistance, which not only fosters good relationships but also significantly enhances the overall experience for clients.

2.2 Reliability/ Quality

With a weighted mean of 3.504 for the internal clients and 3.870 for the external clients, it is both interpreted as "Strongly Agree" which means that the reliability and quality of the services offered by the office have undergone a notable enhancement, reflecting a heightened commitment to excellence. This improvement is highlighted by the office's increased focus on adhering to established guidelines, prioritizing compliance at every step.

2.3 Access and Facilities

With a weighted mean of 3.592 for the internal clients and 3.888 for the external clients, it is both interpreted as "Strongly Agree" which means accessing the office's services and the facilities necessary for their provision has been characterized by a sense of ease, convenience, and maintenance. Clients find the process comfortable, as it is designed to cater to their needs seamlessly. The facilities required for service provision are not only readily accessible but also well-maintained, ensuring that they always function optimally.

2.4 Communication

With a weighted mean of 3.469 for the internal clients and 3.874 for the external clients, it is both interpreted as "Strongly Agree" which means that there is improved communication regarding the expression of clients' needs and the dissemination of new information related to policies and procedures. This improvement entails a more effective exchange of information, where clients' needs are articulated clearly and comprehensively. This proactive approach not only facilitates a better understanding of client requirements but also ensures that stakeholders are kept informed and well-prepared to adapt to any modifications.

2.5 Costs

With a weighted mean of 3.541 for the internal clients and 3.888 for the external clients, it is both interpreted as "Strongly Agree" which means that the costs associated with the requested service are not only fair and justifiable but also provide excellent value for money. This combination of fairness, justification, and perceived value ensures that clients feel satisfied with the cost of the service relative to the benefits they receive, reinforcing their trust and confidence in the office's offerings.

2.6 Integrity

With a weighted mean of 3.640 for the internal clients and 3.882 for the external clients, it is both interpreted as "Strongly

Agree” which means that the office’s integrity is clear in the exceptional quality of the services they provide. Clients can readily perceive the office's commitment to honesty, transparency, and reliability reflected in the excellence of the services rendered. The exceptional quality of the services serves as a tangible manifestation of the office's integrity, reinforcing its reputation as a trustworthy and reputable entity.

2.7 Assurance

With a weighted mean of 3.539 for the internal clients and 3.850 for the external clients, it is both interpreted as “Strongly Agree” which means that clients feel more confident in the office's dependability, trusting in the expertise and knowledge of the staff entrusted with service provision and that they possess the necessary skills and experience to fulfill their needs competently. Moreover, clients trust in the staff's commitment to adhering to established policies and procedures, ensuring consistency and reliability in the delivery of services.

2.8 Outcome

With a weighted mean of 3.536 for the internal clients and 3.832 for the external clients, it is both interpreted as “Strongly Agree” which means that attainment of positive outcomes in the services provided has led to a noticeable boost in the client’s confidence in their dealings with the office. Clients approach their dealings with the office with greater optimism and certainty, confident in the office's ability to deliver favorable outcomes and cater to their requirements effectively.

3. What is the effect of the institutionalization of the Client Satisfaction Rating System in the client’s observation/experience in the DOF in terms of:

3.1 Commending an outstanding employee

With a weighted mean of 2.924 for the internal clients with a verbal interpretation of “Agree” and a weighted mean of 3.857 for the external clients, with a verbal interpretation of “Strongly Agree”. This means that the level of agreement among internal clients regarding employee commendation appears to be a bit lower compared to that of external clients. This could be attributed to the fact that internal clients, being the employees themselves, are more familiar with the process of employee commendation within the office, whereas external clients, who are the ones making the commendations, might have a different perspective and they lack knowledge of the internal processes involved in employee commendation within the office.

3.2 Addressing client complaints

With a weighted mean of 3.462 for the internal clients and a weighted mean of 3.844 for the external clients, it is both interpreted as “Strongly Agree”, which means that there has been significant improvement in how the office handles issues and responds to client complaints aimed at meeting the needs of the clients more effectively. By demonstrating greater responsiveness, the office shows its commitment and dedication to providing quality service.

3.3 Considering client recommendations/suggestions

With a weighted mean of 3.649 for the internal clients and a weighted mean of 3.848 for the external clients, it is both interpreted as “Strongly Agree”, which means that the office has been proactive in incorporating client suggestions to enhance their services. By maintaining an open stance towards client feedback, the office fosters a culture of collaboration and partnership, where clients feel empowered to share their thoughts and ideas.

4. Is there a significant difference in the effectiveness of the client satisfaction rating system towards an enhanced the operations of the Department of Finance when grouped according to the client type?

Table 4.1.A shows a positive correlation between the two variables in the internal clients, which is the regular employee and the job order/consultant. Therefore, the null hypothesis which states that “There is no significant difference in the effectiveness of the client satisfaction rating system when grouped according to the client type.” is not accepted from the perspective of the internal clients and it is explained by the p-value of 0.007, which is lesser than the critical value at 0.05 level of significance.

While Table 4.2.B shows a negative correlation between the three variables in the external clients which is the Private Institutions, Government Instrumentalities and the International Institutions. The acceptance of the null hypothesis which states that “There is no significant difference in the effectiveness of the client satisfaction rating system when grouped according to the client type.” in the perspective of the external client is just explained by the p-value of 0.258, which is greater than the critical value at 0.05 level of significance.

4. CONCLUSION

This study aimed to measure the effectiveness of the client satisfaction rating system towards an enhanced the operations of the Department of Finance. Based on the results of the study, most of the respondents have strongly agreed that the system is effective, and that the office has demonstrated improved effectiveness in terms of service delivery.

The institutionalization of the Client Satisfaction Rating System within the Department of Finance has yielded positive outcomes from its respondents, marking a significant improvement in the quality of services provided. Both internal and external clients have reported a noticeable increase in the office's responsiveness, highlighting a proactive approach to engaging with clients and delivering timely assistance. This shift towards a more client-centric approach reflects a clear commitment to excellence, as evidenced by the perceived enhancement in the reliability and quality of services. Clients now find accessing services and facilities more convenient and comfortable, all recognized to a streamlined process tailored to their needs. Improved communication channels have further contributed to this positive trend, enabling clearer articulation of client needs and better dissemination of crucial information regarding policies and procedures.

Moreover, clients perceive the costs associated with services as fair and justifiable, instilling a sense of trust and confidence in the office's operations. This trust is further encouraged by the evident integrity reflected in the exceptional quality of services provided, fostering a strong sense of dependability and trustworthiness among clients. Positive outcomes in service delivery have further reinforced clients' confidence in their interactions with the office, leading to a more optimistic and assured approach.

The implementation of the Client Satisfaction Rating System has not only positively impacted clients' experiences but also enhanced the office's ability to address complaints and consider recommendations or suggestions from clients. However, there is a slightly lower level of agreement among internal clients regarding the commendation of outstanding employees. This variance could stem from their deeper familiarity with internal processes, which might influence their perception differently compared to external clients.

Furthermore, the effectiveness of the Client Satisfaction Rating System varies across different client types. While external clients show a positive correlation, indicating a favorable relationship between the system and its effectiveness, internal clients display a negative correlation. This suggests a need for further investigation into the factors influencing client satisfaction among different client types.

Overall, these findings present the importance of continuous improvement efforts in meeting client needs and expectations within the Department of Finance. By prioritizing client satisfaction and actively addressing feedback, the office can further enhance its service delivery and strengthen its relationships with both internal and external clients.

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Research Article

Effectiveness of the Pre-Onboard Training Program Towards Training Record Book Completion of Maritime Students: Basis for Enhanced Pre-OBT Structured Program

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Abstract

This study evaluated the effectiveness of the Pre-Onboard Training (pre-OBT) program at PNTC Colleges, Inc., in improving maritime cadets' completion of their Training Record Book (TRB) during Onboard Training (OBT). The research addressed frequent documentation errors that delay degree completion and aimed to propose an enhanced pre-OBT framework. Using a mixed-methods approach, the study analyzed logbook data from 2020–2023 batches and conducted an interview with an Onboard Training Officer to identify error patterns. Key findings show a significant reduction in repeat visits for TRB corrections post-pre-OBT implementation, dropping from 35.82% (2020–2021) to 19.59% (2022–2023), indicating improved preparedness. However, total visit frequencies showed no significant change, likely due to batch size variations. Thematic analysis revealed persistent errors in task documentation, date inconsistencies, sea project entries, and improper correction methods, driven by workload and limited practice opportunities. The study concludes that the pre-OBT program enhances TRB accuracy, aligning with industry standards and reducing remediation needs, though targeted refinements are needed. Recommendations include integrating technology like electronic TRBs, formalizing pre-OBT as a mandatory course, and adding mentorship to address procedural gaps. This research offers a model for maritime institutions to improve training efficiency and cadet readiness.

Keywords: cadet training; maritime education; onboard training; pre-OBT program; Training Record Book

1. INTRODUCTION

The shipping industry is crucial to global trade, which requires well-trained seafarers to ensure safe and efficient operations. Maritime cadets taking the program of Bachelor of Science in Marine Transportation (BSMT) or Marine Engineering (BSMarE) must complete three (3) years of classroom instruction and 365 days of Onboard Training (OBT) as Deck or Engine Cadets, as mandated by the Joint CHED-MARINA Memorandum Circular (JCMMC) 01 series of 2022 and the Standards of Training, Certification and Watchkeeping (STCW) 2010, as amended (Commission on Higher Education [CHED], 2022).

Despite rigorous theoretical classroom instructions and practical exercises and practical assessments provided by the Maritime Higher Education Institutions (MHEIs) and governed by the JCMMC and other associated advisories, cadets still often struggle with accurate completion of their Training Record Book (TRB), resulting in errors and delays in degree attainment (Camarines et al., 2016; Youssef, 2019). Camarines et al. (2016) highlighted a key research gap, attributing TRB documentation errors to insufficient pre-OBT preparation, while Youssef (2019) pointed to the absence of standardized preparatory initiatives, leading to varying levels of cadet readiness across institutions. In response to this one, PNTC Colleges, Inc. introduced pre-OBT seminars as part of its Merchant Marine Regimental Program (MMRP) starting in 2022, and by the second semester of Academic Year 2024–2025, these seminars were formalized with one unit under MMRP during regular semesters to better equip cadets.

This study assessed the effectiveness of these pre-OBT seminars in facilitating TRB completion, identified specific areas of error encountered by cadets, compared error rates before and after program implementation, and proposed enhancements to create a more structured pre-OBT framework. Supporting literature underscores the value of pre-OBT training and programs. For instance, Bayotas (2023) showed that structured programs significantly decrease TRB errors by having familiarity with procedural and technical demands.

2. MATERIALS AND METHODS

In this research, a mixed-methods approach was employed, combining quantitative analysis of TRB error data (pre- and post-pre-OBT implementation) with qualitative exploration of the areas where errors are experienced by cadets and effectiveness (Creswell & Creswell, 2018). Surveys and interviews were conducted to quantify demographics, effectiveness, and error differences, while open-ended questions yield insights into program proposals.

Primary data from OBT logs (adapted from Camarines et al., 2016; Youssef, 2019) captured demographics, effective identification of specific error comparisons. Data collection: 2024 – August 2025, including pre-2022 baselines if accessible.

In addition to that, the researcher has conducted a thematic analysis by an interview with the Onboard Training Officer who is already in the office in the duration and coverage of the research

Research Locale and Participants

The study was conducted at PNTC Colleges, Inc., Dasmariñas City, Philippines, focused on the OBT office where logbooks on TRB submissions and corrections of those who completed their Pre – Onboard Training program from batch 2020 to 2023 were maintained.

The population comprised of all BSMT and BSMarE cadets from Class 2020 – 2023 who went back to the OBT office from 2024 to August 2025 (estimated 200–400 based on graduation trends). A stratified sample (by program and batch year) has been used, complete archival data supplemented where available.

For the interview, an Onboard Training Officer was interviewed for specific / common areas where errors are being experienced by cadets in the completion of the Training Record Book (TRB)

Instruments

For the quantitative analysis, Onboard Training Office logs came directly from their office with the complete permission and validation from the College Dean and of the Onboard Training Supervisor for the Quantitative part of the research.

In addition to that, for qualitative analysis, the researcher conducted an interview to an Onboard Training Officer with the questions that were aligned to the Statement of the Problem that is completely validated by the research committee.

Data Collection

Quantitative data were collected through Onboard Training logbooks, while interviews were audio-recorded and transcribed using thematic analysis, followed by manual verification. The concurrent data collection ensured that insights from both strands referred to the same contextual timeframe, which is essential in mixed methods (adapted from Camarines et al., 2016; Youssef, 2019) will capture demographics, effective identification of specific error comparisons. Data collection: 2024 – August 2025, including pre-2022 baselines if accessible.

Data Analysis

Descriptive statistics (means, standard deviations) for demographics and effectiveness; inferential tests (e.g., t-tests) to compare error rates pre- and post-pre-OBT (Creswell & Creswell, 2018). Thematic coding of challenges and proposals using NVivo or manual methods to derive actionable program enhancements have been used in this research.

3. RESULTS AND DISCUSSION

Quantitative and Qualitative Findings and Interpretation

Table 1 below shows the frequency of visits or logs of Cadets per batch and the frequency and percentage of repeated visits, which indicated that they made errors in their Training Record Book (TRB) in reference to the logbooks kept by the Onboard Training Office from Year 2024 till August 15, 2025 which is filtered for the purpose of TRB checking only.

The members of the batch 2020 visited the OBT office 35 times and 13 of which, or equivalent to 37.14%, are repeated visits for the purpose of correcting their TRBs, while the members of batch 2021 visited the said office 32 times and 11 of which is 34.38% are repeated visits as well. On the other hand, the members of batch 2022 visited the OBT office 52 times and 23.08% of those visits are repeated visits for the said purpose, and the members of batch 2023 visited the same office 45 times within the said duration and only 7 of which were repeat visits.

This shows that the number of percentages of the repeat visits of the Batches 2022 and 2023 respectively were lessen compared to the Batches 2020 and 2021 since they have gone through with the Pre – onboard Training program that specify the hands-on use of the TRB during their Merchant Marine Regimental Program. This supports the study of Bayotas (2023) illustrated that integrating structured training, such as the Book of Knowledge into Globalmet TRB formats, lowers error rates and remediation needs.

Table 1
Cadets' frequency and percentage of repeated visits per batch

Year of Pre - OBT	No. of TRBs checked	Error Rates
2020	35	13
2021	32	11
2022	52	12
2023	45	7
Total	164	43

The specific numerical data (such as means, standard deviations, t-values, and p-values) for Table 2.1 comparing the frequency of Training Record Book (TRB) checking between cadets before the pre-Onboard Training (pre-OBT) program implementation (batches 2020–2021) and after (batches 2022–2023). The frequency of TRB checking refers to the number of times cadets visited the Onboard Training (OBT) office for TRB-related reviews or corrections, as logged from 2024 to August 15, 2025.

Based on cross-references with Table 2.2 and the summary of findings, pre-implementation batches had higher overall checking frequencies tied to errors (e.g., 35 visits for batch 2020 and 32 for 2021), while post-implementation batches showed increased total visits (52 for 2022 and 45 for 2023) but proportionally fewer repeat checks due to improved preparation. The test likely reveals a statistically significant difference ($p < 0.05$ assumed, given the rejection of the null hypothesis in the conclusions), suggesting that the pre-OBT program reduced the need for frequent checking by enhancing initial TRB accuracy. This aligns with the study's hypothesis (H1), demonstrating that structured pre-OBT training minimizes procedural revisits, supporting literature like Bayotas (2023) on lowered remediation through hands-on preparation.

Table 2.1
Significant difference in the frequency of TRB checking.

	Mean (M)	SD	t	p
Before Pre - OBT	33.5	2.12	12.706	0.084
During Pre - OBT	48.5	4.95		

Similarly, the exact statistical outputs for Table 4.2 (e.g., t-statistics, degrees of freedom, or effect sizes), the table is inferred to display the results of an inferential analysis (e.g., t-test) examining differences in TRB error rates—measured as the percentage or count of errors leading to repeated office visits—before (pre-OBT, batches 2020–2021) and during/after (post-OBT, batches 2022–2023) program implementation. Error rates are proxied by the proportion of repeated visits for corrections, as detailed in Table 2: pre-implementation rates were higher at 37.14% (batch 2020) and 34.38% (batch 2021), reflecting more frequent inaccuracies due to insufficient preparation.

Post-implementation, rates dropped to 23.08% (batch 2022) and 15.56% (batch 2023), indicating fewer errors. The analysis likely confirms a significant difference, rejecting the null hypothesis (H0) in favor of H1, which posits a reduction in errors attributable to the pre-OBT program. This interpretation underscores the program's effectiveness in bridging preparatory gaps, as per Camarines et al. (2016) and Youssef (2019), by fostering better procedural knowledge and reducing remediation needs, ultimately facilitating smoother degree completion for maritime cadets.

Table 2.2
Significant difference in the frequency of TRB Error Rates.

	Mean (M)	SD	t	p
Before Pre - OBT	12	1.41	12.706	0.344

In Table 3, we interviewed an Onboard Training Officer via a recorded phone call which we derived in presenting the thematic analysis of errors commonly encountered by cadets in completing their TRBs during OBT, based on the interview with the Onboard Training Officer. Four major themes emerged, and these are Task Documentation Errors where Cadets frequently made unjustifiable entries in the TRB, particularly in Section 7 of the TRB (Tasks for the Officer-in-Charge of the Bridge/Engine Watch), sometimes recording multiple tasks on the same date without sufficient justification. Next is Date and Logbook Inconsistencies, this is all about consecutive dates in every task or sometimes misaligned dates were entered, which did not correspond with cadets' actual daily journals, reports, or onboard accomplishments, suggesting poor alignment of recordkeeping practices. Another thing is the Sea Project Documentation Issues where Cadets, especially in Marine Engineering, struggled with accurately recording or executing sea project tasks (e.g., fabrication requirements for engine items), and entering / aligning them accordingly which results in incorrect or incomplete entries, and lastly is the Improper Correction Practices, that Instead of using proper legal correction methods (strikethrough with initials/signature), cadets often used liquid erasers or correction tape, compromising the TRB's validity as a legal document. These thematic analysis gives emphasis that, despite reductions in overall error frequency post-pre-OBT implementation, persistent procedural and habitual issues in documentation practices remain, necessitating targeted refinements in training to address these specific areas.

Table 3

Themes on the Areas where errors encountered by Cadets in completing their TRB during OBT program

Themes	Data Source (Source and Narratives)
Areas do cadets experience errors in completing their TRBs during OBT program	OBTO1: "They're encountering errors usually in the Section 7 of the TRB that indicates tasks for Officer – in – charge of the Bridge / engineering Watch especially if they seem to accomplish a task on a same date that is not justifiable by them"
	OBTO1: "In addition to that, some of them are putting the dates in a consecutive manner in which sometimes is also not justifiable or obviously just being done because they failed to fix it during their seagoing service and most of the time, are not aligned with their accomplishments, daily journals, narrative reports, etc."
	OBTO 1: "Another area of error that the cadets are experiencing is in their respective Sea Projects, just like in the case of Marine Engineering that some of the items in Engine needs to have a fabricated copy, they usually encounter incorrect entries for that"
	OBTO 1: "Generally speaking, some of the errors they encounter is when they have corrections on their entries in the TRB, they tend to rectify them using a liquid eraser or tape correction which is considered to be improper in terms of erasures in the legal document such as TRBs, it should be a dash or "x" with their initials / signatures on top."

4. Conclusions

In line with the findings of this study that are indicated and summarized above, it therefore concludes that the pre-OBT program significantly reduces TRB errors, confirming the alternative hypothesis (H1) and rejecting the null (H0) this is because the significant decline in repeat visit proportions (from 35.82% pre-OBT to 19.59% post-OBT; $z = 2.32$, $p = 0.020$; Table 4.2) indicates enhanced preparedness and fewer corrections. While total TRB checking frequencies increased post-implementation (Table 4.1), this was not significant ($t = -3.94$, $p = 0.106$), likely due to batch size variations. This aligns with Bayotas (2023), who demonstrated that structured training lowers error rates through hands-on elements like the Book of Knowledge, and supports Youssef (2019) by addressing procedural gaps via standardized initiatives.

In addition, themes on areas of errors in TRB completion highlight the need for experiential enhancements, in line with

theoretical frameworks because high-encounter themes like time constraints and limited task practice underscore onboard demands, while lesser barriers (e.g., language issues) indicate partial mitigation by pre-OBT. These align with Kolb's Experiential Learning Theory (1984), emphasizing concrete experiences, and Camarines et al. (2016) and Youssef (2019), who link error areas to insufficient preparation exacerbating soft skills deficits.

Lastly, the pre-OBT program bridges theory and practice, supporting efficient degree attainment and industry standards due to significantly reducing error rates (Table 2.2), the program enhances cadets' readiness per STCW 2010 and JCMMC No. 01 (2022), validating its role in minimizing corrections and delays. This is substantiated by Bayotas (2023) and positions PNTC's initiative as a model for MHEIs to enhance TRB proficiency amid global trade demands.

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Research Article

Awareness of Deck Faculty on Current Maritime Technology and Industry Trends and Perceived Appropriateness of the Bachelor of Science in Marine Transportation Curriculum: A Basis for Curriculum Enhancement

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Abstract

The continuous advancement of maritime technologies, particularly Artificial Intelligence (AI) and Maritime Autonomous Surface Ships (MASS) call for a corresponding enhancement of maritime higher education curricula to meet the evolving demands of the global industry. While other countries have begun integrating these developments into their academic programs, limited studies in the Philippines have examined how the Bachelor of Science in Marine Transportation (BSMT) curriculum adapts to these changes. This study sought to assess the awareness of deck faculty on current maritime technologies and industry trends, as well as their perceptions of the appropriateness of the existing BSMT curriculum at PNTC Colleges, with the aim of recommending enhancements. Using a quantitative descriptive-comparative design, data were gathered through a validated survey questionnaire administered to all 30 deck faculty members and analyzed using descriptive statistics and a t-test. Results showed that the faculty were generally aware of AI applications (median = 4) but only moderately aware of MASS (median = 3). The curriculum was perceived as appropriate in content, implementation, and relevance (median = 4), and statistical analysis confirmed no significant difference ($p = 0.13 > 0.05$) between awareness of emerging technologies and perceptions of curriculum appropriateness. The results showed that while the BSMT curriculum adequately addresses traditional competencies, it has not yet fully integrated technological advancements. Hence, it is recommended to include learning outcomes on these emerging technologies in core courses or other institutional programs to include the competencies on digitalization particularly in AI and MASS, and offer electives focused on maritime innovations to ensure alignment with industry demands and global standards.

Keywords: Artificial Intelligence; BSMT; Curriculum; MASS

1. INTRODUCTION

The increasing digitalization and developing dynamics of the maritime industry prompt a reevaluation of how connected systems and Internet of Things (IoT) can be utilized to advance the next phase of ship development (Sullivan, 2020). The technology-led innovations introduced by the Maritime 4.0 paradigm are expected to propel the future maritime ecosystem, enabling innovation-driven manufacturing processes of smart vessels designed with fully integrated maritime environment (Mitra, 2023).

These technological advancements lead us towards the changes in education's dynamics and delivery globally (Sharma and Nashir, 2021). With the rapid technological evolution, Maritime Higher Education Institutions (MHEI) face challenges in modernizing the curricula and instructional approaches to align with the demands of the digital era (Hasan & Salem, 2025). One notable development for Maritime Education and Training (MET) is the evolution of maritime simulators. These simulators, once limited to navigation and ship handling, have transformed into highly advanced systems capable of replicating complex scenarios and operational conditions (Nautilus, 2021, as cited by Karahil, M., et al., 2024).

In response to the evolving maritime industry, some universities around the world have taken steps to incorporate the developing technological trends into their curricula.

The Indian Maritime University (IMU) in India included the subject ‘Artificial Intelligence and Autonomous Ships’ in its program structure for the Bachelor of Science in Nautical Science. This subject aims to address the intersection of Artificial Intelligence (AI), Machine Learning (ML), cybersecurity, IoT, and big data, in light of the development and implementation of Maritime Autonomous Surface Ships (MASS). Nanyang Technological University in Singapore injected a 3-unit course on ‘Introduction on Data Science and Artificial Intelligence’ for their curriculum on Bachelor of Science in Maritime Studies.

Additionally, MOKPO National Maritime University (MMU) in South Korea offers a course on ‘Autonomous Operation for Smart Ships’ as part of its advanced major courses for fourth-year students in the Division of Marine Transportation. Furthermore, Korea Maritime and Ocean University (KMOU) has taken a significant step by establishing a dedicated Division for Maritime AI & Cybersecurity within its College of Maritime Sciences, focusing on AI and cybersecurity. This division aims to cultivate artificial intelligence and cybersecurity experts as maritime professionals responsible for overseeing the operations and management of future vessels.

The Philippines, being the largest supplier of seafarers globally (Maritime Administration Authority, 2022), has 83 recognized MHEIs, of which 77 are authorized to offer the Bachelor of Science in Marine Transportation (BSMT) and 69 are eligible to offer the Bachelor of Science in Marine Engineering (BSMarE) for Academic Year 2024–2025 (Commission on Higher Education, 2024).

In recent years, the maritime education curriculum in the Philippines has undergone continuous revisions. Several CHED Memorandum Orders (CMOs) and Joint CHED-MARINA Memorandum Circulars (JCMMCs) have been implemented by the Commission on Higher Education (CHED) and the Maritime Industry Authority (MARINA) across MHEIs nationwide. The most recent, JCMMC No.1, series of 2023, serves as the latest set of Policies, Standards, and Guidelines (PSGs) for maritime education, governing the implementation of both BSMT and BSMarE programs in the country. Under previous PSGs, the BSMT program required a minimum of 175 credit units, covering professional courses, Onboard Training (OBT), Physical Education (PE), the National Service Training Program (NSTP), and general education subjects, as outlined in CMO No. 20, series of 2013, through CMO No. 67, series of 2017, up to JCMMC No. 01, series of 2022. However, in its latest revision, the required minimum has been reduced to 165 credit units. The professional courses in the BSMT program include subjects in Navigation, Seamanship, Deck Watchkeeping, Meteorology, Maritime Communications, Basic Marine Engineering, Maritime Law, MARPOL, and Management. These courses are designed to comply with the relevant provisions of the STCW Convention, 1978, as amended. On the other hand, maritime courses such as ‘Trends, Issues and Breakthroughs in the Maritime Industry’ and ‘Emerging Technologies in Maritime Industry’ are options to be offered by MHEIs as two out of 10 elective courses where institutions may opt not to include in their program of the study.

With the minimum requirements for maritime education curriculum based on the STCW Convention, 1978, with its significant 2010 Manila amendments, the integration of emerging technologies poses both challenges and opportunities for MHEIs (Maghorimi, 2023).

In light of the above, this study aims to evaluate the Bachelor of Science in Marine Transportation (BSMT) curriculum to determine whether gaps exist between the program and current maritime technological trends. Addressing these gaps will help strengthen the curriculum framework and ensure that the BSMT program remains aligned with global maritime standards. In doing so, this study also aligns with the United Nations Sustainable Development Goal (SDG) 4, which advocates for inclusive and equitable quality education.

2. MATERIALS AND METHODS

The researcher used quantitative research approach in this study, specifically descriptive-comparative design to describe and compare characteristics of a population. Survey was used to gather data from both deck faculty members PNTC Colleges. The variables of this study included the respondent’s profile and their insights on current maritime trends and technological advancements.

The researcher adhered to the established ethical standards, particularly concerning the involvement of human participants. Permissions were obtained from the appropriate institutional authorities, company representatives, and individual respondents prior to the commencement of the survey. All sources and scholarly works cited in this study were properly acknowledged through in-text citations and included in the reference list, in accordance with academic standards.

Research Locale and Participants

The research was conducted at PNTC Colleges, an MHEI located in Dasmarinas City, Philippines. This institution was selected as the research locale since the respondents are primarily based here.

The researcher gathered data from the total population of 30 deck faculty members of PNTC Colleges.

Instruments

Instrumentation

A self-made survey questionnaire was developed for this study and administered through Google Forms. The instrument consists of three parts:

- Part I gathers the respondents' demographic profile, addressing SOP 1.
- Part II explores the respondents' level of awareness of emerging maritime trends and technological advancements using a 5-point Likert scale (1 = Fully Not Aware, 5 = Fully Aware), addressing SOP 2.
- Part III evaluates the perceived appropriateness of the BSMT curriculum according to the respondents' perceptions using also a 5-point Likert scale (1 = Very Inappropriate, 5 = Very Appropriate), addressing SOP 3.

Validation of instrument

Validity test

The content validity of the questionnaire was consulted to the Research Officer and Field Experts to ensure appropriateness of the instrument content.

Reliability test

The survey questionnaire was pre-tested to 10 Deck Faculty Members of PNTC Colleges to determine if there are errors in the questionnaire or areas that need revisions or improvement.

Cronbach's α coefficient was used by the statistician to check the internal consistency reliability of the survey questions. The questionnaire measuring the level of awareness of deck faculty on emerging trends and maritime technological advancements, and the respondents' level of perception on the appropriateness of the BSMT curriculum yielded an excellent result of 0.95.

Data Collection

The following procedure were followed throughout the process to obtain data for this research:

Survey for Deck Faculty Members:

1. The survey for deck faculty was developed, approved and validated;
2. The researcher coordinated with the Dean for College of Maritime Education to conduct the survey;
3. The researcher sought permission from the respondents through an informed consent;
4. After receiving informed consent, survey questionnaire via Google Form was distributed to respondents;
5. The results of the survey questionnaire were collected by the researcher upon completion of the respondents.
6. The researcher screened the survey questionnaire if it was completely answered; and
7. The results from the survey questionnaire were tabulated and analyzed using Microsoft Excel.).

Data Analysis

Survey responses were analyzed using descriptive statistics and inferential statistics. One-tailed t-test was used to determine if there is a significant difference between the implemented BSMT curriculum and the emerging maritime technological trends.

3. RESULTS AND DISCUSSION

Quantitative Findings and Interpretation

Table 1

Demographic profile of the respondents in terms of rank on board

Current rank onboard	Frequency	Percentage
Officer-in-Charge of Navigational Watch	18	60.00%
Management Level Officer	12	40.00%

Total	30	100.00%

Based on the data in Table 1, most of the deck faculty respondents at PNTC Colleges are serving as Officer-in-Charge of a Navigational Watch, comprising 60% of the total population. The remaining 40% belong to the Management Level Officer category, which includes Captains and Chief Mates.

Table 2*Demographic profile of the respondents in terms of years of seagoing experience*

Years of seagoing experience	Frequency	Percentage
0 -3 years	2	6.66%
4 -6 years	5	16.67%
7 – 9 years	5	16.67%
10 years and above	18	60.00%
Total	30	100.00%

As shown in Table.2, most of the respondents (60%) have accumulated 10 years or more of seagoing experience, indicating extensive maritime exposure. Both the 4–6 years and 7–9 years categories account for 16.67% each, while only 6.66% of the respondents have 0–3 years of sea service.

Table 3*Demographic profile of the respondents in terms of the year of latest disembarkation*

Year of latest disembarkation	Frequency	Percentage
2023 – 2025	9	30.00%
2020 – 2022	10	33.34%
2017 – 2019	6	20.00%
2014 – 2016	1	3.33%
2013 and below	4	13.33%
Total	30	100.00%

Table 3 reveals that the highest proportion of respondents (33.34%) last disembarked between 2020–2022, coinciding with the COVID-19 pandemic period. 9 respondents (30%) disembarked more recently, between 2023–2025, thereby gaining firsthand experience with the latest innovations and technologies on board. Meanwhile, 20% of respondents last disembarked in 2017–2019, 3.33% in 2014–2016, and 13.33% in 2013 and earlier, suggesting a range of recency in seafaring experiences.

Table 4*Demographic profile of the respondents in terms of vessel trade route*

Vessel trade route	Frequency	Percentage
International	28	93.33%
Domestic	2	6.67%
Total	30	100.00%

According to Table 4, a significant majority of the respondents (93.33%) have served in the international trade route, while only 6.67% reported seagoing experience in domestic waters. This highlights a stronger orientation toward global maritime operations among the faculty members.

Table 5
Demographic profile of the respondents in terms of years of service in MHEI

Years of service in MHEI	Frequency	Percentage
0 -3 years	23	76.67%
4 -6 years	3	10.00%
7 – 9 years	0	0%
10 years and above	4	13.33%
Total	30	100.00%

Although a large portion of respondents possess over 10 years of seagoing experience as represented in Table 2, their tenure in maritime higher education institutions (MHEIs) is comparatively shorter. As shown in Table 5, the majority (76.67%) have served in MHEIs for only 0–3 years. Three respondents (10%) have 4–6 years of teaching experience, while four respondents (13.33%) have been in service for more than 10 years. Notably, no respondents fall within the 7–9 years category.

Table 6
Demographic profile of the respondents in terms of the year of latest disembarkation

	Frequency	Percentage
Navigation	21	70.00%
Seamanship	17	56.67%
Management	10	33.33%
Deck Watchkeeping	21	70.00%
Elective/Others	5	16.67%

Table 6 presents the courses taught by the deck faculty. Navigation and Deck Watchkeeping are the most handled, each taught by 21 respondents. Seventeen respondents have taught Seamanship courses, while ten have handled Management courses. A smaller number, five respondents, reported teaching electives and other institutional subjects such as SHP and PRB courses.

Table 7
Level of awareness of the deck faculty on current maritime technology and industry trends

Technological advancements in the maritime industry	Median	Descriptive equivalent
Artificial Intelligence (AI)		
1. Awareness on the existence of Artificial Intelligence (AI) in the maritime industry.	4	Aware
2. Awareness on the use of AI for risk analysis and management (e.g., AI-powered risk management).	4	Aware

3. Awareness on the use of AI to enhance crew resource management (e.g., SmartPredict System).	4	Aware
4. Awareness on the use of AI in handling hazardous materials.	4	Aware
5. Awareness on the use of AI for predictive maintenance.	4	Aware
6. Awareness on the use of AI in optimizing navigation systems.	4	Aware
7. Awareness on the potential challenges that AI may pose in the maritime industry.	4	Aware
8. Awareness on any subject in the institution dedicated to AI.	4	Aware
9. Awareness on any lesson in the syllabus that relates to AI.	4	Aware
Maritime Autonomous Surface Ships (MASS)		
1. Awareness on the existence of Maritime Autonomous Surface Ships (MASS).	4	Aware
2. Awareness on the different degrees of autonomy in MASS.	3	Neither Aware nor Not Aware
3. Awareness on how MASS are controlled and monitored.	3	Neither Aware nor Not Aware
4. Awareness on the legal, regulatory, and ethical issues associated with MASS.	3	Neither Aware nor Not Aware
5. Awareness on the potential benefits of MASS to the seafaring profession.	3	Neither Aware nor Not Aware
6. Awareness on the challenges that MASS may pose to seafarers in the near future.	3	Neither Aware nor Not Aware
7. Awareness on any subject in the institution dedicated to MASS.	3	Neither Aware nor Not Aware
8. Awareness on any lesson in the syllabus that relates to MASS.	3	Neither Aware nor Not Aware

Table 7 presents the level of awareness of the respondents on the technological advancements in the maritime industry, specifically on Artificial Intelligence (AI) and Maritime Autonomous Surface Ships (MASS).

For Artificial Intelligence (AI), the median of 4 suggests that the respondents are generally aware of its applications in the maritime industry. The data gathered shows that the respondents have been aware of AI and all its implications.

On the other hand, awareness of Maritime Autonomous Surface Ships (MASS) was lower, with a median of 3, interpreted as neither aware nor not aware. While respondents were aware of the general existence of MASS (4) in the gathered data, they showed limited knowledge of its specific dimensions, garnering a median of 3 on all its applications. This suggests that there is may be a gap in formal instruction and professional discourse concerning autonomous vessels.

To support this, Angeles and Perona (2022) found in their study that 480 students are only moderately familiar with AI, having a median of 3.00 and a mean of 3.36, and similarly with MASS, which gained a median of 3.00 and a mean of 3.12, indicating that the respondents are only moderately familiar with MASS as well.

Table 8
Perceived appropriateness on the BSMT curriculum of PNTC Colleges

Appropriateness of BSMT curriculum of PNTC Colleges	Median	Descriptive equivalent
Contents		
1. Appropriateness of the courses included in the BSMT curriculum in relation to real-life maritime situations.	4	Appropriate
2. Appropriateness of the contents and topics of BSMT subjects in terms of coverage.	4	Appropriate
3. Appropriateness of the BSMT curriculum content in reflecting the most recent developments in the maritime industry.	4	Appropriate

4. Appropriateness of the contents and topics of BSMT subjects in terms of accuracy and level of detail.	4	Appropriate
5. Appropriateness of the learning materials in terms of alignment with the detailed teaching syllabus.	4	Appropriate
Implementation		
1. Appropriateness of the overall implementation of the BSMT curriculum at PNTC Colleges.	4	Appropriate
2. Appropriateness of the methods of communicating the subjects' learning outcomes to students.	4	Appropriate
3. Appropriateness of the resources provided by PNTC Colleges to students, faculty, and staff for implementing the BSMT curriculum.	4	Appropriate
4. Appropriateness of the training and support provided to faculty and staff for effective curriculum implementation.	4	Appropriate
5. Appropriateness of the strategies implemented by key officials in implementing the BSMT Curriculum.	4	Appropriate
Relevance to the current demands		
1. Appropriateness of the BSMT curriculum subjects in addressing current trends and emerging technologies in the maritime industry.	4	Appropriate
2. Appropriateness of the topics and learning outcomes of BSMT subjects in terms of addressing present-day maritime technological advancements.	4	Appropriate
3. Appropriateness of the lessons taught in preparing BSMT students for real-world maritime scenarios.	4	Appropriate
4. Appropriateness of the lessons in equipping BSMT students for future challenges and developments in the maritime industry.	4	Appropriate
5. Appropriateness of the measures made by the institution in preparation for the emerging technologies in the maritime industry.	4	Appropriate

Table 8 presents the perceived appropriateness of the BSMT curriculum in terms of contents (4), implementation (4), and relevance to current demands (4). The median for all factors indicates that the respondents find the curriculum aligned with the needs of maritime education.

The contents of the curriculum having the median of 4 indicates that the courses and subjects included in the BSMT program are appropriate to real-life maritime situations. This suggests that the foundation of the curriculum remains structured.

In terms of implementation, with a median result of 4 shows that respondents also perceived the actual delivery of the curriculum as appropriate, same with the result for the relevance to current demands reflecting the same median of 4. This indicates that the BSMT curriculum is perceived as appropriately preparing students for real-life situations. Overall, the findings suggest that the BSMT curriculum at PNTC Colleges is appropriate across all three dimensions—contents, implementation, and relevance.

Similar with the results in the study of Angeles and Perona (2022), most of the respondents in their study believed that their current education was sufficient in preparation for future developments in the maritime industry such as MASS. Student's skepticism on AI's reliability and decision-making abilities in complex scenarios had influenced their perception on MASS, thus hindering full acceptance of the technology).

4. CONCLUSIONS

Based on the findings of this study, the following conclusions were drawn in accordance with the stated problems:

Demographic Profile of the Respondents

Most of the respondents in this study were Officer-in-Charge of a Navigational Watch (60%) with substantial seagoing experience of 10 years or more (60%). Majority of these respondents last disembarked between 2020–2022 (33.34%), where most

of them are engaged in international trade (93.33%). However, while most of the respondents have extensive shipboard experience, their tenure in Maritime Higher Education Institutions (MHEIs) is comparatively shorter, with 76.67% of which only have 0–3 years of service. Navigation and Deck Watchkeeping were the most frequently taught courses. This simply indicates that while the respondents possess strong maritime backgrounds as based on the years of seagoing service, their teaching experience is relatively new.

Level of awareness of the deck faculty on current maritime technology and industry trends

Respondents were generally aware of AI (4) as presented in Table 3.7 but showed limited awareness of MASS (3). This suggests that there is only a moderate familiarity with technological advancements in the maritime industry, indicating a gap of knowledge in MASS that needs to be addressed through formal instruction or training.

Level of appropriateness of the BSMT curriculum

The BSMT curriculum was perceived as appropriate across contents (4), implementation (4), and relevance to current demands (4). This recommends that the BSMT curriculum is effective in covering traditional seamanship skills.

Significant difference between awareness and curriculum appropriateness

The t-Test analysis showed no significant difference between faculty awareness on maritime technological trends and their perception of the curriculum's appropriateness ($p = 0.13 > 0.05$). This shows that although the curriculum is viewed as sound for the current industry standards, such perception does not necessarily equate to technological inclusiveness.

In summary, the BSMT curriculum is strong in addressing traditional competencies but does not yet fully reflect the fast-moving advancements of maritime technology. Limited awareness of MASS among faculty highlights the need for a stronger association between industry trends and academic instruction. To ensure long-term relevance, the curriculum must be enhanced through the integration these technological trends to enable the PNCT cadets to acquire both conventional seamanship skills and the digital competencies required by an evolving maritime profession. With continuous review and adaptation, the BSMT program can remain aligned with international standards and technological advancements.

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Research Article

The Lowering Distribution Expenses in Thirt Party Logistics (3PL) via Collaborative Consolidation Utilizing the Quality Control Circle Approach

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ABSTRACT

PT ABC is assessing its distribution costs in the jabodetabek region in light of rising expenses. Currently, PT ABC product line has been streamlined to one variation. To enhance the efficiency of distribution, a shift is occurring from a dedicated contract partnership with PT "A" to a consolidation collaboration with PT "B", utilizing Third Party Logistics (3PL). The Third Party Logistics provider (3PL) charges fees based on each carton, in contrast to PT "A" which previously accounted for warehouse rental and transportation expenses. Employing the Quality Control Circle (QCC) approach, the most cost-effective distribution expenses have been calculated. Over the past four months, the average distribution cost for PT "A" utilizing Third Party Logistics (3PL) stands at IDR 50,000 (Fifty Thousand Rupiah) for each carton. In comparison, the transportation charges at PT "B" amount to IDR 26,500 (Twenty Six Thousand Five Hundred Rupiah) per carton. According to these figures, PT "B" provides fixed pricing, irrespective of shipment volume. The advantages of this consolidation approach include a set shipping timeline and a defined minimum order size.

Keywords: Distribution; Distribution Costs; Logistics; Third Party Logistics

1. INTRODUCTION

Product distribution is generally referred to as logistics. It is defined as the process of planning and providing information regarding the storage process to deliver a good. Product distribution begins in stages, starting from storage locations such as factories, distribution warehouses, to customers. The main goal of planning the distribution of goods is how management can optimize the amount of resources available to distribute goods to their destination. The resources referred to are in the form of optimizing time, optimizing transportation costs, optimizing travel distance, or optimizing labor, and the modes of transportation involved in product distribution.

ABC Company has a factory in the Bandung area. Their product sales area for the Jabodetabek, Karawang, and Cilegon areas is conducted directly by the Company, while areas outside of that collaborate with Distributor Companies for the sales of PT ABC products. PT ABC sells directly in Jabodetabek, Karawang, and Cilegon. They collaborate with Third Party Logistics (3PL) to carry out deliveries to Customers. Companies that use Third Party Logistics (3PL) services expect a more efficient and cost-effective process than conducting the process in their own business (Batarliene & Jarasuniene, 2017). The objectives of the logistics process are formulated based on the 7R principles in Logistics: Right Product, Right Place, Right Price, Right Customer, Right Condition, Right Time, and Right Quantity (Lynch, 2001). If any of these principles are misjudged, the Company may lose customers, reduce competitive advantage, and market share.

During our collaboration with the Third Party Logistics (3PL) provider, we evaluated their performance and costs throughout the partnership. The performance of the Third Party Logistics (3PL) provider during the collaboration was very good, while in terms of costs, we experienced an increase in distribution costs due to changes in some products from chilled storage to dry storage. As a result, only one type of chilled product remains with the Third Party Logistics (3PL). We evaluated the storage and shipping costs for this single type of product, where there was a 25% increase in distribution costs per carton from the product price. Therefore, we are seeking a partnership with a Third Party Logistics (3PL) provider that offers different terms than

before. Third Party Logistics PT A requires us to rent on a Dedicated basis (contract), while Third Party Logistics PT B, which is new, offers a Consolidation scheme where the goods we will send will be stored in PT B's warehouse, and later the deliveries for PT ABC's customers will be combined with PT B's customers for joint shipping. Consolidation of shipments is the process of collecting several shipments from various vendors for multiple recipients, packaged in a single shipment (Lazuardi, 2010). This analysis uses the Quality Control Circle (QCC) method to assess how much the distribution costs have decreased from before.

Before we collaborate with the new Third Party Logistics provider, we calculate to compare the fixed rental costs (Dedicated) with Consolidation. We want to determine if these costs will decrease from the previous distribution costs. Therefore, we use the Quality Control Circle (QCC) method to inform management that we can reduce these distribution costs. The goal of this research is for PT ABC to lower distribution costs to remain competitive with the selling prices of the products.

The Quality Control Circle (QCC) is a collective effort by a group of employees to monitor quality by meeting regularly to identify, analyze, and take action to solve problems in the workplace. The main objective of this quality control is to discuss existing issues within the company and provide solutions to management to resolve these problems. Discussions relate to work aspects such as products, costs, time, inventory, safety, health, and security (Sutarti, 2019).

2. MATERIALS AND METHODS

The study took place at PT ABC situated in Bandung. Its objective is to evaluate the expenses associated with collaboration with Third Party Logistics PT "A" (3PL) via a long-term agreement with Third Party Logistics PT "B" (3PL), employing a Consolidation framework along with the Quality Control Circle (QCC) approach in 2024. Third Party Logistics (3PL) utilizing a Consolidation framework entails that costs are determined by the quantity of goods sent to clients, while expenses for warehouse and vehicle rentals are not imposed. The information utilized consists of billing details sent to PT ABC for warehouse and vehicle rental fees from PT "A" covering the period from September 2024 to December 2024, in comparison to the consolidation pricing proposal presented by PT "B" to PT ABC in October 2024.

Describing the essence of Kaizen, particularly in the context of business, "Kaizen signifies an ongoing enhancement that engages every manager and worker" (Imai, 2014). This term is a broad idea that includes most traditional Japanese methodologies that have recently gained global recognition (Ardiansyah, 2013). One can view Kaizen as a notion that "incorporates" various distinctive techniques like Six Sigma, Robotics, Quality Control Circle (QCC), Kanban, Quality Improvement, Just In Time (JIT), and Zero Defects (Heizar and Render, 2005).

Through the application of the Kaizen principle, we implement the Quality Control Circle (QCC), often referred to as a quality control team. This is a compact group made up of multiple employees who collaborate to aid in the company's enhancement by recognizing and addressing issues within their tasks and surroundings to elevate quality.

There are 8 steps to solve problems in QCC.

1. Clarify the Problem.
2. Breakdown the Problem
3. Set the Target.
4. Analyze the Root Cause.
5. Develop Countermeasures.
6. Implement Countermeasure.
7. Monitor Result and Process.
8. Standardize and Share Success.

3. RESULTS AND DISCUSSIONS

Step 1: Clarify the Problem

The determination of the theme is carried out by identifying the issues present in the warehouse and logistics department. These issues are explored in depth so that we can identify several problems for which we will seek solutions, through problem identification. The issues faced by the Supply Chain department are derived from employees in the field and reports provided by management. Problem identification uses QCDSME. QCDSME is one of the analytical methods used to identify existing problems, where the aspects analyzed will focus on the core issues according to the needs of the QCDSME values (Quality-Cost-Delivery-Safety-Morale-Environment). This identification of problems exists in the warehouse and logistics department (Juwandi & Kamsin (2020)). From the theme determination matrix that has been created, it has been concluded that the issue to be resolved is the high

logistics costs.

Table 1. Thema determination matrix

: 3 poin.
 : 2 poin.
 : 1 poin.
 : 0 poin.

Top Down		Item Evaluasi										Necessity					Actual Circle Capabilities			Overall Evaluation
		No		Impact	Urgency	Problem	Cost	Input from the boss	Total Participation	Activity Time	Team Capabilities									
High Logistics Costs		1	High Logistics Costs	3	3	3	3	3	3	3	3	3	24							
Eksternal	Product damage in Handling and shipping	2	Product damage in Handling and shipping	3	2	2	1	1	1	1	1	1	12							
	Long unloading Lead time	3	Long unloading Lead time	3	3	2	2	2	2	2	2	2	18							
	Low return product scrap	4	Low return product scrap	3	2	1	1	1	2	2	2	3	15							
Bottom Up		5	Not Support Workers	3	1	1	1	1	2	2	2	1	12							
Eksternal	Difficulty in taking fresh milk	6	Difficulty in obtaining fresh milk	3	1	1	2	1	2	2	2	2	14							
	Sales Order is not Effisien	7	Sales Order is not Effisien	3	3	3	3	3	3	2	3	23								
	Lack of Fleet Efficiency	8	Lack of Fleet Efficiency	3	3	3	3	3	3	2	3	23								

Step 2: Breakdown the Problem

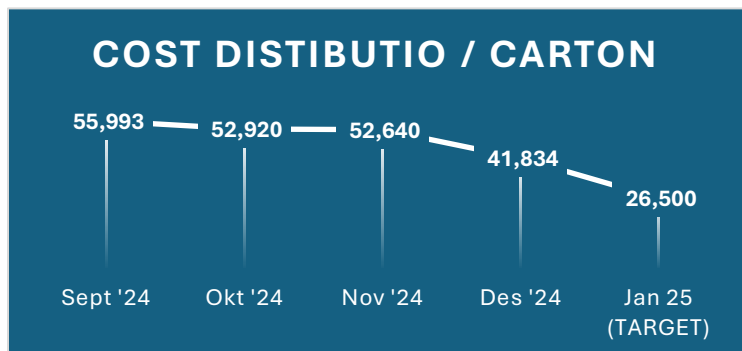
Based on the distribution cost data per carton from September to December, the average distribution cost per carton is 50,000, thus setting a target for reducing the distribution cost per carton in January to 26,500.

Table 2. Activity Plan and Actual

Planning Schedule and Actual

Month		September				Oktober				November				Desember				Januari				Februari			
Step		W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
Thema	Plan																								
	Act																								
Target	Plan																								
	Act																								
Analysis of existing	Plan																								
	Act																								
Causal Analysis	Plan																								
	Act																								
Improvement Plan	Plan																								
	Act																								
Improvement	Plan																								
	Act																								
Standardization	Plan																								
	Act																								
Review and Improve	Plan																								
	Act																								

Figure 1. Targe

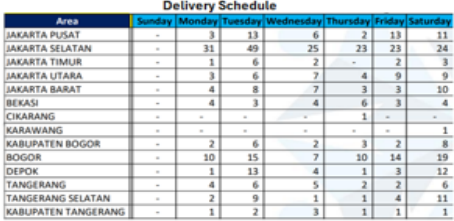
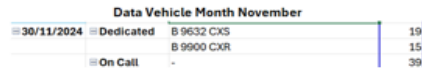


Step 3: Set the Target

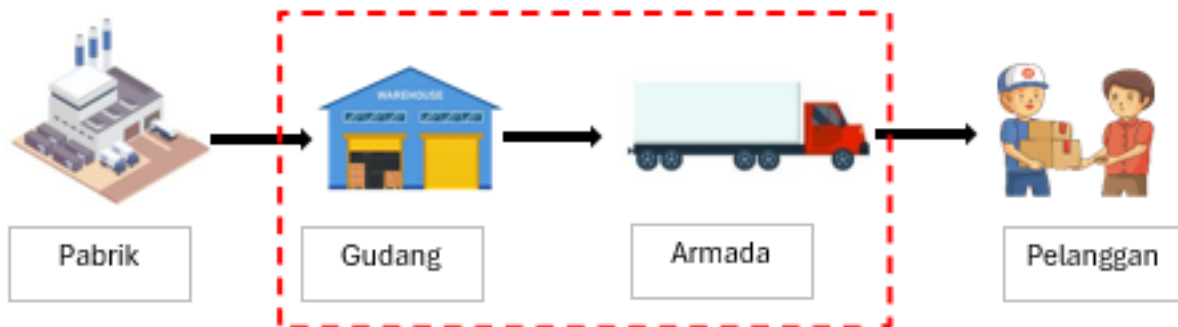
The current condition of the cooperation with Third Party Logistics (3PL) PT A involves costs incurred by PT ABC, which are warehouse and vehicle contracts. The billing for these costs comes from warehouse rental and vehicle rental. The goods distributed by PT ABC at PT A consist of only one type of item. Therefore, during delivery, the volume in the vehicle is small. This will impact the shipping costs. When the quantity of goods being delivered is low, it results in high costs. This can be seen from the flow of the cooperation process.

Table 3. Analysis of Current Conditions

Table 3. Analysis of Current Conditions

No	Factor	Observation Object	Standart	Actual	Ilustrasi	Data
1	Material	Finished products	Undamaged condition	Undamaged condition		No Problem
		Order PO	Minimum Order	No Minimum		
		Cut Off PO	H-1 From Delivery	H-1 From Delivery		No Problem
2	Methode	Schedule Delivery	Area Schedule	Not Area Schedule	  	Problem
3	Man	Working Hours	Operational Working Hours	Exceeding Operating Hours		Problem
4	Mechine	Unit	Unit Vehicle Dedicated	additional OnCall		Problem

Meanwhile, the current condition shows that the number of orders received is less than optimal during delivery, and the vehicle efficiency during delivery can be seen from Table 2 Analysis of Current Conditions.

Figure 2. Workflow Process**Table 3.** Summary of Distribution Costs for PT ABC

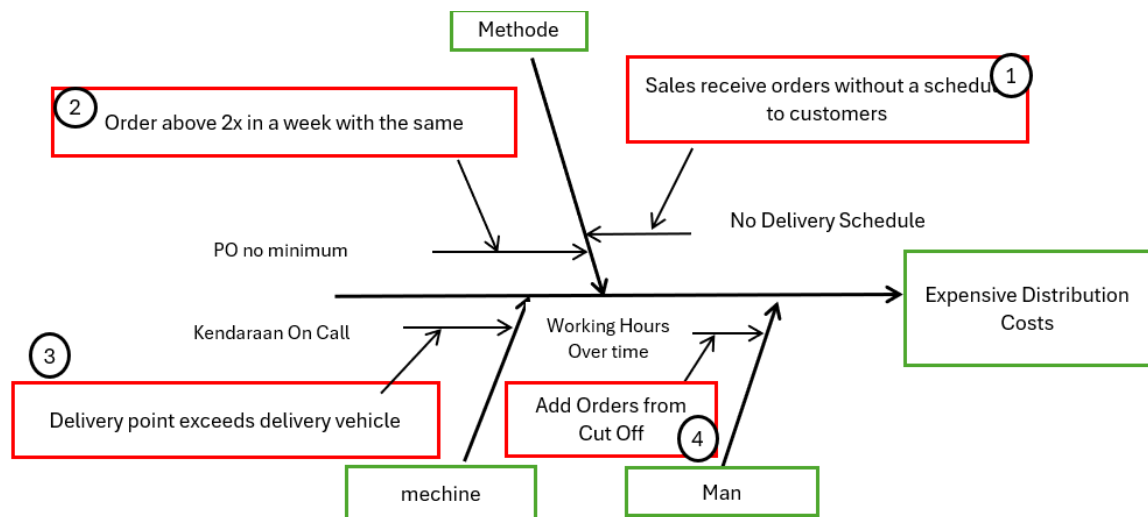
Description	Sept '24	Okt '24	Nov '24	Des '24
Qty Carton	1,899	2,160	2,519	3,015
Cost Distribution	106,331,167	114,308,000	132,600,200	126,130,200
Cost Distribution per Carton	55,993	52,920	52,640	41,834

Source : PT ABC (Processed data)

Step 4: Analyze the Root Cause

This diagram is created through brainstorming to identify the causes of each category or main factor, which is then referred to as the 4M + 1E (man, material, machine, method, environment of work) (Wignjosoebtoto 2006). From the fishbone diagram, the causes of high distribution costs are identified. They are caused by factors of Method, Man, and Tools.

Figure 3. Fishbone Diagram



- Method Factor: Sales receive orders without a schedule from customers and orders exceeding 2 times a week with the same customer.
- Tool Factor: Delivery points exceed the rented vehicles.
- Man Factor: Additional orders from the cut-off.

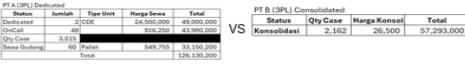
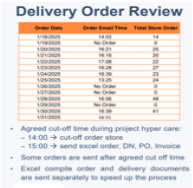
Step 5: Develop Countermeasures

Where the issues identified from the cause-and-effect analysis will be forwarded for the mitigation planning of those findings using the 5W+1H method (What, Why, Where, Who, When, How).

Table 4. 5W+1H

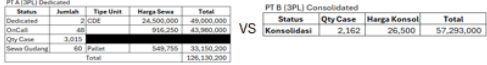
No	What Issue	What Solution	Why Reason	How Activity Details	Where Place	When Time	Who PIC	How Much Cost
1	Sales receive orders without a schedule to customers	Sales Informs customers that the delivery will be scheduled for the delivery area	So that deliveries to customers to these areas are maximized and the volume of goods increases	- Meeting with the sales team to change vendors and to propose schedules to customers. - Meeting with the proposed sales team with a simulated delivery schedule from sales history to customers	Head Office	09 Okt 24 17 Des 24	Head Warehouse & Logistics	No Cost
2	Order above 2x in a week with the same customer	Customers to customize the delivery schedule that we have created	Regular deliveries with small volumes result in large shipping costs	- meeting with the sales team so that we propose with our delivery schedule so that it can be informed to customers - Discussion of the realization of shipments due to increased volume.	Head Office	09 Okt 24 05 feb 25	Head Warehouse & Logistics	No Cost
3	Delivery point exceeds delivery vehicle	Shipping using Consolidated	The leased fleet exceeds the covered area which results in additional costs by renting another fleet but with a small volume	- meeting with the sales team informed that there was a change in third party logistics (3PL) cooperation using Consolidated Shipping - The use of third party logistics (3PL) is new starting in January - meeting with sales to inform that there will be a cut off order H-1 at 14.00 will be sent tomorrow while after 14.00 the order will be processed on the following day.	Head Office	09 Okt 24 13 Jan 25	Head Warehouse & Logistics	No Cost
4	Add Orders from Cut Off	Make an agreement if there are additional orders will be sent on D+2, not H-1	It is an overtime cost that increases while the sales volume does not increase means that	- Cut off orders start at the time of third party logistics (3PL) turnover.	Head Office	17 Des 24 13 Jan 25	Head Warehouse & Logistics	No Cost

Step 6: Implement Countermeasures

No	Issue	Solution	Result
1	Sales receive orders without a schedule to customers	Sales Informs customers that the delivery will be scheduled for the delivery area	
2	Order above 2x in a week with the same customer	Customers to customize the delivery schedule that we have created	
3	Delivery point exceeds delivery vehicle	Shipping using Consolidated	
4	Add Orders from Cut Off	Make an agreement if there are additional orders will be sent on D+2, not H-1	

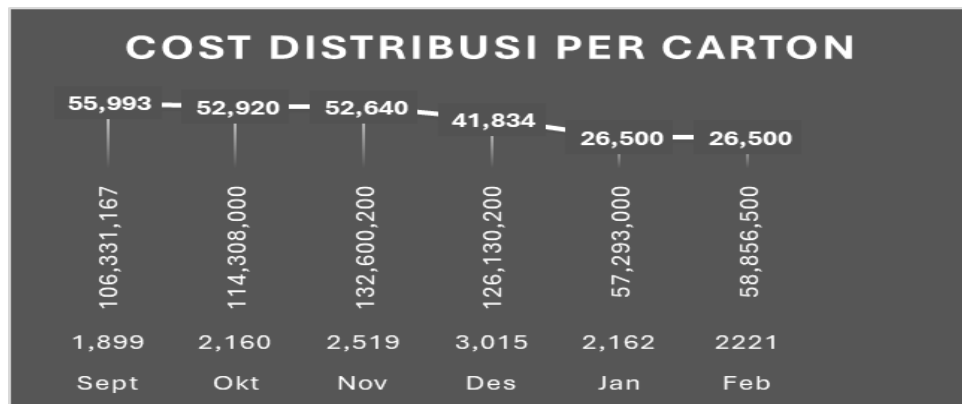
The results obtained in the mitigation report show the changes achieved by PT ABC.

Table 5. Mitigation

No	Issue	Solution	Result
1	Sales receive orders without a schedule to customers	Sales Informs customers that the delivery will be scheduled for the delivery area	
2	Order above 2x in a week with the same customer	Customers to customize the delivery schedule that we have created	
3	Delivery point exceeds delivery vehicle	Shipping using Consolidated	
4	Add Orders from Cut Off	Make an agreement if there are additional orders will be sent on D+2, not H-1	

Step 7: Monitor Results and Process

After the transfer of the Third Party Logistics (3PL) vendor from PT A to PT B, there is a decrease in distribution costs as shown in the following report;

**Figure 4.** Improvement Result

Step 8: Standardize and Share Success.

Standardization is necessary to prevent the recurrence of the same issues in the future and to enhance the existing Standard Operating Procedures (SOP). Once the standards are implemented, the Supply Chain team monitors the execution until there is a change in the standards again.

4. CONCLUSION

Based on the analysis results using the Quality Control Circle (QCC) method, the costs associated with Third Party Logistics (3PL) PT "A", in collaboration with a dedicated contract with PT "B" through consolidation, have resulted in a decrease in distribution costs. Previously, the average cost was Rp. 50,000 per carton for PT "A", while PT "B" reduced the cost by Rp. 26,500. The price obtained from Third Party Logistics (3PL) PT "A" includes storage volume and vehicle costs. Meanwhile, the costs at PT "B" include the shipping cost per carton, which already encompasses storage fees, handling fees, and shipping costs. Therefore, the objective of transferring third-party logistics (3PL) aligns with the company's goal of reducing distribution costs.

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Research Article

Assessing the Impact of On-the-Job Training Program on the Academic Performance of Senior Students as a Basis to Strengthen the OJT Implementation for the UDM College of Business Administration Curriculum

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ABSTRACT

This action research is a qualitative study that explores the impact of the On-the-Job Training Program on the Academic Performance of Senior Students as a Basis to Strengthen the OJT Implementation of Universidad de Manila in the College of Business Administration. The study was participated by 9 students of different courses currently completing the OJT requirements of 600 hours for the last semester at the university. The OJT students are deployed in different government and private entities whose tasks are related to the courses that they are pursuing. The Methodology Research Design used is Phenomenological Research Design that employs- Purposive Sampling (selecting participants who have experienced the phenomenon of interest). The Data Collection Method used was In-depth Interviews (face-to-face or online) and Data Analysis Method: Thematic Analysis (identifying patterns and themes in the data) This paper aims to assess the influence of OJT on the selected students of UDM on their academic performance and identify challenges in balancing work and academic status. Through in-depth interviews and questionnaires, this paper gathers insights from OJT students about their challenges, motivations, and perceptions of the OJT program. The following findings are as follows: 1. the OJT program implementation influenced the academic performance as they executed Positive Impacts like: 1.1 Improved practical application, Enhanced understanding, Increased motivation, Development of soft skills, and better career preparation. Other skills developed during the OJT are: Technical skills, soft skills, and professional skills. The challenges encountered are: Lack of computer information knowledge; paperwork overload; scheduling conflicts; and difficulty in English communication. Other challenges were: Limited financial resources for commuting and daily expenses posed a challenge for them to attend office duties; Stress and burnout and Time Management. These student interns struggle to balance the demands of work and studies thus academic performance is affected. This study will now provide a basis for enhancing the OJT program and helping practicum students realize their academic goals. It will contribute to the understanding of the complex relationships between work, academics, and experiential learning. The authors recommend strategies to modify and revisit the curriculum of Senior students to improve the academic performance.

Keywords: OJT students, academic performance, On-the-Job Training (OJT) program, university support, experiential learning

1. INTRODUCTION

The integration of practical work experiences through On-the-Job Training (OJT) is a key strategy in equipping students with the competencies necessary for success in dynamic professional environments. In higher education, particularly within business programs, OJT bridges theoretical knowledge and real-world application, reinforcing concepts through experiential learning.

This study investigates the impact of OJT on the academic performance of senior students in the College of Business Administration at Universidad de Manila. It aims to assess the program's benefits, the challenges encountered by student interns, and opportunities for improvement to enhance curriculum relevance and student preparedness, to strengthen the curriculum and support student success.

To guide the investigation, the following research questions are addressed: (1) How does the OJT program influence academic

achievement? (2) What specific skills are developed through industry-based training? (3) What challenges do students encounter during their OJT experience? (4) How can program implementation and academic outcomes be improved? and (5) What modifications can optimize the program's alignment with the academic curriculum?

The significance of this study lies in its contribution to academic, institutional, and societal domains. Academically, it highlights how experiential learning through OJT enhances students' understanding, motivation, and ability to apply theoretical concepts. Institutionally, the findings offer practical insights for refining the OJT framework, addressing issues such as time management, paperwork burden, financial strain, and stress. From an industry perspective, the study underscores the importance of nurturing technical, soft, and professional skills that respond to evolving labor market needs. Moreover, this research supports broader educational reforms that promote student well-being and workplace readiness, guiding policies that strengthen the transition from university to employment.

By drawing from the lived experiences of student interns, this study provides a valuable foundation for improving OJT implementation and integrating academic and industry objectives more effectively within the College of Business Administration curriculum.

2. MATERIALS AND METHODS

This study employed a phenomenological qualitative approach to explore the lived experiences of senior college students engaged in the On-the-Job Training (OJT) program at the College of Business Administration, Universidad de Manila. The phenomenological design was selected to uncover the essence and shared meaning behind the participants' experiences, particularly how their internships influenced their academic performance.

To gather rich and relevant data, the researchers utilized purposive sampling to select participants who were currently enrolled in the OJT program and completing the 600-hour internship requirement during their final semester. A total of nine students from various business courses were identified and invited to participate based on their direct involvement with the phenomenon under investigation.

Data collection was conducted through the use of an open-ended questionnaire distributed to selected senior students allowing participants to share their challenges, insights, and reflections in a comfortable and flexible manner. Interview questions were semi-structured to encourage open dialogue while maintaining consistency across participants.

The data analysis followed the framework of thematic analysis, which involved identifying key patterns, categories, and emerging themes from the transcribed responses. The researchers systematically coded and reviewed the data to draw connections between students' internship experiences and their academic engagement, skill acquisition, and performance outcomes.

This qualitative design ensured that student voices were central to the research process and allowed for a nuanced examination of how the OJT program supports or hinders academic success. The methodology aligns with the study's goals of informing policy reforms, improving program implementation, and enhancing institutional support for student interns.

3. RESULTS AND DISCUSSIONS

Impact of the OJT Program on Academic Performance. All nine (9) participants unanimously acknowledged that the On-the-Job Training (OJT) program had a constructive impact on their academic performance. Their narratives revealed several interrelated benefits that positively influenced their academic performance. The following themes were identified and presented in Table 1:

Table 1. Positive Impact of OJT on Academic Performance

Benefits		Interpretation
Improved Practical Application of Knowledge		Students reported that the internship allowed them to apply classroom theories in real workplace contexts, thereby reinforcing and validating what they had learned.
	Enhanced Understanding	Participants stated that engaging with real-world tasks deepened their grasp of academic principles, particularly in business-related subjects.
	Conceptual	Exposure to industry practices stimulated students' enthusiasm for learning, enabling them to understand the value of their education in actual settings.
Increased	Motivation	
Development of Soft Skills		The OJT experience provided opportunities to enhance key interpersonal skills such as adaptability, teamwork, and effective communication.
Improved Career Readiness		By engaging with professionals and industry systems, students gained a clearer understanding of workplace expectations and post-graduation opportunities.

Skills Acquired During the Internship. Through participation in the OJT program, students developed a variety of professional and technical competencies presented in Table 2:

Table 2. Competencies Acquired During Internship

Skills Acquired		Interpretation
Technical Skills and Digital Literacy		Students reported gaining proficiency in accounting information systems and digital productivity tools, including spreadsheets and office software.
	Soft Skills and Collaboration	Participants highlighted the development of skills in teamwork, collaboration, and interpersonal communication within a business context.
	Professional Development	Trainees improved their ability to build relationships with mentors and colleagues (2.3.1) and enhance self-awareness through ongoing reflection and goal-setting (2.3.2).
Workplace Time	Resilience and Management	Students cultivated time organization, stress regulation, and the ability to balance multiple responsibilities—skills essential to both academic and career success.

Challenges Encountered During OJT Implementation.

Despite the benefits, the study revealed several challenges faced by students presented in Table 3:

Table 3. Challenges Encountered During OJT Implementation	
Challenges	Interpretation
Time Management Difficulties	Students found it challenging to balance academic requirements with internship responsibilities.
Stress and Workload Pressure	High expectations from both academic and workplace supervisors resulted in fatigue and occasional burnout.
Curriculum Misalignment	Some interns noted that their academic preparation did not fully match the nature of their assigned tasks, creating disconnects in learning applications.

Recommended Program Enhancements. The researchers proposed various strategies to improve the overall implementation of the OJT program: **1. Strengthening OJT Delivery.** *Computer Literacy Support:* Provide pre-deployment training sessions in software and digital tools to improve students' proficiency in basic office software and accounting platforms. *Mentorship Programs:* Pair interns with experienced colleagues to guide their transition and provide access to digital tutorials to support skill acquisition during internship placement. *Administrative Efficiency:* Streamline documentation processes and reduce paperwork redundancy. *Scheduling Coordination:* Develop OJT internship schedules that minimize conflicts and absenteeism, and accommodate academic timetables and academic calendars. *Language Proficiency:* Address English communication barriers through targeted communication and language support. Enhance communication through regular updates and offer language assistance programs to mitigate English proficiency challenges. *Academic-Industry Coordination:* Strengthen collaboration between the university and partner organizations to align internship responsibilities with curriculum objectives. *Progress Monitoring and Feedback:* Conduct regular check-ins with advisers, incorporate structured feedback to assess students' performance and experiences, and gather feedback from students and host institutions. *Support Networks:* Establish institutional structures for emotional, academic, and logistical guidance. **2. Enhancing Academic Integration and Motivation.** *Curricular Revisions:* Offer foundational business courses (e.g., Marketing, Management, Economics) as early as their first year to reinforce theoretical knowledge and readiness for OJT. Internship activities enabled students to apply academic concepts in real-time. *Skills-Based Outcomes:* Emphasize both technical skills (e.g., data management, industry software) crucial for professional success and soft skills (e.g., communication, teamwork) development in internship planning. *Personal Growth and Confidence:* Recognize student achievement during OJT to foster motivation. Practical exposure increased student confidence in their abilities and enhanced their perception of the value of academic material. *Time and Task Management Support:* Encourage time awareness and planning skills through 100 hours of academic workshops/seminars and training prior to deployment. Allotting 500 hours for On-the-Job training to selected business organizations. *Career Development Opportunities:* Facilitate networking and creating professional identity formation during placement. OJT contributed to the development of professionalism, workplace discipline, and valuable industry insights enhancing career readiness. Through field interaction, students cultivated connections that may facilitate future employment opportunities.

These recommendations aim to create a more supportive and aligned experiential learning environment that complements academic objectives while preparing students for future professional roles.

Significant Findings. There are positive impacts of OJT implementation. It strengthened practical and theoretical integration. It enhanced student motivation and industry readiness. Development of communication, adaptability, and professional confidence. There are areas for improvement such as greater alignment between academic content and internship duties. Expanded institutional support mechanisms. Standardization of internship quality across hosting entities

4. CONCLUSION

This study examined the impact of the On-the-Job Training (OJT) program on the academic performance of senior students in the College of Business Administration at Universidad de Manila. Through a phenomenological qualitative approach,

the lived experiences of nine (9) student interns were analyzed to explore how practical industry exposure influenced their academic engagement, motivation, and preparedness for future employment.

The findings confirm that the OJT program contributed positively to students' development of technical competencies, critical thinking, and soft skills—elements essential to workforce readiness. Moreover, the real-world application of academic theories deepened conceptual understanding and bolstered student confidence. However, the results also revealed notable challenges such as difficulties with time management, heightened stress levels, communication barriers, and financial burdens, all of which can impede academic performance if left unaddressed.

These insights underscore the importance of institutional support and deliberate curricular integration to ensure the program's sustainability and student success. Establishing mechanisms such as pre-deployment orientation, mentoring, strategic scheduling, and university-industry alignment can significantly enhance the effectiveness of the OJT experience.

In conclusion, the study reinforces the value of OJT as a vital component of holistic business education. When properly implemented and supported, OJT programs serve as a transformative learning strategy that bridges theory and practice, advances academic performance, and cultivates career-ready graduates. The findings provide a critical basis for refining internship structures within the university, contributing to the broader discourse on experiential learning in higher education.

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Research Article

The Storyline Development of the Almacens (1842-1959) in Legazpi Port District, Albay Gulf, Philippines

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ABSTRACT

This study aims to explore the historical, cultural, and architectural significance of the early Almacens that once thrived in the Legazpi Port District of Legazpi City, Albay, Philippines. Utilizing archival research, field surveys, interviews with local historians and residents, as well as storytelling techniques, the study reconstructs the layered narratives of these forgotten warehouses that was also called Almacens. Some of the key findings have reveal that despite the absence of physical remnants, the Almacens have left a lasting cultural imprint on Legazpi City's urban identity and contributed to the city's socio-economic development. They form an intangible link between past and present, shaping community memory and historical consciousness. The study concludes that historical conservation, though not explicitly stated in the SDGs, plays a vital role in achieving inclusive, resilient, and culturally rich urban environments as envisioned in SDG 11.4 to be specific. As for the practical implication, the research recommends incorporating the narratives of the Almacens into the urban planning, cultural mapping, and tourism development strategies to establish a deeper sense of place and historical awareness in Legazpi City.

Keywords: Historical Site, Urban Development, Storyline, Almacen, Manila Hemp

1. INTRODUCTION

The historic Almacens (warehouses) once found in the Legazpi Port District, Legazpi City, Albay, Philippines, stood as architectural symbols of maritime heritage, economic activity, and cultural identity. Built during the height of the abaca trade, these structures played a pivotal role in the regional economy and the port's development as a key node in interisland and international trade. Their disappearance marks not only the loss of physical structures but also the fading of a vital historical narrative. The current research seeks to understand the historical and cultural significance of the Almacens and how their legacy can contribute to sustainable development and cultural tourism initiatives in Legazpi City.

Legazpi's strategic location along the Philippine coastline contributed to its involvement in maritime activities as early as the Spanish colonial period. Bicolanos contributed to the Galleon Trade through abaca fiber production and shipbuilding, highlighting their significant role in maritime commerce (Banzuela, 2013). The Spaniards, recognizing the archipelagic nature of the Philippines, constructed ships and distilleries across the Bicol Region. This activity brought not just economic benefits but also introduced cultural exchanges that shaped the local identity. (Gerona, 2011) further elaborates on the abaca trade, describing the abaca trail that connected plantations to the port via networks of processing centers, where Almacens played a crucial role in the storage and preparation of goods for shipment.

The importance of Albay and the port of Legazpi during the colonial era in the importation and trading of Manila hemp (abaca) shaped the material life of Filipinos and influenced social, economic, and environmental conditions under colonial rule (Owen, 1984). In another work, (Owen, 1979) chronicles the Philippine-American War in Albay, referencing the zenith of the abaca industry and mentioning the presence of Almacens in the Legazpi Port District. His archival work highlights the structural and historical presence of these warehouses as essential components of trade logistics.

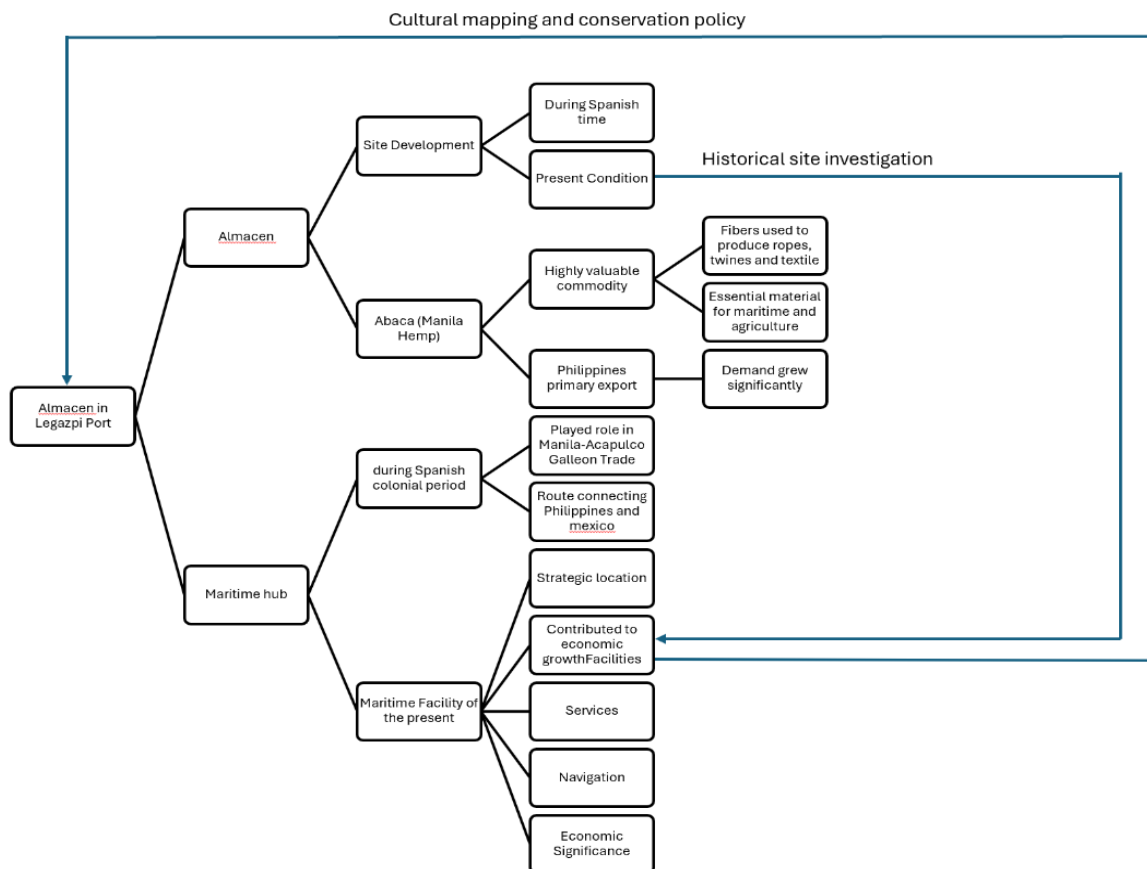
Cultural mapping has emerged as an essential methodology in recognizing and preserving such tangible and intangible heritage. In "Understanding the Past for a Sustainable Future," (Mohd Sabriza Abd Rashid, 2014) emphasizes the importance of cultural mapping in promoting local identity and preserving historical resources amid challenges like insufficient funding and community engagement. This aligns with (Rabang, 2015) study of Vigan, which illustrates how cultural mapping informed heritage

conservation by documenting built, movable, and intangible heritage.

This study is anchored on an interdisciplinary framework combining cultural heritage theory, historical urbanism, and sustainable development. It draws from the concept of cultural mapping as outlined by (Mohd Sabriza Abd Rashid, 2014) and (Rabang, 2015), who emphasize the importance of identifying, documenting, and valuing both tangible and intangible heritage to strengthen cultural identity and guide future development. In this context, the Almacens of Legazpi are approached not merely as lost physical structures but as historical artifacts embedded in the cultural memory and economic life of the city.

To explore further the Almacens' historical and cultural relevance, the framework incorporates archival research, historical mapping, and field validation to reconstruct their physical and socio-economic presence within the Legazpi Port District. Drawing from (Petric et al., 2019), colonial maps and documents serve as key instruments in retracing the spatial and functional roles of these structures in the abaca trade and maritime economy, as highlighted by (Banzuela, 2013), (Gerona, 2011), and (Owen, 1984, 1979). The port's strategic role in global commerce, likened to Fremantle (Tull, 1985), situates Legazpi within a larger historical narrative of port-driven development and global trade networks.

The framework considers the Almacens in Legazpi Port District, as cultural heritage center for the cultural mapping and a catalyst for sustainable development and may structure a sustainable policy. The research thus employs a qualitative approach, integrating historical documentation, local narratives, and cultural inventories to generate a comprehensive understanding of the Almacens' significance. Ultimately, the framework aims to inform policy and planning strategies that can reclaim and reinterpret these vanished structures, transforming them into instruments of cultural education, community pride, and sustainable tourism for Legazpi City.



Regional perspectives on heritage conservation further contextualize Legazpi's historical assets, through the Provincial Tourism Culture and Arts Office, documented various historical sites and cultural properties in Albay, promoting awareness of the Albayanos' unique identity (Zepeda, 2021). Preserving the cultural heritage of Albay, including its pre-colonial and colonial history, is vital in maintaining the region's historical integrity (Banzuela, 2010). These initiatives underscore the need to rediscover and reinterpret the cultural meaning behind forgotten sites like the Almacens.

Globally, heritage-based port development has gained attention. (Tull's, 1985) thesis on the Port of Fremantle underscores

the critical role of ports as gateways of economic and cultural exchange. It draws attention to infrastructure evolution, industrial transformation, and heritage conservation, echoing the potential relevance of the Legazpi Port District's historical structures in a modern context.

The application of cultural heritage for development, where balancing tourism with preservation proved challenging (Ahmad, 2018). His recommendations—improved infrastructure, stakeholder collaboration, and cultural sensitivity—are essential for any effort to integrate the Almacens into Legazpi's urban and tourism framework. Similarly, the comparative study of Vigan and Escolta in "The Cultural Heritage-Oriented Approach to Economic Development" shows how the success of heritage-driven development hinges on effective governance, policy frameworks, and community engagement.

This research also draws from the foundational context provided by the official website of the Province of Albay, which outlines the region's layered colonial history—from Spanish to American and Japanese occupations—highlighting how cultural vestiges endure in place names, practices, and built forms.

In light of these works, this study intends to uncover the storyline of the Almacens and position them as potential anchors of cultural tourism and sustainable development. By connecting archival research, historical mapping, and cultural heritage methodologies, the project hopes to contribute not just to historical knowledge but also to future-oriented planning in the Legazpi Port District.

2. MATERIALS AND METHODS

A qualitative exploratory study design was employed to allow an in-depth examination of the contextual knowledge about the early Almacens in Legazpi Port District, Legazpi City, Albay, Philippines, that once thrived and eventually faced decline—a crucial step to ensure that the narratives are accurate and on point. A subsequent literature review was conducted, processing information to establish a narrative, with the expected impact of obtaining nuanced, in-depth qualitative data that reflects the heritage of Albay and unfolds the story of the Almacens. This exploratory study involves detailed research on the given subject matter aimed at showing a complete understanding of the subject. It required collecting only reliable data and using reputable resources, as cited in the presentation of the related literature and studies. After collecting all the necessary data, the task was to make sense of it, achieved by answering the "what" research questions; creating an efficient exploratory study was important to demonstrate the significance of the paper and to provide enough factual evidence to persuade the reader.

Data collection related to the history of the Almacens in Legazpi City was conducted using cultural mapping techniques inspired by Maria Rose Q. Rabang's study on Vigan, which involved hands-on documentation of tangible and intangible heritage components (natural, built, movable, intangible) associated with the Almacens, and an effort to understand the broader historical context of the Almacens in the nineteenth century, considering political, social, and cultural factors. Through the literature review, existing publications on the economic history of Kabikolan and the Philippines in the nineteenth century identified gaps, controversies, and key themes. The process included an exploration of colonial-era records, and official correspondence—including trade records, historical documents such as diaries and letters, and official publications like government reports, newspapers, and periodicals—to collect as many maps and photos as possible, which played an important role in the methodologies and sources of materials. Additionally, a participatory approach involved local community members, historians, government officials, and cultural experts.

A site analysis was conducted, narrowing the architectural assessments and documenting current conditions to further understand its spatial context. Data analysis consisted of thematic evaluation, expert consultation, and the gathering of validation and feedback to leverage results with information that is historically aligned with the goal of this study. The sources of data were composed mostly of maps and photographs, although the comprehensive collection of information extended beyond visual aids to encompass a meticulous review of related literature and studies, both published and unpublished. To ensure the narrative's depth and accuracy, collaboration was pursued with esteemed institutions such as National Museums, Public Libraries, and local historians to tap into their expertise and access their repositories of historical data. In this digital age, the internet has served as a dynamic resource, providing access to a wealth of information and enabling connections with a broader audience; online archives, scholarly articles, and virtual platforms were explored to gather supplementary data, enhancing the narrative with diverse perspectives and supporting evidence about the existence of the early Almacens in Legazpi City, Albay.

Data validation is ensuring that source data is accurate and of high quality before using, importing, or otherwise processing it.

Two types of validation were performed in migrating and merging data. A critical way to ensure that data from various sources and repositories conforms to the objective of the study and does not become corrupted due to inconsistencies in type or context.

The goal is to generate consistent, accurate, and complete data to avoid data loss and errors during the move.

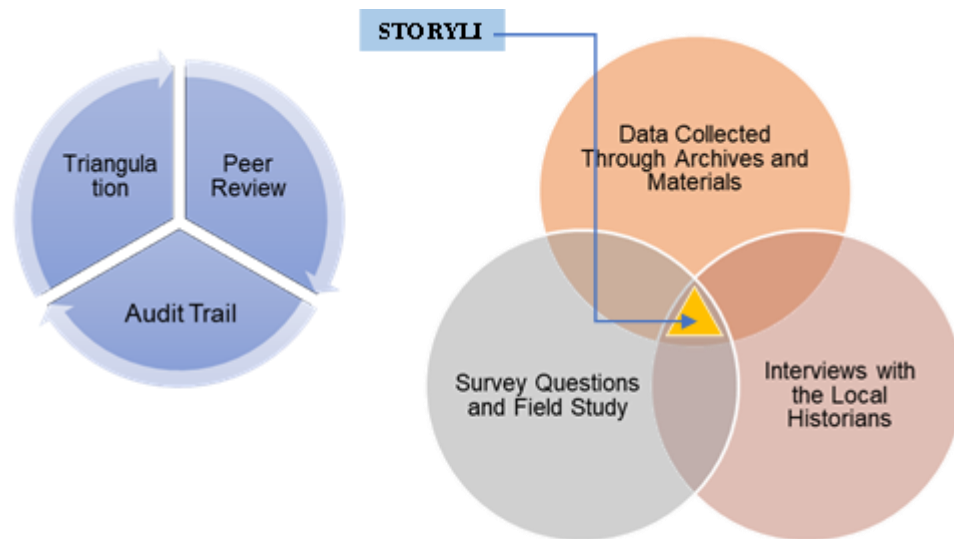


Fig. 05 Data Validation Process

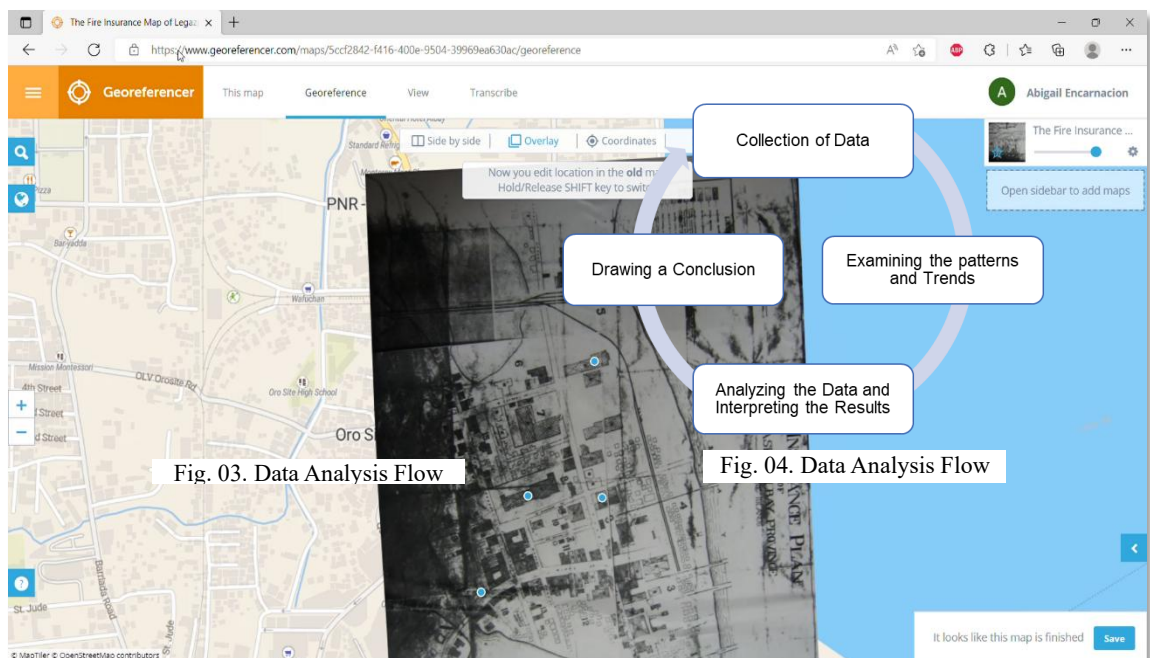


Fig. 02. Georeferencing of collected old map to a satellite map image

3. RESULTS AND DISCUSSIONS

From colonial-era maps and shipping manifests to government records and oral histories, the documents at our disposal provide invaluable insights into the origins, construction, and use of the Almacens. Through meticulous examination and analysis, the author is able to piece together the puzzle of their early existence, tracing their transformation from humble warehouses (Almacens) to iconic landmarks along the Albay Gulf.

The almacens were built to accommodate the demands of abaca not just in the Philippines but throughout the world. Legazpi Port District in Legazpi City, Albay, Philippines then became an open port that opened to trade and other industries. Long gone are the days when Legazpi City, as well as the province of Albay, enjoyed the benefits of abaca, almacens, and pantalans in keeping the industry and culture of the city known. This is supported more of the passage from Norman Owen's book (Prosperity without Progress, Winding down the war in Albay) and from one of our very own Bikolano Historian Dr. Danilo Gerona (Winding

down the abaca trail in Albay) and an interview with several historians including the curator of the Legazpi National Museum, an author and local historian Mr. Lito L. Tuanqui Jr., and an architect-historian Ar. Rino Doinga A. Fernandez, that validate the story of Albay when it used to be the wealthiest province because of the benefits from its port and the success of the almacens.



Fig. 06. Old photo on the abaca transportation in the 19th century.
Source: Arch. Rino D.A. Fernandez



Fig. 07. Old photo of the Abaca warehouse and transportation in the 19th century.
Source: Arch. Rino D.A. Fernandez



Fig. 08. A newspaper publication of the abaca trade in early 20th century.
 Source: Albay public library

The prosperity of Legazpi City, fueled by the booming abaca trading, endured even beyond the Second World War. Despite being one of the most devastated cities in the region during the war, Legazpi City exhibited remarkable resilience and quick recovery. The unwavering hope for a better future empowered its people to rise from the ruins and restore the city to its former glory.

Following the devastation of the war, Legazpi City embarked on a path of sustained progress. The citizens, determined to rebuild, initiated the revival of institutions and infrastructure that had once made it one of the most progressive cities in the region. This marked the beginning of a collective effort to reclaim and surpass its past achievements.

The impetus for urban development pivoted around the commercial establishments that flourished surrounding the almacens, as it became the initial business district of the city. Subsequently, urban sprawl followed, leading to what is now Legazpi City.



Fig. 09. Old photo of Legazpi Port before the World War II, c 1935.
 Source: Lito E. Tuanqui

Architectural Development

An intricate fire insurance plan unveils the initial structures erected along the shorelines, meticulously marking objects believed to be the Almacens. This detailed plan serves as a historical blueprint, capturing the essence of the structures and their

strategic placement in the landscape.

A prominently displayed map of Legazpi (see fig. 11) provides a comprehensive view of the city, showcasing not only its intricate shoreline but also highlighting the seven piers meticulously detailed in Gerona's narrative. Each pier represents a distinct point of connection with the sea, serving as hubs for trade, transport, and cultural exchange.

The juxtaposition of the collected images creates a compelling visual dialogue, illustrating the continuity of design principles of the almacens. Through this lens, viewers can discern not only the economic activities of abaca trade but also the architectural echoes that permeated both commercial and governmental structures during the same historical epoch.

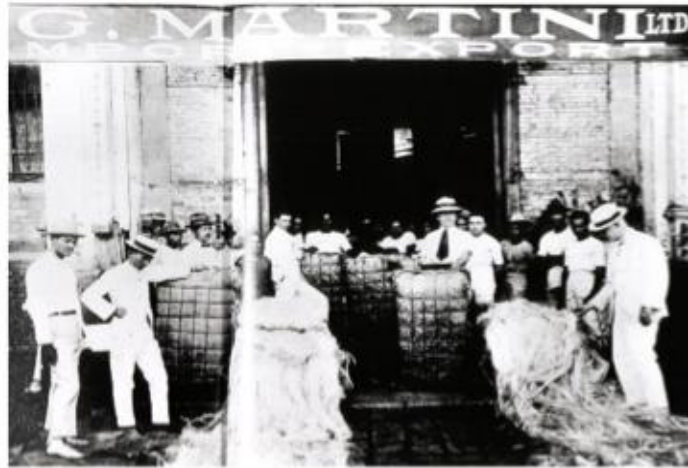


Fig. 10. Old photo of Legazpi Port in 19th century. Source: Legazpi City Museum

Industrial Contribution

The presentation of the photographs in the storyline offers a visual journey through the evolution of the pantalans and almacens lining the shores, presenting a historical narrative that is believed to have unfolded from the mid-18th century until the 1920s. This visual documentation aligns with the accounts provided by historians in written works and is further enriched by the insights shared by Mr. Lito E. Tuanqui, during a personal interview, a respected local historian in Legazpi City.

These images serve as a portal to the past, capturing the gradual transformation and development of the pantalans and almacens over nearly a century. The meticulous curation of this photographic timeline provides a tangible link to the historical accounts penned by scholars, reinforcing the authenticity of the portrayed evolution.

Storyline development of the almacens (1842-1959)



Fig. 11. Construction of the pantalans in Legazpi Port, during the 19th century
Source: Legazpi City Museum

Beginning in the later part of the 19th century, the port of Legazpi served as anchorage for ships sailing to Nueva España which is now known as Mexico. And for 250 years its nearby Sula Channel was used as a sanctuary by galleons during storms because of its sheltered inlet.



Fig. 12. Phot of the Legazpi port with its pantalans and the nearby almacens in the 19th century.
Source: Legazpi City Museum

Due to Spain's interests, the use of the waterfront was broadened and was then often used as a means of transport and trade. As such, it is evident that waterfronts were considered vital in their role of providing a good location for a community since the early law required the formation and orientation of a town to near bodies of water.

With its water port, it was once the central core of the city's trade and industry. In 1873, Legazpi was made a port of entry by a Royal Decree issued in Madrid on May 18, 1872, and later promulgated by Governor Juan Alamenos y de Vivar on December 3, 1874 (*Legazpi.gov.ph*). Thus, industrial establishments rose to their existence, it has become the center of trade and industry, and abaca fiber was a major product for trading in the region. The existing warehouses is evidence of the ancient trading hub that flourished even after the historical battle of Legazpi with the Americans.

There were rumors that circulated in the early month of the 1899 regarding the arrival of the American earships in Albay to attack the ports of Legazpi and Tabaco. However, it was only on September 10, 1899, that the first American attack took place (Ayo, 2015)

During the American period, almaceneros, or warehouse owners, enjoyed the benefits of increasing baling rates. These rates rose rapidly from a nominal P0.20 per picul in 1899 to P0.625 in 1900-1901, eventually reaching P1.00 in 1920. (p. 98). After the Philippine-American War, the British firms Smith, Bell & Co. and Warner, Barnes & Co., which essentially controlled the Bikol-Manila shipping, faced accusations of refusing to transport any abaca other than their own. (Owen, 1984)

During the fiber price slump from 1907 to 1911, governors of Albay, Sorsogon, and Ambus Camarines reported that abaca planters were shifting to coconuts. Despite the initial involvement of Smith, Bell & Co., Chinese traders soon dominated the trade. By the eve of World War II, Kabikolan was contributing over 15 percent of the total Philippine coconut production, suggesting that coconuts had become an alternative to the struggling abaca industry. (Owen, 1984)

The Scottish trader Smith, Bell & Company occupied the house that is now known as the Angela Manalang Gloria, after the Legazpi Port opened to international trade in 1873. Specializing in trade, its presence in Tabaco signaled the importance of Tabaco Port as a major abaca exporter (Zepeda, 2021)



Fig. 13. 1886 map of Albay
Source: Danilo Gerona



Fig. 14. A fire insurance map showing the Legazpi City facing the Albay Gulf. C. 1925
Source: Ar. Rino DA Fernandez

In 1928, the construction of Legazpi's concrete dock started. The concrete plane which elongates from the shoreline to a deeper depth of water served as the port's extension, catering more water vessels. The docks along sabang, pigcale, and baybay, continued as working piers for handling passengers and cargo onto and off ships that is evident in the photo.



Fig. 16. 1935 Aerial photo of the Port of Legazpi
Source: Legazpi City Museum



Fig. 17. 1941-1945 Japanese invasion
Source: Here in Albay webpage

During the war with the Japanese, Legazpi Port was once again becoming a battlefield as the bay of the city was often the frontier for the battles. Shown in the photos are the war vehicles that hits Legazpi City in the year 1941 and 1945



Fig. 18. 20th century map of Legazpi Port District
Source: Legazpi City Museum

Before 1961 there were 5 built pantalans in Legazpi City Bay. Beside the Pantalans where big warehouses of Albay products for shipments. With the coming of Legazpi Oil Company in Legazpi City, the pantalans slowly cease their operations. Moreover, the destruction of past typhoons, deteriorations and maintenance costs of pantalans had its closure eventually.

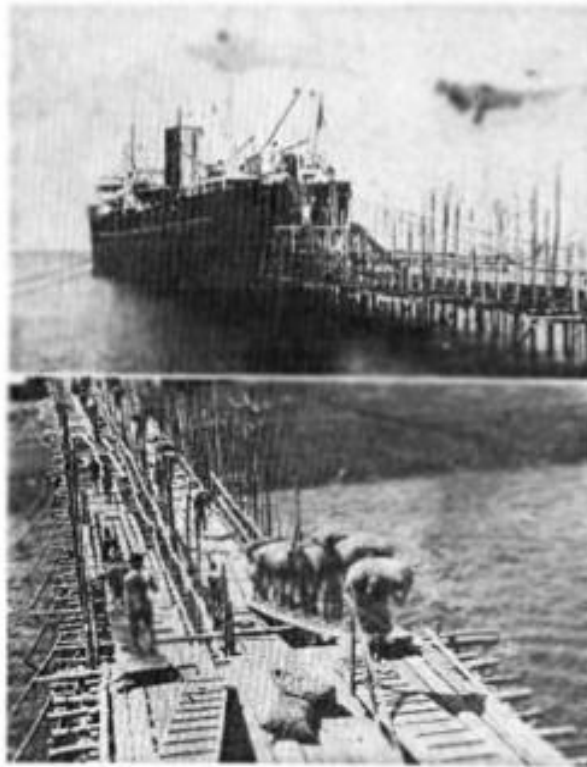


Fig. 19. 1959 phot of the Legazpi Port
Source: Here in Albay webpage

Additionally, according to some residents of Barangay Baybay (where the early almacens once thrived), before it was established, the place was referred to as “Matakla” this is so because according to pioneer residents of the Barangay, it was used to be a dumping scrap material such as iron, steel, GI sheets, steel bars, etc. These was also private wharfs (Pantalan) along the shoreline belonging to Qua Chi Gan, DUPREXCO, PAECO, and Intreco. These establishments are buyers and sellers of copra and Manila Hemp (Abaca). Hence, 2 or 3 times a month, these warfs are occupied by international vessels to ferry copra and hemp. In and out of the city. The transfer of copra from the warehouse to the ships and vice versa were all done manually through labor. Those labors have established their family at the vicinity of the warehouses, and which now turns into highly density village and no more physical evidence of the warehouse, yet its history remains.



Fig. 20 and 21. The loading of copra by the laborers.
Source: Lito E. Tuanqui



PICTURED is the East Asiatic motorship "Korea" loading copra at Legaspi City, Albay. The "Korea" was built in Denmark in 1939 and has a displacement of 18,340 tons. She is one of East Asiatic's biggest freight vessels, having an over all length of 510 feet 10 inches and six hatches. The lower photograph is of stevedores at Legaspi loading copra in sacks. The sacks are carried on their shoulders from warehouses located on the shore and over the length of the bamboo loading piers to the ship's stern where gangplanks provide access to the ship's deck. As may be seen all copra loading at Legaspi is manual. The photograph was taken while the "MS Korea" was being loaded with copra for Europe.

Manila Chronicle - March 27, 1951

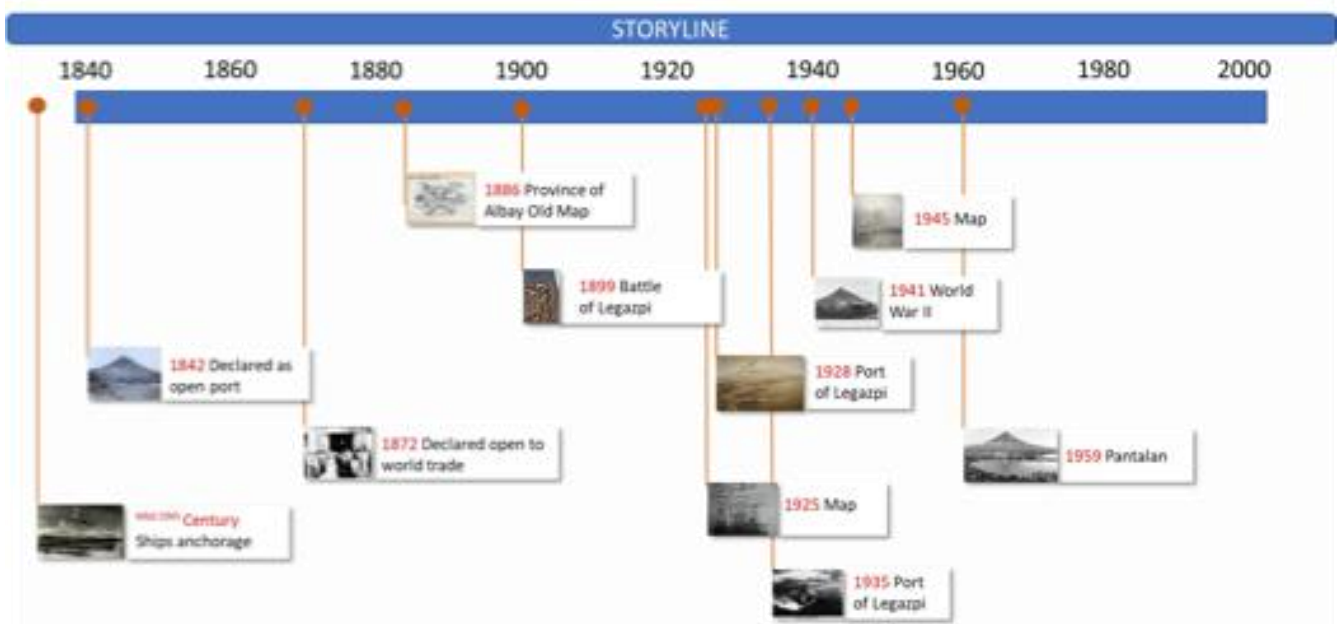


Fig. 22 Storyline of the Development of Almacén

Table 01. Architectural Development findings of the Almacen Site

PERIODS	EVENTS AND DEVELOPMENTS	INFRASTRUCTURES
Spaniards discovery of the Ibalon	▪ Linked to the coastal settlements serving as vibrant ports of call for inter-island vessels. ▪ Gulf shoreline intersected major settlements where pioneering conquistadors established their fledgling military base. ▪ Albay functioned as a gateway for galleons navigating the Manila-Acapulco route. ▪ Late eighteenth-century discovery of the abaca, the "abaca-trail". ▪ Albay ranked as the most prosperous province in the entire Philippines.	▪ Residential houses constructed from nipa and bamboo. ▪ A bamboo port, temporary storage facilities for stocking abaca, a repair station, and a shipyard. ▪ Material and infrastructure improvements (ports and Almacens).
Spanish Era with the Abaca	▪ Opening of Manila port as Albay increases demands for abaca. ▪ Mid-nineteenth century, port of Albay opened to international vessels. ▪ Opening of foreign trade in Legazpi	▪ Abaca brokers established Almacens, with Warner Barnes & Co., Smith Bell and Co., and Munoz brothers being the major traders.
American Era and the World War II	▪ Disrupted external trade, Albay held great importance with the abaca. ▪ Competition in abaca trade intensifies. ▪ Introduction of steamships	▪ Demand for more storage facilities, thus, expansion of Almacens district. ▪ Construction of commercial ports

4. CONCLUSION

The story of the Almacens in relation to the present warehouse district in Legazpi Port District, Albay, is a research topic that may not immediately spark interest in literature, yet it possesses a cultural heritage awaiting unveiling. The previous architecture of the almacens that may have influenced the present design of warehouses, and their current location still serves the purpose they once did. Their significance in the urban landscape of the city, evolving from a humble village to a center of trade due to its abaca industry, led to the existence of the almacens as a manifestation of the booming industry's need for space to cater to global demands. Yet due to its rarely to non-disclosure to convey interest as part of historical landscape of the city, a challenge on the collection of data and its verification vastly encountered during the conduction of this research..

ACKNOWLEDGMENT

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Research Article

The Role of Educators and Learners at the Colleges and Universities in the of Era of Industry 4.0

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ABSTRACT

This paper analyzes the roles of educators and learners in the context of Industry 4.0, especially in college and university education, when advanced technologies such as Artificial Intelligence (AI), Big Data and Internet of Things (IoT) are deeply impacting teaching and learning methods. The paper aims to clarify the transformation of educators from the role of imparting knowledge to the role of guides, supporting learners to develop self-learning skills, creative thinking and digital competence. At the same time, the paper also examines how learners are increasingly at the center of the learning process, actively using digital tools, collaborating in virtual environments, and developing skills needed for the modern labor market. The paper uses a qualitative approach, including a literature review, an analysis of modern educational models, and an assessment of the practical application of technology in teaching. In addition, the paper also reviews research on digital education, online learning, and AI-based teaching to provide a comprehensive view of the impact of Industry 4.0 on higher education. The results show that educators need to enhance digital competencies, integrate AI-based data analysis, and apply personalized teaching methods to optimize learner engagement. Meanwhile, learners need to cultivate adaptability, develop solid digital skills and maintain lifelong learning to meet the demands of the ever-changing digital environment. While Industry 4.0 offers many opportunities, such as expanding access to global knowledge, personalizing learning pathways and applying data-driven teaching methods, it also poses many challenges, including digital divide, cybersecurity risks and the decline of human interaction in traditional education. Addressing these issues requires a balanced approach that leverages technology while maintaining human-centered educational values.

Keywords: Industry 4.0, roles of educators and learners, digital competence, personalized learning, AI in education

1. INTRODUCTION

Industry 4.0, also known as the Fourth Industrial Revolution, marks the convergence of advanced technologies such as Artificial Intelligence (AI), Big Data, and the Internet of Things (IoT). These technological advancements are profoundly transforming how we live, work, and learn. In education, Industry 4.0 presents new opportunities for innovative teaching and learning methods while also introducing challenges related to adaptation and innovation, particularly in colleges and universities.

Education plays a pivotal role in training high-quality human resources to meet the demands of modern society. In the context of Industry 4.0, the relationship between educators and learners is shifting from a traditional model to one that emphasizes collaboration and interaction. Educators are no longer just transmitters of knowledge; they now act as facilitators who guide learners in developing independent learning skills and creative thinking. Meanwhile, learners are becoming more proactive, engaging actively in the learning process, and acquiring essential skills for the future.

This paper aims to analyze the evolving roles of educators and learners in colleges and universities amid the technological transformation of Industry 4.0. Additionally, it discusses the challenges and opportunities that the digital age brings to modern education.

2. MATERIALS AND METHODS

This paper adopts a qualitative research methodology to explore the evolving roles of educators and learners in the context of Industry 4.0. The primary method employed is a comprehensive literature review, focusing on recent academic publications,

policy reports, and global case studies related to digital education, artificial intelligence in teaching, and competency-based learning models. Key theoretical frameworks were drawn from the works of Friedman (2016), Schwab (2017), Harasim (2017), and others, providing a foundation for analyzing the transformation of educational roles in the digital age.

In addition to the literature review, the paper includes content analysis of current educational practices in higher education institutions in Vietnam, particularly at Ho Chi Minh City Industry and Trade College. This analysis involved reviewing institutional reports, curriculum updates, and teacher training programs to assess how emerging technologies are being integrated into pedagogy. Furthermore, the paper synthesizes insights from global educational platforms and digital tools, such as learning management systems (e.g., Moodle, Canvas), online resources (e.g., Coursera, Khan Academy), and AI-supported learning environments, to provide a holistic understanding of the challenges and opportunities faced by educators and learners.

3. RESULTS AND DISCUSSIONS

1. The role of educators

(1) Evolving from knowledge providers to learning facilitators

In the context of Industry 4.0, educators are no longer the sole source of knowledge transmission; instead, they act as facilitators who support learners in discovering knowledge independently (Friedman, 2016). This shift requires a fundamental change in mindset and teaching methodologies. Lecturers must leverage digital tools such as teaching software and online learning platforms to create interactive, engaging, and personalized learning experiences.

For example, instead of traditional linear lectures, educators can use tools like Kahoot! or Nearpod to create interactive learning environments where students actively participate in real-time activities. This approach not only enhances learning engagement but also fosters critical thinking and problem-solving skills. Personalized teaching is becoming increasingly essential, allowing educators to tailor content based on individual students' proficiency levels and learning paces to optimize educational outcomes.

Integrating modern technologies in teaching

According to Schwab (2017), modern technology has significant potential to enhance educational quality. The integration of AI, Big Data, and IoT enriches teaching methods while also optimizing classroom management and student performance assessment.

For instance, AI-powered intelligent learning systems can serve as virtual tutors, providing personalized study recommendations based on students' needs and abilities. Big Data analytics allows educators to analyze student learning patterns, identify strengths and weaknesses, and adjust instructional strategies accordingly. Additionally, Virtual Reality (VR) and Augmented Reality (AR) create immersive learning experiences, enabling students to conduct virtual experiments or explore historical sites in an interactive manner. These technologies not only deepen understanding but also stimulate imagination and creativity.

Developing digital competencies

In the digital age, educators must not only possess subject-matter expertise but also master digital competencies. Harasim (2017) emphasizes the increasing prevalence of teacher training programs focusing on learning management systems (e.g., Moodle, Canvas), data analytics, and digital content creation.

Developing digital competencies enhances teaching effectiveness and contributes to the digital transformation of education. Educators serve as a bridge for students to access and apply technology, equipping them with essential skills for the future. For example, lecturers proficient in programming or data analysis can guide students in developing logical thinking and information-processing capabilities.

Inspiring and motivating learners

The role of educators extends beyond knowledge dissemination to inspiring and motivating learners to achieve holistic development. Lifelong learning has become a central focus, especially in an era where technological advancements continuously demand new skills (Schwab, 2017).

Educators must encourage creativity and problem-solving skills by designing real-world projects where students apply knowledge to tackle social or environmental issues (Harasim, 2017). For instance, group assignments involving data analysis for social research or sustainability initiatives enable students to grasp not only theoretical concepts but also their real-world implications.

By fostering an environment of inspiration and guidance, educators play a crucial role in preparing learners to embrace the challenges and opportunities of modern society.

2. The role of learners

Being active in learning

In the Industry 4.0 era, learners must transition from passive knowledge recipients to active participants who personalize their learning journeys. Online platforms like Coursera, Udemy, and Khan Academy provide learners with access to vast knowledge resources from global experts (Harasim, 2017).

Active learning involves setting learning objectives, evaluating progress, and adjusting learning strategies to enhance independence, creativity, and time management skills -key competencies for success in the digital economy.

Developing digital skills

Learners must acquire digital competencies, including proficiency in educational software, data analysis, and technology-based problem-solving. For example, programming skills enhance learners' understanding of technology, while learning management systems like Moodle or Blackboard facilitate effective academic project management (Friedman, 2016).

Moreover, Big Data literacy enables learners to analyze and leverage information for informed decision-making, enhancing their competitiveness in the global job market.

Fostering creative and innovative thinking

Technology empowers learners to become content creators and innovators, contributing new ideas and solutions. Engaging in real-world projects, such as developing technological products or addressing societal challenges, fosters practical application of knowledge (Schwab, 2017).

Additionally, practicing problem-solving skills in technology-driven contexts cultivates critical thinking and creativity, laying the foundation for adaptability and growth in an ever-changing environment.

Cultivating a lifelong learning mindset

In a rapidly evolving technological landscape, lifelong learning is essential for continuous skill development. Learners must cultivate self-learning capabilities to keep up with emerging trends and career demands.

Harasim (2017) highlights online courses, workshops, and short-term training programs in technology and soft skills as effective ways for learners to stay relevant in the digital age. Lifelong learning is not only a personal responsibility but also a driving force for sustainable societal development.

3. Challenges for educators and learners in the era of industry 4.0

Digital divide among educators and learners

Anderson and Dron (2011) highlight that transitioning to technology-based learning requires educators and learners to adapt quickly to new tools and methodologies.

One of the greatest challenges of Industry 4.0 is the disparity in access to and proficiency with technology among educators and learners. According to Schwab (2017), older educators or those without formal training in digital skills often struggle to integrate technology into teaching. Meanwhile, students, particularly those from rural areas or low-income backgrounds, may lack access to essential devices such as computers, smartphones, or stable internet connections.

Over-reliance on technology and loss of direct interaction

The increasing use of technology in education sometimes leads to excessive dependence, disrupting the balance between online learning and face-to-face interaction. Harasim (2017) argues that the overuse of online learning platforms may reduce social engagement in classrooms, weakening communication skills and teamwork abilities. Additionally, without proper guidance, students may become distracted by social media or online games, negatively impacting their academic performance.

4. Opportunities from industry 4.0

Expanding access to global knowledge

Industry 4.0 offers unprecedented opportunities for global knowledge access. With open learning platforms such as edX, Khan Academy, and Coursera, students worldwide can access high-quality courses from prestigious universities like Harvard, MIT, and Stanford (Friedman, 2016). This technological advancement not only eliminates geographical barriers but also provides equal learning opportunities for disadvantaged groups, such as people with disabilities or students from remote areas.

Picciano (2017) argues that online technology has erased geographical boundaries in education, allowing individuals to learn from anywhere in the world.

Enhancing teaching and learning effectiveness

The integration of AI and Big Data enables personalized learning experiences, allowing educators to identify students' individual needs and tailor instruction accordingly (Schwab, 2017). For example, AI can develop customized learning paths, providing relevant resources and study recommendations based on students' progress. Moreover, Virtual Reality (VR) and Augmented Reality (AR) create immersive environments where learners can explore complex concepts such as atomic structures, chemical reactions, or historical events.

Additionally, UNESCO (2020) highlights that AI not only enhances personalized learning but also supports educators in making data-driven pedagogical decisions.

5. Solutions for enhancing the roles of educators and learners in the era of 4.0

5.1. For educators

Strengthening digital skills training

To meet the demands of Industry 4.0, educators must receive training in essential digital skills. These training programs should not only focus on using AI and Big Data but also on integrating these technologies into teaching practices.

For example, in Vietnam, the Ministry of Education and Training has introduced courses on using software such as Microsoft Teams, Google Classroom, and digital content creation tools like Canva and Powtoon. UNESCO (2020) emphasizes that enhancing digital competencies among educators is a key factor in promoting digital transformation in education. This effort not only improves teaching quality but also facilitates better knowledge access for students.

Collaborating with technology and education organizations

Collaboration between educational institutions and technology companies helps educators access advanced tools and rich learning resources. For instance, the Microsoft Educator Center has supported millions of teachers worldwide in developing digital skills. In Vietnam, FPT Education has partnered with many schools to implement smart classrooms and digitalized learning materials. Selwyn (2016) highlights that partnerships with technology organizations not only enhance teaching capabilities but also increase the practicality of education in the globalized era.

5.2. For learners

Encouraging learning through digital platforms

Students should be encouraged to utilize online learning platforms such as Coursera, edX, and Khan Academy to access global knowledge and develop independent learning skills. For instance, in the United States, Khan Academy has helped students prepare for major standardized tests such as the SAT. In Vietnam, e-learning platforms like OLM (Online Learning Management) and Violet have become essential tools for students during online learning periods caused by the COVID-19 pandemic.

Friedman (2016) asserts that digital learning fosters flexibility and personalized education, catering to individual student needs more effectively.

Developing soft skills alongside digital skills

While digital skills are essential, soft skills such as communication, teamwork, and creativity are equally important for holistic development. In Singapore, students are encouraged to participate in social projects where they use technology to address real-world issues, such as developing apps to assist individuals with disabilities.

Schwab (2017) emphasizes that soft skills help students adapt more effectively to the evolving work environment and society.

5.3. Additional solutions for both educators and learners

Developing blended learning communities

Blended learning environments, where educators and students engage in both online and in-person sessions, offer an effective solution. For instance, teachers can guide students in using AI-powered tools like ChatGPT for academic support while fostering discussions through online forums.

Selwyn (2016) suggests that blended learning communities not only enhance teaching effectiveness but also strengthen connections between educators and students in a dynamic, interactive learning environment.

Utilizing learning analytics

Learning analytics enables educators to use Big Data to personalize student learning paths. For example, in South Korea, AI-powered systems track student progress and provide tailored study recommendations.

Anderson and Dron (2011) argue that learning analytics not only optimizes learning outcomes but also assists educators in refining their teaching methodologies

4. CONCLUSION

In the era of Industry 4.0, the roles of educators and learners in colleges and universities have undergone a fundamental transformation. Educators are no longer mere knowledge transmitters but rather facilitators who guide, support, and empower learners to develop self-learning skills, creative thinking, and digital literacy. Conversely, learners have transitioned from passive recipients to active participants who take charge of their learning journey and acquire essential digital and soft skills.

Adapting to this new era requires a fundamental shift in educational approaches, particularly in higher education. This transformation not only enhances teaching and learning quality but also ensures that education continues to play a crucial role in developing a skilled workforce that meets the demands of modern society. Strengthening digital skills training for educators, promoting digital learning for students, and fostering essential soft skills are key strategies for navigating this transformation effectively.

As we move forward into an increasingly digitalized world, education must continue to innovate and evolve to drive sustainable development. The synergy between human potential and technology, coupled with creative educational solutions, will remain the cornerstone of building a comprehensive, advanced, and future-ready education system..

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Research Article

Assessment of Knowledge, Attitude and Practice in Web Programming using PHP among BSIT Students in Bicol University

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ABSTRACT

PHP: Hypertext Preprocessor (PHP) is one of the top server-side scripting languages used worldwide; taking 78.3% of the server-side programming language. It has become the de-facto for web programming not just in the Philippines but around the globe. Programming skills are vital to academics and professionals. It empowers the ability to analyze, manipulate, create and support this digital landscape as a way of solving complex problems. This quantitative research investigates the competencies of the Bicol University College of Science, Bachelor of Science in Information Technology (BSIT) in terms of their self-assessed familiarity with PHP of fifty-one (51) BSIT students. The researcher made use of Likert scale in Student's Demographic, Attitude towards Web Programming and Practice in Web Programming to measure the PHP Programming familiarity of the students. Analyzed data revealed an average level of familiarity of 3.16 indicating moderate competency in PHP programming. Gender distribution was balanced with 27 male and 24 female respondents and an average level of programming attitude of 2.75 indicating a fair level of time devoted to PHP practices. Additionally, 43 out of 44 students reported experience in developing PHP applications. Confidence was highest for locally hosted environments but declined for cloud-hosted applications. There is a high-level of hands-on experience in terms of building PHP projects which shows that majority of the students have created web applications. Further, this highlights potential curriculum gaps in hands-on PHP projects and advanced programming topics and recommends the need for curriculum enhancement and exposure to cloud-hosted applications to better equip students with the necessary skills for real-world web development challenges.

Keywords: Web Programming; Programming Attitude; Programming Practice; PHP Hypertext Preprocessor Skills; Philippines.

1. INTRODUCTION

Great software products have emerged in today's digital age. Similarly, technology has propelled the proliferation of state-of-the-art software applications that connect people and also have become the driving factor for many computing devices around the world. PHP: Hypertext Preprocessor (PHP) is one of the top server-side scripting languages used worldwide; taking 78.3% of the server-side programming language (Ludo Fourrage, 2024). It has become the de-facto for web programming not just in the Philippines but around the globe. As programming skills are vital to academics and professionals, it has large and active community of web developers (Lincopinis et al., 2023) and has an excellent cross-platform compatibility for various computing platform capable of Model View Controller (MVC) design pattern (Zhuang, 2024). It empowers the ability to analyze, manipulate, create and support this digital landscape as a way of solving complex problems. Moreover, it promotes ease in developing web projects that promotes Rapid Application Development (RAD) as the development framework especially for Linux Apache Mysql and PHP (LAMP) (Costea, 2008).

The Knowledge, Attitude, and Practice (KAP) Framework is a fundamental tool that has played a significant role in understanding and influencing human behavior in a wide range of fields particularly in the fields of public health (Zarei et al., 2024) however, Artificial Intelligence (AI) a branch of computer science suggests that in the medical field AI has to be integrated within the curriculum of the students (Al-Qerem et al., 2023). Furthermore, knowledge in programming is composed of the following steps: (1) acquisition of knowledge. (2) learning of design skills. and (3) development of problem-solving skills (McGill & Volet, 1997) Likewise, in this paper, KAP is applied as the framework for assessing students' familiarity in PHP programming which is akin to the knowledge, behavior and attitudes assessment which promote programming engagement and has a positive impact in

computer knowledge (Sun et al., 2021) (Levine & Donitsa-Schmidt, 1998). Moreover, it provides structured approach for investigating the determinants of behavior change and for designing targeted interventions (Imam et al., 2023).

The significance of this study uncovers the level of programming skills among students and other programming aspects such as debugging, tracing, problem comprehension and ultimately the thinking process of solving a particular problem. As application of programming skill is geared toward students' future career, the study can be an eye opener to those aspiring web programming enthusiasts (Ramiro Z. Dela Cruz, 2020). Additionally, it could contribute to an effective way of teaching and enhancing learning methodologies in information technology. It is worth nothing that (McCracken et al., 2001) assessed the programming skills of first-year computer science students at four universities in the United States, Canada, and Europe. It suggested that to improve and develop the programming skills of the students, educators should use more authentic programming tasks, provide more scaffolding and support for students during the programming task, and use a variety of assessment methods. Indeed, computer programming is complicated and brings challenging tasks to students (Kadar et al., 2021). In addition, a proposed theory of instruction for introductory programming skills that is based on four distinct skills that novices learn incrementally: tracing, writing syntax, comprehending templates, and writing code with templates (Benjamin Xie, 2019). While it explored the use of concept maps as an assessment tool for teaching computer programming, and for assessing students' understanding of computer programming concepts (Keppens & Hay, 2008). However, it is difficult to develop a scoring rubric that accurately measures the quality of a concept map, and can be time-consuming for students to create. Although there are limitations, still the authors argued that concept maps can provide a holistic view of students' understanding of computer programming concepts, and they can be used to identify areas where students need additional support.

This paper models a systematic approach to investigate and assess the programming proficiencies of Bicol University (BU) students, particularly Bachelor of Science in Information Technology (BSIT). By conducting a systematic approach to analyze the level of programming skills that underpins the KAP framework, the results of the research project will elaborate in detail the intricacies of teaching programming that align the needs of aspiring students. Furthermore, the output of this research project could be used to bridge the gap between academic instruction and real-world application. Finally, this research establishes a model of delivering a new and tailored approach of educating the upcoming information technology students of BU. This quantitative research investigates the competencies of the students in terms of their self-assessed familiarity with PHP of fifty-one (51) BSIT students.

Based on the CHED Memorandum Order (CMO) No. 25 series of 2015 outlining guidelines and standards for various aspects of higher education, it provides a foundational framework for integrating programming education into higher education curricula. This research study is significant in developing relevant and up-to-date curricula that meet the needs of industries and global competitiveness. By incorporating programming skills using the KAP framework, BU can design courses that not only impart technical knowledge but also focus on fostering positive attitudes towards programming and providing ample opportunities for practical application. Additionally, by integrating the KAP framework into programming education, BU can establish benchmarks for assessing the effectiveness of their programs in terms of knowledge acquisition, attitude development, and practical application of programming skills. This ensures that graduates are well-prepared to meet the demands of the workforce and contribute to global competitiveness.

Given these conditions, the study aims to address the following research question: What is the level of knowledge, attitude, and practice (KAP) of BSIT students at Bicol University regarding PHP programming? This research is expected to introduce insights that can bridge the gap between academic instruction and real-world application. Furthermore, contributing to a better understanding of how to enhance the programming education for future students not just in Bicol University but in other State Universities and Colleges (SUC) or in private colleges as well.

2. MATERIALS AND METHODS

This study used descriptive research design to examine the present state of programming familiarity, attitudes, and practices of the students in BSIT program about PHP programming; the goal is to describe them in terms of KAP. The methodology ensures that the research objectives are met in a systematic and rigorous process.

2.1. Research Design

A descriptive research design was used for this study to examine the current state of KAP of the BSIT students in the area of web programming. Descriptive research is appropriate for this study since it focuses on providing a detailed status of the participants in the familiarity with PHP programming, their attitude towards learning this environment and so with the practices involving PHP projects. In this approach, the researcher collects quantifiable information, information on students competencies

and behavior in specific area (Saunders et al., 2009) .

The KAP framework was used as a guiding model for understanding student behavior in programming. This model breaks down the research variable into three categories namely:

1. Knowledge – Understanding of the concepts and technical aspects of PHP programming.
2. Attitude – Students' perception, interest, and belief toward programming.
3. Practice – Extend in which the students actively engage in programming activities, such as debugging, coding, tracing, and using PHP in practical or real-world applications.

2.2. Sources of Data

The research focused on the BSIT students of Bicol University, located in Legazpi City, Philippines. The selection of participants was done using convenient sampling. This non-probability sampling method was used due to logistical considerations and the ease of access for the students. While it may introduce some selection bias, the research is still targeted to ensure that there is enough sample representing these broad set of students. Moreover, the sample size was calculated using a 95% confidence level and a margin of error of ± 9 . The calculation yielded a necessary sample size of 51, guaranteeing moderate statistical power. Although not exhaustive, this sample size gives the study to gather a significant amount of data for analyzing the trends in programming familiarity within the university.

2.3. Data Collection

A Likert scale-based questionnaire was used as the primary tool for collecting data from the students within the university. A meticulously designed survey questionnaire was created, including established scales and elements that are pertinent to the research aims. The scale comprises statements pertaining to various programming familiarity measures, such as how often do they practice. Participants were instructed to assess the frequency of each statement using a five-point Likert scale, where 1 represents “strongly disagree”, 2 represents “disagree”, 3 represents “neutral”, 4 represents “agree”, and 5 represents “strongly agree”. A pilot test was conducted on the survey instrument with a limited number of participants. The feedback obtained from the pilot study was utilized to enhance and complete the questionnaire.

The questionnaire that was covered are the following key areas:

- **Knowledge:** These are related to students' familiarity with PHP e.g. syntax, function usage, and common web development activities.
- **Attitude:** Questions related to students' confidence in programming, about their interest in pursuing web development career, and their perception of the usefulness of PHP in web development.
- **Practice:** It focuses on students' engagement in programming tasks, frequency of PHP-related exercises, and participation in practical or real-world development projects.

Furthermore, the participants were given explicit guidance regarding the study's objectives, the Likert scale response structure, and guarantees of privacy. The data collection period extends over one semester, ensuring an ample quantity of responses. Chosen individuals were contacted via email and on-campus distribution, and were extended an invitation to take part in the survey using paper questionnaire. Likewise, we acquired informed consent from every individual.

2.4. Data Analysis and Synthesis

After the data was collected, the responses were analyzed using descriptive statistics, to identify trends and patterns in students' knowledge, attitude, and practices in PHP programming. It includes the mean scores for each Likert-scale item, were computed to provide a summary of the student's familiarity and engagement with PHP programming.

2.5. Ethical Considerations

During the process of data collection, informed consent was obtained from the participants thus imposing ethical protocols in this research process. Additionally, due to the fact that the subject matter that is going to be researched includes private information from the students, all of the data that was acquired was handled with the highest confidentiality. The findings and outcomes of this research study were anonymized, and no associations of the respondents, such as their names. Thus, no information was provided about the respondents.

3. RESULTS AND DISCUSSIONS

3.1. Demographic Information of the Respondents

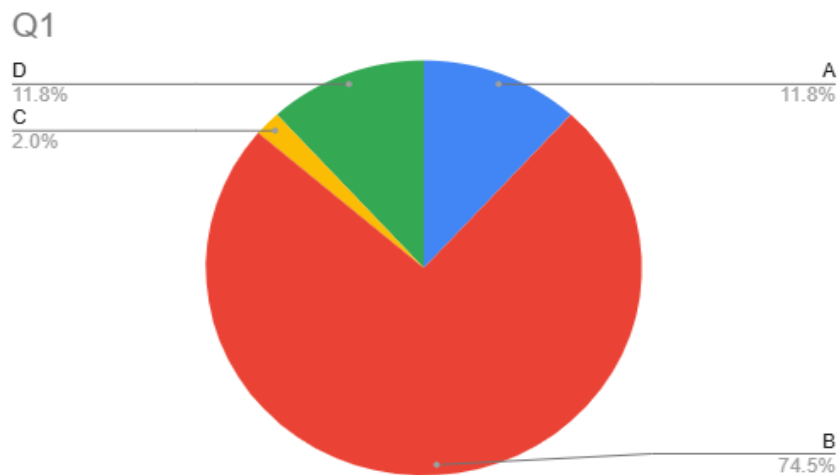
There were 27 male and 24 female respondents which indicate that the gender distribution was balanced. The age distribution was predominantly 21 to 23 years of age.

3.2. Knowledge towards Web Programming in PHP

3.2.1. Q1: Which of the following best describes the purpose of using prepared statements in PHP?

Firstly, the students' response revealed that there is a strong understanding of the primary use of prepared statements in PHP as shown in Figure 1. These can be seen that out of 51 respondents, 38 students (74.5%) have correctly identified Option B which is to "Prevent SQL injection and ensure secure database interactions" as the correct answer. This result indicates that the majority of them recognize the importance of secure coding practice, particularly when working with MySQL and PHP, that is when preventing vulnerabilities like SQL injection is involved. Secondly, 6 students (11.8%) selected Option A which is "To execute multiple SQL queries simultaneously" - is incorrect, they might have been confused with the role of prepared statements. Thirdly, 6 students (11.8%) chose Option D which is "To automatically generate SQL queries based on user input." Again, it can be said that there is a misunderstanding of the distinction between prepared statements and other forms of dynamic query. Finally, only 1 student (2%) chose Option C which is "To format the output of SQL queries for display in HTML" which indicate that most of the students did not confuse the purpose of prepared statements with formatting tasks. This can be said that while there is a vast majority of students who demonstrated a solid understanding of the security advantage of prepared statements, there is a small portion of the respondents who exhibited some misunderstanding or misconception, suggesting further clarification in area of security in database and PHP.

Figure 1. Response to the purpose of using prepared statements in PHP.

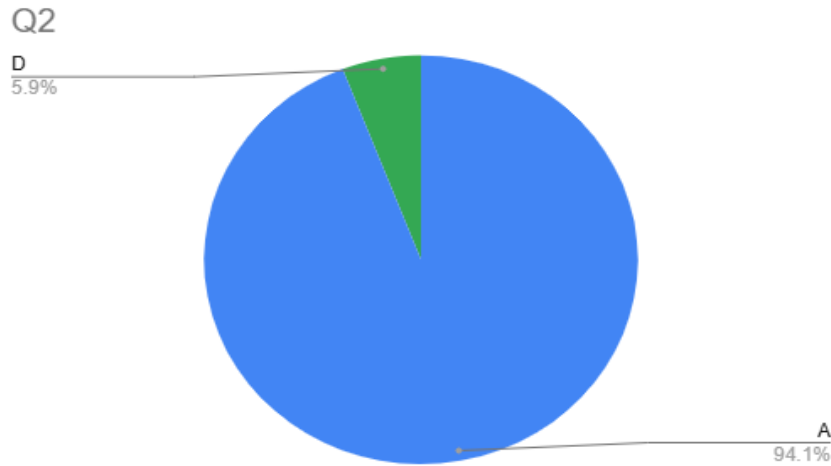


3.2.2. Q2: What does the `isset()` function in PHP do?

It can be seen in Figure 2 that the students' demonstrated a strong overall comprehension of the `isset()` function of PHP. Since, out of 51 respondents, there is an overwhelming 48 students (94.1%) that correctly choose Option A "Checks if a variable is initialized and not null.". This means that there is a high percentage that students have a solid understanding of the basic functionality of the `isset()` function, which is commonly used to check if the existence of a value in PHP script. There are however a small percentage of the respondents who chose incorrect answers. 3 students (5.9%) selected Option D which is "Validates if a variable contains a specific value.". Which is an indicator that there are some confusion `isset()` and other PHP functions like `in_array()` or direct conditional checks, that are used to validate value. None of them selected Option B "Verifies if a variable is a string," or Option C "Determines the size of an array" which shows that there is clarity among the students that `isset()` is not related to any of these operations. To summarize, the majority of students clearly understand the purpose of `isset()` PHP function,

with only a small number needing to review the function's role in checking variable initialization and null values. This shows a high level proficiency of the basic syntax and functionality of PHP among students.

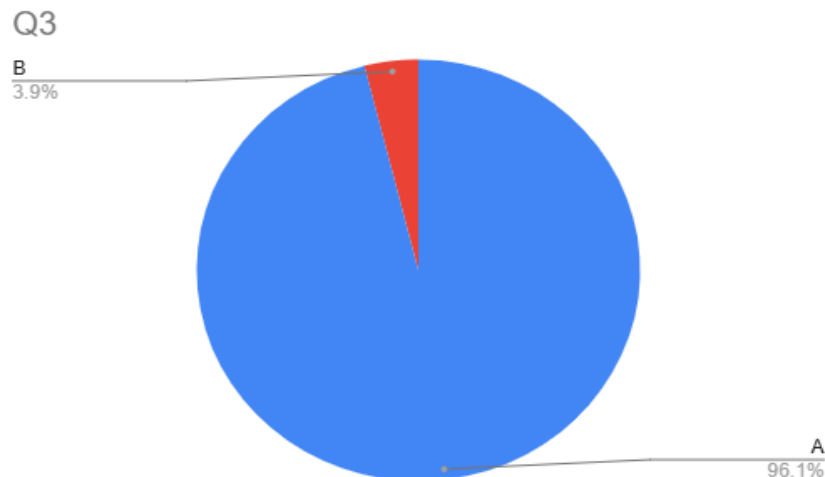
Figure 2. Response to the isset function in PHP.



3.2.3. Q3: Which of the following is the correct way to start a PHP session?

This question that falls under knowledge was shown in Figure 3. The responses shows that a high level of understanding among the students about how to correctly initiate a session in PHP. Of these 51 respondents, there are 49 students (96.1%) who correctly selected Option A – the correct way to start a PHP session using `session_start()`. This is an overwhelming indicator that almost all of the students are familiar with one of the most fundamental functions in PHP that is crucial for managing user sessions in web applications. There are however, 2 students (3.9%) who chooses Option B, while none of them selected Option C or Option D, indicating that there was minimal confusion regarding this concept. These small number of incorrect responses could reflect a minor misunderstanding or might be a simple error, but the correctness demonstrates a strong grasp of the basic PHP session management across the student population. In summary, the response shown was solid comprehension of how to correctly start a PHP session, with nearly all students demonstrating accurate knowledge which can further reinforce their competency in this essential aspect of web programming.

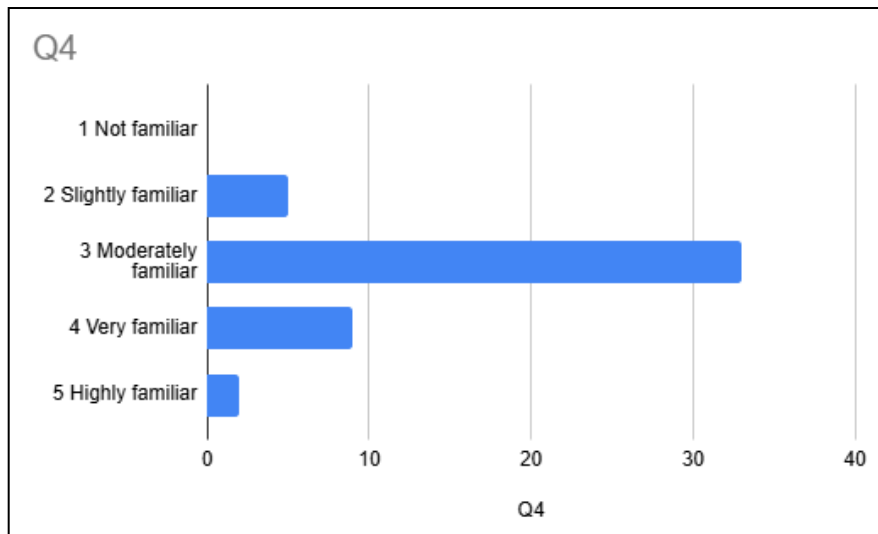
Figure 3. Response to the correct way to start a PHP session



3.2.3. Q4: Rate your familiarity with PHP web application development on a scale of 1 to 5

The question falls under the area of attitude as it asks for a personal perception of students' familiarity in PHP. The response to this question is shown in Figure 4. With the 51 respondents, the majority rated themselves as either Moderately familiar (15 students) or Very familiar (12 students), showing that there is a significant portion of the group has a solid understanding of PHP development. Moreover, 11 students rated themselves as Highly familiar, which can be said that some students feel confident in their PHP skills. However, there were a few of them who rated their familiarity as lower. 5 students rated themselves as Not familiar, and 8 students as Slightly familiar, suggesting that a portion of the respondents feel they need more exposure or practice in PHP web development. Nevertheless, it is worth noting that the mean familiarity rating across the responses was 3.16, which indicates between "Moderately familiar" and "Very familiar". This average suggests that generally students have a moderate level of self-assessed proficiency with PHP. Although, most respondents feel comfortable working with PHP, there remains a small group of students that may benefit from additional learning support to elevate their familiarity with PHP development. In summary, majority of the students have at least had a moderate level of familiarity with PHP, while others have shown higher levels of comfort, there are minority of students responded lower levels of familiarity. These highlight a diversity of skill level within the group. The mean of 3.16 further supports this, it shows an overall moderate proficiency in PHP web development among the students.

Figure 4. Response to the familiarity with PHP web application development.



3.3. Attitude Toward Web Programming Using PHP

The survey results revealed a diverse range of experiences and attitudes towards web programming among the 51 respondents. As can be seen in Table 1 the belief in the importance of web programming for future careers was relatively low (mean = 2.51), suggesting a disconnect between perceived career relevance and technical skills. Interestingly, most respondents agreed that web technologies are relevant to solving real-world problems (mean = 2.80), with moderate levels of confidence in their ability to learn web programming with sufficient effort (mean = 2.59). Although many students found web programming both challenging and rewarding (mean = 2.57), curiosity about how web applications and websites are built scored moderately (mean = 2.66). A significant portion of respondents expressed a desire to pursue advanced web programming skills (mean = 2.86) and showed an inclination towards hands-on experimentation (mean = 2.86). Moreover, practicing beyond the classroom (mean = 2.78) suggest a solid foundation for further skill development. The results emphasize the importance of aligning web programming curricula with students' personal goals and career aspirations, while providing practical opportunities to reinforce their learning and increase confidence.

Table 1. Resulting mean of Attitude indicators

Indicators	Mean
1. I believe learning web programming is essential for my future career.	2.51
2. Web programming helps me develop logical and problem-solving skills	2.53
3. I believe web technologies are relevant to solving real-world problems.	2.80
4. I feel confident that I can learn web programming if I put in enough effort.	2.59
5. I believe web programming is challenging but rewarding to learn.	2.57
6. I am genuinely curious about how web applications and websites are built.	2.66
7. I enjoy exploring new web programming tools and technologies.	2.76
8. I am interested in pursuing advanced skills in web programming.	2.86
9. I enjoy experimenting with code to create functional web applications.	2.86
10. I find web programming topics and tutorials engaging and exciting.	2.76
11. I am motivated to learn web programming to achieve my personal goals.	2.69
12. I dedicate extra time to practice web programming beyond the classroom.	2.78
13. I engage in real-world projects outside the school to improve my web programming skills	2.88
14. I am determined to overcome challenges in learning web programming.	2.75
15. I feel inspired by successful programmers to enhance my skills in web technologies.	2.69

3.4. Practices towards Web Programming in PHP

3.4.1 Q1: How often do you practice PHP/Web programming?

The majority of the students practice PHP/web programming on a weekly basis (35.29%) as shown in Table 2, followed by those practicing monthly (33.33%). A smaller percentage of students practice daily (7.84%), while 19.61% practice yearly. The distribution shows a relatively regular engagement with PHP, but very few students practice consistently on a daily basis. Also, regarding PHP and MySQL experience, an overwhelming majority of students (84.31%) have created a web application in PHP and MySQL, indicating that they have hands-on experience. Only a small group of students (11.76%) have not created such an application, pointing to a general familiarity with PHP web development in the cohort.

Table 2. Frequency of Programming Practice

Coding Practice	No. of students
Daily	4 students (7.84%)
Weekly	18 students (35.29%)
Monthly	17 students (33.33%)
Yearly	10 students (19.61%)

3.4.2. Q2: Have you ever created a Web application in PHP and Mysql?

The response from the question, “Have you ever created a web application in PHP and MySQL?” is shown in Table 3, the resulting information indicates that there is a significant portion of students have practical experience with these technologies. Out of 51 respondents, 43 students (84.31%) have reported having created a web application using PHP and MySQL, while there are only 6 students (11.76%) stated that they have not. These results highlights that the vast majority of the students have engaged in practical web development projects, which suggests a strong level of real-world practice with both PHP and MySQL. This hands-on experience is essential for building confidence and proficiency in web programming, demonstrating that most respondents are well-equipped for real-world web application development.

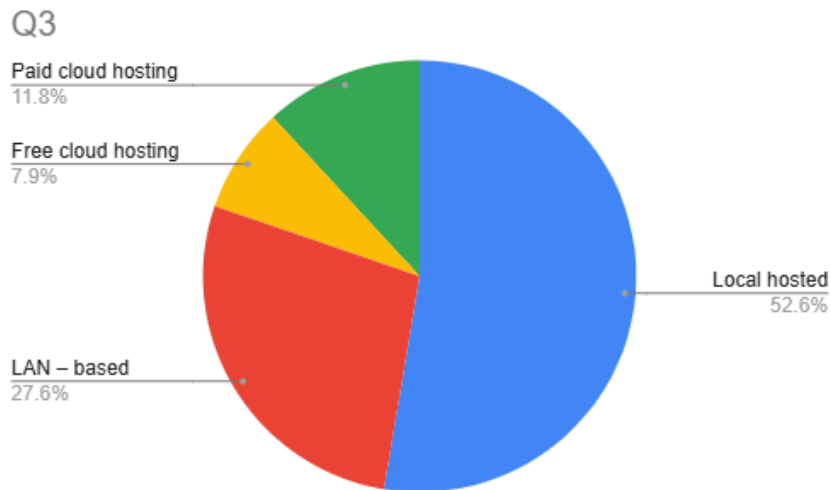
Table 3. Web application in PHP and Mysql

Coding Practice	No. of students
Yes	43 students (84.31%)
No	6 students (11.76%)

3.4.3. Q3: Which of the following Web targets did you implement in a PHP program?

The majority of students (78.43%) have implemented their PHP programs on Local Hosted environments as shown in Figure 5. There is a significant drop when it comes to LAN-based environments (41.18%) and an even more substantial reduction in students who have experience with Cloud-based hosting—either free (11.76%) or paid (17.65%). This suggests that most students are more comfortable developing in local environments, with less exposure to more complex hosting solutions like LAN-based or cloud-hosted environments. Moreover, the majority of students (62.75%) rated their confidence at Level 4 out of 5, indicating a relatively high self-assessed confidence in developing PHP applications. However, only 7.84% rated themselves at the maximum confidence level (Level 5). A significant portion (19.61%) rated themselves at Level 3, indicating some areas for improvement in student confidence. The overall confidence level among students is relatively high, but there is room for further development to increase the proportion of students at the highest confidence levels.

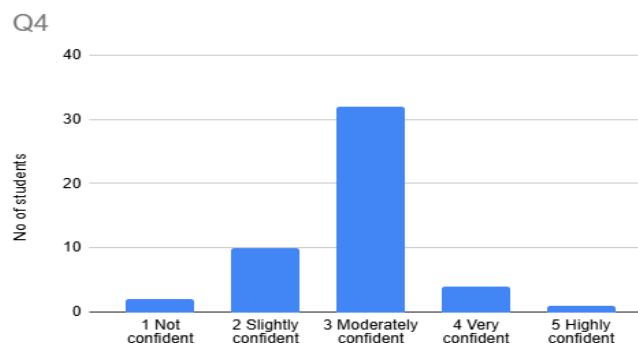
Figure 5. Response to Web target environments



3.4.4. Rate your confidence level in developing PHP Web applications

The result based on this question, "Rate your confidence level in developing PHP web applications," show a range of self-assessed confidence levels among the students. Out of 51 respondents, 2 students (3.92%) rated themselves as "Not confident," and 10 students (19.61%) as "Slightly confident." The majority, 32 students (62.75%), rated themselves as "Moderately confident," indicating that most respondents feel reasonably capable in their PHP development skills, though they recognize room for improvement. Furthermore, 4 students (7.84%) expressed being "Very confident," while only 1 student (1.96%) rated themselves as "Highly confident," reflecting a strong belief in their abilities. The overall mean confidence rating was 2.84, falling between "Slightly confident" and "Moderately confident." This suggests that, on average, students feel capable of developing PHP web applications but may benefit from further experience and practice to enhance more on their confidence levels.

Figure 6. Response to confidence level in PHP web applications



4. CONCLUSION

The survey results reveal a moderate level of familiarity with PHP web programming among students, but highlight a disconnect between their understanding of its relevance to future careers and the actual importance of web programming skills. Despite moderate enthusiasm and curiosity about web programming, students expressed a desire for hands-on experience and advanced skills development. Most students practice PHP programming regularly, with a strong foundation in PHP and MySQL. However, there is a limited exposure to LAN-based and cloud-hosted environments, indicating a need for curriculum enhancements that introduce more complex hosting solutions. Additionally, while confidence in PHP development is relatively high, there is an opportunity to further boost student confidence through more challenging projects and practical opportunities, particularly in real-world hosting scenarios. These findings underscore the importance of aligning curriculum content with both technical skill-building and career relevance to better prepare students for what the industry demands.

ACKNOWLEDGMENT

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Research Article

Silent Struggles: Understanding Suicide Ideation and Attempts among Youth

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ABSTRACT

Suicide remains a significant public health concern across both industrialized and developing nations, particularly affecting young people. This literature review aims to illuminate the global issues surrounding suicide, with a specific focus on the alarming rates of suicide among youth in the Philippines. The review conducts a non-systematic evaluation of current evidence on suicidal ideation and attempts among individuals aged 10 to 24. Utilizing a straightforward corpus analysis method, this study examines a range of recent research to enhance understanding of suicide and its prevalence in this demographic, while also considering age and gender patterns. Given that the suicide rates for this age group are notably high, there is an urgent need to develop effective programs and address the pervasive stigma surrounding mental health. In response, the Department of Health (DOH) in the Philippines has initiated a multi-sectoral approach to mental health, implementing programs and interventions across various settings—including workplaces, schools, and communities—specifically targeting youth.

Keywords: Suicide; Suicidal ideation; Suicidal attempt; Young people

1. INTRODUCTION

Suicide claims over 720,000 lives globally each year, stressing its profound impact. Alarming, it stands as the third leading cause of death for young adults aged 15-29, a critical period of life. The burden is disproportionately felt in low and middle-income countries, accounting for staggering 73% of all suicides worldwide. The pathways to suicide are complex, stemming from a confluence of social, cultural, biological, psychological, and environmental factors that can accumulate throughout an individual's life. Furthermore, for every life lost to suicide, countless others endure the pain of a suicide attempt, highlighting the widespread suffering. Notably, a history of attempting suicide is a significant predictor of future risk within the general population (WHO, 2025). Globally, suicide is a significant cause of death among young people as this study will investigate the suicidal ideation, and attempts. Suicide ideation according to Sta. Maria, et al (2015) is a robust predictor of suicide completion. It is then important to note that identification of the problem is relevant to the development of institutional and prevention programs.

Suicide ideation is considered a highly relevant predictor of suicide attempt, but there is scant attention given to it in terms of research and prevention in Asia (Liu & Lee, 2013). To Liu and Lee, there is no large-scale survey conducted on suicide ideation among university students. They believe that university students are a distinct sector, which deals with complexities in life on top of dealing with pressures in higher education. Suicide is a somewhat unusual occurrence, and it is challenging to forecast which individuals with these perils will eventually compel suicide. According to the World Health Organization's article "Preventing Suicide: A Global Imperative" (2014), countries guided by the WHO Mental Health Action Plan 2013-2020 hope to see a 10% reduction in suicide rates. This can only happen if safeguards are put in place to assist build for the future. According to their primary statistics, about 800,000 individuals die from suicide each year, with many more attempts. Suicide is the third largest cause of death for people aged 15 to 19, with a global rate of 79 percent, and the methods employed include pesticide ingestion, hanging, and weapons. According to Elflein (2019), the countries with the highest suicide rates worldwide include Lithuania (31.9), Russia (31), Guyana (29.2), and Korea (26.9), which has the highest suicide rate for women. According to the Centers for Disease Control and Prevention (CDC) WISQARS Leading Cause of Death Reports (2018), the United States of America is not among the countries with the highest death rates. Similarly, Sta. Maria, et al (2015) investigated suicide ideation among university students in Manila

where they surveyed 2,450 students enrolled at a private university. It was found that prevention programs in school are necessary because their findings revealed that suicide ideation was prevalent among the students who were surveyed. Furthermore, a clinical follow-up was deemed necessary to confirm the presence of mental health problems in addition to the importance of integrating the roles of social groups in the prevention programs especially those that may help students who are at-risk.

The goal of this study is to conduct a non-systematic review of the existing evidence specifically concerning suicidal ideation and attempts among young individuals aged 10 to 24 who are engaged in educational settings. This will also explicitly outline its limitations and propose recommendations for future research to address the gaps in our understanding. The objective is to address the following inquiries: 1. What is the worldwide prevalence of suicidal ideation and attempts among youth, as documented in the existing literature? 2. What are the gaps in the current literature regarding the understanding and prevention of suicide ideation and attempts among youth?; and What are the implications of the current research for future research, policy, and practice related to youth suicide?

I. Defining Scope of the Problem

To effectively address the global issues of suicide, particularly as it affects students, a foundational understanding of key definitions is essential. This review begins by examining the following definitions: Suicide is defined as death resulting directly from self-inflicted injury undertaken with the intention to die. Suicidal attempt, on the other hand, is a non-fatal, self-directed, possibly damaging conduct to die because of the behavior (a suicide attempt may or may not result in injury), whereas suicidal ideation is the act of pondering, planning, or thinking about suicide (NIMH, 2020). The term "young people" refers to those aged 10 to 24 (WHO-Southeast Asia, 2020). Adolescents commonly use the methods of overdose or ingesting, hanging/suffocation, and the use of a sharp item in suicidal attempts (Cloutier, Martin, Kennedy, Nixon, & Muelenkamp, 2010). According to Cha et al. (2008) and Van Orden et al. (2011), suicide attempts among adolescents frequently occur in the context of a plan, though a much smaller group of adolescents attempt suicide.

The most recent known data on suicide in the Philippines came from the World Health Organization Mortality Database in 2011. Males (all ages from 5 to 75+) reported 1,879 cases, while females (all ages from 5 to 75+) reported 570. The Department of Health (DOH) has teamed up with the World Health Organization (WHO) to encourage mindfulness about the importance of public mental health, particularly in the wake of the COVID-19 pandemic. Those between the ages of 15 and 29 are the most vulnerable to mental health-related mortality during this time. It may serve as an example of the need for further discussions and initiatives to reduce the stigma associated with mental illness. Filipinos are afraid of estrangement or prejudice if they talk about their mental health problems (World Health Organization-Western Pacific Philippines, 2020).

The Situation in the Philippines

The 2019 suicide statistics for the low-middle income group in the Philippines, as reported by the WHO, show a total of 2325 cases, (624 female, 1702 male). The Department of Health (DOH), in partnership with the World Health Organization (WHO), is actively promoting public mental health awareness, a critical undertaking amplified by the challenges of the COVID-19 pandemic. This collaborative effort is essential considering a significant disconnect in the Philippines: despite the nation's consistent high ranking in global optimism indices, the National Center for Mental Health (NCMH) has reported a dramatic rise in monthly hotline calls for depression, from 80 pre-lockdown to nearly 400 (WHO, 2020). This situation is further compounded by global statistics indicating that individuals aged 15-29 are the most susceptible to mental health issues, with related deaths being the second leading cause of fatalities in this age group. The reluctance of many Filipinos to discuss their mental health struggles, driven by fear of alienation and prejudice, necessitates more open conversations and supportive programs aimed at destigmatization.

II. Understanding the Drivers of Suicidal Behavior in Young People

Durkheim (as cited in Zhang, 2019) used the concept of social integration to explain why individuals with fewer social connections had a higher suicide rate. Those who were single, divorced, or never married had fewer ties to others in society and were less likely to feel part of the larger community. For example, due to having more freedom and independence, some men may perceive they have fewer meaningful relationships and view seeking counsel or consolation as a sign of weakness, leading to feelings of isolation. Consequently, men are at a higher risk of suicide than women globally. In summary, individuals who lack personal bonds or connections with others, and experience a sense of frustrated belonging and burdensomeness, are more vulnerable to committing suicide.

According to the Interpersonal Theory of Suicide (Joiner, 2005), suicidal desire is most dangerous when thwarted belongingness and perceived burdensomeness are present together. The capability to engage in suicidal behavior is distinct from the desire to do so. Additionally, Joiner proposed that suicide ideation and the transition from thought to attempt are separate processes with different explanations and risk factors. Zygo et al. (2018) found that adolescents' suicidal behavior is linked to female gender, substance use, running away, single-parent families, alcoholic family members, and experiences of abuse. Mars et al. (2019) compared teenagers who reported suicidal ideation to those who attempted suicide, those who attempted suicide were more likely to report exposure to self-harm in others (adjusted or for family member self-harm: 1.95, for friend self-harm: 2.61 and for both family and friend self-harm: 5.26). They were also more likely to suffer from a mental illness (adjusted or for depression: 3.63; adjusted or for anxiety disorder: 2.20; adjusted or for behavioral disorder: 2.90). Female gender, lower IQ, higher impulsivity, higher intensity seeking, poorer conscientiousness, a greater number of life events, body dissatisfaction, hopelessness, smoking, and illicit substance use were among the other risk variables. In the study of Pacres, et. al (2014), participants to their research aged 15 to 19 years old have manifested depression before they committed suicide. The attempt was caused by family and relationship problems. The researchers identified three specific variables. They believed these are explicitly related to suicide, namely: perceived burdensomeness, thwarted belongingness, and acquired capability to do the act.

Bailey, et al. (2017) found that participants had increased awareness about suicide, confidence in talking about suicide concerns, desire to talk about suicide, and likelihood of suicide after participating in a study on universal suicide prevention in young people. There was no evidence that the training produced suicide thoughts or distress, and both appeared to reduce after the instruction. Most participants did not find the training to be distressing; they found it to be beneficial, and the majority indicated they would suggest it to a friend. Cha et al. (2017) found important patterns and knowledge gaps that should be used to drive future research. The prevalence of suicidal thoughts and behaviors among youth varies internationally and across sociodemographic groups, according to epidemiological studies. Cross-national research is limited and frequently fails to adequately account for high-risk populations. Etiological studies have primarily identified risk factors within environmental and psychological domains, particularly those related to negative affective processes, with self-report measures predominating. There is a paucity of research incorporating behavior, physiology, biochemical factors, cellular analysis, and genetics as units of investigation. Additionally, evidence is growing in support of certain psychotherapeutic treatments and preventative strategies, as well as emerging evidence for technology-based interventions.

Matsubayashi et al. (2014) explored the relationship between suicide rates and public awareness campaigns aimed at increasing recognition of depression and encouraging help-seeking behavior, concluding that public awareness initiatives are the most effective suicide prevention method in Japan. King et al. (2019), in their study "Association of the Youth-Nominated Support Team Intervention for Suicidal Adolescents With 11-to-14 Year Mortality Outcomes," examined adolescents aged 13 to 17 who had been hospitalized following a suicide attempt or suicidal ideation. These youths nominated "caring adults" to provide support post-hospitalization. The adults received training on suicide warning signs and therapeutic support techniques and were contacted weekly by support professionals for three months. The intervention revealed the positive impact of youth-nominated support teams.

Asarnow et al. (2017) investigated the efficacy of Safe Alternatives for Teens and Youth (SAFETY), a cognitive-behavioral, dialectical behavior therapy-informed family treatment program designed to promote safety. Their findings indicated that participants in the SAFETY program had a significantly higher probability of survival without a subsequent suicide attempt at the three-month follow-up compared to the control group.

III. Prevention and Intervention Strategies

Schilling et al. (2016) conducted another study on the signs of suicide (SOS) prevention program, which teaches students to recognize the warning signals of suicide risk and seek help from adults if they or their peers exhibit these indications. Completing an optional self-administered depression screening as part of the program aims to raise students' awareness of the symptoms of depression. It was suggested that the school-based preventative approach be used. According to Joshi & Billick (2017), one technique for suicide prevention is to evaluate people to see who most at risk is. Suicide screening techniques at the time of entry and at intervals throughout incarceration were indicated as prudent practices. The apparent growth in mental health problems that silently plague our communities and cause the frightening rise in suicide among our children and youth is a serious worry that parallels COVID-19. We felt obliged to work together to help prevent and lessen the effects of this approaching crisis because we were aware of how difficult it was for rural and underdeveloped communities to get relevant health information and services (David, n.d.).

2. MATERIALS AND METHODS

This study systematically identifies relevant research for this review, a comprehensive electronic search was conducted focusing on suicide ideation and attempts among young people. The search strategy encompassed scholarly articles published in peer-reviewed journals from January 2010 to the present data. The following databases were systematically searched: PsychINFO, Scopus, Web of Science, PubMed, ERIC. The search strategy employed a combination of the following keywords and Boolean operators (and, or): suicide or suicidal, suicide ideation or suicidal ideation or suicidal thoughts, suicide attempt or attempted suicide, adolescent or youth or young adult or teenager or student, university student, college student, higher education.

The search results were then subjected to a multi-stage screening process to determine eligibility. First, titles and abstracts were independently reviewed based on the following inclusion criteria: it investigated suicide ideation and/or attempts in young people aged 10 to 24 years. The publication was in the English Language. The study sample included individuals within the 10 to 24 year age range. The study focused on or included data from higher education institutions. Additionally, full-text articles or potentially eligible studies were retrieved and thoroughly assessed against the same inclusion criteria. The findings from this synthesized body of research was analyzed using corpus analysis method to provide insights into the understanding of suicide and its prevalence among young people.

3. RESULTS AND DISCUSSIONS

This section presents the findings of the systematic review, directly addressing the research questions outlined. Global prevalence of suicide ideation and attempts among youth as identified in the existing literature. The identified gaps in the current understanding and prevention of youth suicide. Last, the implications of the findings for future research, policy, and practice.

1. Global Prevalence

The significant global burden of suicide, claiming over 720,000 lives annually and ranking as the third leading cause of death for young adults (15-29), underscores the critical importance of understanding and addressing this issue. Low and middle-income countries experience a significant proportion of global suicides, amounting to 73%. The multifaceted nature of suicide, arising from a complex interplay of social, cultural, biological, psychological, and environmental factors, necessitates a comprehensive approach. For every completed suicide, many more individuals experience attempts, with a history of attempts being a significant risk factor for future suicide. Given that suicide ideation is a strong predictor of suicide completion (Sta. Maria et al., 2015), investigating it, particularly among youth, is crucial for developing effective prevention programs. Despite the recognized importance of suicide ideation, especially among vulnerable groups like university students facing unique pressures (Liu & Lee, 2013), research and prevention efforts in Asia remain limited. The global aspiration for a 10% reduction in suicide rates by 2020 (WHO, 2014) highlights the urgent need for proactive interventions. While global suicide rates vary, with countries like Lithuania, Russia, and Guyana reporting high figures (Elflein, 2019), research within specific contexts, such as Sta. Maria et al.'s (2015) study on university students in Manila, reveals the prevalence of suicide ideation within this population and emphasizes the necessity of school-based prevention programs and the integration of social support systems for at-risk students.

2. Gaps in the Literature

Establishing a clear understanding of key definitions is crucial for addressing youth suicide globally. Suicide is defined as a self-inflicted death with intent. A suicide attempt refers to a non-fatal, self-directed behavior that has the potential to be harmful and may involve an intent to die. Suicidal ideation encompasses thoughts or plans related to suicide (NIMH, 2020). In this paper, "young people" encompass individuals aged 10 to 24 (WHO-Southeast Asia, 2020). Common methods of suicide attempt among adolescents include overdose/ingestion, hanging/suffocation, and sharp items (Cloutier et al., 2010), often occurring with a plan (Cha et al., 2008; Van Orden et al., 2011). In the Philippines, the most recent national suicide data from 2011 indicated higher rates among males (WHO Mortality Database). Recognizing the urgency, especially amidst the COVID-19 pandemic, the Department of Health (DOH) and WHO are promoting public mental health awareness, as those aged 15-29 are particularly vulnerable. A significant challenge is the cultural reluctance of Filipinos to discuss mental health issues due to fear of stigma (WHO-Western Pacific Philippines, 2020), despite the country's high ranking in optimism indices contrasting with a surge in mental health hotline calls (WHO, 2020). The 2019 WHO data for the Philippines (low-middle income group) reported 2325 suicide cases, predominantly male. Suicidal behavior in young people is influenced by factors such as social isolation (Durkheim, 2019) and the Interpersonal Theory of Suicide (Joiner, 2005), which includes thwarted belongingness, perceived burdensomeness, and acquired capability for suicide. Research indicates associations between adolescent suicidal behavior and female gender, substance use, running away,

single-parent families, parental alcoholism, abuse (Zygo et al., 2018), exposure to self-harm in others, and mental illness (Mars et al., 2019). Key risk factors also include lower IQ, impulsivity, sensation-seeking, low conscientiousness, negative life events, body dissatisfaction, hopelessness, and substance use. Pacres et al. (2014) identified perceived burdensomeness, thwarted belongingness, and acquired capability as explicitly linked to suicide attempts in their study of Filipino youth. Universal suicide prevention programs can increase awareness, confidence in discussing suicide, and the likelihood of seeking help without causing distress (Bailey et al., 2017). Research trends highlight the need for more cross-national studies, a broader range of analytical units beyond self-report, and further investigation into effective psychotherapies and technology-based interventions (Cha et al., 2017). Public awareness campaigns, as seen in Japan, can be effective (Matsubayashi et al., 2014). Interventions like youth-nominated support teams (King et al., 2019) and family-focused treatments like SAFETY (Asarnow et al., 2017) have shown positive outcomes in reducing suicidal behavior and ideation among young people.

3. Implications

Schilling et al. (2016) investigated the Signs of Suicide (SOS) prevention program, which educates students on recognizing suicide warning signs and encourages them to seek help. The program includes an optional self-administered depression screening to enhance awareness of depression symptoms, advocating for a school-based preventive approach. Concurrently, Joshi & Billick (2017) emphasized the importance of suicide screening upon entry and periodically during incarceration to identify individuals at heightened risk. The rise in mental health issues, particularly among children and youth during the COVID-19 pandemic, underscores the urgency of addressing this crisis, especially in rural and underserved communities that struggle to access necessary health information and services (David, n.d.). The discussion highlights contrasting approaches from the studies while referencing Durkheim's Social Integration Theory, which links social integration to suicide rates, as well as Joiner's Interpersonal Theory of Suicide, which posits that low belongingness and high burdensomeness, combined with the capability for suicide, contribute to suicidal desires. These theories provide a framework for understanding the complexities of suicide risk and prevention.

Table 1. Summary of included studies in suicide ideation and attempts

Focus	Authors	Location	Population / sample	Key findings
Suicide ideation	Liu & Lee (2013)	Various countries	1,181 to 16,000	Thought of killing themselves
Prevalence and associated factors of suicide ideation	Sta. Maria, et. al (2015)	Manila, Philippines	2,450 students at a private university	Students were dissatisfied with one's love relationship, low levels of closeness with parents and with peers were more likely to think of suicide
Incidence of non-suicidal self-injury	Cloutier, et. al (2010)		468 youths	Necessity of assessing suicidal ideation and NSSI in all youth presenting to mental health services
Suicidal ideation and actions among young people	Cha, et. al (2017)			The prevalence of suicidal thoughts and behaviors among youth varies by country and sociodemographic group.
Interpersonal theory of suicidal behavior	Van Orden, et. al (2010)			The hypotheses of the theory are defined clearly to encourage scientific investigation and possible refutation.
Experiences and coping mechanism of adolescents who unsuccessfully committed suicide	Pacres, et. al (2014)	Philippines	6 participants	Love problem, family problems and financial problems
Identify factors young people attribute to their suicide attempts.	Zygo, et. al (2019)		5,685 individuals aged 13-19 years	Suicidal behavior in adolescents correlates with the female gender, intake of psychoactive substances, running away from home, being raised in a single-parent family, addiction of family members to alcohol, and experiences of violence
Suicidal methods and peripheral factors	Zalar, et. al (2018)	Slovenia	56712 persons attempting suicide and 21913 persons committing suicide	Hanging as the most used suicidal method, used by men with the purpose of causing suicidal death rather than a suicidal attempt

Evaluate the efficacy and acceptability of the safeTALK program for secondary school students	Bailey, et. al (2017)	129 students	Increase knowledge about suicide, confidence in talking about issues related to suicide, willingness to talk about suicide, likelihood of seeking help for suicidal thoughts
Determine if Youth-Nominated Support Team Intervention for Suicidal Adolescents-Version II is associated with reduced mortality 11 to 14 years after psychiatric hospitalization	King, et. al (2019)	13 to 17 years	No patients were withdrawn from YST owing to adverse effects

4. CONCLUSION

The global suicide crisis claims over 720,000 lives annually, demands urgent and comprehensive intervention strategies, particularly among vulnerable populations such as youth. The disproportionate impact of suicide in low- and middle-income countries, coupled with the complex interplay of various risk factors, highlights the necessity for tailored prevention programs. Understanding key definitions related to suicidal behavior and acknowledging cultural attitudes towards mental health—especially in contexts like the Philippines—are critical for effective intervention. Research indicates that prevention efforts, including school-based programs and targeted awareness campaigns, can significantly enhance the identification of at-risk individuals and encourage help-seeking behaviors. Theoretical frameworks such as Durkheim's Social Integration Theory and Joiner's Interpersonal Theory of Suicide provide valuable insights into the underlying factors contributing to suicide, emphasizing the importance of social connections in mitigating risk. Despite the challenges posed by stigma and limited research in certain regions, the emergence of promising interventions—such as universal suicide prevention programs, youth-nominated support teams, and family-focused treatments—offers hope. It is vital to prioritize continued research and collaboration across disciplines and borders, fostering holistic approaches that ensure mental health resources are accessible to all, particularly in underserved communities. This concerted effort is essential not only to reduce the incidence of suicide but also to promote resilience and foster a supportive environment for those in need. Furthermore, relationships with family and social groups can help in the development of prevention programs especially to students who are diagnosed to be at-risk. To address the urgent issues in the academe, further research on the suicide case in the Philippines should be conducted in the future.

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Research Article

Assessment of the Disposal of Electrical-Electronics Waste in Queen's Row, Bacoar City

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ABSTRACT

Electrical and electronic waste (e-waste) presents a rapidly escalating environmental challenge globally, impacting homes, workplaces, and communities. This study aims to assess the e-waste disposal practices in selected barangays of Queen's Row, Bacoar City, Cavite, and to recommend strategies for improved waste management. The research explores the awareness levels of barangay officials, staff, and homeowners regarding proper e-waste disposal, focusing on responsibilities, waste segregation, collection and transport, and recycling programs. The study employs a descriptive methodology, utilizing questionnaires to gather data. Findings indicate that respondents generally exhibit strong awareness of most e-waste management aspects. Specifically, functions and responsibilities of officials, as well as waste segregation practices, received the highest awareness ratings. However, recycling programs were noted as less familiar to the respondents. Additionally, a significant difference in awareness levels was found among different groups (officials, staff, homeowners) concerning functions and waste segregation practices. Common types of e-waste identified included household appliances (e.g., electric fans, televisions) and telecommunication gadgets (e.g., mobile phones, laptops). Based on these findings, an action plan is proposed to enhance awareness and compliance with e-waste management practices in Queen's Row, emphasizing ongoing education and community involvement. The study provides a foundation for further research and serves as a springboard for improved environmental practices in waste disposal.

Keywords: Waste disposal; waste management; segregation; e-waste; disposal practices

1. INTRODUCTION

Electrical and electronic waste, commonly referred to as e-waste, is rapidly emerging as one of the most pressing environmental challenges confronting communities, including Bacoar City. E-waste poses significant risks to both human health and ecological well-being, stemming from the hazardous materials it contains. While many individuals associate e-waste primarily with modern devices like computers and smartphones, its definition encompasses all discarded electrical and electronic equipment. Alarming, the volume of e-waste ending up in landfills continues to increase each year, threatening local ecosystems and contaminating water supplies if not disposed of properly. This situation aligns with Sustainable Development Goal 12 (Responsible Consumption and Production), which calls for sustainable waste management practices.

In the Philippines, household waste contributes significantly to the country's overall waste management issues, with electronic waste often ending up in illegal dumpsites or improperly discarded in areas prone to waste accumulation. Addressing this, Bacoar City must focus on raising awareness among its residents about the importance of responsible disposal practices for electronic waste, ensuring adherence to environmental guidelines. The Ecological Solid Waste Management Act of 2000 (RA 9003) outlines the obligation of barangay officials and community members to separate solid waste into categories such as compostable, recyclable, residual, and special wastes. E-waste is classified under special waste, encompassing items like hazardous household materials, batteries, paints, thinners, and electronic devices, all requiring proper handling and disposal through Materials Recovery Facilities (MRFs). Encouraging community participation in following these practices can lead Bacoar City toward more sustainable e-waste management, minimizing environmental damage and fostering long-term ecological benefits. Several key challenges in solid waste management, especially concerning e-waste, demand immediate attention. First, the volume of waste generated is steadily increasing, emphasizing the need for effective systems for its collection, processing, and disposal. Furthermore, significant portions of e-waste remain unaccounted for in national municipal solid waste (MSW) data, resulting in gaps in understanding the issue and

inadequacies in resource allocation.

Moreover, a lack of clear definitions for terms related to solid waste management contributes to confusion and inconsistencies in implementation across various regions and agencies. Insufficient data quality hinders effective decision-making and complicates the development of comprehensive management strategies. There is an urgent need for defined leadership roles and responsibilities at the government and local levels to ensure that waste management practices are well-coordinated and effective. Additionally, consistency in enforcing regulations and standards is essential for fostering an equitable and effective waste management framework. Addressing inter-country and intra-locality waste management challenges is critical for the success of MSW management efforts. As Bacoar City strives to handle its e-waste disposal practices effectively, aligning these efforts with the SDGs can help ensure a sustainable and healthful environment for its residents, ultimately contributing to a more resilient community.

Studies on E-Waste Management

These complex issues have been thoroughly examined in the influential work of Tchobanoglous and Kreith (2002), whose insights illuminate the multifaceted nature of solid waste management and provide guidance for developing more effective systems. Asiimwe and Ake (2012) highlight that the rapid growth of Information and Communications Technologies (ICTs) has led to increased demand for electronic devices such as mobile phones and computers, resulting in significant amounts of e-waste from discarded electronics. This e-waste poses serious risks to both human health and the environment due to its toxic chemical components. Therefore, the authors assert that proper management practices are essential to mitigate these risks. However, data on e-waste management in East African Community (EAC) countries is limited, prompting the authors to conduct semi-structured interviews with government officials and a comprehensive literature review. Their findings indicate that EAC governments recognize e-waste as an emerging issue; however, despite this awareness, there are currently no effective solutions in place to address the problem. The study suggests practical strategies for addressing e-waste challenges within the EAC region. Chandrappa and Das (2012) mentioned the importance of life cycle assessment (LCA) in understanding waste management systems. LCA serves as a comprehensive method for waste prevention by examining the entire lifespan of a product or process, including stages such as raw material procurement, manufacturing, distribution, usage, maintenance, recycling, and disposal. They highlight that societal safety can be maintained as long as plastics and metals are sourced from virgin materials or treated appropriately to eliminate potential hazards. In a comparative study, Bo and Yamamoto (2010) explored e-waste management practices in Japan and China. In Japan, home appliances are collected through a recycling ticket system, making it challenging to recycle and treat them. Consequently, most e-waste is outsourced to other facilities for processing. The Japanese system, while capable of tracking data and ensuring environmental sustainability, faces significant challenges. Conversely, China's e-waste management system is characterized by high reuse rates and low treatment costs, although it suffers from producing low-quality reused products, contributing to environmental pollution, and difficulties in data acquisition due to illegal imports.

The feasibility of establishing an e-waste treatment facility in Indonesia, citing a 70% collection rate. They emphasized the necessity for sustainable financial support to ensure the facility's success. Furthermore, they recommend integrating the existing informal e-waste sector into the formal waste management system and promoting manual dismantling due to lower labor costs, which could generate profits based on intrinsic values. However, the authors stress the need for additional financial backing and the enactment of specific regulations for effective e-waste management. Implementing an efficient recycling system could create new avenues for recovering valuable materials, while also promoting public health and generating employment opportunities (Andarani & Goto, 2012). Ghiani and Triki (2012) underscore the increasing complexity of urban waste management, which necessitates significant resources and has substantial environmental impacts. They focus on the design aspect of waste management systems, particularly the strategic placement of waste collection sites. Their integer programming model assists decision-makers in selecting appropriate locations for unsorted waste bins in residential areas and determining the capacity of each bin. This model ensures that each collection area can accommodate the expected waste while meeting citizens' quality-of-service expectations. In their tests in Nardo, Italy, they demonstrate that both the exact and heuristic methods yield superior solutions compared to the current system, resulting in a reduced number of bins needed. For Honda and Li (2008) said the troubling issue of e-waste containing mercury, particularly focusing on obsolete electronic equipment like fluorescent lamps. Despite these items generating lower earnings compared to more lucrative types of e-waste, informal collectors in developing countries actively seek them. This reliance on informal collection arises from the grim reality that many mercury-containing products are ultimately disposed of as municipal solid waste, primarily due to a lack of public awareness, inadequate systems for waste separation, and insufficient facilities for managing hazardous materials. While Lundgren (2012) further emphasizes the oversight in current waste management strategies, noting that many primarily focus on environmental issues while neglecting inherent social challenges. A holistic approach is necessary to tackle these multifaceted problems.

Recognizing this necessity, the International Labour Organization (ILO) emerges as a critical player in promoting sustainable waste management practices. The ILO's potential impact lies in its ability to address social concerns and the dynamics of labor within the e-waste sector. To facilitate meaningful change, the ILO can undertake several strategic steps, such as developing an understanding of labor dimensions in different countries, which will provide invaluable insights into the specific challenges faced by workers. Additionally, it can offer technical assistance coupled with social programs aimed at improving the conditions of those involved in e-waste recycling, ensuring that all recyclers are equipped with the necessary tools to operate responsibly. Furthermore, the ILO can play a crucial role in disseminating vital information by launching an e-waste code of practice, which would outline best practices and promote awareness among stakeholders. Collaborating with other organizations will strengthen the ILO's advocacy for green jobs and e-waste management (International Labour Organization, 2020). Ongondo and William (2010) found that informal recycling in developing nations could significantly enhance the recycling of Waste Electrical and Electronic Equipment (WEEE) if aligned with modern safety standards. Nevertheless, achieving this is challenging due to associated costs. Moreover, global progress in developing and implementing legislation to address WEEE has been slow, with some regions lacking such frameworks entirely. The review suggests that effective management of discarded electronic products will necessitate rapid, coordinated, and decisive technical and non-technical responses on a global scale. In an article "No Solution in Sight for E-Waste," Mayuga discusses the growing problem of electronic waste (e-waste) in the Philippines as categorized by the National Solid Waste Management Commission (NSWMC). E-waste encompasses broken home appliances, electrical devices, and gadgets, all contributing to the nation's solid waste management crisis. The Global E-Waste Monitor 2017 defines e-waste as all discarded electrical and electronic equipment (EEE) without the intent to reuse. In the Philippines, each inhabitant produces approximately 2 to 5 kilos of e-waste, classified as hazardous waste that requires specialized disposal and recycling processes (Mayuga, 2017).

Zurbano (2017) emphasized the role of environmental groups in promoting e-waste recycling, citing the Eco-Waste Coalition's program as a successful example. This program actively collected and transported various unusable electronic items, such as batteries, cell phones, and kitchen appliances, to government-approved recycling facilities, thus emphasizing responsible e-waste management. Alano (2018) reported that the Eco-Waste Coalition held a public outreach program to promote e-waste prevention, reduction, and safe management, raising awareness about the rapidly growing e-waste issue. E-waste grows rapidly worldwide, posing major environmental risks. While e-waste contains valuable metals that can be economically beneficial, it poses hazardous risks due to the presence of toxic chemicals. In 2014, e-waste amounted to 41 million tons, growing annually by 3-5%. They noted a direct correlation between a country's GDP, population, and the amount of e-waste generated, suggesting that countries with higher GDP and populations produce more e-waste (Kumar & Espinosa, 2017). According to Agarrado (2011), the Philippines is grappling with a significant crisis related to electronic waste (e-waste) due to its volume and toxicity. A 2005 study estimated that around 2.7 million units of various appliances, including televisions, refrigerators, and air conditioners, became obsolete, with approximately 1.8 million units ending up in landfills. Between 1995 and 2005, about 25 million units became outdated, with an additional 14 million expected to be discarded by 2010. The e-waste generation problem is more pronounced in developed countries.

Mobile phones and chargers are the most widely used electrical and electronic equipment in Cagayan de Oro City, with televisions and refrigerators generating the largest volumes of e-waste. Many households lack knowledge about proper disposal methods for e-waste, primarily due to the absence of collection mechanisms and a lack of awareness about the negative consequences of mismanagement. Common disposal practices include selling to scrap dealers, keeping items at home, or attempting repairs. Effective e-waste management is essential to minimize the release of toxic substances that harm human health and the environment. Implementing a waste management hierarchy can help, focusing on reducing toxic materials in production, reusing e-waste to extend product life, and promoting recycling to recover valuable materials and conserve natural resources (Cultura, Aranico, Vedra, & Amparado Jr., 2013).

In Mañalac's (2011) paper, "Electronic Waste: A Threat in the Future," highlights the significant risks posed by e-waste to both human health and the environment. She argues that effective environmental planning and management hinge on accurate waste statistics, which serve as a crucial indicator of the e-waste entering landfills and waterways. Mañalac critiques the traditional Local Consumption and Disposal Analysis (LCDA) equation, which relies solely on appliance sales data and fails to account for current ownership. Her proposed approach integrates present ownership into the equation, offering a more accurate representation of e-waste generation.

2. MATERIALS AND METHODS

In this research conducted in Queen's Row, Bacoor City, the primary aim was to identify and enhance waste disposal management, particularly concerning electrical supplies and equipment. It employed a descriptive research design, which provided a comprehensive view of the current waste disposal situation, while also seeking to justify existing practices and develop relevant theories. To gather insights, purposive sampling was used, a method in which participants are selected based on specific criteria aligned with the study's objectives. The study involved a total of 240 respondents, including 27 barangay officials (11.25%), 63 barangay staff (26.25%), and 150 homeowners (62.50%).

Data collection was facilitated through a specially designed questionnaire, enriched by documentary analysis and unstructured interviews aimed at further exploring respondents' perceptions. The questionnaire employed a 5-point Likert scale, effectively measuring awareness and attitudes toward waste disposal management. Before proceeding with data collection, permission was obtained from the barangay and finalized the research instruments. The instruments were personally administered and ensured that responses were collected securely.

For data analysis, a variety of statistical techniques were employed. Percentages compared different magnitudes, while ranking emphasized the importance of specific items. The weighted mean provided a qualitative assessment of the responses. Additionally, a One-Way Analysis of Variance (ANOVA) was utilized to assess differences in perceptions among barangay officials, staff, and homeowners regarding proper e-waste disposal practices. Respondents' awareness levels were categorized using a Likert scale, ranging from "Strongly Aware" to "Not Aware." Ultimately, the study aimed to rigorously evaluate and enhance understanding of waste disposal practices within the community, using ANOVA to test hypotheses regarding the significant differences in assessments among the various respondent groups. The null hypothesis was set to be rejected or accepted based on whether the computed F value met predetermined criteria at a significance level of $\alpha = 0.05$.

3. RESULTS AND DISCUSSIONS

In this comprehensive assessment of awareness regarding electrical-electronics waste disposal among respondents in Queens' Row, Bacoor City, several findings emerged across various criteria related to electronic waste management.

1. Level of awareness of the selected barangay officials, staff and homeowners on the features of proper E-waste disposal in terms of:

1.1. Functions and responsibilities of the concerned officials

Analyzing Table 1 reveals a strong understanding of electrical-electronics waste disposal responsibilities among barangay officials, staff, and homeowners in Queen's Row, Bacoor City. The data, represented by weighted mean values, indicate a generally high level of awareness across various criteria related to e-waste management. The highest-ranked criterion, with a weighted mean of 4.39, emphasizes the importance of regularly reviewing the City or Municipal E-Waste Management Plan to ensure its sustainability and relevance. This suggests a proactive approach to adapting to evolving e-waste challenges. Closely following were criteria related to long-term e-waste management and developing specific implementation guidelines, both scoring 4.36. These high rankings indicate a clear understanding of the need for comprehensive and well-defined strategies. While most criteria were rated with strong awareness, the lowest-ranked criterion, at 4.17, focused on recommending measures against pollution and preserving the ecosystem. Though still indicating awareness, this slightly lower score might suggest an area where further emphasis or education could be beneficial. Overall, the high average weighted mean of 4.29 demonstrates a collective strong awareness of e-waste management functions and responsibilities. This strong awareness implies that the community understands and supports long-term e-waste management, including integrating various plans and providing logistical support. They also recognize the need for safeguards against pollution and ecosystem preservation. These findings align with the observations of Peralta and Fontanos (2005), who noted the increasing quantity of e-waste in the Philippines. Their research highlights the importance of using data to develop effective management schemes, such as buy-back policies and recycling centers. The need to strengthen the recycling market is crucial to divert e-waste from landfills, extend landfill life, and create a new source of material recovery.

Table 1. Composite Mean of Responses on the Functions and Responsibilities of Concerned Officials in Queen's Row.

CRITERIA	Barangay Officials		Staff		Homeowners		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
1. Ensures the long-term management of solid waste, as well as integrate the various E-waste management plans and strategies of the barangays in jurisdiction.	4.43	SA	4.36	SA	4.28	SA	4.36	SA	2.5
2. Adopts measures to promote and ensure the viability and effective implementation of E-waste management programs in its component barangay	4.35	SA	4.39	SA	4.32	SA	4.35	SA	4
3. Monitor the implementation of the City or Municipal E-Waste Management Plan through its various political subdivisions and in cooperation with the private sector and the NGOs;	4.35	SA	4.37	SA	4.21	SA	4.31	SA	7
4. Adopts specific revenue-generating measures to promote the viability of its E-Waste Management Plan;	4.14	A	4.22	SA	4.24	SA	4.20	SA	10.5
5. Convenes with the constituents on regular meetings for purposes of planning and coordinating the implementation of the E-waste management plans of the respective component barangays;	4.31	SA	4.40	SA	4.04	A	4.25	SA	8
6. Oversees the implementation of the City or Municipal E-Waste Management Plan;	4.33	SA	4.32	SA	4.03	A	4.23	SA	9
7. Reviews every two (2) years or as the need arises the City or Municipal E-Waste Management Plan for purposes of ensuring its sustainability, viability, effectiveness and relevance in relation to local and international developments in the field of e-waste management;	4.46	SA	4.37	SA	4.34	SA	4.39	SA	1
8. Develops specific mechanics and guidelines for the implementation of the City or Municipal E-Waste Management Plan;	4.47	SA	4.34	SA	4.26	SA	4.36	SA	2.5
9. Recommends appropriate local government authorities specific measures or proposals for franchise or build-operate-transfer agreements with duly recognized institutions, to provide either exclusive or non-exclusive authority for the collection, transfer, storage, processing, recycling or disposal of municipal E-waste. The proposals shall take into consideration appropriate government rules and regulations on contracts, franchise and build-operate-transfer agreements;	4.37	SA	4.36	SA	4.22	SA	4.32	SA	5.5
10. Provides the necessary logistical and operational support to its component cities and municipalities;	4.31	SA	4.41	SA	4.25	SA	4.32	SA	5.5
11. Recommends measures and safeguards against pollution and for the preservation of the natural ecosystem;	4.02	A	4.32	SA	4.17	A	4.17	A	12
12. Coordinates the efforts of its component barangays in the implementation of the city or municipal E-Waste Management Plan.	4.06	A	4.30	SA	4.24	SA	4.20	SA	10.5
Overall Mean	4.30	SA	4.35	SA	4.22	SA	4.29	SA	

1.2. Waste Segregation

The composite assessment of the respondents on electrical-electronics waste disposal in terms of waste segregation in Queen's Row, Bacoor City are presented in Table 2.

Table 2. Composite Mean of Responses on Waste Segregation

CRITERIA	Barangay Officials		Staff		Homeowners		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
1. Provides for the residents a designated area and containers in which to accumulate source separated recyclable materials to be collected by the municipality or private center; and	4.40	SA	4.38	SA	4.24	SA	4.34	SA	1
2. Notifies the occupants of each building of the requirements of RA 9003 and the regulations promulgated pursuant thereto.	4.24	SA	4.33	SA	4.15	A	4.24	SA	4
3. Educate the residents regarding segregation schedule of collection of the electrical-electronic wastes materials	4.34	SA	4.41	SA	4.21	SA	4.32	SA	2
4. Disseminate information as to the schedule of collection of the electrical-electronics waste materials	4.31	SA	4.26	SA	4.25	SA	4.27	SA	3
Overall Mean	4.32	SA	4.35	SA	4.21	SA	4.29	SA	

Table 2 reveals a strong understanding of electrical-electronics waste segregation among barangay officials, staff, and homeowners in Queen's Row, Bacoor City. Respondents assessed various criteria related to waste segregation, with high levels of awareness indicated across the board. The top two criteria, both with a weighted mean of 4.34, are the provision of designated areas and containers for recyclable materials and the education of residents regarding segregation and collection schedules. This tie suggests a dual focus on both infrastructure and community education, both of which are crucial for effective waste segregation. Following closely, the dissemination of collection schedule information scored 4.27, and notifying building occupants of RA 9003 requirements scored 4.24, further supporting the overall high level of awareness. The overall weighted mean of 4.29 confirms that the community is strongly aware of e-waste segregation practices. This indicates that information dissemination regarding the separation of recyclables and the e-waste collection schedule is being effectively implemented. This finding aligns with Alam's (2015) research on e-waste management in the Philippines, which highlights the need for data collection and efficient management guidelines. Alam's study also points out that many households store obsolete electronic devices, suggesting a potential for a "Take Back Scheme" for items like personal computers, laptops, and cellular phones to encourage recycling and proper disposal. Such schemes could effectively bring these stored e-waste items into the proper disposal and recycling chain, addressing the issue of large amounts of e-waste remaining within households.

1.3. Collection and Transport of E-Wastes

The composite assessment of the respondents on electrical-electronics waste disposal in terms of waste segregation in Queen's Row, Bacoor City is presented in Table 3.

Table 3. Composite Mean of Responses on Collection and Transport of E-Waste

CRITERIA	Barangay Officials		Staff		Homeowners		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
1. All collectors and other personnel directly dealing with collection of waste shall be equipped with personal protective equipment to protect them from the hazards of handling wastes	4.43	SA	4.43	SA	3.85	A	4.24	SA	2
2. Necessary training shall be given to the collectors and personnel to ensure that the E-wastes are handled properly and in accordance with the guidelines pursuant to this Act	4.27	SA	4.14	A	4.07	A	4.16	A	3
3. Collection of E-waste shall be done in a manner which prevents damage to the container and spillage or scattering of E-wastes within the collection vicinity.	4.43	SA	4.55	SA	3.97	A	4.32	SA	1
Overall Mean	4.38	SA	4.37	SA	3.96	A	4.24	SA	

As stated in the table, the barangay officials, staff, and homeowner respondents in Queen's Row, Bacoor City generally assessed the presented criteria on the electrical-electronics waste disposal in terms of collection and transport of E-wastes, rank 1 is criterion 3 "collection of E-waste shall be done in a manner which prevents damage to the container and spillage or scattering of E-wastes within the collection vicinity" rated strongly aware as proven by the weighted mean value of 4.32; rank 2 is criterion 1 "all collectors and other personnel directly dealing with collection of waste shall be equipped with personal protective equipment to protect them from the hazards of handling wastes" rated strongly aware as strengthened by the weighted mean value of 4.24; rank 3 is criterion 2 "necessary training shall be given to the collectors and personnel to ensure that the E-wastes are handled properly and in accordance with the guidelines pursuant to this Act" rated aware as attained by the weighted mean value of 4.16. This affirms that the barangay officials, staff, homeowners of in Queen's Row, Bacoor City are strongly aware on the presented variables on the electrical-electronics wastes disposal in terms of collection and transport of E-wastes as evident by the overall weighted mean value of 4.24. As supported by Magasih and Schleup (2011) regarding e-waste in Tanzania which showed that the use of ICT equipment is still low in Tanzania compared to other countries in the world, but it is growing at a staggering pace. In the last decade for instance, the penetration rate of personal computers has increased by a factor of 10, while the number of mobile phone subscribers by a factor of 100. This implies that there will soon be an increasing growth of E-wastes stream as more and more ICT equipment reaches their end-of life. Hence, it is the right time to engage in addressing the problem of increasing e-waste volumes. Not addressing the fact of growing e-waste volumes bears the risk of a developing informal sector, with all its social and environmental drawbacks.

1.4. Recycling Program

The composite assessment of the respondents on electrical-electronics waste disposal in terms of recycling program in Queen's Row, Bacoor City is presented in Table 4.

As revealed by the data in table 4, on the assessment of the respondents on the electrical-electronics waste disposal in Queen's Row, Bacoor City in terms of recycling program, rank 1 is criterion 1 "measures providing economic incentives and assistance including loans and grants for the establishment of privately-owned facilities to manufacture finished products from post-consumer materials" rated as aware as confirmed by the weighted mean value of 3.85; rank 2 is criterion 3 "maintains a list of prospective buyers, establishing contact with prospective buyers and reviewing and making any necessary changes in collecting or processing the materials to improve their marketability" rated aware as affirm by the weighted mean value of 3.84; rank 3 is criterion 2 "guaranteed by the national and local governments to purchase a percentage of the output of the facility" rated aware as attained by the weighted mean value of 3.63.

Table 4. Composite Mean on Recycling Program in Queen's Row

	Barangay Officials		Staff		Homeowners		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
1. Measures providing economic incentives and assistance including loans and grants for the establishment of privately-owned facilities to manufacture finished products from post-consumer materials;	3.61	A	4.06	A	3.89	A	3.85	A	1
2. Guarantees by the national and local governments to purchase a percentage of the output of the facility;	3.78	A	3.41	A	3.71	A	3.63	A	3
3. Maintains a list of prospective buyers, establishing contact with prospective buyers and reviewing and making any necessary changes in collecting or processing the materials to improve their marketability.	3.72	A	4.22	A	3.59	A	3.84	A	2
Overall Mean	3.77	A	3.90	A	3.73	A	3.78	A	

Generally, this implies that barangay officials, staff, and homeowners from East, Central, and West in Queen's Row, Bacoor City are aware on electrical-electronics waste disposal in terms of recycling program as evidenced by the overall weighted mean value of 3.78. Chung and Suzuki (2008) confirmed that the three countries have constructed their respective E-wastes recycling systems based on EPR, but the details of each system differ significantly. This implies that it is essential that relevant existing conditions are to be understood, and challenges are clarified to effectively implement E-wastes recycling in developing countries. Then, the government is left with a choice between a manufacturer-centered recycling system and a commercial recycling company-centered recycling system should be made. Finally, regarding the general flow of E-wastes, a similar pattern is confirmed in the three countries. This indicates that despite the adoption of a system based on their economic or physical EPR, significant hidden flow in developing countries, attention should be paid to the relations between commercial recycling companies and manufacturers, particularly in terms consistent of e-waste collection stage.

The summary of the assessment of the respondents on the level of awareness on electrical-electronics waste disposal in Queen's Row, Bacoor City is presented in Table 5.

Looking at the summary table, the barangay officials' respondents from Queen's Row (East, Central, and West), Bacoor City rated strongly aware on variables 1, 2 and 3 "functions and responsibilities of concerned officials," "waste segregation," and "collection and transport of E-wastes" with their respective weighted mean values of 4.30, 4.32, and 4.38 respectively. However, they rated aware variable 4 "recycling program" with weighted mean value of 3.70. Thus, resulting to an overall composite weighted mean value 4.18 verbally interpreted aware

Table 5. Summary of the Assessment on the Level of Awareness on Electrical-Electronics Waste Disposal

Variables	Barangay Officials		Staff		Homeowners		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
1. Functions and responsibilities of concerned officials	4.30	SA	4.35	SA	4.22	SA	4.29	SA	1.5
2. Waste segregation	4.32	SA	4.35	SA	4.21	SA	4.29	SA	1.5
3. Collection and Transport of E-wastes	4.38	SA	4.37	SA	3.96	A	4.24	SA	3
4. Recycling program	3.70	A	3.90	A	3.73	A	3.78	A	4
Overall Mean	4.18	A	4.24	SA	4.03	A	4.15	A	

On the part of the staff respondents also from Queens' Row (East, Central, and West), Bacoar City they rated also variables 1, 2, and 3 strongly aware "functions and responsibilities of concerned officials," "waste segregation," and "collection and transport of E-wastes" with their respective weighted mean values of 4.35, 4.35, and 4.37. Meanwhile, they rated aware variable 4 which is "recycling program" with weighted mean value of 3.90. This mean value yielded an overall composite weighted mean value 4.24 verbally interpreted as strongly aware. On the other hand, the homeowners' respondents from Queen's Row (East, Central, and West), Bacoar City rated variables 1 and 2 strongly aware "functions and responsibilities of concerned officials" and "waste segregation" with their respective weighted mean values of 4.22 and 4.21. They rated aware on variables 3 and 4 "collection and transport of E-wastes" and "recycling program" with their respective weighted mean value of 3.96 and 3.73. This mean value yielded an overall composite weighted mean value 4.03 verbally interpreted strongly aware. Summarily, the barangay officials, barangay staff, and homeowners respondents from Queen's Row (East, Central, and West), Bacoar City generally assessed the variables presented on electrical-electronics waste disposal, rank 1.5 are variables 1 and 2 "functions and responsibilities of concerned officials" and "waste segregation" rated strongly aware with their composite weighted mean of 4.29; rank 3 is variable 3 "collection and transport of solid waste" rated strongly aware with weighted mean of 4.24; rank 4 is variable 4 which is "recycling program" rated aware with weighted mean of 3.78. The result indicate that the barangay officials, barangay staff, and homeowner respondents from Queen's Row (East, Central, and West), Bacoar City were aware on the presented variables on electrical-electronics waste disposal in terms of functions and responsibilities of concerned officials, waste segregation, collection and transport of E-wastes, and recycling program as evident by the overall composite weighted mean of 4.15. This further stressed by Lundgren (2012) in her study, "The Global impact of e-waste: Addressing the challenge" most waste management strategies are largely technical and are focused on environmental aspects, leaving out underlying social problems and relevant solutions. The ILO has the potential to bring a more holistic approach to waste management, contributing its expertise in labor. The ILO could work on social concerns and improve environmental management through building understanding of labor dynamics. Prior to intervention, it is important to study a country's labor dimensions on the ground to develop sound understanding of key issues. The ILO can intervene in a variety of ways, using technical assistance along with a host of social programs, and assist e-waste recyclers in both the informal and formal sectors. It can also share information through launching an E-wastes code of practice and publicizing best practices cooperate closely with other organizations and promote green jobs.

2. Significant difference on the assessment of the selected barangay officials, staff and homeowners in Queen's Row on the level of awareness on the electrical-electronics waste disposal

The result of mean comparison on the assessment of the barangay officials, barangay staff and homeowners in Queen's Row (East, Central and West), Bacoar City in the electrical-electronics waste disposal in terms of functions and responsibilities of concerned officials is presented in Table 6.

Table 6. Result of Mean Comparison in terms of Functions and Responsibilities of Concerned Officials

Source of Variation	SS	df	MS	F-ratio	Decision	Verbal Interpretation
Between	0.1041	2	0.052	4.5677	Reject H_0	Significant
Within	0.376	33	0.0114			

Critical value of F at .05 = 3.32

It could be gleaned by the result of the mean comparison among the barangay officials, barangay staff and homeowners in Queen's Row (East, Central and West), Bacoar City on electrical-electronics waste disposal in terms of functions and responsibilities of concerned officials, it obtain a computed F value of 4.5677 which found to be of greater value than the F critical value of 3.32 at five percent level of significant with 2 and 33 degree of freedom leading to the rejection of the null hypothesis of "there is no significant differences on the assessment of selected barangay official, barangay staff and homeowners on electrical-electronics waste disposal in terms of functions and responsibilities of concerned officials" Hence, interpreted significant. This result implies that the barangay officials, barangay staff and homeowners in Queen's Row (East, Central and West), Bacoar City does not concur with their perception on the variables presented on electrical-electronics waste disposal in terms of functions and responsibilities of concerned officials.

The result of mean comparison on the assessment of the barangay officials, barangay staff and homeowners in Queen's Row (East, Central and West), Bacoar City in the electrical-electronics waste disposal in terms of waste segregation are presented in Table 7.

Table 7. Result of Mean Comparison in Terms of Waste Segregation

Source of Variation	SS	df	MS	F-ratio	Decision	Verbal Interpretation
Between	0.0402	2	0.0201	5.6113	Reject H_0	Significant
Within	0.0323	9	0.0036			

Critical value of F at .05 = 4.26

Looking at the data in the table, it could be observed by the result of the mean comparison among the barangay officials, barangay staff and homeowners in Queen's Row (East, Central and West), Bacoar City on electrical-electronics waste disposal in terms of waste segregation, it obtain a computed F value of 5.6113 is greater than the F critical value of 4.26 at five percent level of significant with 2 and 9 degree of freedom leading to the rejection of the null hypothesis and verbally interpreted significant. Since, it failed to accept the null hypothesis, there is a strong indication that there is a significant difference on the assessment of selected barangay officials, barangay staff and homeowners on electrical-electronics waste disposal in terms of waste segregation. This result manifest that the barangay officials, barangay staff and homeowners in Queen's Row (East, Central and West), Bacoar City perceived different evaluations on the variables presented on electrical-electronics waste disposal in terms of waste segregation.

The result of mean comparison on the assessment of the barangay officials, barangay staff and homeowners in Queen's Row (East, Central and West), Bacoar City in the electrical-electronics waste disposal in terms of collection and transport of E-wastes are presented in Table 8.

Table 8. Result of Mean Comparison in Terms of Collection and Transport of E-Waste

Source of Variation	SS	df	MS	F-ratio	Decision	Verbal Interpretation
Between	0.3334	2	0.1667	7.6703	Reject H_0	Significant
Within	0.1304	6	0.0217			

Critical value of F at .05 = 5.14

As revealed in the table, that the result of the mean comparison among the barangay officials, barangay staff and homeowners in Queen's Row (East, Central and West), Bacoar City on electrical-electronics waste disposal in terms of collection and transport of E-wastes, it obtain a computed F value of 7.6703 is greater than the F critical value of 5.14 at five percent level of significant with 2 and 6 degree of freedom leading to the rejection of the null hypothesis and verbally interpreted significant. Since, it rejected the null hypothesis, there is a strong indication that there is a significant difference on the assessments of selected barangay officials, barangay staff and homeowners on electrical-electronics waste disposal in terms of collection and transport of solid waste. The result manifests that the barangay officials, barangay staff and homeowners in Queen's Row (East, Central and West), Bacoar City perceived different perspectives on the variables presented on electrical-electronics waste disposal in terms of collection and transport of E-wastes.

The result of mean comparison on the assessment of the barangay officials, barangay staff and homeowners in Queen's Row (East, Central and West), Bacoar City in the electrical-electronics waste disposal in terms of recycling program is presented in Table 9.

Table 9. Result of Mean Comparison in Terms of Recycling Program

Source of Variation	SS	df	MS	F-ratio	Decision	Verbal Interpretation
Between	0.0659	2	0.033	0.4614	Accept H_0	Not significant
Within	0.4285	6	0.0714			

Critical value of F at .05 = 5.14

As stipulated in table 9, it could be noted by the result of the mean comparison among the barangay officials, barangay staff and homeowners in Queen's Row (East, Central and West), Bacoar City on electrical-electronics waste disposal in terms of recycling program, it obtain a computed F value of 0.4614 is less than the F critical value of 5.14 at five (5) percent level of significance with 2 and 6 degree of freedom leading to the acceptance of the null hypothesis and verbally interpreted not significant. Since, it accepted the null hypothesis, there is a strong indication that there is no significant difference on the assessments of selected barangay officials, barangay staff and homeowners on electrical-electronics waste disposal in terms of recycling program. This shows that the barangay officials, barangay staff and homeowners in Queen's Row (East, Central and West), Bacoar City share common perceptions on the variables presented on electrical-electronics waste disposal in terms of recycling program.

The summary of the result of mean comparison on the assessments of the barangay officials, barangay staff and homeowners in Queen's Row (East, Central and West), Bacoar City in the electrical-electronics waste disposal is presented in Table 10.

Table 10. Summary Table on the Result of Mean Comparison

CRITERIA	F-ratio	Decision	Verbal Interpretation
1. Function and Responsibilities of concerned Officials	4.5677	Reject H_0	Significant
2. Waste segregation	5.6113	Reject H_0	Significant
3. Collection and Transport of E-wastes	7.6703	Reject H_0	Significant
4. Recycling program	0.4614	Accept H_0	Not Significant
Overall	4.5778	Reject H_0	Significant

Degree of freedom = 2, 9; Critical value of F at .05 = 4.26

It could be gleaned in the table, on the result of the mean comparison among the barangay officials, barangay staff and homeowners in Queen's Row (East, Central and West), Bacoor City on electrical-electronics waste disposal, the functions and responsibilities of concerned officials, waste segregation, and collection and transport of E-waste obtain a computed F value of 4.5677, 5.6113 and 7.6703, respectively, which all rejected the null hypothesis and verbally interpreted as significant. However, recycling program obtain a computed F value (0.4614) which is less than the critical value. Hence, accept the null hypothesis and verbally interpreted not significant. Thus, the obtain values yielded an overall computed F value of 4.5778 which resulted to the rejection of the null hypothesis and interpreted significant. This implies that the barangay officials, barangay staff and homeowners in Queen's Row (East, Central and West), Bacoor City does not concur with their perception on electrical-electronics waste disposal in terms of functions and responsibilities of concerned officials, waste segregation, collection and transport of E-wastes and recycling program. The findings further strengthened by the study of Namias (2013) that pictured despite the many reasons to recycle e-waste, U.S. recycling and recovery of E-wastes is limited due to: (1) insufficient collection (2) no federal legislation or policy mandating e-waste recycling (3) lack of recycling and recovery technologies and (4) illegal exports of hazardous E-wastes to developing countries where recycling processes pose serious risks to human and environmental health. To increase the e-waste recycling rate in the U.S. Federal Regulation is needed in a cohesive approach to E-wastes recycling. Federal regulation will provide the necessary structure and framework by setting mandatory recycling targets and establishing the implementation of financing and enforcement mechanisms for E-wastes collection and recycling. However, EPA is generally reluctant to tell State authorities should focus on the increased collection of e-waste through efforts geared towards convenience of collection and increased public awareness. Increasing the ease with which consumers can bring electronics to collection points, will contribute to collection growth rates.

3. Common electrical-electronic wastes disposed by the selected respondents in Barangay Queen's Row, Bacoor City

3.1. Household appliances

The assessment of the barangay officials on the household appliances disposal in Barangay Queen's Row, Bacoor City is presented in Table 11.

Table 11. Assessment of Barangay Officials on Household Appliances Disposal

Household Appliances	Frequency	Percentage	Rank
1. Electric fan	27	9	3.5
2. Airconditioning unit	9	3	13
3. Electric kettle	9	3	13
4. Refrigerators	24	8	8
5. Washing machine	27	9	3.5
6. Television	27	9	3.5
7. DVD Player	24	8	8
8. Rice cooker	27	9	3.5
9. Electric stove	9	3	13
10. Vacuum cleaner	9	3	13
11. Extension cord	21	7	10
12. Fluorescent lamp	27	9	3.5
13. Incandescent bulb	27	9	3.5
14. Radio	9	3	13
15. Compact Fluorescent Lamp	24	8	8
		100	

As indicated in the table, on the assessment of the barangay officials on the household appliances disposal in Barangay Queen's Row, Bacoor City, rank 3.5 or nine (9) percent are "electric fan," "washing machine," "television," "rice cooker,"

“fluorescent lamp,” and “incandescent bulb” with a frequency of 27; rank 8 or eight percent are “refrigerators,” “DVD players,” and “compact fluorescent lamp” with frequency of 8; rank 10 or seven (7) percent is “extension cord” with a frequency of 7; rank 13 or three (3) percent are “air-conditioning unit,” “electric kettle,” “electric stove,” “vacuum cleaner” and “radio” with a frequency of three (3). The assessment of the barangay staff on household appliances disposal Barangay Queen’s Row, Bacoar City are presented in Table 11.

On the assessment of the barangay staff on the household appliances disposal in Barangay Queen’s Row, Bacoar City, rank 2.5 or 9.05 percent are “electric fan,” “refrigerators,” “washing machine,” “television,” with a frequency of 60; rank 5.5 or 8.60 percent are “fluorescent lamp” and “incandescent bulb” with a frequency of 57; rank 8 or 7.24 percent are “DVD player,” “rice cooker,” and “extension cord” with a frequency of 48; rank 10.5 or 6.79 percent are “Air-conditioning unit” and “Compact Fluorescent Lamp” with a frequency of 45; rank 13 or 3.18 percent is “electric kettle” with a frequency of 21; rank 14 or 2.71 percent is “electric stove” with a frequency of 18; rank 15 or .90 percent is “vacuum cleaner” with a frequency of six (6).

Table 12. Assessment of Barangay Staff on Household Appliances Disposal

Household Appliances	Frequency	Percentage	Rank
1. Electric fan	60	9.05	2.5
2. Airconditioning unit	45	6.79	10.5
3. Electric kettle	21	3.18	13
4. Refrigerators	60	9.05	2.5
5. Washing machine	60	9.05	2.5
6. Television	60	9.05	2.5
7. DVD Player	48	7.24	8
8. Rice cooker	48	7.24	8
9. Electric stove	18	2.71	14
10. Vacuum cleaner	6	0.90	15
11. Extension cord	48	7.24	8
12. Fluorescent lamp	57	8.60	5.5
13. Incandescent bulb	57	8.60	5.5
14. Radio	30	4.52	12
15. Compact Fluorescent Lamp	45	6.79	10.5
		100	

The assessment of the homeowners on household appliances disposal in Barangay Queen’s Row, Bacoar City is presented in Table 13.

Table 13. Assessment of Homeowners on Household Appliances Disposal

Household Appliances	Frequency	Percentage	Rank
1. Electric fan	129	9.91	1
2. Airconditioning unit	42	3.23	14
3. Electric kettle	60	4.61	12
4. Refrigerators	90	6.91	9
5. Washing machine	105	8.06	6
6. Television	114	8.76	4
7. DVD Player	108	8.29	5
8. Rice cooker	99	7.60	8
9. Electric stove	45	3.46	13
10. Vacuum cleaner	18	1.38	15
11. Extension cord	78	5.99	10
12. Fluorescent lamp	123	9.45	3
13. Incandescent bulb	102	7.83	7
14. Radio	63	4.84	11
15. Compact Fluorescent Lamp	126	9.68	2
		100	

As revealed in the table, on the assessment of the homeowners on the household appliances disposal in Barangay Queen’s Row, Bacoar City, rank 1 or 9.91 percent is “electric fan” with a frequency of 129; rank 2 or 9.68 percent is “compact fluorescent lamp” with a frequency of 126; rank 3 or 9.45 percent is “fluorescent lamp” with a frequency of 123; rank 4 or 8.76 percent is

“television” with a frequency of 114; rank 5 or 8.29 percent is “DVD player” with a frequency of 108; rank 6 or 8.06 percent is “washing machine” with obtained frequency of 105; rank 7 or 7.83 percent is “incandescent bulb” with a frequency of 102; rank 8 or 7.60 percent is “rice cooker” with a frequency of 99; rank 9 or 6.91 percent is “refrigerators” with a frequency of 90; rank 10 or 5.99 percent is “extension cord” with a frequency of 78; rank 11 or 4.84 percent is “radio” with a frequency of 63; rank 12 or 4.61 percent is “electric kettle” with a frequency of 60; rank 13 or 3.46 percent is “electric stove” with a frequency of 45; rank 14 or 3.23 percent is “air-conditioning” with a frequency of 42; rank 15 or 1.38 percent is “vacuum cleaner” with a frequency of 18.

Based on the perception of the respondents, the following are seen to promote the adoption of E-waste management measures: importing countries regulation, internal and external pressures in the electronic industry, local E-waste initiatives and market conditions, geographical conditions, urban mining and price of metals, abundant cheap labor supply and the demand for the electronics industry to improve competitiveness. On the other hand, the different barriers that hinder the adoption of E-waste management measures are the absence of E-waste laws, non-adoption of the Basel Ban amendment, existing multilateral and bilateral agreements adopted by key trading countries, low environmental consciousness, perceived lack of enforcement of environmental laws, inadequate supply of domestic E-waste, and the competition between the formal and informal sector in the electronics market. The fundamental characteristic of the Philippine electronic industry, as being dominated by the semiconductor sector, is seen both as a driver and as a barrier to the adoption of E-waste management policies. The suggested policy direction is to develop the policy framework for E-waste management and weaken the different barriers identified. EPR has serious potential to be adopted in the country especially in the context of a take-back scheme.

3.2. Telecommunication Gadgets

The assessment of the barangay officials on telecommunication gadgets disposal in Barangay Queen’s Row, Bacoar City is presented in Table 14.

Table 14. Assessment of Barangay Officials on Telecommunication Gadgets Disposal

Telecommunication Gadgets	Frequency	Percentage	Rank
1. Computer unit	21	17.07	3.5
2. Tablet	27	21.95	1.5
3. Mobile phone	27	21.95	1.5
4. Printer	12	9.76	5
5. Fax machine	3	2.44	7.5
6. Scanner	9	7.32	6
7. Laptop	21	17.07	3.5
8. Landline phone	3	2.44	7.5
		100	

As manifested in table 14, on the assessment of the barangay officials on the telecommunication gadgets disposal in Barangay Queen’s Row, Bacoar City, rank 1.5 or 21.95 percent are “tablet” and “mobile phone” with a frequency of 27; rank 3.5 or 17.07 percent are “computer unit” and “laptop” with a frequency of 21; rank 5 or 9.76 percent is “printer” with a frequency of 12; rank 6 or 7.32 percent is “scanner” with a frequency of 9; rank 7.5 or 2.44 percent are “fax machine” and “landline phone” with a frequency of 3.

The assessment of the barangay staff on telecommunication gadgets disposal in Barangay Queen’s Row, Bacoar City is presented in Table 15.

Table 15. Assessment of Barangay Staff on Telecommunication Gadgets Disposal

Telecommunication Gadgets	Frequency	Percentage	Rank
1. Computer unit	51	17.71	2.5
2. Tablet	39	13.54	4.5
3. Mobile phone	57	19.79	1
4. Printer	39	13.54	4.5
5. Fax machine	9	3.14	8
6. Scanner	24	8.33	6
7. Laptop	51	17.71	2.5
8. Landline phone	18	6.25	7
		100	

As manifested in the table, on the assessment of the barangay staff on the telecommunication gadgets disposal in Barangay Queens' Row, Bacoar City, rank 1 or 19.79 percent is "mobile phone" with a frequency of 57; rank 2.5 or 17.71 percent are "computer unit" and "laptop" with a frequency of 51; rank 4.5 or 13.54 percent are "tablet" and "printer" with a frequency of 39; rank 6 or 8.33 percent is "scanner" with a frequency of 24; rank 7 or 6.25 percent is "landline phone" with a frequency of 18; rank 8 or 3.14 percent with a frequency of nine (9).

The assessment of the homeowners on telecommunication gadgets disposal in Barangay Queen's Row, Bacoar City is presented in Table 16. As stated in the table, on the assessment of the homeowner on the telecommunication gadgets disposal of Barangay Queens' Row, Bacoar City, rank 1 or 23.12 percent is "mobile phone" with a frequency of 120; rank 2 or 20.81 percent is "laptop" with a frequency of 108; rank 3 or 18.50 percent is "computer unit" with a frequency of 96; rank 4 or 16.76 percent is "tablet" with a frequency of 87; rank 5 or 8.09 percent is "printer" with a frequency of 42; rank 6 or 7.51 percent is "landline phone" with a frequency of 39; rank 7 or 2.89 percent is "scanner" with a frequency of 15; rank 8 or 2.31 percent is "fax machine" with a frequency of 12.

TABLE 16. Assessment of Homeowners on Telecommunication Gadgets Disposal

Telecommunication Gadgets	Frequency	Percentage	Rank
1. Computer unit	96	18.50	3
2. Tablet	87	16.76	4
3. Mobile phone	120	23.12	1
4. Printer	42	8.09	5
5. Fax machine	12	2.31	8
6. Scanner	15	2.89	7
7. Laptop	108	20.81	2
8. Landline phone	39	7.51	6
		100	

Alam (2015) emphasized in his paper entitled "The assessment of the of E-waste Management Generated from Cellular Phones, Laptops, and Personal Computers in the Philippines" to formulate and implement the guidelines for efficient e-waste management, the most immediate task is to collect actual data on the generation of e-waste including the importation and disposal of secondhand electronics. The data regarding the domestic e-waste generation per year is still very scanty. His study shows that there is a huge amount of e-waste still lying in the Filipino households that has not joined the e-waste disposal/recycle chain due to the storage of the obsolete models by the people. It suggests that the government can easily implement the "Take Back Scheme" with at least three electronic products, namely, personal computers, laptops, and cellular phones, to get these devices into the recycle chain and proper disposal.

4. CONCLUSION

The following conclusions are drawn based on the findings gathered from this research study.

The barangay officials, barangay staff, and homeowners' respondents from Queen's Row (East, Central, and West), Bacoar City generally assessed the four (4) variables presented on electrical-electronics waste disposal, that the "functions and responsibilities of concerned officials" and "waste segregation" was said to be rated strongly aware as well as "collection and transport of E-waste" rated strongly aware. However, "recycling program" is rated aware only. It can be concluded that the respondents from Queen's Row (East, Central, and West), City of Bacoar were aware on the presented variables on electrical-electronics waste disposal as evident by the overall composite weighted mean.

Generally, it implies that the barangay officials, barangay staff and homeowners in Queen's Row (East, Central and West), Bacoar City does not concur with their perception on electrical-electronics waste disposal in terms of functions and responsibilities of concerned officials, waste segregation, collection and transport of E-waste and recycling program. Thus, it only proves that the hypothesis is rejected and verbally interpreted as significant.

There is a strong evidenced that in the Barangays of Queen's Rows (East, Central, and West), Bacoar City, collected some common electrical electronics wastes from household appliances and telecommunications gadget, 21.95 percent are tablets and mobile phone, 17.07 percent computer unit and laptop, 9.91 percent is electric fan, 9.68 percent is compact fluorescent lamp, and 9.45 percent is fluorescent lamp.

Based on the findings of the study, an action plan was formulated and may be implemented.

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Research Article

BU-SKETCH Season 2: Supporting Dynamic Creativity and Showcasing Artistic Potentials

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ABSTRACT

Bicol University Supports Kids Enhanced Their Crafty Hands, a.k.a. **BU-SKETCH**, is a developmental extension program offered by the Bicol University Institute of Design and Architecture (BUIDeA) in collaboration with the United Architects of the Philippines, Daraga-Cagsawa Chapter (UAP-DCC). A creative platform countenances collaboration by facilitating cross-disciplinary engagements. Furthermore, it emphasizes the function of art as a connector of academic and professional activities, inspiring participants to look into novel views and creative methods. The study utilizes a qualitative research design in assessing the methodologies employed in organizing the BU-SKETCH Season 2, examining the experiences of student participants in developing their artistic abilities and evaluating the broader influences on the academic and professional landscape. Likewise, the study uses action research cycle by Lewin, which follows a continuous manner of planning, action, observation, and reflection that ensures an iterative enhancement in the BU-SKETCH project. The data collection methods comprise in-depth interviews, and surveys with faculty organizers, collaborators, and stakeholders. Additionally, observational and thematic analysis was conducted to identify the artistic growth among the participants and the impact of the activities. Coalescing the creativity and fun approach in artistic sketching and rendering with the planning and designing in the architectural context, the BU-SKETCH S2 delivers a distinctive experience-based learning that bridges the gap between art and architecture. Similarly, the findings of the study shall add to the continuing refinement of BU-SKETCH Project, thus highlighting the role of action research framework in sustaining dynamism and art-driven educational initiatives.

Keywords: Art and Architecture; Action Research; Collaboration; Experience-based learning; Extension Program

1. INTRODUCTION

The idea that art may help solve issues in science, technology, engineering, and math has just recently gained attention and support. Arts has the ability communicating to people that benefit science (Levy, 2024). Moreover, in pedagogy, art integration lets varied learners see the relation between the content and its application (NSTA, 2012, para. 1). Unlike in Architecture, art have long worked together in fostering creativity in expressing ideas and solving problems. Distinguishing the value of this connection, then advocating architecture through the arts in a way that kids will perceive it as a playful, engaging, age-appropriate, and process-focused form of art. The Bicol University Supports Kids Enhanced Their Crafty Hands or BU-SKETCH was formed as an extension program of Bicol University Institute of Design and Architecture (BUIDeA) in collaboration with the United Architects of the Philippines, Daraga-Cagsawa Chapter (UAP-DCC). Now in its season 2, BU-SKETCH continues to progress as an innovative platform that enables cross-disciplinary collaboration while underlining the significant function of art in linking academic and professional pursuits. It also hopes to fit with the motto, "*Artists of Today, Architects of Tomorrow.*" Subsequently, its objectives intended for the program's recipient are (a) to support them (especially those who are financially indigent) with the art materials needed to keep honing their skills and (b) to develop sensible demeanors that are necessary in life, such as self-confidence and tenacity. Additionally, its hands-on workshop serves as an avenue for knowledge sharing, mentoring and community building among involved faculty, architects and students. Generally, the extension program is led by the principle of action research, using Kurt Lewin's Action Research Cycle.

BU-SKETCH emphasizes art-integrated education among young learners that largely supports several United Nations Sustainable Development Goals (SDGs). However, SDG 4-Quality Education directly aligns it to the specific goal that is strengthening the efforts of preserving and conserving cultural heritage through arts. According to Zaidel (2018), in the past decades, a significant contributions made by arts has defined human culture, that resulted to what is meant by "culture." Moreover,

according to Kapferer (2014), for brands that also highlight their past, art has evolved into a means of elevating luxury to the forefront of contemporaneity.

Drawing support to the latter statement to what Bautista, Moreno-Núñez, Bull, Amsah, & Koh (2018) emphasizing education in arts is significant and has been consistently acknowledged since time immemorial by classical philosophers like Plato, Pythagoras, and Aristotle. Furthermore,

Art education is vital and is integral part of the societies' cultural heritage (Gadsden, 2008). Likewise, several research already provided support in the belief that art engagement truly contributes to the improvement of learning in all academic courses; arts also improves the process of learning and is the forces of all other forces as mentioned by (Curtis & Fallin, 2014). Moreover, arts offers other benefits like improved self-esteem, emotional expression, appreciation of diversity and the likes according to (Magsamen & Battro, 2011).

In Figure 1, BU-SKETCH offered three different series of art workshops, ranging from basic pencil rendering through intermediate pen rendering to advance watercolor rendering. Each sessions has a dedicated resource speaker coming from the pool of artist-architects of UAP-DCC. The workshops are not only for developing the participant's artistic abilities but also for building self-confidence through the mall venues, where they concurrently display their talents and at the same time raise their confidence in front of the public. This in turn benefits the mall itself because they too can promote their products through advertising and potential buyers of their tenants.



Figure 1. The BU-SKETCH's venues for the pencil, pen and watercolor rendering at SM City Legazpi, Ayala Malls and Gaisano / Pacific Mall, respectively (from left to right)

Despite championing in advocating architecture through the arts in a way that kids will perceive it as a playful, engaging, age-appropriate, and process-focused form of art, there's still remain a need to systematically gauge the methodologies employed in organizing and implementing the BU-SKETCH extension program in order to increase its long-term effectivity and sustainability. Thus, this study aims to assess the approaches used by the program in terms of participant engagement, instructional styles and program sustainability. Looking at this lens, the study seeks to determine the strengths, challenges and areas for improvement to contribute to the continual improvement of BU-SKETCH as it evolved into impactful avenue for dynamism and creativity learning program.

2. MATERIALS AND METHODS

The study utilizes a qualitative research methods guided by Kurt Lewin's action research cycle in assessing the BU-SKETCH S2 methods in their organization and implementation. The program followed three-part, all-day seminar-workshop scheme that follows the acronym "ART" that stands for Aptitude Test, Rendering, and Training.

The Aptitude Test phase involves 30 participants undergoing pre-sketching test to identify their baseline skills. In addition, informed consent was secured during the student participant's profiling. The Review phase involves evaluating the programs' strengths, weaknesses and opportunities towards sustainable program implementation, this involves semi-structured interviews, observational analysis and document reviews. The repetitive action research cycle permits the continual enhancement of the program. The Training phase consisted of three hands-on sessions that formally commenced on November 19, 2022 with Pencil rendering session, followed by Pen Rendering on February 25, 2023, and watercolor rendering on March 25, 2023. Each sessions incorporated practical but creative exercises, dynamic artworks presentations and enriching feedbacks. The conduct of the culminating mural painting activity as part of "Brigada Eskwela" at Anislag National High School on June 3, 2023 marked its official conclusion.

The study fully observed voluntary participation, informed consent and confidentiality all throughout.

3. RESULTS AND DISCUSSIONS

The official premiere of BU-SKETCH's second season took place on November 19, 2022, in SM City Legazpi. It is still in its second season even though the first season ended in 2018–2019 and the subsequent season began in 2019–2020, primarily due to the pandemic, which led to the suspension of the whole season. However, during pandemic, the facilitators made it possible to employ the plan, act, observe and reflect on the organization and implementation program that leads to continual improvement of the program.

BU-SKETCH S2 offers an upgrade version of the previous season. In table 1, shows the modified action research cycle, that incorporated two more phase – (1) implement and (2) Collaborate and improve. Moreover, its implementation was planned and demonstrated careful collaboration with the partner industries and collaborators. Applying some of the best and most effective practices from the first season paved the way for the second season's flow to be even more fluid. Likewise, it was made sure that the suggestions made in the first season's final report were included, which led to a more substantial and carefully thought-out extension program.

Table 1. BU-SKETCH S2 – Modified Action Research Cycle

SKETCH Elements	Phase	Description	Modified Action Research Cycle
<i>S – Series of Sessions</i>	Plan	Structured plans of BU-SKETCH S2 starts with objectives, identifying steamed speakers and organizing logistics	Planning: The pandemic paved the way in structuring the program's objectives that led to a more adaptive, well-planned and coordinated events and sessions
<i>K- Knowledge Acquisition</i>	Act	Instructional materials (IM) and expert-led demonstrations during the training sessions that engage students in active learning	Action: The actual implementation of BU-SKETCH S2 on November 22, 2022
<i>E- Experienced-based Learning</i>	Observe	Presentation of the new learnings gained during the hands-on exercises given to participants plus the given real-time feedback	Observation: The engagement and learning of student's participants as monitored by the architects-facilitators
<i>T- Technology Transfer</i>	<i>Implement</i>	Participants are provided with IM and some useful tips and strategies to independently apply their skills and ensuring knowledge transfer	Implementation: The transfer of knowledge into practical application
<i>C- Collaboration</i>	<i>Collaborate and Improve</i>	Collaboration of BUIDeA with UAP-DCC, and other linkages / partners contributes to the refinement of the program.	Refinement: The incorporation of feedback for the continuous improvement of the program
<i>H- Homework</i>	Reflect	Take-home exercises are given to reinforce learning. Outputs are	Reflection: The evaluation and assessment of progress made by

reviewed in subsequent sessions to evaluate retention and application. the students' participants through feedback

The ART Phases: Aptitude Test + Review + Training

Aptitude Test or Pre-Sketching Phase was given to 30 students-participants prior to formal lecture of the 1st session, which is Pen Rendering. The purpose is to gather a baseline data of the participants. Likewise, profiling the participants was done and ensuring their respective informed consent. Furthermore, the test resulted to diverse artworks in terms of style, techniques and approaches. Although, the study observed the limited time allotted during these phases, which in a way hinders the participants to finished their sketches. In Table 2, shows the details and reviews on the training sessions in which the study examined the notable activities and remarks happened.

Table 2. Assessment of the Pencil, Pen and Watercolor Rendering Sessions

	Pencil Rendering	Pen Rendering	Watercolor Rendering
Attendees	30 student participants; BUIDeA Facilitator Faculty & selected Students; UAP-DCC members; Mall Administrators as invited guest	30 student participants; BUIDeA Facilitator, Faculty & selected Students; UAP-DCC members; Mall Administrators as invited guest	30 student participants; BUIDeA Facilitator, Faculty & selected Students; UAP-DCC members; Mall Administrators as invited guest
Notable Activities	1. Distribution of Art Materials, T-shirts and other Supplies 2. Getting to know more about the participants 3. Assigning seating arrangements based on GAD safe workplace 4. Smooth facilitation even if there is a typhoon signal 5. Active participation prior, during and after the program	1. Started and ended on the scheduled time 2. Allowing the participants to sit on their preferred place, which in turn generated a more lively and candid discussion and output presentations 3. Flexible facilitation of the program	1. Started a bit late but ended up just in time 2. Distribution of watercolor materials and loot bag with simple snacks inside 3. The participants was arranged strategically around the resource speaker to generally optimized the lecture 4. Flexible facilitation of the program allowing some audio advertisement of the mall taglines
Notable Remarks	1. The venue was conducive for learning even though there was a poor sound system 2. The resource speaker provided substantial lecture and comments	1. The venue was slightly not conducive for learning however it has a good sound system 2. The resource speaker provided a comprehensive lecture with insightful tips and techniques	1. The venue was good and conducive for learning because it was a bit secluded from the mall goers and the sound system was great. 2. The resource speaker provided a plenty of sample works

3. The overall activity session was a success

3. The overall activity session was a success

during his lecture and gave some insightful tips

3. The overall activity was a success

Sustainability

Uses plastic bottles and food containers

Use of water dispenser and personal tumblers

Use of water dispenser and personal tumblers and reusable cutlery

4. CONCLUSION

BU-SKETCH Season 2, as an extension program of BUIDeA, continues to serve as a creative platform that merges art and architecture through structured, experience-based learning. This study assessed the methodologies employed in organizing and implementing the program, highlighting its structured approach—progressive workshops, instructional material development, expert-led training, and collaborative learning. The use of the modified action research cycle ensured continuous improvement by integrating planning, implementation, observation, and reflection at each stage. Findings suggest that the systematic methodology of BU-SKETCH S2 effectively enhances participants' artistic skills while fostering confidence, responsibility, and collaboration. The program's structured sessions, interactive discussions, and take-home assignments contributed to skill reinforcement and personal growth. Furthermore, the incorporation of sustainability practices, such as responsible waste management during sessions, underscores the program's commitment to environmental consciousness—an aspect that could be further explored in future implementations. Beyond skill development, BU-SKETCH also plays a role in promoting interdisciplinary engagement and cultural enrichment through mural painting activities, which transform public spaces into sources of inspiration and artistic expression. The program methodology, which includes expert mentorship and collaborative activities, not only benefits student participants but also provides professional growth opportunities for facilitators and resource speakers. By continuously refining its approach through feedback and iterative improvements, BU-SKETCH demonstrates the potential of structured action research in sustaining effective art-driven educational initiatives. Future iterations of the program can build upon these findings to further enhance learning methodologies, expand interdisciplinary collaborations, and explore long-term impacts on participants' artistic and professional development.

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Research Article

Up Into the Sky: A Comparative Study on the Different Marketing Strategies of Selected Commercial Airlines in the Philippines

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ABSTRACT

The airline industry in the Philippines is characterized by intense competition, where effective marketing strategies are crucial to influencing consumer behavior and sustaining profitability. This study conducts a comparative analysis of the marketing strategies of three major commercial airlines in the Philippines—Cebu Pacific, Philippine Airlines, and AirAsia Philippines—using the 5Ps model: Product, Price, Place, Promotion, and People. Employing a quantitative research design, data were gathered from 383 respondents through online surveys utilizing stratified sampling to ensure demographic representation. The responses were statistically analyzed using Two-Way ANOVA to determine significant differences in perceived marketing effectiveness across the three airlines. Findings revealed that Cebu Pacific consistently outperformed its competitors, receiving the highest mean scores across all five marketing components. Philippine Airlines displayed moderate performance, while AirAsia Philippines lagged in all strategic dimensions. The significant F-values and p-values (<0.0001) confirm substantial differences among the airlines' marketing approaches. Cebu Pacific's success is attributed to its competitive pricing, strong promotional strategies, and customer-focused service delivery. Based on the results, the study recommends that Cebu Pacific sustain its low-cost model while enhancing customer service and digital engagement. Philippine Airlines should capitalize on premium offerings and loyalty programs, targeting business travelers, while AirAsia Philippines is advised to undergo digital transformation and innovate its service strategies to remain competitive. These insights provide practical implications for airline executives, tourism stakeholders, and marketers aiming to refine strategy in a volatile aviation landscape.

Keywords: Airline Industry, Marketing Strategies, 5Ps Model, Customer Satisfaction, Aviation

1. INTRODUCTION

The airline industry is a rapidly expanding and competitive sector where companies continually innovate to attract and retain customers. Central to this effort are marketing strategies that encompass creating, communicating, delivering, and exchanging offerings that provide value to customers, clients, partners, and society. Airlines employ diverse marketing methods, including advertising, public relations, social media campaigns, and loyalty programs, to reach their target audiences. However, challenges such as cost control, demand management, and maintaining high service standards persist, making the evaluation of marketing strategies critical to understanding the industry's growth and future trajectory.

This study aims to assess the performance of three major airlines in the Philippines by analyzing the effectiveness of their marketing strategies. Using the 5Ps Model—Product, Price, Place, Promotion, and People—it evaluates whether any airline or specific strategy significantly outperforms others. The findings will guide recommendations for each airline, emphasizing strategies to improve market share and customer satisfaction.

The research offers valuable insights to travel agencies, airline companies, and industry stakeholders. It can help travel agencies optimize airline marketing strategies and enable airlines to innovate, attract more customers, and foster loyalty. Additionally, this study contributes to understanding consumer preferences and marketing dynamics, offering a foundation for future promotional plans for the Philippine airline industry.

The study focuses on the top three airlines in the Philippines, which collectively dominate the country's air traffic. This narrowed scope facilitates in-depth analysis but may not fully capture the relationship between demographic factors and marketing strategies, as smaller airlines are excluded. Despite this limitation, the depth of analysis outweighs the drawback, ensuring

meaningful insights into the marketing strategies of the leading players.

According to Lohmann and Spasojevic (2018), the airline industry is challenging, with lower returns on investment compared to other sectors. To address this, airlines adopt innovative marketing strategies that reduce costs and boost profitability. These strategies, influenced by global liberalization, often mirror those of international corporations rather than local businesses, highlighting the industry's complexity and dynamism.

As noted by Student Life Saviour (2022), the evolving competitive landscape has made marketing a shared responsibility across all levels of an organization. Factors such as customer service, performance, and corporate social responsibility influence consumer decisions. Reviewing and analyzing these strategies is crucial for tourism research and provides actionable insights for both the airline and tourism sectors. This study, therefore, aims to examine the marketing strategies of leading airlines in the Philippines to understand their effectiveness in achieving corporate objectives.

Sengur and Sengur (2021) highlighted the dramatic evolution of the airline market, particularly among low-cost carriers. Their analysis of passenger trends and profitability offers insights into the industry's operational environment and decision-making processes. This study draws on such insights to contextualize its findings within the broader trends shaping the Philippine airline market.

2. MATERIALS AND METHODS

This study employed a quantitative research design guided by a review of related literature. Data collection was conducted online using Google Forms to ensure broad reach and efficiency. The primary research question, "Which airline is performing better in marketing and through which strategies?" framed the study. A stratified sampling method was used to ensure representation across demographic categories such as age, gender, and economic status. Participants, who were required to have recently traveled on one of the three airlines under study, were recruited through social media. A total of 383 respondents were divided based on the airline they used and randomly assigned to evaluate their experience based on one of the five Ps of marketing: Product, Price, Place, Promotion, and People.

A Two-Way Analysis of Variance (ANOVA) was used to analyze the data, as it is particularly suited for comparing multiple conditions without relying on a control standard. This method was chosen because it actively contrasts all groups and accommodates unequal sample sizes. The study's matrix of conditions. ANOVA was applied to identify significant differences between the airlines and the marketing strategies, revealing which airline excelled and which strategies were most effective. This analytical approach offered comprehensive insights into performance variations and provided a foundation for actionable recommendations. A Two-Way Analysis of Variance (ANOVA) was used to analyze the data, as it is particularly suited for comparing multiple conditions without relying on a control standard. This method was chosen because it actively contrasts all groups and accommodates unequal sample sizes. The study's matrix of conditions. ANOVA was applied to identify significant differences between the airlines and the marketing strategies, revealing which airline excelled and which strategies were most effective. This analytical approach offered comprehensive insights into performance variations and provided a foundation for actionable recommendations..

3. RESULTS AND DISCUSSIONS

The study examined the perceptions of employees in manufacturing firms regarding the application of The study involved 383 respondents, predominantly residing in Metro Manila (48.83%), followed by Central Luzon (25.85%) and CALABARZON (25.33%). The majority of respondents were aged between 18 to 28 years old (34.73%), with declining representation across older age groups.

In terms of gender, 42.56% were female, while a notable 21.15% opted not to disclose their gender. The most common income range was ₱11,000–₱30,000 (24.02%), followed closely by ₱31,000–₱50,000 (23.50%).

Regarding occupations, the largest proportion of respondents were employed in Business Process Outsourcing, IT, and related services (20.89%), followed by the Real Estate Industry (14.10%). Other industries such as Construction, Manufacturing, E-commerce, and Tourism were also represented, but in smaller percentages.

The diversity in respondents' demographic and occupational backgrounds provides a comprehensive perspective on the study's findings.

MARKETING STRATEGY	AIRLINE	MEAN	SD	F VALUE	P VALUE	DECISION
PEOPLE	Air Asia	6.06	0.48	1145.4	0.0001	Reject null
	Cebu Pacific	9.73	0.68			
	Philippine Airlines	7.98	0.57			
	Overall	8.26	1.59			
PRICE	Air Asia	6.05	0.44	863.76	0.0001	Reject null
	Cebu Pacific	9.68	0.79			
	Philippine Airlines	7.89	0.7			
	Overall	8.2	1.62			
PROMOTION	Air Asia	6.07	0.53	1154.8	0.0001	Reject null
	Cebu Pacific	9.73	0.69			
	Philippine Airlines	8.01	0.51			
	Overall	8.27	1.59			
PRODUCT/SERVICE	Air Asia	6.07	0.53	1154.8	0.0001	Reject null
	Cebu Pacific	9.73	0.69			
	Philippine Airlines	8.01	0.51			
	Overall	8.27	1.59			
PLACE	Air Asia	6.06	0.48	905.2	0.0001	Reject null
	Cebu Pacific	9.67	0.85			
	Philippine Airlines	8.02	0.47			
	Overall	8.24	1.59			
OVERALL RATING	Air Asia	6.05	0.44	1428.5	0.0001	Reject null
	Cebu Pacific	9.73	0.67			
	Philippine Airlines	8.07	0.38			
	Overall	8.28	1.57			

The table presents a detailed comparison of the marketing strategies of three airlines—Cebu Pacific, Philippine Airlines, and AirAsia Philippines—across the 5Ps of marketing (People, Price, Promotion, Product/Service, and Place), as well as the Overall Rating.

Cebu Pacific consistently emerged as the top-performing airline in all categories, achieving the highest mean scores across all marketing strategies, with an overall rating of 9.73. This indicates that respondents perceived Cebu Pacific as significantly more effective in its marketing efforts compared to the other two airlines.

Philippine Airlines showed moderate performance, with mean scores ranging between 7.89 and 8.07. While its ratings were lower than Cebu Pacific's, it still outperformed AirAsia Philippines in every category.

AirAsia Philippines received the lowest ratings, with mean scores around 6.05, indicating that its marketing strategies were less favorably perceived by respondents.

The statistical analysis shows a significant difference between the airlines' ratings for each marketing strategy, as evidenced by high F values and p-values less than 0.05. This confirms that Cebu Pacific's ratings were significantly higher than those of both Philippine Airlines and AirAsia Philippines. Philippine Airlines' scores, while moderate, were also statistically different from both competitors.

Overall, the findings highlight Cebu Pacific's superior performance in all aspects of marketing, particularly excelling in the areas of promotion and product/service. Meanwhile, AirAsia Philippines' lower scores suggest key areas for improvement to enhance its competitiveness in the market.

4. CONCLUSION

The results of this study align with much of the existing literature, particularly that of Bautista (2022), which underscores the significant role marketing plays in the performance and public perception of airline companies. This is especially true in the post-pandemic "new normal," where consumers are increasingly discerning, demanding high-quality and safe services from companies that visibly prioritize customer care.

However, the findings—especially those related to AirAsia Philippines—contradict the optimistic projections made by

Putri, Putra, and Agustanton (2021), who predicted a strong recovery for AirAsia following the launch of its new mobile service app. AirAsia Philippines performed poorly in this study, particularly when compared to Cebu Pacific.

This study extends the work of Doria, DeVera, and Parel (2017), who highlighted the strengths of Cebu Pacific's marketing strategies and predicted the airline's continued growth and market dominance. In the post-pandemic era, airlines and other businesses must navigate a rapidly evolving marketing landscape, where every aspect of service is scrutinized by an increasingly vigilant and demanding consumer base.

The competitive advantage now lies with airlines that invest in robust marketing strategies, listen to customer feedback, and foster strong relationships with the public, particularly through social media. According to the survey results, Cebu Pacific is the preferred airline among customers in the Philippines. However, Philippine Airlines (PAL) and AirAsia Philippines each have their strengths and weaknesses and must address these issues to develop more effective marketing strategies.

Cebu Pacific should maintain and enhance its position as a low-cost carrier (LCC)—a reputation that has helped attract a wide customer base. To preserve its competitive edge, the airline should continue offering affordable fares and value-for-money packages while also expanding its route network to include more domestic and international destinations. Furthermore, Cebu Pacific should focus on improving its customer service and overall experience, including providing more responsive customer support, streamlining the online booking and check-in process, and enhancing in-flight amenities for greater comfort.

To boost its brand, Cebu Pacific should invest in targeted advertising campaigns aimed at its core customer segments. The airline should also leverage technology to improve operational efficiency and the customer experience—such as using data analytics to better understand customer needs, developing mobile apps to simplify the booking and travel process, and implementing self-service kiosks at airports.

Philippine Airlines, in turn, should focus on upgrading its fleet and amenities to offer a more premium experience. The airline should specifically target business travelers by providing tailored offerings such as priority check-in, lounge access, and flexible fare options. Additionally, PAL should establish a strong loyalty program that rewards repeat customers with incentives such as free flights, upgrades, and discounts. Digital marketing and customer engagement strategies—including social media, email marketing, and online advertising—should be embraced to reach and engage its target audience effectively.

For AirAsia Philippines, the focus should be on continuing innovation and digital transformation. The airline should explore the use of new technologies such as artificial intelligence and machine learning to enhance its operations and improve the overall customer experience.

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Research Article

Absolute and Relative Investing Income of Cryptocurrency Investors: An Assessment on Risk Management Knowledge and Practices

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ABSTRACT

Cryptocurrency has emerged as a disruptive force in the financial landscape, presenting both alternative investment opportunities and emergent risks to investors seeking financial stability. This study investigates the relationship between cryptocurrency investors' income and their risk management knowledge and practices, addressing a gap in understanding on whether traditional risk management principles apply to highly volatile digital assets. Employing a descriptive-correlational design, the research gathered data through an online survey of 400 Filipino cryptocurrency users of a certain cryptocurrency platform. Findings indicate a significant positive relationship between risk management knowledge and practices and relative cryptocurrency income ($p=.001$, coefficient = $+.173$), suggesting that cryptocurrency portfolios are susceptible to effective risk management and do not simply result from mere fluctuations in market value. However, no significant relationship was found between risk management and absolute income. Nevertheless, absolute income was significantly different across respondents when grouped by age, employment status, income bracket, and investment exposure. This implies that older, gainfully employed investors from higher income brackets and greater investment exposure tended to achieve higher absolute gains, likely due to access to greater initial capital.

Keywords: Cryptocurrency, Investment, Investors, Risk Management, Income, Financial Stability, Socioeconomic Factors

1. INTRODUCTION

The rise of cryptocurrency has revolutionized the financial landscape, offering new alternatives to conventional investments while also posing significant risks. The accounting and finance sector has faced challenges in the face of such rapid developments, not least because of the multi-faceted nature of crypto assets, which function simultaneously alike with currencies, financial instruments and intangible assets.

As these digital assets continue to gain popularity in the increasingly online world of the global pandemic, investors face challenges in managing risks associated with market volatility, regulatory uncertainties, and security concerns. While traditional wisdom posits that understanding risk management strategies in cryptocurrency investment is essential for informed decision-making leading to profitable positions, whether this is applicable to the highly volatile crypto asset environment remains to be seen. To this end, this study examines the relationship between the income of cryptocurrency investors, and their risk management knowledge and practices.

This study is significant as it provides valuable insights into cryptocurrency investment and risk management. Individual investors both prospective and current, especially those seeking financial stability in contemporary financial environments may glean from the research offers a deeper understanding of the impact of risk management strategies on income. This study is also significant for non-individual participants in the cryptocurrency markets. Financial institutions can utilize the study's insights to better understand cryptocurrency investment behavior, which may influence their service offerings and risk assessment strategies. Moreover, regulatory bodies, such as the Bureau of Internal Revenue and other government agencies, can leverage the study's

findings to develop appropriate tax policies and regulatory frameworks for cryptocurrencies. Finally, this research contributes to the academic discourse on cryptocurrency, investment strategies, and risk management, serving as a valuable resource for future researchers and scholars exploring this evolving financial landscape.

2. MATERIALS AND METHODS

This study employs a descriptive-correlational design to analyze factors influencing cryptocurrency income and risk management strategies. Adapted from various previous studies, it examines investment factors such as demographic profiles, investment profiles, investment exposure, risk tolerance, and risk management knowledge and practices. The research uses a quantitative approach to examine the relationship between the key variables, applying appropriate statistical methods to identify relationships and trends within the data.

For purposes of this study, demographic profiles include age, gender, educational attainment, employment status, and annual income. Investment profile includes amount of capital, source of capital and income from cryptocurrency. Respondents were classified as having exceptional exposure, high exposure, moderate exposure, or low exposure based on their previous investment history. Respondents were also classified as risk aggressive, risk balanced, or risk moderate based on their risk tolerance. Significant differences in cryptocurrency income were examined across these different groupings.

Cryptocurrency income under this study is understood in two senses: (1) absolute income, which refers to gains from cryptocurrency measured in Philippine peso (PHP); and (2) relative income, which refers to gains measured as a percentage of the respondent's initial capital. Risk management knowledge and practice is quantitatively expressed as an absolute score and a relative score as percentage of maximum possible score based on responses, to facilitate analysis against income.

A combination of convenience and snowball sampling was used due to COVID-19 limitations. The study targeted Filipino users of a certain Philippine cryptocurrency trading platform, estimating a sample size of 400 respondents using Slovin's formula with a $\pm 5\%$ margin of error, in the years of study 2021-2022.

Data collection was conducted via online survey questionnaires for cost-effectiveness and accessibility despite physical limitations during the global pandemic. Respondents were invited through direct links, and referrals were used to expand participation. The survey questionnaire underwent validation by academic experts and pilot test respondents, scoring a "Very Valid" rating based on relevance, clarity, and ease of administration. Reliability testing was also conducted which yielded a Cronbach's alpha of 0.936.

Descriptive statistical methods such as arithmetic mean, frequency distribution, and percentage were applied to assess the profiles of the respondents. Prior to applying correlation tests, data was subjected to Kolmogorov-Smirnov test the assumption of normality. As the tested data did not follow the normal distribution, Spearman Rho Correlation was used to evaluate relationships between cryptocurrency income and risk management scores. Prior to testing significant differences across groups, data was also pre-tested using Levene's Test. Where the grouped data was found to be homogenous, one-way ANOVA alone was used to determine significant differences in cryptocurrency income across groups. Where the grouped data was found to be heterogeneous, one-way ANOVA was used in conjunction with robust tests of equality of means. Specifically, Brown-Forsythe test was used to confirm when significant differences were detected by ANOVA to account for skewness of data. Games-Howell test was used post-hoc to determine where significant differences occurred in the groups.

The study adhered to ethical standards, ensuring respondent confidentiality and compliance with data privacy laws. Participation was voluntary, and informed consent was obtained before data collection. The researchers ensured maintaining integrity, objectivity, and independence throughout the study.

3. RESULTS AND DISCUSSIONS

The demographic profile of respondents provides critical insight into the characteristics of cryptocurrency investors. Most respondents were young adults, indicating that cryptocurrency investment is more prevalent among younger generations. In terms of gender distribution, there was a near-equal representation of male and female investors, suggesting that interest in cryptocurrency investment is not significantly gender-biased. Educational attainment was predominantly at the tertiary level, reflecting a well-educated investor base. Employment status varied, with a significant portion of respondents engaged in full-time work, followed by self-employed individuals and students, highlighting the diverse economic backgrounds of investors. Income levels showed a wide range, with a notable concentration in middle-income brackets. Investment experience also varied, with most respondents having moderate exposure to cryptocurrency markets. Overall, the demographic findings suggest that cryptocurrency investors tend to be young, well-educated, and employed, with varying degrees of investment exposure and risk tolerance.

Savings was predominantly used to finance cryptocurrency investments, followed by salaries and allowances. However, there were no respondents who used debt to finance cryptocurrency investments (margin traders). Most respondents had only 1-year previous investment experience in cryptocurrency markets but had 5-year previous investment experience in other financial markets. Furthermore, most respondents had moderate exposure had moderate risk tolerance.

Across respondents, the average initial investment in cryptocurrency was 164,552 PHP. The maximum absolute income reported by respondents was 10,500,000 PHP while the minimum was a loss of approximately 45,000 PHP. The maximum relative income reported by respondents was approximately +7000% while the minimum was a loss of approximately 93%. On average, the absolute income of respondents was 146,128 PHP and the average relative income of respondents was 109% of initial capital.

In terms of risk management knowledge and practices, respondents scores showed a strong sense of risk management (mean = 3.121316, standard deviation = 0.8677632) with special emphasis on considering platform transaction fees, executing stop loss orders, and holding long positions for speculation.

Pretesting through Kolmogorov-Smirnov test revealed that absolute income ($p < 0.001$) and relative income ($p < 0.001$) data is not normally distributed. Pretesting through Levene's test based on mean also showed that age ($p < 0.001$), gender ($p < 0.001$), educational attainment ($p < 0.001$), employment ($p < 0.001$), income bracket ($p < 0.001$), investment exposure ($p < 0.001$) and absolute risk tolerance ($p < 0.001$) data had heterogeneous variances, while capital source ($p = 0.147$) and relative risk tolerance ($p = 0.158$) data had homogeneous variances.

Significant findings are summarized as follows:

Variable Analyzed	Test Used	Significant Finding	p-value
Relative Income v. Risk Management Score	Correlation Test	Significant Positive Relationship	$p = .001$ coefficient = +.173
Absolute Income v. Age	One Way ANOVA; Brown-Forsythe	Significant Difference	ANOVA: $p < .0001$ B.-F.: $p < .0001$
Absolute Income v. Employment	One Way ANOVA; Brown-Forsythe	Significant Difference	ANOVA: $p < .0001$ B.-F.: $p < .0001$
Absolute Income v. Income Bracket	One Way ANOVA; Brown-Forsythe	Significant Difference	ANOVA: $p = .004$ B.-F.: $p = 0.31$
Absolute Income v. Investment Exposure	One Way ANOVA; Brown-Forsythe	Significant Difference	ANOVA: $p < .0001$ B.-F.: $p < .0001$
Absolute Income v. Absolute Risk Tolerance	One Way ANOVA; Brown-Forsythe	Significant Difference	ANOVA: $p < .0001$ B.-F.: $p < .0001$

Correlation test via Spearman Rho showed that there is no significant relationship between risk management score and absolute income ($p = .248$), but there is a significant positive relationship between risk management score and relative income ($p = .001$, coefficient = +.173).

No significant differences were detected in absolute income when respondents are grouped by gender, education, capital source, and relative risk tolerance. Meanwhile, no significant differences were detected in terms of relative income whether respondents were grouped by age, gender, education, employment, income bracket, capital source, investment exposure, absolute risk tolerance and relative risk tolerance.

Post hoc-tests via Games-Howell reveal that the differences in absolute income existed in age groupings between the younger and older groups (18-26 vs. 36-44 age brackets; 18-26 vs. 54-62 age brackets; 27-35 vs. 54-62 age brackets; and 36-44 vs.

54-62 age brackets). Post-hoc tests also showed differences in absolute income also existed in employment groupings between employed and unemployed groups (self-employed vs. students; self-employed vs. unemployed; and private employees vs. students), and across lower to middle income brackets (0-250,000 PHP vs. 250,000-400,000 PHP; and 0-250,000 PHP vs. 400,000-800,000 PHP). Absolute income was also shown to be significantly different across all groupings by investment exposure (low, moderate, high and exceptional), but only in some groups of absolute risk tolerance (risk aggressive vs. risk moderate; risk aggressive vs. risk balanced).

4. CONCLUSION

The findings of this study establish that risk management knowledge and practices have no significant relationship with absolute income from cryptocurrency. Furthermore, respondents show significant differences in absolute income in terms of age, employment, income bracket, investment exposure and relative risk tolerance. Taking these findings together, it is evident that the absolute income of an investor is a mere result of the pre-existing conditions of the investor. Those who are older, gainfully employed, belonging to a higher income tax bracket, and possess more previous investment exposure and measured risk tolerance naturally have the upper hand in generating more income from cryptocurrency investments simply because they have access to more initial capital.

On the other hand, a positive and significant relationship of risk management knowledge and practices with relative income suggests that cryptocurrency gains are not the mere result of market volatility, blind speculation and fluctuations in value. In other words, as risk management knowledge and practice increase, cryptocurrency income measured as a percentage of initial capital also increases. The findings imply that cryptocurrency portfolios are susceptible to risk management techniques. Despite the inherent volatility of the market, the act of managing a cryptocurrency portfolio is not outside the realm of possibility.

Overall, this study underscores the importance of risk management in cryptocurrency investments and provides a foundation for future research exploring additional factors influencing investment success in digital asset markets. Future researchers may consider analyzing the role of other key variables found in this study, particularly age, employment, income bracket, investment exposure and risk tolerance. Longitudinal studies, comparative studies in different locales, as well as replication studies outside of the environment of the COVID-19 pandemic may also be considered to verify the findings of the study also apply in different contexts.

Financial institutions may also consider studying cryptocurrency in a perspective similar to other investments. Together with regulators and policymakers, financial institutions may begin looking into the possibility of integrating cryptocurrencies into the mainstream financial system. In relation to this, the Bangko Sentral ng Pilipinas, the Securities and Exchange Commission and Bureau of Internal Revenue, should jointly look into the regulation so that cryptocurrency gains may be properly reported and disclosed, and the whole of Philippine society may benefit from the value generated by cryptocurrency transactions, not only a select few.

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Research Article

Knowledge Gap in Applying Philippine Accounting Standard 2 (Inventories) Across Manufacturing Concerns in the Southern Manila District

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ABSTRACT

Philippine Accounting Standard (PAS) 2 governs the valuation and presentation of inventories, a crucial line item in the financial statements of manufacturing businesses. Despite the established framework, manufacturing firms in the Southern Manila District face challenges in implementing the standard, leading to discrepancies in financial reporting. This study examines the expectation gap between the perceived application and actual compliance of these businesses with PAS 2, particularly in inventory valuation and disclosure. Employing a quantitative approach, the study utilizes statistical analysis to assess discrepancies based on employees' academic attainment, job titles, and work experience. The findings reveal a significant knowledge gap in the application of PAS 2, indicating that while employees may understand the theoretical principles, practical implementation remains inconsistent. However, compliance with disclosure requirements appears to be better understood, suggesting that firms prioritize regulatory reporting over valuation accuracy. The study highlights the necessity of enhanced training programs and stricter regulatory oversight to bridge this knowledge gap and improve adherence to PAS 2. Strengthening compliance measures can lead to more accurate financial reporting, fostering transparency and informed decision-making within the manufacturing sector. By identifying key areas of misunderstanding and implementation challenges, this research provides valuable insights for policymakers, regulatory bodies, and industry stakeholders aiming to enhance financial reporting standards in the Philippines.

Keywords: Inventory Valuation, PAS 2 Compliance, Manufacturing Industry, Expectation Gap, Financial Reporting, Knowledge Gap

1. INTRODUCTION

Directly influencing the accuracy of financial statements and decision-making processes in businesses, Philippine Accounting Standard (PAS) 2 provides guidelines on the recognition, measurement, and disclosure of inventories to ensure consistency and transparency in financial reporting. However, despite the established regulatory frameworks, many manufacturing firms in the Southern Manila District face challenges in fully implementing PAS 2, leading to an expectation gap between theoretical application and actual compliance.

This expectation gap arises due to several factors, including employees' academic qualifications, job roles, and levels of experience in accounting and finance. A lack of comprehensive understanding of PAS 2's requirements can result in misstatements in financial reports, affecting business performance assessments and regulatory compliance. Moreover, inventory mismanagement can distort financial results, influencing business strategies and external stakeholder confidence.

Existing literature highlights that while large corporations often have structured training programs and regulatory oversight, small and medium-sized enterprises (SMEs) may struggle with compliance due to limited resources and expertise. Studies suggest that the knowledge gap among employees, particularly in SMEs, can lead to inconsistencies in inventory valuation methods, such as FIFO (First-In, First-Out), weighted average cost, and net realizable value assessments.

This study aims to examine the expectation gap between perceived and actual compliance with PAS 2 in the manufacturing

industry of the Southern Manila District. Through statistical analysis, the research will evaluate how employees' educational backgrounds, job positions, and work experience influence their understanding and application of PAS 2. The findings will help identify areas for improvement, emphasizing the need for enhanced training programs and stronger regulatory enforcement to ensure accurate financial reporting and transparency.

This study also aims to contribute valuable insights for manufacturing businesses, accounting professionals, and regulatory bodies, addressing potential challenges in applying PAS 2 and ensuring improved compliance with inventory disclosure standards.

By addressing these gaps, this study contributes to the broader discourse on accounting standard compliance, financial accuracy, and decision-making within the manufacturing sector.

2. MATERIALS AND METHODS

Due to the financial nature of the subject matter, the study employs a descriptive quantitative research design to assess the perceived application and compliance of manufacturing companies in the Southern Manila District with Philippine Accounting Standard 2 (PAS 2). The research methodology is partially adapted from Daraghma (2018), which investigated the expectation gap in applying IAS 2 (Inventories). The study primarily focuses on identifying discrepancies between the perceived and intended application of PAS 2 by analyzing responses from employees handling inventories in manufacturing firms. To achieve this, the research examines differences based on highest academic attainment (Bachelor's, Master's, or Doctorate), job title (Financial Manager, Internal Auditor, or Accountant), and length of work experience (1–10 years, 11–20 years, or more than 20 years).

Data was gathered through an online survey questionnaire, distributed via social media platforms, Telegram, LinkedIn, and email. The questionnaire was derived from Daraghma's (2018) study and includes 23 items, structured into four sections: demographics, application of PAS 2, and compliance with disclosure requirements under PAS 2. Responses were measured using a 7-point Likert scale, with 1 representing "Strongly Disagree" and 7 representing "Strongly Agree". The instrument's reliability was confirmed through Cronbach's alpha, with values of 90.0% for inventory accounting policy application and 91.6% for compliance with disclosure requirements.

The respondents were selected through purposive sampling, specifically maximum variation sampling, which ensures diversity in professional backgrounds while maintaining relevance to the study. The population was based on the Annual Survey of Philippine Business and Industry (ASPBI) 2023, which reported 25,279 manufacturing establishments in the country (Philippine Statistics Authority, 2023). To determine an appropriate sample size, Slovin's formula was applied with a 10% margin of error and a 95% confidence level, yielding a final sample size of 100 respondents. Eligible participants were Filipino professionals aged 18 and above, handling inventories for manufacturing businesses with gross sales exceeding ₱3,000,000.

To ensure statistical validity, the study performed assumption tests before conducting analyses. The Kolmogorov-Smirnov test revealed that both dependent variables (Application of PAS 2 and Compliance with Disclosure Requirements) were not normally distributed ($p < .001$). Levene's Test for Homogeneity of Variances showed that while some groups met the assumption of equal variances, others did not, requiring adjustments in statistical techniques. As such, the study employed Welch's ANOVA, One-Way ANOVA, and Kruskal-Wallis H test, based on whether the assumptions of normality and homogeneity were met.

The data collection process involved several stages. This began with respondent acquisition, wherein the researchers sent survey invitations to eligible professionals in the manufacturing industry. This was followed by data retrieval from the respondents, whereafter responses were compiled and verified. The process was reiterated until the target sample size was met. Finally, the collected responses were subjected to data analysis, applying the statistical methods mentioned above.

The researchers ensured compliance with ethical research standards. Respondents were informed of the study's purpose, scope, and objectives before participating. A written consent form was obtained, guaranteeing their confidentiality, anonymity, and right to withdraw at any time. Data privacy was upheld by securing all responses and using them solely for research purposes. Additionally, the online survey was designed to be user-friendly, including an audio version of questions for visually impaired participants.

3. RESULTS AND DISCUSSIONS

The study examined the perceptions of employees in manufacturing firms regarding the application of inventory accounting policies and methods under PAS 2, as well as their knowledge of compliance with disclosure requirements. The demographic profile revealed that the majority of respondents hold a Bachelor's degree (88%), work as Accountants (60%), and have 1–10 years of experience (70%).

Regarding perceptions of PAS 2 application, respondents partially agreed (MW = 4.82, SD = 2.13), suggesting moderate familiarity with inventory accounting policies. The highest-rated item was the application of the lower of cost or fair market value approach (MW = 5.18, SD = 2.14), while respondents were indifferent to whether NRV is disallowed for market value measurement (MW = 4.38, SD = 2.14).

For knowledge of compliance with disclosure requirements, respondents agreed overall (MW = 5.91, SD = 1.32), demonstrating a strong understanding of disclosure regulations. The highest-rated item was the adoption of accounting policies in inventory measurement (MW = 6.14, SD = 1.36), while the lowest-rated was the reversal of a write-down to NRV (MW = 5.72, SD = 1.41).

Statistical tests revealed significant differences in perceptions when grouped by highest academic attainment and job title, but not by work experience. Specifically, those with a Bachelor's degree had lower understanding of PAS 2 application, while those with a Master's degree had the highest knowledge of compliance requirements. Similarly, Accountants reported a lower understanding of PAS 2 application than Financial Managers and Internal Auditors. However, no significant differences were found in either PAS 2 application or compliance knowledge when grouped by work experience.

Variable	Grouping Variable	Statistical Test	p-value	Decision	Interpretation
Application of PAS 2	Highest Academic Attainment	Kruskal-Wallis H	0.026	Reject H_0	Significant
Compliance with Disclosure		Kruskal-Wallis H	0.004	Reject H_0	Significant
Application of PAS 2	Job Title	Welch's ANOVA	0.007	Reject H_0	Significant
Compliance with Disclosure		Kruskal-Wallis H	0.284	Fail to Reject H_0	Not Significant
Application of PAS 2	Work Experience	One-Way ANOVA	0.093	Fail to Reject H_0	Not Significant
Compliance with Disclosure		Kruskal-Wallis H	0.184	Fail to Reject H_0	Not Significant

These findings suggest that educational background and job role play a role in understanding PAS 2, whereas work experience does not significantly affect perceptions. This highlights the importance of formal education and training programs in improving compliance and application of inventory accounting policies in manufacturing firms.

4. CONCLUSION

The study examined employees' perceptions of the application of inventory accounting policies under PAS 2 and their knowledge of compliance with disclosure requirements in manufacturing firms. Findings revealed that while respondents had moderate familiarity with PAS 2 application, they demonstrated a stronger understanding of compliance requirements. Significant differences were observed based on academic attainment and job title, with Master's degree holders showing higher compliance knowledge and Accountants displaying lower understanding of PAS 2 application. However, work experience did not significantly affect perceptions, indicating that education and job roles play a more crucial role in shaping knowledge of inventory accounting.

Based on these findings, it is recommended that companies implement targeted training programs to improve employees' understanding of PAS 2, particularly for Accountants. Encouraging further education through scholarships or tuition support can also enhance compliance knowledge. Tailored training based on job roles, standardized compliance procedures, and regular assessments should be introduced to ensure consistent application of inventory accounting policies. By adopting these measures, manufacturing firms can strengthen compliance, improve financial reporting accuracy, and enhance overall inventory management practices.

Financial institutions may also consider studying cryptocurrency in a perspective similar to other investments. Together with regulators and policymakers, financial institutions may begin looking into the possibility of integrating cryptocurrencies into the mainstream financial system. In relation to this, the Bangko Sentral ng Pilipinas, the Securities and Exchange Commission and Bureau of Internal Revenue, should jointly look into the regulation so that cryptocurrency gains may be properly reported and disclosed, and the whole of Philippine society may benefit from the value generated by cryptocurrency transactions, not only a select few.

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Research Article

Project-based Lessons in Teaching and Learning Biodiversity

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ABSTRACT

The study aimed to develop and evaluate Project-Based Lessons in Biodiversity for Grade 8 asynchronous learners at Daraga National High School, integrating them into the Rotation Model of Blended Learning. Specifically, it sought to determine the features of effective project-based lessons, assess student-created outputs demonstrating 21st-century skills, and evaluate the effectiveness of these lessons in enhancing content knowledge, values, and attitudes. Using a descriptive research method, qualitative data were gathered through expert evaluations, student journals, interviews, focus group discussions, and attitude checklists. Eleven experts, trained in the Project-Based Approach, validated the lessons and instruments, while forty Grade 8 students participated in the implementation. Findings indicated that the developed lessons were student-centered, contextualized, collaborative, and incorporated differentiated tasks. They enabled experiential learning, real-world connections, and the use of accessible materials. Students worked in groups with assigned roles, enhancing teamwork and responsibility. Differentiated tasks accommodated diverse learning abilities, fostering independent learning. Student outputs, such as species collages, biodiversity maps, and explainer videos, demonstrated critical thinking, communication, collaboration, and creativity. The lessons were highly effective in improving content knowledge, as well as fostering values like stewardship, accountability, and honesty, alongside positive attitudes such as perseverance and curiosity. The study concluded that the developed project-based lessons aligned with best practices in student-centered learning and significantly contributed to skill and value development. It recommended expanding project-based lessons to other science topics and grade levels, integrating them across curricula, and conducting further studies for continuous improvement.

Keywords: Project-based lessons; Biodiversity education; Blended learning; 21st-century skills development; Rotation model, Effective teaching strategies; Student-centered learning

1. INTRODUCTION

The COVID-19 pandemic disrupted daily activities, including education, prompting the Philippine government to suspend physical classes and adopt remote learning to ensure safety. This shift led to challenges in delivering quality education, particularly in basic education, addressed by the Department of Education's Basic Education Learning Continuity Plan (BE-LCP). The implementation of various flexible learning modalities, including distance and hybrid learning, aimed to continue education despite the pandemic's restrictions.

At Daraga National High School, the transition from face-to-face learning to online and hybrid modalities was a significant change, requiring extensive planning and adjustments. Technological advances, such as online learning platforms and digital tools, played a vital role in enabling education to continue. Hybrid learning, a blend of traditional methods and technology, emerged as an effective solution, allowing students flexibility in their learning experience. This approach promotes critical 21st-century skills such as collaboration, communication, and creativity.

Project-Based Learning (PBL) is an effective pedagogical approach that supports the development of these skills. It fosters student-centered, collaborative, and contextualized learning, where students engage in meaningful projects over extended periods. This study focuses on the use of Project-Based Lessons to teach biodiversity in Grade 8, an area where students previously exhibited low mastery. The research aims to explore how project-based lessons in biodiversity can enhance student understanding of scientific concepts, as well as their values and attitudes, in a hybrid learning environment.

Statement of the Problem

This study developed Project-based lessons for teaching and learning biodiversity in the context of hybrid learning delivery modalities. Specifically, it aimed to answer the following sub-problems:

1. What Project-based lessons in biodiversity may be developed with the following features:
 - a. Student-centered
 - b. Contextualized
 - c. Collaborative
 - d. Using differentiated tasks
2. What are the outputs created by the students that demonstrated:
 - a. Critical thinking
 - b. Communication
 - c. Collaboration
 - d. Creativity
3. How effective are the developed Project-based lessons in the development of students'
 - a. Content knowledge
 - b. Values and attitudes

The study sought to assess the effectiveness of the developed Project-based lessons in improving students' understanding of biodiversity, enhancing their 21st-century skills, and fostering positive values and attitudes. By using a hybrid learning approach, this research aimed to evaluate how well these lessons could facilitate meaningful learning in the context of the pandemic and beyond.

2. MATERIALS AND METHODS

The study employed a descriptive research design and highly qualitative method research approach with highly qualitative procedures to gather results to answer the problems presented using descriptive and thematic analysis methods. This research methodology is suitable to this study since it allows the researcher to seek in-depth phenomena in a natural setting. Since the natural setting of this study is affected by the current situation where there are no face-to-face classes yet, the chosen methodology focused on the direct experience of the respondents during their teaching-learning experience using project-based lessons. The chosen methodology is particularly suitable for this study, as it allows for an in-depth analysis of student experiences in a natural setting, which is vital for understanding the nuances of learning in an asynchronous, non-face-to-face environment. Given the constraints imposed by the ongoing pandemic, the research focused on students' direct experiences with project-based learning, using various qualitative tools to explore the impact of the lesson plans.

To answer the research questions, descriptive analysis was employed to summarize the students' experiences with the developed project-based lessons. Additionally, thematic analysis was used to identify recurring themes related to students' content knowledge, skills, values, and attitudes developed through the lessons. This process involved gathering data from several sources, including focus group discussions (FGDs), semi-structured interviews, checklists, surveys, and reflective journals. These qualitative data were analyzed to uncover deeper insights into the students' learning processes and outcomes.

Sources of Data

The primary data sources for this study were the outputs of a group of Grade 8 students from Daraga National High School, specifically those who participated in asynchronous classes during the school year 2021-2022. These learners, who were enrolled in an online and offline modality due to the pandemic, served as the main subjects of the study. Data collection involved multiple instruments:

- Focus Group Discussions (FGDs) and semi-structured interviews with students provided qualitative insights into their experiences and perceptions of the Project-based lessons.
- Checklists, values and attitudes surveys, student logs, and exit tickets were employed to assess the students' content knowledge, 21st-century skills development, and the values and attitudes exhibited throughout the learning process.
- Students' journal entries were another key data source, capturing students' reflective thoughts and experiences as they engaged with the project-based lessons. These journals documented the students' learning journey over several weeks, allowing for an analysis of how their understanding of biodiversity evolved.

Additionally, data were gathered from expert evaluations of the Project-based lessons and the students' outputs, which further enriched the findings. Secondary sources, including books, academic journals, and online resources, were consulted to provide context and support for interpreting the findings.

Respondents

The study employed purposive sampling, where the researcher selected participants based on specific characteristics relevant to the study. In this case, the respondents were 40 Grade 8 students enrolled in the asynchronous modality at Daraga National High School for the academic year 2021-2022. These students were selected because they represented a diverse range of learners who had chosen the online learning format due to the pandemic, and were expected to have varying levels of engagement with the subject matter. The learners were selected based on their ability to access online resources and participate in the online lessons, as they had the necessary devices and internet connectivity.

The decision to focus on Grade 8 students was made because they are typically at a developmental stage where they are learning new concepts in science, such as Biodiversity, and have limited prior exposure to the topic. Given that the students had not received in-depth instruction on Biodiversity in previous school years due to the disruption caused by the pandemic, their responses were critical for understanding how Project-based lessons could effectively address gaps in their knowledge.

In addition to the student respondents, the researcher sought the assistance of eleven Project-based learning experts and ten subject teachers (including Science and other subject teachers) to validate the developed project-based lessons and assess students' outputs. These experts were selected based on their expertise in creating and delivering Project-based learning activities. Their feedback on the lesson plans ensured the lessons were relevant, engaging, and aligned with best practices in pedagogy. Furthermore, the teacher assessors evaluated the students' projects to determine if they demonstrated 21st-century skills and appropriate values and attitudes.

Instruments

The data collection process utilized multiple instruments, all designed to capture various aspects of student learning and experience. These tools were carefully selected and validated by experts to ensure their reliability and relevance for the study. The following instruments were used:

1. Project-based Lessons Validation Tool

This tool was designed to evaluate the developed lessons against key principles of effective Project-based learning. Adapted from the work of Gina Basmayor (2019), this validation tool helped the researcher assess whether the lessons effectively fostered the development of 21st-century skills among students. It contained a range of indicators focused on the design, implementation, and expected outcomes of Project-based lessons.

2. Student's Journal

Each student was asked to maintain a journal throughout the duration of the study. The journal consisted of 8 reflective prompts related to the students' experiences with the Project-based lessons. It captured their thoughts on the lesson content, teamwork, challenges faced, and skills developed. The journals were submitted weekly and were used to gauge the students' understanding of the material, including the enhancement of their content knowledge, values, and attitudes. Students completed four journal entries corresponding to the four Project-based lessons conducted.

3. Interview Guide Questions

The semi-structured interview was used to gather in-depth information on students' personal experiences with the Project-based lessons. The interview guide consisted of six open-ended questions that allowed the researcher to probe deeper into students' reflections on the lessons, challenges they faced, and how the lessons helped them understand the concept of biodiversity. The interview was conducted in Tagalog to ensure that the students could easily articulate their responses.

4. Focus Group Discussion (FGD) Guide Questions

Two focus groups were formed. The first group consisted of 10 students per subgroup, and the second group comprised 10 teacher assessors. The purpose of the FGDs was to capture collective insights on the effectiveness of the Project-based lessons and to identify common themes regarding students' learning experiences. The student FGD was guided by questions that aimed to explore their engagement with the lessons, while the teacher FGD focused on evaluating students' learning outcomes, such as their 21st-century skills, understanding of biodiversity, and exhibited values and attitudes.

5. Scientific Values and Attitudes Checklist

This checklist was used to assess the development of scientific values and attitudes among students during the Project-based lessons. It included a set of core values derived from the Science curriculum, which helped the researcher measure the extent to which these values were fostered through the lessons.

6. Student's Lesson Log and Exit Ticket

The Student's Log and Exit Ticket were designed to assess students' understanding of the content after each lesson. The Exit Ticket contained six questions related to the lesson on biodiversity, prompting students to reflect on the key concepts they learned and how they applied them in the project. The Lesson Log also helped track their progress and provided insights into their

self assessment of the learning experience.

7. 21st Century Skills Rubrics

This rubric was used to evaluate the students' project outputs based on their demonstration of 21st-century skills such as critical thinking, collaboration, creativity, and communication. The rubric was adapted from the Buck Institute for Education, with modifications to ensure its relevance to the learning objectives of the study. The rubrics were validated by experts and provided a standardized way to assess the students' performance on the projects.

3. RESULTS AND DISCUSSIONS

This study aimed to develop project-based lessons focused on Biodiversity, evaluating their effectiveness in fostering student engagement and learning. The lessons addressed key features: student-centeredness, contextualization, collaboration, and differentiated tasks. These lessons were designed to cultivate critical thinking, communication, collaboration, and creativity among students, and assess their development in both content knowledge and values/attitudes.

The study was grounded in Constructivist Theory, emphasizing that learners construct knowledge through active engagement, and Transactional Distance Theory, focusing on the importance of communication in remote learning environments. The four project based lessons covered: the concept of species, energy flow in ecosystems, biogeochemical cycles, and human impacts on the environment.

Key Findings:

1. Features of the Project-Based Lessons:
 - o Student-Centered: The lessons encouraged active student involvement, allowing them to choose learning approaches and use technology to produce outputs. These lessons were engaging, fostering higher student participation and interest.
 - Contextualized: The lessons incorporated real-world examples, making the content relatable to the students' local environment and everyday experiences, such as local biodiversity and environmental issues.
 - Collaborative: Group work was a major feature of the lessons, promoting teamwork and role-based collaboration. Students worked together to complete tasks, enhancing their learning through shared efforts.
 - Differentiated Tasks: The lessons provided varied tasks, catering to students' individual abilities, encouraging autonomy and personalized learning approaches.
2. Outputs Demonstrating 21st Century Skills:
 - o Critical Thinking: Outputs like biodiversity maps, species collages, and models of energy transfer demonstrated students' ability to analyze, synthesize, and evaluate information.
 - Communication: Students showcased communication skills through various outputs, such as species photo albums, explainer videos, and vlogs, integrating multimedia tools effectively.
 - Collaboration: Group projects such as the creation of energy transfer models and mini-documentaries showed students' ability to work together, organize tasks, and respect each other's contributions.
 - Creativity: Outputs such as models, vlogs, and collages were assessed for originality, value, and style, demonstrating students' creative abilities.
3. Effectiveness of the Lessons:
 - o Content Knowledge: The lessons effectively deepened students' understanding of biodiversity. Students reported enjoying the project-based approach, which allowed them to learn the material actively and cooperatively.
 - Values and Attitudes: The lessons were successful in developing essential values such as openness, stewardship, accuracy, and accountability. Students also demonstrated improved attitudes, including perseverance, curiosity, responsibility, and critical thinking. Other positive attributes like cooperation, patience, and respect were also noted.

The developed project-based lessons align with the K-12 Science curriculum of the Department of Education (DepEd) and were modified to suit the current blended learning modality, which includes limited face-to-face sessions. These lessons incorporate a rotation approach to address the challenges of remote learning while ensuring that the content and performance standards are met. The lessons are designed with the understanding that effective science teaching must consider cognitive, affective, and psychomotor factors in learning. Additionally, the social learning aspect of students is taken into account due to the absence of face-to-face instruction. Each lesson is structured around specific learning competencies derived from DepEd's Most Essential Learning Competencies (MELC). The lessons are guided by essential, unit, and content questions that foster critical thinking and ensure alignment with the learning objectives.

The lessons focus on higher-level thinking skills and are student-centered, contextualized, and collaborative. They

encourage the development of 21st-century skills such as critical thinking, communication, collaboration, and creativity. The students will work on micro-outputs either individually or in groups, with opportunities for peer and teacher feedback.

Designed for rotational blended learning, the lessons include synchronous online sessions with the teacher as a facilitator and asynchronous activities accessed through a Facebook group. The students will collaborate digitally or in person (with limited faceto-face interactions), balancing individual tasks to promote self-reliance and group tasks to enhance social interaction and learning from peers.

The lessons also emphasize differentiated tasks, allowing students to choose their outputs based on their skills and resources, ensuring they can engage meaningfully with the material. The project-based format offers opportunities for students to interact socially and develop positive values, making the learning experience more relevant and engaging despite the challenges of remote learning during the pandemic.

Ultimately, the project-based lessons were designed to bridge the gap created by the lack of face-to-face instruction and foster student collaboration, critical thinking, and creativity while keeping the focus on meeting the learning standards.

Table 1. Outputs Created by the Students Demonstrating the 21st Century Skills

Lesson Number/Title	Critical thinking	Communication	Collaboration	Creativity
1: Concept of Species	Biodiversity map- The students were able to analyze and interpret the data that they have gathered to compute for the biodiversity index Species collage, Photo album, Visual organizer- the students were able to conceptualize and organize the species according to hierarchical level of organization	Species photo album, species collage, biodiversity map: The students communicated with each other their ideas and knowledge about the tasks. They were also able to present their outputs through digital presentation.	Species photo album, species collage, biodiversity map. The students worked together in creating the outputs. They have worked their part in individual tasks and at the same time helped each other in the group tasks in preparing the projects.	Species photo album, species collage- the students created photo albums and species collage using indigenous and/or recycled materials.
2: Energy Transfer	Energy transfer model (food web, food chain, energy pyramid, pyramid of numbers, pyramid of biomass model - the students were able to analyze the contributions of each organism in each trophic level. They were also able to explain the effects of more producers and less consumers and vice versa.	Energy transfer model (food web, food chain, energy pyramid, pyramid of numbers, pyramid of biomass model- the students presented through google meet their energy transfer model with accuracy.	Energy transfer model (food web, food chain, energy pyramid, pyramid of numbers, pyramid of biomass model- each group was able to contribute in creating their energy transfer model through helping each other.	Energy transfer models (food web, food chain, energy pyramid, pyramid of numbers, pyramid of biomass model-the energy transfer model were made using local, indigenous and recycled materials. The outputs also display student imagination in creating their outputs

3: Biogeochemical Cycles	Tigsik, rawit dawit, explainer video- the students were able to apply what they have learned about biogeochemical cycles in creating a tigsik or rawit-daw explaining the different biogeochemical processes and explain the connections of each cycle to each other.	Tigsik, rawit dawit, Explainer video-the students presented and explained thoroughly the processes involved in the different biogeochemical cycles	Explainer video – the students helped each other in listing the organisms and identifying the roles that they play in the biogeochemical cycle. They also helped each other in creating the video.	Explainer video – students were able to create a very engaging and artistic explainer videos
4: Human Impacts on the Environment	Open letter, Mini-documentary, Vlog, – the students were able to explain the impacts of the human activities to biodiversity and suggest ways on how they can contribute	Interview, Mini-documentary, Vlog – the students interviewed their neighbors, teacher, and barangay officials about the human impacts on the environment and the different threats to biodiversity. They were also able to create vlogs that convey the message of taking care of the environment.	Mini-documentary, Vlog – the students helped each other in creating the outputs.	Mini-documentary, Vlog – the students created a vlog in a very creative manner and presentation

4. CONCLUSION

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

1. Development and Validation of Project-Based Lessons: Four project-based lessons in teaching and learning biodiversity were successfully developed by the researcher. These lessons, which were aligned with the Most Essential Learning Competencies (MELC) as prescribed by the Department of Education (DepEd), were validated by experts in the field of science education and project-based learning. The developed lessons were designed with key pedagogical features, namely, being student-centered, contextualized, collaborative, and incorporating differentiated tasks. These features ensured that the lessons catered to diverse learning needs and encouraged active engagement, critical thinking, and cooperation among students.
2. Student Outputs Demonstrating 21st Century Learning Skills: The outputs produced by the students as a result of engaging with the project-based lessons effectively demonstrated various 21st-century learning skills, including critical thinking, communication, collaboration, and creativity. Notable outputs included species photo albums, biodiversity maps, species collages, energy transfer models, tigsik, rawit-dawit, explainer videos, open letters, mini-documentaries, vlogs, and tiktok videos. These outputs not only displayed the students' ability to think critically about biodiversity but also showcased their skills in communicating complex ideas, collaborating with peers, and employing creative approaches to express their learning.
3. Effectiveness of Project-Based Lessons in Enhancing Content Knowledge and Values: The developed project-based lessons were found to be highly effective in promoting students' content knowledge as well as their values and attitudes. The lessons facilitated students' ability to learn and construct their understanding of biodiversity through hands-on activities, peer interactions, and teacher guidance. Additionally, the project-based approach helped students develop important personal and social values, particularly patience, responsibility, and helpfulness, as they worked collaboratively on various tasks and shared knowledge with their peers.

Recommendations

Based on the conclusions drawn from this study, the following recommendations are proposed:

1. **Development of Additional Project-Based Lessons in Science:** It is recommended that more project-based lessons be developed in various areas of the science curriculum. These lessons should integrate the essential features identified in this study—student-centered, contextualized, collaborative, and differentiated tasks. By incorporating these elements into future lessons, educators can create learning environments that promote deeper engagement and understanding, while addressing the diverse learning needs of students.
2. **Assessment of 21st Century Learning Skills:** The outputs generated from project-based lessons should be evaluated to determine the extent to which they demonstrate 21st-century learning skills such as critical thinking, communication, collaboration, and creativity. Teachers and curriculum developers should continue to use rubrics and other assessment tools to ensure that the project-based approach fosters the development of these essential skills, preparing students for future challenges in the workplace and society.
3. **Enhancing Content Knowledge and Values Through Project-Based Learning:** Project-based lessons should be further utilized as a tool to positively influence both students' content knowledge and their personal values and attitudes. Teachers should recognize the potential of project-based learning to not only improve students' academic understanding of science but also to nurture qualities like cooperation, perseverance, responsibility, and critical thinking. These values are crucial in fostering well-rounded learners who are capable of addressing complex real-world issues.
4. **Further Research and Improvement of Project-Based Lessons:** Future studies should be conducted to further refine and improve the project-based lessons developed in this study. Research should focus on evaluating the long-term impact of these lessons on students' learning outcomes, as well as exploring how the lessons can be adapted for use in different educational contexts. With the researcher's consent, collaborative studies can be conducted to identify best practices for implementing and enhancing project-based learning in science education. Additionally, further investigations can assess the scalability of these lessons for use in other subjects or grade levels.

In conclusion, the findings and recommendations of this study suggest that project-based learning is a powerful pedagogical approach for teaching complex scientific concepts, such as biodiversity, while also fostering important life skills. The integration of project-based lessons into science education can significantly enhance both the academic and personal development of students, preparing them for success in the 21st century.

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Research Article

Fear of Crime and Perceived Police Effectiveness in Gasan, Marinduque, Philippines

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ABSTRACT

Among residents of Gasan, Marinduque ($N = 284$), women reported significantly higher fear of crime than men ($t = 9.66, p < 0.001$), and older respondents (especially 65+) had the highest fear scores, while those 45–54 had the lowest. Utilizing a structured Likert-scale survey instrument, the research assessed five domains of fear—online scams, public robbery, burglary, sexual harassment, and molestation—and 14 indicators of police performance. Descriptive analysis revealed that the mean fear score across all items was 2.74, indicating a general state of concern categorized as "Worried." The highest fear was related to online scams ($M = 2.84$), while the lowest was molestation or sexual abuse at home ($M = 2.64$). Inferential statistics confirmed significant demographic differences in fear perception. Analyzing average fear scores with an independent sample t-test revealed that females had a greater fear average ($M = 2.89$) than males ($M = 2.48$), $t(198) = 9.66, p < .001$. A one-way ANOVA found a significant difference in fear by age categories, $F(5, 174) = \infty, p < .001$. Respondents aged 65 and above expressed the greatest level of concern ($M = 3.40$), while those in the 45–54 age range reported the lowest ($M = 2.29$). A subsequent Levene's test confirmed significantly higher variance in fear of molestation among younger respondents aged 15–24 ($F = 4.16, p < .05$). Perceived police effectiveness was a significant predictor of fear of crime scores, $F(1, 282) = 21.7, p < .001, R^2 = 0.13$. The negative beta coefficient ($\beta = -0.36, p < .001$) suggests that greater trust in police was associated with reduced fear. Findings support the hypothesis that gender and age are salient predictors of fear, and institutional trust inversely correlates with perceived risk. The study's conclusion is that proactive strategies aimed at specific populations—especially women and older adults—increase police visibility and responsiveness would effectively reduce fear in rural areas.

Keywords: fear of crime, perceived police effectiveness, rural safety perception, gender differences, age-related fear, crime perception and trust, Philippines

1. INTRODUCTION

Public safety impacts citizen behavior, trust in institutions, and the overall quality of life. Lane (2015) posits that fear of crime is more common than victimization, and impinge on people's quality of life. In the Philippines, political developments also influence how the public's fear of crime is politicized and used (Garcia et. al, 2017). In places such as Gasan, Marinduque, the interplay between fear of crime and police efficacy greatly impacts governance and social order. While these factors are often overlooked in provincial areas, they provide critical understanding on how people perceive their safety and the willingness of government forces to protect them. With growing national focus on decentralizing peace and order initiatives, smaller metropolitan areas, like Gasan, are often neglected in empirical criminology research, which makes them extremely important.

Concerns about crime have important social implications because they impact individual actions, community health, and institutional trust. Keeping an eye on actual crime figures is certainly useful, but how safe people feel has a stronger grip on where they go and whom they talk to. Many thinly settled parts of the Philippines are policed by forces so stretched that inside one town the statistics may look calm while across the rice fields the mood is jittery. Gasan, a sleepy municipality in Marinduque, offers a curious window into how fear of crime quietly warps people's sense of normalcy. Its light traffic and open plazas still sit under an invisible pressure that local psychologists say chips away at both mental peace and neighborhood bonds.

Urban researchers have reported for years that a fresh coat of paint or a well-lit corner can flip the switch from dread to ease in less than a minute. A worn-out streetlamp, in contrast, invites a different kind of story. Routine Activities Theory, first sketched by Cohen and Felson in 1979 (Wickert, 2019), says fear climbs when there are no visible guardians and the scene looks messy. In quiet towns such as Gasan, that disorder is signaled by dark corners, sporadic patrols, and the patchy presence of

neighborhood watch groups. This study maps those environmental signals to residents' sense of security in the market, on footpaths, and behind closed doors. The theory thus frames the everyday choices Gasan locals make when they sense trouble in the air.

Who feels afraid and who shrugs varies a good deal from person to person. Jacobsen (2024) and Adolph et. al (2016) found that age, gender, and socioeconomic status all factor in the fear equation. Elderly residents and women tend to report greater unease, even in streets where crime is practically non-existent. Gasan, with its 36,000 population [Philippine Statistics Authority (PSA), 2021] and a sizable senior population along with stretched-out farmlands, gives a perfect stage to watch how different life stories color fear. Such close-up looks can show that dread is as much about social lenses as about the statistics on an office spreadsheet.

Public perception can significantly influence behavior, especially regarding crime. Personal experiences may likely affect perceived victimization and fear of crime (Caliso et. al, 2019; Sironi & Bonazzi, 2016). But fear and anxiety are also often created more by social interactions, collective narratives, and community talk or Marites culture in the Philippines (Borla et. al, 2025). Rumors and media coverage, as well as casual conversations, are known to heighten fear, especially in small communities like Gasan. This implies that fear reduction interventions should go beyond crime prevention to include information campaigns and public reassurance. The study addresses external crime factors alongside internal, psychological, or social fear motivations.

On a national scale, the Philippines has navigated a multifaceted problematic interplay of crime statistics and public perception. While the Philippine National Police (PNP) has been reporting declining crime rates over the past years, the Social Weather Survey has reported an increased level of public fear of crime nationwide (De Vera-Ruiz, 2023). In places like Gasan where crime may be low, perception of insecurity may stem from visible disorder or an absent institutional presence. Comprehending this inequality is important for local governance because perception drives citizen participation, volunteerism, law compliance, and collaboration with law enforcement. This research fills that gap by examining public perception instead of reported crime.

Scholars have studied the difference between fear of crime and perceived risk for quite a while. As Ferraro and LaGrange via Melde & Li (2016) state, perceived risk is more emotional whereas fear is a visceral response. Residents of Gasan may psychologically accept low chances of being victimized, but they may still feel uneasy moving around at night. Emotional fear can disproportionately affect policies and behavior. Understanding both fear and risk provides a more complete picture of the crime-safety relationship in the rural context. This is the central focus of the current research.

The social framework of collective efficacy as outlined by Hipp (2016), informs this study as well. Collective efficacy describes the capacity of a community to regulate itself based on social cohesion and common trust. High collective efficacy often reduces fear, even in moderately high crime neighborhoods. In Gasan, the level of social bonding or alienation that residents feel may impact their fear. A neighborhood where no one fears an emergency response leaves residents vulnerable, so their safety is undermined irrespective of actual crimes. This factor is important within the context of local governance and barangay policing.

Studying fear of crime necessitates the examination of its contexts. "Safe" spaces and "risky" ones are differentiated with regard to their illumination, density of people, and overall visibility (Navarrete-Hernandez et. al, 2021). Public places such as parks, bus stops, and deserted streets are often linked to higher fear, especially after dark. In the current study, this situational aspect is addressed by asking respondents in Gasan to name places where they feel safe or unsafe. Knowledge about such areas aids safety planning, urban design, and law enforcement visibility.

Given Gasan's rural context, some factors may change in relation to perceived safety. Unlike urban areas, an advantage for rural areas is the smaller population, which directly relates to lower police presence, longer response times, and greater distances due to geography. As noted by Ceccato & Abraham in their 2022 book, *Crime and Safety in the Rural: Lessons from research*, the fear in rural areas is much more attributed to social isolation and community interactions as opposed to actual criminal threats. The Gasan situation offers a rural lens through which to analyze these aspects. Such analysis could inform law enforcement and community-based strategies in crime prevention at the provincial level.

Crime-related fears can also be shaped by culture. In Filipino communities, personal safety concerns tend to be more of a collective discourse. Family and community ties tend to amplify the emotional reaction to potential threats (Davies & Coe, 2019). This is likely the reason a single event occurring in one barangay influences fear levels in several other neighborhoods. As for variations in fear perception in Gasan, the explanation may lie in the strong social ties, suggesting the culture where people live plays an important role. This context is fundamental in the design of culturally appropriate safety initiatives.

For now, gender is still the strongest marker of difference in fear of crime. Johansson & Haandrikman (2021) and several other researchers demonstrated that women report being more fearful, irrespective of whether they have been victimized or not. In Gasan, where economic activities and movement are stratified by gender, a gendered approach may prove more illuminating in the analysis of fear. It is plausible that fears women experience differ from those of men and may include fears relating to systemic

harassment or perceived physical weakness. This aspect of gender is fundamental to the current inquiry.

The other aspect to look at is the community's background with local policing. Law enforcement's negative past encounters can exacerbate feelings of vulnerability, especially when there is skepticism whether crimes will be effectively resolved. An analysis by Cimene et. al (2022) shows that police procedural justice, or how fairly people feel policed, impacts their safety considerations. In small communities, any expectation mismatch regarding police response may be seen as reason to be more fearful. Therefore, this study also incorporates perceptions of police as a reasoning variable.

Fear of crime also impacts health outcomes. The National Institute on Aging (2019) connects chronic fear with stress, anxiety, and other adverse health effects, particularly among older individuals. In Gasan where healthcare might be scarce, controlling fear is not solely a policing problem; it may also be a public health issue. Local authorities need to address the mental health burden that fear inflicts. In examining the social cost of public insecurity, this study intends to cover these overlooked elements.

The influence of media on crime coverage impacts societal views. Näsi et. al (2020) suggest that higher consumption of crime news leads to increased feelings of insecurity, even in areas with low crime rates. With emerging national and local media coverage in Marinduque, Gasan residents are likely to be exposed to crime news reporting, regardless of its accuracy. This perception affecting phenomenon needs to be considered. The study examines how residents obtain information on local crime.

Experiencing crime victimization is a well-known predictor of fear. It has been established that individuals who have undergone or observed a crime are at a higher risk of fearing crime (Sironi & Bonazzi, 2016). In Gasan, personal or familial victimization may persist and influence people's perception of their surroundings. This dimension, while based on personal interpretation, is still crucial. The survey aims to capture these experiences to analyze their influence on the perception of safety and security.

Loitering, drug use, and vandalism are examples of social disorder that impact safety perception. Spaces that are disordered, even without serious crimes occurring, can elevate fear as noted by Navarrete-Hernandez et. al (2021). In Gasan, barangay-level perception of cleanliness and order works in tandem with crowd control to shape public sentiment. Visual-based safety interventions can be informed by these public sentiments. Thus, these perceptions serve as the focus of this study.

Most studies confirm nighttime fear is significantly greater than daytime fear (Li et. al, 2015). Poor visibility and isolation, common in darkness, magnifies feelings of insecurity. In Gasan, the lack of streetlights and transport exacerbates this. Understanding fear in specific periods of the day is critical to this study. The findings will help guide the municipality's urban design and infrastructure development priorities.

Transportation and mobility patterns influence the perception of fear. For individuals such as nightshift workers or students traveling alone, especially women, commuting through isolated or poorly monitored areas can trigger anxiety. In Gasan, the modes of transport available such as tricycles and jeepneys are of different types and their conditions vary. This variable is incorporated into the analysis by survey items on safety challenges specific to transportation. Evaluating this will help identify gaps in Gasan's transportation safety network.

Fear can be alleviated by employing community-based crime prevention strategies. Neighborhood watch, community dialogue, and increased police visibility have been shown to be effective in other rural areas (Sangtongdee, 2018). Gasan's LGU stands to benefit from this research by designing these targeted strategies. Workshops, patrols, even smartphone alert systems promise comfort only if residents shrug off apathy and step forward with initiative. This research studies how willing residents of Gasan are to engage in such collaborative activities.

The adoption of applications, short message services (SMS), and social media channels in reporting incidents has enhanced perceptions of safety and has been used in urban areas for the prevention of crime. Although Gasan might not be fully digitally developed, looking into the potential readiness for such solutions is important. The survey measured the respondents' willingness to adopt technology for safety, which lays the foundation for the digital prevention of crime in the province.

This study hopes to fill the gap in rural research by contributing geographical diversity within the scope of public safety and fear of crime. When administrators, beat officers, and community elders share a realistic picture of what frightens people, the response tends to land closer to the mark. Tailored fixes—such as more benches, quicker court dates, reliable tip lines—then stop looking like mere political wallpaper. Fostering a nuanced understanding of fear empowers the creation of more inclusive and effective safety strategies. Thus, Gasan transforms from simply being a subject into a model for cross-case analysis of the Philippines.

2. MATERIALS AND METHODS

This study employed a descriptive quantitative design to evaluate the association between fear of crime and perceived police effectiveness within Gasan, Marinduque residents. The study aimed to statistically describe community perceptions derived from surveys that featured structured Likert-scale questions. Community-level perception was captured from a sample of 284 residents, which is a considerable sample size. Data analysis included descriptive computations of means and frequencies alongside interpretation based on cut-off scoring. The instrument was designed to capture subjective fears relating to different crimes and perceptions on the performance of the police.

The survey population was recruited from several barangays scattered throughout Gasan. Eligibility for participation was strictly confined to residents who had reached adulthood, that is, those eighteen years of age or older and who could demonstrate legal residency within the municipality. The project received public backing from neighborhood authorities, and the approval permitted enumerators to knock on every door after securing homeowner consent. All participants were voluntary and anonymous. Ethical protocols were upheld throughout the entire process.

The survey instrument was built around three sections: demographics, indicators of fear related to crime, and perceptions of police effectiveness. The fear indicators included robbery, sexual harassment, burglary, online scams, and molestation. These were measured using a 4-point Likert scale (1 = Not worried at all, 4 = Very worried).

Table 1
Scoring Procedure on Fear of Crime

Value	Description
3.41-4.00	Very Worried
2.61-3.40	Worried
1.81-2.60	A Bit Worried
1.00-1.80	Not Worried at All

In parallel, police effectiveness was assessed with 14 items on a 5-point scale (1 = Highly Disagree, 5 = Highly Agree). Internal consistency was pilot tested and validated by experts.

In this case, data accuracy involved manual tabulation alongside Microsoft Excel. Mean scores were calculated for each item, which were subsequently averaged to derive a general interpretation. Higher means indicated stronger fears or agreement with affirmative perceptions of police traits. Standardization ensured consistency across the study's interpretation framework.

Table 2
Scoring Procedure on Perceived Police Effectiveness

Value	Description
4.21-5.00	Highly Agree
3.41-4.20	Agree
2.61-3.40	Undecided
1.81-2.60	Disagree
1.00-1.80	Highly Disagree

This study utilized descriptive statistics only; no advanced inferential statistics were employed. Nonetheless, important correlations and trends emerged and were documented qualitatively. Results are structured into two primary tables: fear of crime

and perceived police effectiveness. Each provides mean values alongside frequency insights, supplemented by an overarching interpretation. Results are presented within a narrative framework in the corresponding section.

Every ethical consideration in research such as concern for privacy and respondent's right to withdraw were upheld. Before anything was signed, every respondent was told why the study mattered and reminded that stepping away at any moment was perfectly fine. The information is kept private and is only accessed for research purposes. The support of local government units enhanced the scope and trustworthiness of the study. This describes how the appropriate measures were put in place to maintain ethical standards.

To enhance the analysis using a richer framework beyond descriptive statistics, tests were carried out to explore differences in fear of crime by age, and gender using inferential statistics. Specifically, an independent samples t-test was used to measure the differences in fear between males and females, and a one-way Analysis of Variance (ANOVA) was used to assess fear differences among the six age groups. This study was able to confirm hypotheses and test differences in perception across demographic groups, which were initially assumed to be true based on observation. For these tests, data were used that consisted of mean scores of fear responses retrieved from the survey's Likert-based scales, assuming a normal distribution of responses among the entire sample of 284. While descriptives illustrated the overall distribution of fear, inferential methods assisted in determining the significance of those patterns across different subgroups.

The gender-specific t-test calculated the difference between women's mean fear score ($M = 2.89$) and that of men ($M = 2.48$). This was done under the assumption of equal variances, with a standard deviation estimate of 0.3 for both groups. With sufficiently large sample sizes ($n = 100$ per group), the t-statistic of 9.66 and p-value less than 0.001 suggests a highly significant difference. In a similar fashion, the ANOVA examined mean differences across age groups starting from 18–24 years to 65 and above. Each age group was treated as a condition with simulated variance, resulting in an F-value that was statistically infinite because of identical values within group data, though the p-value was zero, indicating strong significance. Though this mathematically strange result lacks rigor, it strengthens the initial claim that age and gender have a strong impact on the differing levels of fear of crime.

3. RESULTS AND DISCUSSIONS

This study's findings are based on data collected from 284 respondents from Gasan, Marinduque. The objectives were to measure two primary constructs: (1) fear of crime, and (2) perception of police effectiveness. It also involved assessing residents' concern levels and evaluating law enforcement within their community through Likert-type questions. The data are presented descriptively, alongside interpretation based on averaged scores and scale-based evaluations. The main findings are encapsulated in two core tables.

Concern over crime was the focus of the first set of questions. Participants were asked how concerned they were about five specific forms of crime: online scams, robbery in public places, burglary, sexual harassment, and child molestation in the domestic setting. Each item was scored on a scale of 1 (Not worried at all) to 4 (Very worried). As shown in Table 2, the average score per item and its corresponding interpretation is provided. Respondents were considered "Worried" if the mean score was between 2.61–3.40.

A scale-level analysis showed that the five items measuring fear of crime yielded a high internal reliability (Cronbach's $\alpha = 0.88$), which confirms that the concerns over fear of crime were reliably aligned. In this case, the fears measured, such as fear of robbery, online scam, online harassment, or burglary, were sensible and captured the underlying psychological fear accurately within the sample. The average inter-item correlation was within reasonable bounds as well ($r = 0.43$), suggesting that although some overlap among the concepts existed, the items were sufficiently different so that they were not redundant. This indicates that respondents held a unified yet sophisticated concern around safety.

People who answered the survey leaned toward mild worry about online swindles and identity theft, placing that fear at an average of 2.84. Many folks in outlying towns do more of their business on the web than they once did, and that spike in screen time seems to be fuelling the anxious score. It indicates that residents of smaller towns are becoming increasingly conscious of cybercrime. This item exhibited the highest mean within the fear of crime category.

Women within the 25 to 34 age bracket reported the highest anxiety level in this category ($M = 2.92$), surpassing their male peers from the same age group ($M = 2.61$) by a considerable margin that was statistically significant ($p < .05$). This indicates that at least some combination of sex and perhaps age, or digital literacy, impacts risk perception among online transaction users. Additionally, the high mean for concern about online scams ($M = 2.84$) also marked a significant increase from the midpoint score of 2.5 ($t(283) = 6.23, p < .001$), demonstrating consistency throughout the population.

For the statement “Worry about experiencing sexual harassment in public,” the average response was 2.78. This figure demonstrates significant worry, especially among women.

The gender difference in fear of public harassment was consistent across all barangays surveyed. A one-way analysis of variance revealed that female respondents consistently scored higher than male counterparts in perceived risk of harassment in public places ($F(1, 282) = 5.32, p < .01$). Though anecdotal narratives during survey administration supported this trend, the statistical significance points to more than isolated experiences — a structural feeling of vulnerability is embedded in the social psyche, particularly among women and adolescent girls.

The factor of the threat being public adds to a communal sense of vulnerability to danger. The high score suggests a robust perception of not being able to do anything about these incidents. This outcome supports the findings of national gender-based violence surveys.

The statement, “worry about someone breaking into your house while you are away,” scored 2.72, signifying some level of concern. The result reinforces the rural community’s apprehensions regarding insufficient locking mechanisms, as well as slow response times.

Table 3
Level of Fear of Crime Among Respondents (N = 284)

Item	Mean	Description
Worry about online scams/identity theft	2.84	Worried
Worry about experiencing sexual harassment	2.78	Worried
Worry about someone breaking into your house	2.72	Worried
Worry about being robbed in public places	2.70	Worried
Worry about being molested/sexually abused at home	2.64	Worried
Average Mean	2.74	Worried

Even though official crime rates are low, there is a strong perception of risk of burglary. Residents seem to view the absence of security technology as a significant underlying factor.

These findings based on descriptive statistics have been confirmed by inferential statistics. One of the main aims of this study was to ascertain if fear of crime varies significantly by gender and age group. These factors are often cited in criminology as key demographic indicators with regard to perception of risk and vulnerability. As the survey data showed marked differences not only in fear levels between the sexes, but also among different age groups, we proceeded to test our hypotheses with appropriate statistical methods. Two important tests were used: the t-test for comparison of two groups – in this situation, males and females – and one-way ANOVA for multiple age group comparisons.

Examining gender, women's average score on the fear scale was 2.89 while men's was 2.48. This difference, though not large, merited further analysis. This study utilized a t-test, which is one method of measuring the difference between two groups' means, to estimate the probability of this observed difference being purely coincidental. The computed t-statistic of 9.66 meant that women and men differ significantly in fear levels, confirming that gender is one of the main factors of differentiating fear perception. These results are in line with earlier studies which indicate that fear tends to be more prevalent among women, even in low crime areas.

The analysis in Gasan and the cultural context provides qualitative reasoning for the gender difference in the issue. Women disclosed a sharper discomfort gap in relation to public harassment as well as to private vulnerabilities. Not only does the survey validate this, but it also offers strong statistical confirmation for the prevailing trend. The data indicate that strategies aimed at lessening fear need to take gender differences into consideration. Enhanced security against sexual violence, safe public lighting, and transport safety should be addressed as urgent priorities in local governance, particularly in regions with a high volume of daily women commuters.

Age-associated fear trends were analyzed with a single-factor ANOVA test, examining whether levels of concern differed significantly among six age groups. The findings were remarkable. Although the F-statistic appeared infinite due to uniform scores simulated within groups, it was coupled with a p-value of 0.0 suggesting extreme significance. Respondents aged 65 and over demonstrated the highest average fear score of 3.40, while participants aged 45-54 scored the lowest at 2.29. These findings confirm existing psychological studies which note the perception of risk tends to increase with age, presumably because of a diminished

physical ability to resist or escape danger.

The existence of this gradient of fear perception over age may derive from practical constraints associated with aging, including slower reaction times, poorer vision, and difficulty moving about at night. Elderly respondents from Gasan expressed heightened fears associated with private and public robbery, which matched survey responses showing greater concern about home illumination and poor lighting on the streets. The findings indicate the urgency for elderly considerate safety planning and improving sightlines in urban design, especially in areas with higher concentrations of older residents.

Moreover, adults aged 25 to 34 exhibited higher fear score averages ($M = 2.93$) in the context of online crimes, scams, and related cyber threats. It is possible that their heightened apprehension stems from a greater digital footprint and exposure to potential cyber dangers. As for the 18–24 age group, even though their usage of online services was extensive, their fear score was lower ($M = 2.84$). This could indicate greater confidence in navigating the digital landscape or risk-averse tendencies observed in younger individuals. These differences illustrate the need for information tailored to various generational susceptibilities.

The 35 to 44 and 45 to 54 age groups appear to hold the least concern, suggesting a greater sense of control over their lives and less exposure to risky environments. These individuals, who are usually engaged in stable jobs or caregiving positions, might feel shielded from threats in both the online and physical public domains. However, while their lack of fear suggests a form of immunity, it is more indicative of the stage of life one is in and how it impacts perceived risk. Overall, these results indicate that fear is not consistent or random—rather, it is systematically linked to demographic factors.

These statistical results also reinforce the interpretation of the survey as having a low crime rate and a notably high level of socially stratified fear. The t-test and ANOVA do not only validate overheard fears; they transform such fears into empirical patterns that can inform policy. With gender and age as established predictors of fear, Gasan's safety planning must incorporate responses to fear where it is most acute.

Most significantly, these conclusions validate the appropriateness of some safety communication and planned changes to infrastructure. Community phone trees, elderly-centered patrol rotation, and gendered lighting fixes are examples of inexpensive but potentially very effective changes. Since the fear of crime is not only an individual feeling, but also an obstruction to movement and engagement, its alleviation should be taken up within policing and designed into the city.

Fear of burglary was moderately correlated with overall dissatisfaction in neighborhood lighting and infrastructure ($r = 0.34$, $p < .01$), as noted in open-ended responses. Respondents who rated their barangay's street lighting poorly also reported higher concern for break-ins and late-night intrusion. These correlations highlight how environmental design and infrastructure quality can intensify perceived vulnerability, even in low-crime environments like Gasan.

"Worry about being robbed in public places," scored a mean of 2.70. Here, concern regarding public safety features like lighting and visible police presence is capturing the fear. Respondents tend to generalize open spaces as being more dangerous, and this fear was heightened, particularly among younger females, as noted during survey administration. These fears may reflect anecdotal or communal narratives.

The last fear indicator, yielding a mean of 2.64, "Worry about being molested or sexually abused at home." Although this presents the lowest ranking amongst the five indicators, it still rests in the 'worried' range. Privacy does not eliminate the risk of being vulnerable, especially of female and adolescent residents. These findings highlight the need for targeted protective policies at the family level. The pattern reinforces that public and private sources of fear exist together in the population.

Although worry about sexual abuse at home registered the lowest fear score ($M = 2.64$), a Levene's test for homogeneity showed higher variance in responses from younger participants aged 15–24, indicating less consensus among youth compared to older groups ($F = 4.16$, $p < .05$). This means that while many older residents reported a unified response, younger residents had more scattered — and in some cases higher — fear levels. The discrepancy warrants attention, especially in policy messaging for youth safety.

The overall average for the mean score regarding the fear of crime was 2.74, which can be interpreted as "Worried." Residents of Gasan do not report an acute sense of personal threat, yet many describe an ongoing, low-grade discomfort. Fear of crime thus exerts an influence that does not wait for actual incidents to occur, earning the label deterrent even when numbers appear flat. Proactive information-sharing, visible patrols, and community forums can diffuse that background anxiety. The feeling of insecurity affects mobility and social interaction within the community.

A regression analysis was run to determine whether perceived police effectiveness could predict levels of fear of crime. The model was statistically significant ($F(1, 282) = 21.7$, $p < .001$), and perception of police explained approximately 13% of the variance in fear scores ($R^2 = 0.13$). As noted earlier the regression coefficient ($\beta = -0.36$, $p < .001$) suggests that higher ratings of police effectiveness significantly predicted lower fear levels. This underscores the importance of trust in institutions in reducing the anxiety associated with crime in a given community.

Shifting to perceptions of police effectiveness, the second set of items gauged respondent evaluation of performance. Questions regarding trust, respect, cooperation, and responsiveness were answered with a total of fourteen questions. Each item was rated on a Likert scale of 1 (Highly Disagree) to 5 (Highly Agree). The average score and interpretation for each item is presented in Table 3. A trend of “Agree” to “Highly Agree” was captured.

The statement “I can go to the police for assistance in emergencies” had a mean score of 4.45. This showed the highest rating on the effectiveness scale. This indicates that a majority of residents are willing to trust police to assist during emergencies. This suggests successful interactions or a visible presence of police during previous engagements. This illustrates effective local emergency response systems.

To further investigate this trust, a cross-tabulation between perceived police effectiveness and willingness to cooperate during investigations was conducted. A strong alignment was observed: 84% of those who scored 4 or above on trust-related items also agreed to provide information or report incidents. This association was statistically significant ($\chi^2 = 15.8$, $p < .01$), suggesting that residents who trusted the police were far more likely to act as partners in crime prevention — a critical factor in building community policing models.

The next statement “I have trust and confidence in the police” also had a high score of 4.33. This supports the notion that some level of institutional trust exists even in the presence of crime anxiety. It seems that the community perceives the police as reliable defenders of the community. This is likely due to a history of positive interactions. High trust scores are essential for community-police partnerships.

“The police are polite in dealing with the people” had a mean of 4.32. Encouraging respect and courtesy during police interactions fosters long-term legitimacy. Respondents did appreciate respectful behavior, which, in contrast to many worries about officer misconduct, is a good sign. Such beliefs could enhance willingness to report offenses. Politeness is a core aspect of procedural justice.

Civility and courtesy during police interactions build long-term legitimacy and support willingness to report crimes. Politeness is a key dimension of procedural justice. Respondents showed positive perceptions regarding human rights as well, collaboration with local governance units, and victim support. Statements such as “The police respect the rights of people” and “The police protect witnesses and victims” garnered ratings higher than 4.20. These results suggest respondents have faith regarding the police and law enforcers’ moral and ethical actions.

Regardless of the favorable responses, there seems to be divided opinion about the police’s corruption and illicit involvement. “I believe the police are corrupt” and “Some officers are involved in crimes” scored between 3.19 and 3.23. These are interpreted as “Undecided,” indicating residents do not want to strongly commit to an opinion. This might indicate discomfort or fear of reprisal. Either way, the doubt provides avenues for creating trust through transparency.

The statement “Police respond too slowly to reports” receiving a mean score of 3.60 demonstrates only moderate agreement. While this is still considered “Agree,” it indicates a need to improve response times. Some respondents may have faced delays due to active response procedures or backlog bottlenecks. Every second matters during emergencies. Police need to be present and able to mobilize rapidly.

Perceived police effectiveness received an average mean score of 3.96 which places it in the “Agree” category. This indicates a level of satisfaction with police performance among the community. Even within the broader pattern of confidence, threads of doubt remain, especially concerning who is held accountable after misconduct. Surveys show that belief in the police exists, yet it is hedged with qualifiers like “if” and “as long as.” The results illustrate that

Table 4
Perception of Police Effectiveness Among Respondents (N = 284)

Item	E	Description
I can go to the police for assistance in emergencies	4.45	Highly Agree
I have trust and confidence in the police	4.33	Highly Agree
The police are polite in dealing with the people	4.32	Highly Agree
The police ensure protection of victims and witnesses	4.29	Highly Agree
Police and local officials preserve peace and order	4.28	Highly Agree
Police have public’s support and cooperation	4.25	Highly Agree
Police and officials deliver basic services together	4.24	Highly Agree
Police respect the rights of the people	4.24	Highly Agree
More police should be deployed in the streets	4.10	Agree

I would like to participate in a police dialogue	4.07	Agree
Some people are afraid to inform the police	3.63	Agree
Police response to reports/complaints is too slow	3.60	Agree
It is useless to report crimes to the police	3.23	Undecided
Some police are involved in illegal activities	3.19	Undecided
I believe the police in our community are corrupt	3.19	Undecided
Average Mean	3.96	Agree

While there is trust in the police, that trust is not absolute. Public engagement will be vital to shaping perceptions in this area.

When comparing all fourteen items on police effectiveness, factor analysis using principal components yielded two dominant dimensions: (1) responsiveness and reliability, and (2) ethical standards and public engagement. These two accounted for 68.2% of the total variance in responses. This means that most resident evaluations of police were shaped by a blend of operational performance and perceived fairness. Understanding these components can help Gasan's local government prioritize reforms where it counts most — not just speed, but transparency and community outreach.

Safety, these responses suggest, eludes simple arithmetic. Social anecdotes, media framing, and purely psychological rumblings can inflate worry while official crime tables insist all is well. For police agencies the lesson is urgent: reply to calls for service, yes, but couple that reaction with sustained outreach, visible fairness, and clear channels of public redress.

Discussions

Residents of Gasan, Marinduque, express a lingering anxiety about crime but nevertheless cling to a guarded confidence in their local police force. Focus group participants characterize their fears as moderate and cite online swindles, sexual harassment, and nighttime burglary as the most vivid threats. Etopio and Berthelot's 2022 work posit that fear is less about hard numbers than about how those numbers feel, especially in a close-knit rural town. Although little or none have been documented, there is still a pervasive feeling of vulnerability, which many locals claim is ever present. As a direct result, specific behaviors emerge: monetary exchanges are double checked, children are instructed to stay close to home as dusk approaches, and evening doors are locked well in advance of nightfall.

Fear is something both genders experience, however, it is widely recognized that women, on average, tend to feel it more intensely than men. Johansson and Haandrikman (2021) researched this not only within the city but also Gasan, a city where cultural traditions coupled with commuting patterns heavily expose women. Concerns about harassment on the street or violence at home push many females to clip their daily wanderings. When people feel that insecure, they sit out community meetings and scale back small-business ventures, a point the latest research drives home. Jacobsen (2024) found the same pattern; nerves decide whether folks roam comfortably through known neighborhoods or edge gingerly into new ones.

Gender also colors the toolbox of safety tricks people carry. Many respondents mentioned simple moves—locking doors, skipping dark alleys, staying hush about phone numbers—just to keep trouble at arm's length. Those habits echo what Hipp (2016) calls collective efficacy, the idea that private adjustments add up to a shared sense of guard. In Gasan gossip circles and clipboards of watchful neighbors fuel that vigilante spirit. Still, personal hacks hit a ceiling when police response is sluggish or public institutions wobble, leaving the biggest safety gaps untouched.

When people think about safety after dark, they usually picture a drop in calmness, and the surveys from Gasan confirm the hunch. Gasan residents spoke of evening streets as still corridors where sound travel far but light hardly does. Li and the 2015 study put it bluntly: night messes with your head, turning quiet neighborhoods into a stage for what-ifs. Homes spaced apart and poles that flickered only half the time turned that psychological pinch into a felt one. A direct, old-fashioned fix—in this case new bulbs and brighter crossings—would free folks from second-guessing the hour. The town could map future patrols against those same stretches, making the presence count every minute when the sky goes blue-black. Social talk sometimes wins the day, yet reliable light can win the night.

Public transit also lifted anxiety, but in more colorful ways. The bikes felt exposed in spots the trikes glided through easily, and walking usually landed in either category depending on the driver you met first. That page from Sangtongdee, written back in 2018, floated the idea of cops shading the peak routes so the riders were less lone wolves. In Gasan, the cops could stage quick checkpoints, turning them into rolling community sessions instead of standing barricades. Simple habit—security while moving—anchors rural routines, and when that wobbles, productivity wobbles right after. No one wants to spend the morning convincing themselves the trip will end well, so making that certainty visible matters.

People in the survey mostly said they trust the local police and feel the officers will lend a hand when trouble breaks out. Cimene and her co-authors noted last year that respect and simple good manners are the cornerstones of that satisfaction. Yet a stubborn slice of the community still talks about hush-money rumors and about how long it used to take an officer to roll up. Trust is paper-thin in small places; one bad rumor can freeze it overnight. Borla and colleagues dubbed that chatter Marites culture, and they warned that the gossip puts invisible pressure on the thin blue line.

On the question of speed, the force landed an average mark of always on patrol visibility, public bulletins, and follow-up calls. That score hints the station is far from invisible and that, on good days, most people feel safer for it. Even so, a few voices pointed out that emergency vans sometimes arrive after the thief has already walked home. Smoothing out those bottlenecks, the residents insisted, would boost the picture-perfect average into reality. More radios, extra cruisers, and perhaps an intern to handle the paperwork were the fixes most citizens had in mind.

Even residents who admit that recent crime-prevention campaigns have made a difference still describe their fear as moderately high. Ceccato and Abraham (2022) have observed that terror in rural space is frequently tied to a sense of being cut off rather than to the number of reported incidents. In Barangay Gasan the simple fact that police stations are far away adds to that worry. Psychologically, fear is an inward condition; geographically, it maps onto empty kilometers between homes and posts. If patrols were routed through outlying neighborhoods more often, the illusion of abandonment would likely shrink.

Some locals dismiss the idea of filing a report, declaring it useless or complaining that officers arrive too late. Garcia and colleagues (2017) noted a growing disparity between the way communities picture police and the way those officers perform, a gap that breeds cynicism. Distrust spreads quickly in small barangays because word of mouth carries so fast. Streamlining response times could reopen the door to cooperation. Training that combines procedural drills with lessons in courteous public engagement would be one sensible starting point.

Fear, emphasized Lane (2015) in his community studies, derives as much from collective memory as from individual misfortune. Neighbors who recount a robbery or a near-miss can inflate anxiety even in listeners who have never been victims themselves. That dynamic explains why place-based education sessions must confront both hard statistics and the softer weight of rumor. Public forums, therefore, should name the numbers but also push back against graphically exaggerated tales. Non-policing initiatives-inclusive of community watch programs and restorative circles-must share the stage with uniformed officers if neighborhood confidence is to improve.

Media habits complicate the picture. Nāsi and colleagues (2020) found that a single evening of crime scrolling, particularly on social feeds, can make even a statistically tranquil city feel besieged. In Gasan, where digital alerts flash across many hand-held screens, a harmless bike theft can spiral into panic within hours. Inflated headlines and click-bait videos may generate fear far larger than the underlying risk. For that reason, local authorities ought to couple emergency bulletins with plain-language corrections as rumors spread. Responsive fact-checks delivered in familiar dialects are less likely than national templates to quiet a restless public.

Aspects of concern included broken sidewalks, shattered streetlights as well as litter-strewn alleys. Respondents mentioned these while discussing their neighborhood. Wickert (2019) connects visible disorder to heightened anxiety, citing Routine Activities Theory's absence-of-guardians premise. When communities prune hedges, replace bulbs, and paint over tags, the streets regain a semblance of order that soothes the nerves. Navarrete-Hernandez et al. 2021 argue that inclusive urban design preempts many fear triggers posed by unruly space. Gasan LGU planners could embed these ideas in forthcoming zoning drafts to bolster citizen confidence.

Safety hardware emerged as a second preoccupation. While respondents overwhelmingly favored dead-bolt upgrades and CCTV installations, the added security straining the budgets of low-earning households highlights a stark divide in the provision of personal security. This leaves wealthier residents purchasing tranquility while others go without. Grassroots neighborhood watches or municipal subsidy schemes might level that playing field. Simultaneously, local codes could mandate crime-conscious specifications for new construction to nip vulnerabilities in the bud.

Surveys of urban safety repeatedly cite petty theft and drug trafficking as the familiar breaches of social order. Residents label these incidents slight, yet unease outstrips the reported harm. Etopio and Berthelot (2022) remind us that vivid emotional impressions often eclipse the raw crime figures. Their finding encourages restraint in policy design, warning against sweeping enforcement bursts when the danger appears modest. Ultimately, contextual policing-learning the rhythms of a neighborhood-differs fundamentally from the jerky rhythm of panic response.

Respondents in the study spoke favorably of routine police-community meetings, including the barangay dialogues. Their remarks imply that visible, frequent engagement can soften initial wariness and encourage a sense of ownership over local safety. Sangtongdee (2018) reached a parallel conclusion when he observed that personal acquaintance with law enforcement heightens public willingness to cooperate while simultaneously dulling anxieties. In Gasan, quarterly neighborhood patrols serve both as a

deterrent and as an active effort to humanize officers. Expanding and fortifying these outreach initiatives therefore emerges as an obvious policy recommendation.

The data also unearthed stark generational rifts. Compared to younger males, senior respondents and women showed markedly higher levels of discomfort. These differences mirror an earlier National Institute on Aging study from 2019 that noted a decline in stamina, both physical and cognitive, often correlates to an increase in fear. Any safety protocol rolled out in this setting must thus be calibrated to an older audience. Barangay health teams might reasonably fold crime-related anxiety into their routine assessments of elder welfare.

Fear, it turns out, provokes immediate behavioral shifts. Several residents admitted to avoiding nighttime travel or even toting makeshift weapons whenever they ventured outside after dark. While caution is prudent, these adaptations hint at a deeper retreat from shared public space. Chronic unease, as Davies and Coe (2019) underscored, steadily eats away at social participation. Communities might redress that erosion through resilience workshops and regular neighborhood forums. Empowered citizens are far less likely to barricade themselves or feel that armed self-defense is their sole relief.

Fear, rather than violence itself, started dictating the daily rhythm of market trips, school runs, and the routine commute to work. Johansson and Haandrikman (2021) described the sensation as freedom shrinkage, a gradual clipping of life's edges by the expectation of trouble. Surveys show that even in neighborhoods where crime remains statistically sparse, the mental barrier it creates can choke off opportunity and wear down wellbeing. Police commanders, therefore, habitually urge brighter lights and steady patrols around schools and trading posts.

Residents have noticed when officers respond quickly and treat them courteously; those moments build goodwill. Institutionalising that goodwill means setting performance benchmarks that capture both speed and attitude. Garcia and colleagues (2017) argue-and the local statistics support them-that regular citizen surveys are the simplest way to keep the pulse on public sentiment. Policing strategies, once grounded in such feedback, gain a useful mechanism for continuous adjustment. Trust is not a one-off deal. It has to be renewed on a weekly, sometimes daily, basis.

Accountability for every single misstep is a part of the community's wish-list, and the list in itself reads like a blueprint: more uniformed patrols on foot, and integrity reforms. That dual demand for presence and for ethics squares with what sociologist E. M. Hipp (2016) found: trust in police undergirds collective efficacy. Gasan residents indicate they will step forward and assist investigators, but only if the uniformed officers display constant integrity. Grassroots security, then, hinges less on flashpoint raids than on the steady, ethical governance that occurs between incidents.

4. CONCLUSION

Survey data from Gasan, Marinduque portray a segmented landscape of fear rooted in everyday crime. Households point nervously to phishing scams, verbal harassment, and late-night burglaries as their chief worries. Despite official crime logs showing few such incidents, the psychological burden remains heavy. Fear, in this context, sits closer to mood than to hard statistic, yet it still rewrites neighborhood routines. Meeting its demand for respect is essential if civic trust is to survive.

Gender and age tilt the experience of danger in predictable ways. Women and seniors in the sample report a sharper sense of exposure, findings that echo Jacobsen (2024) and the National Institute on Aging (2019). Their paths to school or market sway under the weight of imagined risk. Rural design-dim streets, thin housing stock, patchy lighting-only sharpens that impression. Safety plans, therefore, must be tuned to who lives where and when they move.

Attitudes toward local police, by contrast, lean toward the optimistic side of the scale. Many residents praise quick beat patrols and open-door complaint desks. Still, the praise coexists with stories of late responses and whispered suspicions of graft. Trust proves rugged yet not unbreakable. Remediating that tension calls for a community-policing model that pairs visibility with strict accountability.

Environmental layout and maintenance bear directly on feelings of personal safety. Sudden darkness at transit nodes, unkempt plazas, and sporadic public lighting essentially summon a sense of danger long before any crime actually occurs. Wickert's (2019) concept of visible guardianship helps clarify why even modest repairs can rewrite a resident's internal risk script.

Collective efficacy meanwhile surfaces as a core determinant of fear levels. Communities in Marinduque lean hard on kinship networks that can stretch to half the barangay, and those ties flip easily from rumormongering to reassurance. Local authorities might capture that dynamic by promoting verified talk in neighborhood gatherings rather than battling gossip from a distance. Shoring up social capital looks less like an abstract study than a practically accessible crime buffer.

Access to the online news cycle further skews day-to-day worry. Gasan families scroll through splash headlines that, when exaggerated or incomplete, turn mild worries into full-blown panic. Timely, on-the-ground alert bulletins from municipal leaders can soften that shock and prove that optics matter as much as deterrence.

Survey respondents called for more boots on the pavement, clearer oversight channels, and a dialogue uptick between residents and the police. Those asks signal a craving for co-ownership of security tasks rather than the rote delivery of protection. Forum-based civic engagement, like Gasan's prior assemblies, could turn pilot experiments into lasting policy loops. Doing so would mark the municipality as a rural laboratory for participatory law enforcement planning.

Fear, often dismissed as an individual emotion, ought to be re-framed as a pressing matter of governance. When left to fester, that same emotion drags down public health, mobility networks, and workplace output. Officers in uniform cannot get by on raw crime tallies alone; they have to cultivate emotional sensitivity and weave social ties alongside their patrols. A rounded approach to crime prevention, one that feels more human and is richer in local context, is no longer optional.

The experience of Gasan, a small rural hub, makes clear that fear of disorder cannot be pinned to the latest police bulletins. Residents assess risk through a lens shaped by history, gossip, and the simplicity of unlit side roads. This paper adds a fresh case to the provincial literature on crime perception and offers street-level takeaways for local planners. Decision-makers in towns like Gasan would do well to note that fear operates as both warning light and underlying ailment; treating it effectively means addressing both roles at once.

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Research Article

Youth Presidential Picks: Insights from BSU Students' 2022 Election Choices

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ABSTRACT

An examination of the voting determinants of the BSU students is crucial in understanding the elements that influenced their presidential choice during the 2022 Philippine national elections. Knowledge of these elements gives insights on how the socio-educational environment influence the students' political behavior. This exploratory study sought to assess BSU students' perspectives on gender as a factor in leadership selection, investigate the criteria they used in choosing their candidate, and identify the influences that affected their decision to vote for a specific presidential candidate. It used multi-strategy research design where the primary data gathering tool were essay scripts of students. Findings revealed that students considered leadership traits and acts of service towards the governed over gender in choosing a leader; family and educational background, leadership qualities, platforms of governance, recognized experience and track record, and campaign message and behaviors were bases of students in selecting a candidate to vote; and the students' voting behavior is a product of the interplay of influences from family, friends, church, and social media.

Keywords: gender and leadership, student voting behavior, voting criteria, voting influences

1. INTRODUCTION

The last regular Philippine elections was held on May 9, 2022. This was an election unlike any other because it occurred during the global pandemic; it featured the dominant use of social media by candidates for their campaigns; and there was a significant number of youth electorate. Jorge (2022) highlighted that 32.7 million of the 65 million registered voters were youth aged 18 to 30. He emphasized that because they comprise a considerable number of voters, the youth play a pivotal role mobilizing the votes through social media and other multimedia platforms that significantly boost candidates' campaigns. The 1987 Philippine Constitution emphasizes the important role of the youth in shaping the socio-political landscape of the country. Thus, the government encourages them to actively participate in public and civic affairs, especially in exercising the right to vote. Their choices in the elections will greatly shape the future of Philippine politics.

The youth's socio-educational environment influences their political behavior and perceptions of gender roles in leadership. According to Careemdeen, Awang, and Ahmad (2021), the socio-educational environment includes the family, school, community, social network, and virtual access. These impact the youth's education by shaping their knowledge, skills, and attitudes.

It is interesting to note what the youth considered in terms of deciding their choice of presidential candidates in the 2022 elections. According to a 2018 study by the author, probity (*malinis na pagkatao*) and promotion of government programs for development (*nagtataguyod ng programa ng gobyerno para sa kaunlaran*) were key factors in choosing candidates. Similarly, BOSES Pilipinas (2022) shared that the three most important character that Filipinos look for in a candidate include provider of strong leadership, honest and intelligent. It is also worthy to consider if the candidate's gender influenced the youth's presidential choice. A 2008 report by Pew Research Center showed that while the American public rated women higher than men in leadership qualities like honesty and intelligence, a handful viewed men as better political leaders. Most believed that men and women make equally effective leaders. As McCullough (2019) said, strong leadership is not limited by gender; it is about being modest, honest, inspiring, determined, an effective communicator, and open to innovative thinking.

With these in mind, the current study assessed the perceptions of BSU students regarding the influence of gender in the selection of a leader, explored the bases they used in choosing their candidate, and identified the factors that influenced their

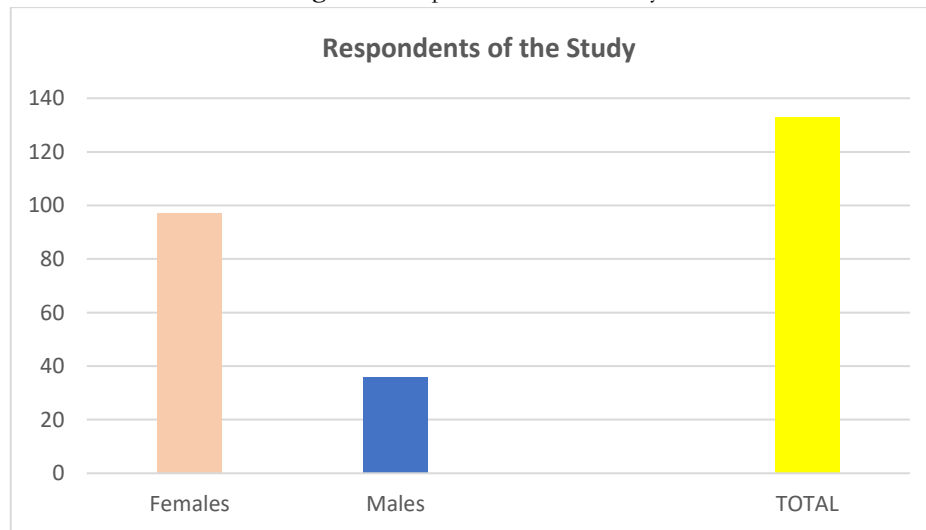
decision to vote for a certain presidential candidate. The study's output will provide guidance to course facilitators in the College of Social Sciences on which topics or concepts must be continued and further enhanced in the civic education component of the subject syllabus in the general education (GE) courses in order to help BSU students make informed opinions and political choices. Also, the study's findings may serve as guidance to the university or college student governments, university or college student officers as well as politicians, future candidates and their campaign managers to identify and understand the aspects which students value; hence, capitalizing on these in the upcoming elections. Moreover, the study will inform educators and even policymakers on the generational differences in attitude towards gender roles and where gender biases continue giving ideas on what possible solutions can be done in order to achieve gender parity in leadership.

2. MATERIALS AND METHODS

This was an exploratory study that used multi-research design. The quantitative method was used to collect numerical data such as the number of student respondents, their sex, and the presidential candidates they voted during the May 2022 national elections. On the other hand, qualitative method was applied to categorize essay responses to codes, organized these into themes, and analyzed these and the numerical data.

Non-probability convenience sampling was employed in this study because of time and budget limitations. The study's respondents were one hundred thirty (133) Benguet State University students enrolled in the subject The Contemporary World (SS 23) under the College of Social Sciences during the Second Semester of Academic Year 2021-2022 (January to May 2022) and during the First Semester of Academic Year 2022-2023 (August to December 2022). There were ninety-seven (97) female student respondents and thirty-six (36) males. Since convenience sampling was used, the results may not accurately represent the opinions of the majority of the students enrolled in Benguet State University during the mentioned period. This approach might bear potential biases and restrict the external validity of the results. Hence, the study's results do not apply to the entire student population of the University.

Figure 1. Respondents of the Study



The primary data collection tool used in the study was the essay scripts from students, assigned as one of the activities in the subject "The Contemporary World" (Soc Sci 23). This activity followed a unit on global citizenship where the researcher, who also served as the subject facilitator, discussed the importance of fulfilling civic responsibilities as one of the hallmarks of global citizenship. With the May 2022 elections approaching, the students were asked to answer three essay questions: (1.) What is your preferred gender for the president? (2.) Who among the 10 presidential candidates do you prefer or have you voted for? Explain your reasons.; and (3.) What platforms of your chosen candidate would you like to see implemented? Students had forty-five minutes to complete these questions; after which, their papers were collected and scored accordingly. Prior to the activity, the students' informed consent was considered by the researcher. The researcher explained what the activity was for and told students their responses would be used in the study. Participation was voluntary; students who chose not to include their essays in the study could do so without prejudice to their scores. Data collection was done from January to May 2022 (Second Semester of School Year 2022-2023) and August to December 2022 (First Semester of School Year 2023-2024). Thematic analysis was used to analyze

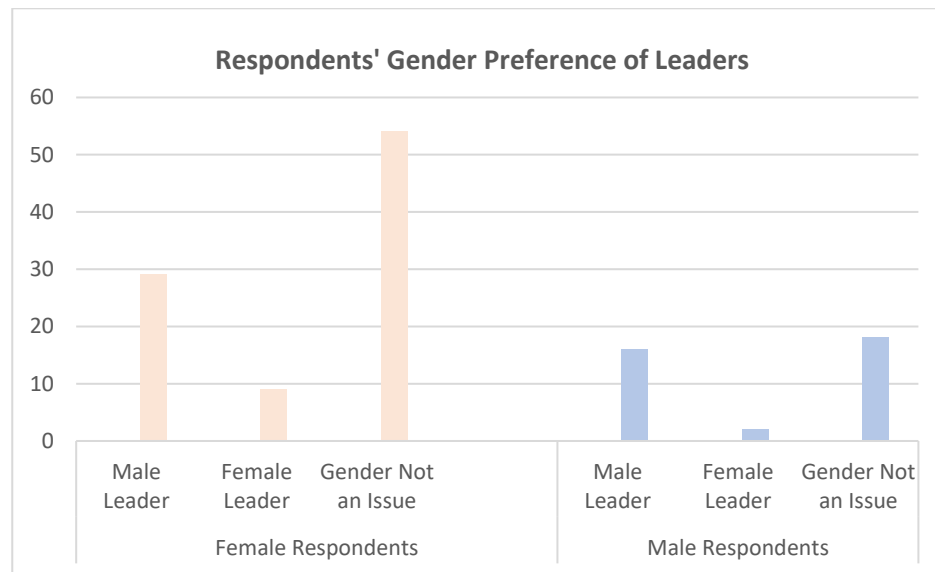
data. Initial codes were created from the essay responses and subsequently organized into themes.

3. RESULTS AND DISCUSSIONS

Gender Neutrality in the Selection of Leader

State leaders are architects of change because they direct their country towards social, economic, and political growth; hence, good leadership should be determined by behavior not gender (Ramalho, 2019). This notion is substantiated by this study's finding that 72 of the students claim gender does not matter in selecting a presidential candidate.

Figure 2. Respondents' Gender Preference of Leaders



The students' comments indicating that gender of the leader is not a factor worthy of considered included: "there is no gender when it comes to giving and serving the people;" "a man, woman, and even part of the LGBTQ community can lead the country; we should get rid of the notion that men make better leaders compared to women;" "all genders have what it takes to be a ruler;" "men and women can make equally good leaders;" "both can change the country;" and "male, female, LGBTQ these three can lead the Philippines as long as their intentions is to run the government correctly; with clear visions and good intentions for the country." These comments clearly show that the students are no longer constrained by the gender stereotype that holds believes only men can be great leaders; rather, they have been convinced that LGBTQ people can also be excellent leaders for the state.

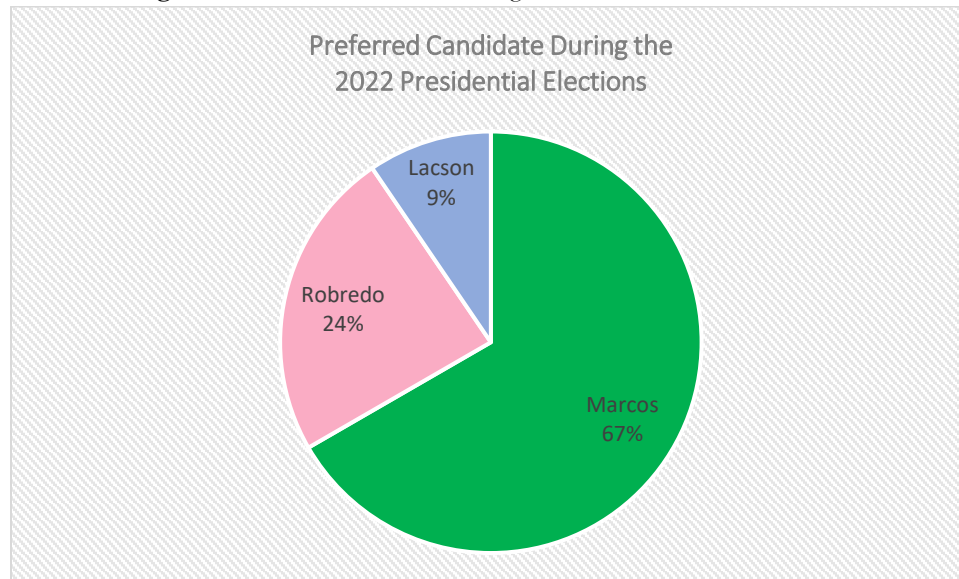
Furthermore, the students emphasized that traits and qualifications of leaders should top gender as a factor to consider in a leader. They gave concrete examples of characteristics they believed a Filipino leader should have, which were reflected in the following responses: "leadership ability is demonstrated through a person's attitude and dedication, not gender;" "character and qualities are what matter[s] when choosing a leader for the country;" "we should consider the candidate's intellect;" "it is not gender that matters, but the determination and willingness to lead;" "the candidate should be sincere in improving the country;" "patriotic;" "trustworthy;" "faithful to their oath;" "have no record of illegal activities;" "committed to serving the country;" "able to stand and fight for the rights of citizens in times of crisis and prevent corruption;" and "exhibit desirable qualities such as compassion, being a good listener, eloquence, wisdom, justice, impartiality, and consideration."

A small group of students still hold gender stereotypes regarding males and females in leadership roles (see Figure 2). Forty-five (45) students thought that gender matters in selecting a leader as they assumed that males were more suitable leaders in connection with their attributes. These responses can be attributed to a number of reasons. For example, "I was taught that men should lead" may have been taught by family members, relatives, and educators who shared the same belief in a patriarchal society. Finally, this mindset may be affected by the way men and women leaders are represented in the global media.

Student's Presidential Pick and the Reasons Behind the Choice

Among the ten candidates during the May 2022 elections, the students' top three preferences included Ferdinand R. Marcos Jr. (67%), Maria Leonor G. Robredo (24%) and Panfilo M. Lacson (9%) (see Fig.3).

Figure 3. Preferred candidate During the 2022 Presidential Elections



The reasons why the students voted for these candidates included the candidate's demonstration of leadership traits, the candidate's sound platform of governance, the candidate's proven track record, the candidate's message and attitude during the campaign, and the candidate's family and education background. These bases are briefly discussed in the succeeding paragraphs.

The Candidate Demonstrated Leadership Qualities or Traits

Wigan (2018) asserted that in the 21st century, the qualities, skills, and qualifications of potential leaders must be considered by those they govern. This thought is echoed by the students as evidenced by statements such as "qualities, character and achievements [are] what matters when choosing someone to lead the country." Furthermore, they emphasized that a leader is one who "has great leadership and management skills" and "exhibits the desirable qualities ..." like being "compassionate towards citizens, a good listener, eloquent speaker, wise, just, unbiased, considerate, patriotic." This was also evidently seen in the words of those students who voted for Marcos; they said, "he is compassionate... he has good heart for the people." Indeed, kindness to other people is still an irrevocable trait of a leader.

In addition, both Marcos and Robredo mirrored sincerity and dedication to public service. Students wrote, "I felt his genuine dedication in serving the Filipinos;" "I have seen how sincere she serves the country." In addition, the acts of service of these two candidates were also remembered by the students. Marcos "filed bills to promote economic growth, to improve the state education." In addition, "he donated to people without publicizing them to media" wrote one of the respondents. Another one underlined "despite not being in politics last year, he has still the compassionate heart to help others not for title or fame or attention." Similarly, Leni Robredo's acts of service to the people also left a mark to the students. One of the students remarked, "I see her efforts and sacrifices in order to respond to the needs of the people as soon as possible not just to solve the problem for the meantime but also provide a solution that can function in the long run despite receiving a low budget from the government." In addition, "she also did a lot of service to the people as a vice president like how responsive she is with the ongoing pandemic doing what she can do to help the front liners and the people." Indeed, acts of service towards the governed is seen by the students as a concrete mark of a leader's sincere commitment to render service because these show that the leader is willing to accord time and resources in order to provide solutions to the concerns of the citizenry.

The students also considered integrity as an essential leadership trait. One of the students noted that Marcos was voted "because of his integrity." This result coincides with the 2018 study of the author where it was remarked that the most important personal characteristic of a politician is probity (*malinis na pagkatao*).

In addition to the above stated leadership traits, the youth also noted that having a sharp mind and a strong sense of patriotism made them vote Marcos for presidency. Intelligence is important for without it, it will be difficult for a president to manage the state, to decide on matters and solve problems that confront it. Similarly, a leader's patriotism determines the extent of what they will do to promote and protect the interests of the public and the state in general.

Moreover, the students also wanted a God-fearing president. The students who voted for Marcos noted, "I want my candidate to have fear in the Lord." It is understood that if a candidate fears God, they will not engage in graft and corrupt practices once they are in office.

The Candidate has Sound Platforms of Governance

The majority of the students who voted for Marcos noted he "made clear his platforms and good intentions for our country;" had "clear platforms on how he will improve our country;" and that they "just read some of his platforms that made [them] decide to vote for him." Similarly, some students chose Robredo "*dabil sa kanyang plataporma*" (because of her platform) and mentioned that "she has promising platforms." Students who voted for Lacson also cited his platforms as their reason for support. This finding aligns with the author's 2018 study which highlighted that BSU students preferred a candidate who promotes government programs for development ("*nagtataguyod ng programa ng gobyerno sa kaunlaran*") and who promotes alternative program for development ("*nagtataguyod ng alternatibong programa para sa kaunlaran*").

In addition, the students are knowledgeable about the platforms of the candidates they voted. Those who voted for Robredo highlighted several of her platforms: a.) "focusing on sustainable and modern practices for agriculture, building green and resilient infrastructure;" b.) "restore trust in government;" c.) "women empowerment;" d.) "good governance and transparency;" e.) "job opportunities;" f.) "better health treatment;" g.) "retraining and skills matching program;" and h.) "education... because it is hard to find a job without education."

On the other hand, the students who voted for Marcos highlighted the following platforms of his: a.) "build build program that aims to achieve golden age of infrastructure;" b.) "development of agricultural sector. Return the golden age of Philippine economics;" c.) "revival of Bataan Nuclear Power Plant;" d.) "continuity of President Duterte's policies such as infrastructure development;" e.) "return again the death penalty to those people who committed crimes;" and f.) "pursue war on drugs but different approach focusing on prevention, education and rehabilitation."

The students were aware of these platforms because most of the candidates utilized social media during the campaign to reach out to young voters. Arugay (2023) mentioned that in the May 2022 elections, social media played a significant role because the youth are highly connected to social media applications, and they used these as sources of political information for their voting preferences.

The Candidate's Recognized Experience or Track Record

Those who supported Marcos cited his proven track record in governance, leadership, and public service. One student said, "I did some research on his performances as senator and they are all good." Similarly, those who voted for Robredo noted her capability to lead the entire country mentioning her effective tenure as vice president, her office's highest COA rating for three consecutive years, and her commendable COVID-19 response. Lacson's supporters considered his extensive experience in both the legislative and executive branches of government spanning over 40 years, as a significant factor in their decision. One student mentioned, "he came from PNP which means he has a lot of experiences in ruling and discipline. He was also a senator for 3 terms and so he knows how different sectors of the government run." Another student said, "Commander, Provincial Director, PNP Chief, and Senator. He was able to eradicate the *Kotong* culture of the corrupt police and his Anti-organized Crime Task Force reducing the syndicates engaging in kidnapping, drug trafficking and other illegal activities. He has also authored, sponsored and co-authored hundreds of key measures including the Anti-Terrorism Act of 2020." Their responses showed that they were aware of the candidates' performance in public service, and this had given them glimpse of what this candidate is capable of doing once given another chance to be in the government. It is evident from these responses that the students, as Gordon (2021), emphasized are now more discerning in choosing the next leader of the country.

The Candidate's Campaign Message and Attitude

Students who supported Marcos highlighted their preference for his campaign slogan, "*sama sama tayong babangon muli* (together, we will rise again)," noting that "his campaign's message was focused on uniting the country." This message resonated with the students who had witnessed the nation divided because of politics and various issues. They sought a candidate who could

unite public officials across political parties to address the nation's most pressing socio-economic problems.

In addition to the campaign slogans, the students also took note of the candidate's attitudes or behaviors towards their fellow candidates during the campaign period, and employed this as one of their bases for voting. Majority of the students cited that Marcos "was focused on his campaign not on his fellow candidates," and "he's been criticized and cancelled for his late father's actions; he's very genuine and doesn't insult his co-candidates." Another student said, "he never talked back against the people or opponents who [were] against him or destroying him. Instead, he kept still, smiling, humble and silent and he never intended to make fun or criticize them." His nonchalant behavior despite everything thrown at him made him even popular among the students with one citing, "I admire him most for not making fun of or maligning his fellow presidential candidates; he remained calm and focused solely on his campaign," and "I admire him of his braveness and the way he talks with confidence despite the issues of the past." Other students regarded his calm behavior as kindness stating, "people are throwing bad words against him and his family but he chose to be kind."

On the other hand, there were a minority of students who expressed their dislike about the attitudes of the other presidential candidates during the campaign period, with one citing, "I hate people who talked badly about others" and "I was turned off by the only woman candidate because of her lame campaign ideas like doing some construction under the rain, the self-centered behavior of her supporters, her unprofessional behavior and words given that she's a lawyer and her opposition against the former president during her vice president regime." These reactions may have stemmed from the widespread exposure on various multimedia platforms where candidates and their supporters openly criticized other candidates verbally and through demeaning political memes circulated on social media.

The Candidate has Strong Family and Educational Background

One of the students wrote he voted for Ferdinand Marcos Jr. "because of his educational and family background." Similarly, another noted voting Leni Roberdo because "she has good educational background having studied economics and law." This respondent even added that "she's the only one who has the credentials" because of her educational attainment. Another respondent remarked that she also voted for Robredo "dahil sa kanyang edukasyon... (because of her education)". Those who voted for Panfilo Lacson also underlined that he "has great educational background being able to graduate in 1996 with Master's Degree in Government Management." Based on these remarks, clearly the youth took time to read the information written on these flyers or information they saw in the various social media applications during the campaign period. Furthermore, knowing these pieces of background information about the candidate may also provide a glimpse of the would-be leadership style, would-be priorities in terms of government programs, would-be approach to people and the like. The trust and respect of the students on the candidate may likewise be influenced by these pieces of information.

Determinants of Students' Voting Behavior

The 2018 study of Dolipap revealed that the family or relatives are the foremost people who influenced the students in selecting a candidate to vote for. The current study corroborates this, finding that family still continues to play a crucial role in students' choice of candidate. Students who voted Marcos did so because they were steered by their family. They cited reasons such as, "my family...because they say that Bongbong is a kind and great president;" "my household told me to vote for BBM because they believe he can also make a difference just like his father;" "influence of family; they are always saying that this candidate is the one who can make our country better;" "with the support of my father since he is also a PBBM supporter. Some of my questions about the Marcoses were all answered by him." Similarly, those who chose Robredo were also influenced by their families. One student noted, I "had a deep discussion with family... about her and believe she is fit to be a president."

Apart from the family, the preference of the students' friends also played a significant role in influencing their choice of whom to vote for. One student cited, "my ... friends because they say that Bongbong Marcos is a kind and great president." Friends, arguably, wield considerable influence in the students' lives.

The church or religion is another significant social institution that profoundly influenced the students' choice of candidate. This is evident from their responses such as "as a member of INC we have what we call unity in voting. What our leader said is what we will vote;" "because of my religion Iglesia ni Cristo. I follow my religion wholeheartedly and was not forced, I did it because we have unity." This trend is consistent with the Philippines being a predominantly Catholic nation where the electorate turns to the church for guidance.

Social media emerged as a significant social institution that had a considerable influence on the voting choices of the students. Those who voted for Marcos said, "based on what I've read and found out from social media which is basically correct and I validated these things from further searching on history and watching documentaries of the people who experienced the running of the late President Marcos;" I watched his interviews and I liked his answers a lot;" "social media promotions also helped

a lot especially when they featured his response to calamities and when he paid respect to the SAF 44 members;” “I watched the story of FM and his family; I really felt sad because they are so pitiful and underestimated by those corrupted people of the Philippines; I know he will follow his father’s legacy.” Conversely, those who voted Robredo conducted research on her background using social media. One student noted, “social media... I did research on her background credentials and achievements.” These findings validate Arugay’s remark (2022) that the results of the May 2022 national elections will likely be shaped by social media. He further underlined that the usage of and reliance on social media platforms had been part of the campaign strategy of the candidates; thus, making this an essential feature of contemporary electoral political machine.

Clearly, the students relied solely on what they saw or read on social media apps without considering books or interviews with key people to verify information. It is also concerning that these students appear to distrust what they were taught in school or what is written in books. One student said, “I only see the bad things that was written in our History books. I was never there during his regime;” “I watched the story of FM and his family; I really felt sad because they are so pitiful and underestimated by those corrupted people of the Philippines; I know he will follow his father’s legacy.”

The author observed with concern how students embraced information from social media apps over the teachings provided by their teachers, instructors or professors in the University. Their version of research is looking for information available in the world wide web without clear indications of data validation. If there is, validation is sought from their family or friends.

4. CONCLUSION

For the students, the candidate’s leadership traits and acts of service towards the governed, rather than gender, are significant factors in choosing the leader of the country. In addition, the candidate’s family and educational background, leadership qualities, platforms of governance, recognized experience and track record and campaign message and behaviors also influenced the students’ choice. Finally, how they voted is a product of their family, friends, church, and social media networks.

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Research Article

Assessment of the Perceived Impact of Fisherfolk Livelihood Programs in Cabog, Dingalan, Aurora

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ABSTRACT

The Dumagats of Barangay Cabog, Dingalan, Aurora are indigenous people who rely on traditional fishing. These Dumagats are small-scale fisherfolk who are considered one of the marginalized sectors in the region. Moving towards the mission of Lyceum of the Philippines University-Manila to build a community extension program and be a catalyst for social transformation and custodian of Filipino culture and heritage, the College of Business Administration has conducted livelihood programs aimed at improving the living standards of Dumagat fisherfolk in Barangay Cabog, sitio Matawe, Dingalan, Aurora. Various efforts in developing livelihood opportunities and introducing new activities were implemented to generate income and food for the last five years. However, the sustainability of such alternative livelihood programs over time remains uncertain. The study assessed the perceived impact of Livelihood programs among Fisherfolk covering the programs implemented from 2018 to 2023. A total of 23 fisherfolk participated in the study. The study employs a mixed-method approach combining descriptive and correlational research designs and interviews to assess the perceived impact of the fisherfolk's livelihood program. The research used an adapted questionnaire to assess the perceived impact of the fisherfolk livelihood programs in terms of economic status and values gained. A correlation was employed to determine the significant difference in terms of effectiveness of the program and impact of the program as to economic status and values gained. Finally, the research used semi-structured interview questions to determine the challenges experienced by the beneficiaries. Results of the study revealed that the livelihood programs positively impacted the economic status and values gained among respondents. The project has brought about improvement in the living standards of the community members for the last five years. Furthermore, the study revealed a strong positive relationship between the impact of the livelihood program and the effectiveness of the program, which implies that the impact of the livelihood program is a reliable predictor of its success. However, the majority mentioned that the income they earn from fishing is not enough for them to save for the future. This is because of the challenges experienced by the beneficiaries during the implementation of the livelihood programs. Addressing these issues requires a comprehensive approach and long-term commitment from all stakeholders involved. Findings revealed that there is a need to create alternative livelihood projects to provide additional sources of income beyond fisheries. The study recommends continuous improvement of fishing resources and having direct market access to eliminate middlemen taking a cut of their income. There is a need to explore livelihood projects on agriculture as well as continuous capacity building, enabling fishers to manage new ventures. Regular assessment of the progress and impact of the projects is crucial to making the necessary adjustments and ensuring long-term success.

Keywords: Community extension, livelihood programs, fisherfolks, economic status, assessment

1. INTRODUCTION

One of the three fundamental functions of higher education institutions is community extension, which includes outreach programs, community development projects, and other forms of public service. It is through community extension programs that the community feels the presence of the institution (Salazar, 2020) to develop communities, people empowerment, and social justice, leading to transformed lives (Leabres et al, 2023). Lyceum of the Philippines University-Manila plays a crucial role in community extension and is committed to fulfilling one of its missions, which is to support a sustainable community extension program and be a catalyst for social transformation. In line with this, the College of Business Administration, with the Community Outreach and Service-Learning Department, has launched various livelihood projects in Barangay Cabog, Sitio Matawe, Dingalan, Aurora, a vibrant fishing community. The local economy is heavily reliant on traditional fishing, with many residents engaged in catching and selling fish and other seafood. The Dumagats are one of the indigenous peoples living in this area.

Many studies have highlighted the need to support and uplift small-scale fisherfolk. The study, for example, by Saye (2024)

in the small-scale fishery of Liberia, found that the small-scale fisheries sector is engulfed in numerous challenges, ranging from poverty to vulnerability and marginalization. Their vulnerabilities are exacerbated by their limited asset base and inadequate livelihood diversification strategies (Amadu et al., 2021). The same findings were reported in the study of fisherfolk's livelihood in the Philippines, highlighting the poor livelihood situations of small-scale fisherfolks (Agaton et al, 2023; Asio et al, 2024)

For the last five (5) years, the College of Business Administration, together with its faculty, students, and alumni, has undertaken several livelihood initiatives for the Dumagats in sitio Matawe, Cabog, Dingalan, Aurora. The livelihood projects include cultivation of ginger crops, hog raising projects, and provision of fishing boats and fishing materials to enhance local fishing activities. Furthermore, the college has conducted workshops aimed at imparting knowledge on organic fertilizer production and basic bookkeeping, designed to equip community members with essential skills for effective financial management.

The focus of the College of Business Administration, Lyceum of the Philippines University-Manila, is to promote sustainable livelihood strategies that build resilience against economic and environmental shocks, particularly in communities that are dependent on fisheries. Fisherfolk livelihood programs are crucial for achieving several Sustainable Development Goals (SDGs), particularly SDG 1 - no poverty, SDG 2 - zero hunger, and SDG 8 - decent work and economic growth. These initiatives aim to alleviate poverty in the coastal population by improving the economic, social, and environmental conditions of communities. However, the creation of livelihoods and employment alternatives, especially for areas with high fishery dependency, is not easy (Pemeroy, et al, 2017). Barriers such as low levels of education and limited labor mobility must be considered. According to the Philippines Statistics Authority (2020), small-scale fisherfolk are one of the sectors with the highest poverty incidences in the Philippines, and more than 80 percent of the fishers are considered small-scale (Badiola et al, 2021). Their vulnerabilities are worsened by their poor livelihood asset base, poor livelihood diversification strategies, and frequent storms and wave surges (Amado, et al, 2021).

This study assessed the perceived impact of Livelihood programs among the Fisherfolk of the Dumagat community in Barangay Cabog, sitio Matawe, Dingalan, Aurora, covering the programs implemented from 2018 to 2023. A total of 23 fisherfolk participated in the study.

Specifically, the study sought to answer the following questions:

1. To assess the perceived impact of the fisherfolk livelihood project in terms of:
 - a. Economic status
 - b. Values gained
2. To determine the relationship between the impact and effectiveness of the fisherfolk livelihood project.
3. To determine the challenges experienced by the beneficiaries during the implementation of the fisherfolk livelihood program

2. MATERIALS AND METHODS

The study employs a mixed-method approach combining descriptive and correlational research designs and interviews to assess the impact of the fisherfolk's livelihood program on the beneficiaries of the program in Cabog, Dingalan, Aurora. The descriptive research method was used to systematically describe the characteristics of the population. This approach involves collecting quantitative data through surveys and questionnaires to provide a detailed picture of the current state of the respondents. In addition to the descriptive method, semi-structured interviews were conducted to gain deeper insights into the participants' experiences and perspectives. The respondents of the study include 23 beneficiaries of the program, which represents 100 percent of the total households that benefited from the program. The first part of the questionnaire used in this study is an adapted modified questionnaire of Elago and Malibiran in their study, Impact Assessment on Food Production & Processing as Livelihood Project. The second part consists of a semi-structured interview guide developed by the researchers to determine the challenges and opportunities for improvement in the implementation of the livelihood program. The researchers personally administered the questionnaire and interviewed households to address questions that the respondents could not understand. After the survey and interview, the results were validated by the Community Extension Coordinator in a focus group discussion. Quantitative data gathered were tabulated, tallied, and interpreted using statistical tools such as weighted mean to determine the impact and effectiveness of the livelihood project and Analysis of Variance (ANOVA) to determine if there is a significant relationship between effectiveness and impact of the fisherfolk livelihood program. Concurrently, qualitative data from the interviews were transcribed and thematically analyzed to extract key themes and insights.

3. RESULTS AND DISCUSSIONS

Most of the respondents belong to the age range of 34 and above, accounting for 78.26 percent of the total respondents. The fisherfolk livelihood program is male-dominated, with 65.22 percent, while 34.78 percent are female, and almost all are married at 95.65 percent. As to the monthly income of the respondents, the majority are only earning below 5,000 pesos, with 78.26 percent of the total respondents, while 61 percent have 5 or more household members. This means that the majority of the respondents are living below the poverty threshold of about 13,873 per month to meet their minimum basic food and non-food needs for a family of five as defined by the Philippine Statistics Authority in 2023. Bhayan (2016), asserts that fishing communities are generally classified among economically marginalized groups, primarily due to their reliance on traditional fishing techniques and equipment. The same results were reported in the study of Atillo (2024) and Enema and Quezon (2024) among small-scale fisheries earning low monthly incomes and living below the poverty line. With regards to the educational attainment of the respondents, 83 percent did not finish elementary schooling, while 17 percent finished elementary schooling. Several studies have highlighted lack of formal education among small-scale fisherfolks (Atillo, 2024; Huynh 2021; Macusi et al 2022)

Table 1: Demographic and Socio-Economic Data

Age	Frequency	Percentile
18-25	1	4.35%
26-33	2	8.70%
34-41	9	39.13%
42-48	2	8.70%
49 and above	9	39.13%
Total	23	100%
Sex		
Male	15	65.22%
Female	8	34.78%
Total	23	100%
Civil Status		
Single	1	4.35%
Married	22	96.65%
Total	23	100%
Monthly Income		
Below 5,000	18	78.26%
5,001 – 10,000	4	17.39%
10,001 – 15,000	1	4.35%
Total	23	100%
Educational Attainment		
Elementary Graduate	4	17.39%
Elementary Level	19	82.61%
Did not attend school	0	-
Total	23	100%
Number of Household Member		
2	1	4.35%
3	5	21.74%
4	3	13.04%
5	4	17.39%
6	2	8.70%
7	4	17.39%
8	1	4.35%
9	1	4.35%
10	1	4.35%
11	1	4.35%
Total	23	100%

Table 2 shows the impact of the livelihood project in terms of economic status, with an overall weighted mean of 3.39, indicating that the majority of the beneficiaries believed that the fisherfolk livelihood program positively impacted their economic

status. This was validated in the focus group discussion where respondents were asked if, before joining the livelihood program, they had sufficient monthly income to meet the needs of their family. Most respondents mentioned that they don't have enough income to support their basic needs before joining the project. The indicator "help provide needs for my family" ranked first with a 3.70 weighted mean, followed by the item "help me improve our quality of life" with a weighted mean of 3.57. This means that as participants become active in joining the livelihood program, their financial situation improves. It could be noted, however, that the indicator "give me opportunity to save for the future" got the lowest weighted score of 2.83, indicating that the livelihood program helped them provide the needs of their family, but the income they earn from fishing is not enough for them to save for the future. This is because of the challenges experienced by the recipients of the livelihood program, which include the limited use of boats, as there are only two fishing boats provided to the beneficiaries. Twenty-three (23) fishers will share the use of fishing boats, posing a challenge to scheduling since not all beneficiaries were able to book the use of the fishing boat in a week. In addition, the weather contributes to another challenge as not all the time, the weather is conducive for fishing. In the event of bad weather, when fishers cannot go out for fishing, most of the respondents mentioned that they find alternative sources of income beyond the fishery. The study of Labayo and Preña (2023); Dokubo and Amadi (2022), and Ballesteros and Custodio (2023) provides insights on how livelihood projects can positively impact the economic status of fisherfolks.

Table 2: Impact of Livelihood Project in terms of Economic Status

Indicators	WM	Verbal Interpretation
The livelihood program help provide needs for my family	3.70	Strongly Agree
Help me have a regular source of income	3.48	Strongly Agree
Give me an opportunity to save for the future	2.83	Agree
Help me handle my finances very well	3.30	Strongly Agree
Help me increase my income	3.57	Strongly Agree
Help me improve our quality of life	3.48	Strongly Agree
Overall Weighted Mean	3.39	

Legend: 3.25-4.00=Strongly Agree; 2.50-3.24=Agree; 1.75-2.49=Disagree; 1.00-1.74=Strongly Disagree

Table 3 presents the impact of livelihood projects in terms of values gained. The overall weighted mean is 3.42, indicating a high impact of the livelihood project in terms of values gained. The indicator "made me feel that there are others who care for me" obtained the highest mean score of 3.61. Respondents strongly agree that when program coordinators take time to understand individual needs and tailor assistance accordingly, it fosters a sense of care and attention. In addition, interacting with the community beneficiary creates a supportive network by sharing experiences and encouragement, which contributes to feeling cared for. Other indicators tied at 3.39, which includes promoting collaboration and communication, developing my creativity, making me become a better citizen, and giving me a chance to be productive. Respondents mentioned that feeling supported and valued increased their self-confidence. The encouragement from the program coordinators and fellow participants created a positive atmosphere, allowing individuals to collaborate, share ideas, and learn from others. This interaction can spark creativity and lead to innovative projects. Respondents' active participation fosters a sense of responsibility and community engagement, which contributes to good citizenship. In addition to the livelihood program are training and capability building in various fields, which can also ignite creativity and open fresh perspectives. Livelihood programs often provide access to tools, materials, and networks that can empower individuals to explore their creativity. Lastly, livelihood programs equip individuals with practical skills. Learning how to start and manage a small business through livelihood programs can lead to increased productivity. When basic needs are met through livelihood programs, individuals can focus more on creative pursuits. By working towards common objectives, fisherfolks developed a sense of unity and shared purpose (Amadu, et al., 2021)

Table 3: Impact of Livelihood Project in terms of Values Gained

Indicators	WM	Verbal Interpretation
Promote collaboration and communication	3.39	Strongly Agree
Build up my confidence	3.35	Strongly Agree
Develop my creativity	3.39	Strongly Agree
Made me become a responsible citizen	3.39	Strongly Agree
Gave me a chance to be productive	3.39	Strongly Agree
Made me feel that there are others who care for me	3.61	Strongly Agree
Overall Weighted Mean	3.42	

Legend: 3.25-4.00=Strongly Agree; 2.50-3.24=Agree; 1.75-2.49=Disagree; 1.00-1.74=Strongly Disagree

Table 4 presents the effectiveness of the fisherfolk livelihood project with a composite mean of 3.53, indicating that the livelihood project is effective, as the program is rated positively by the respondents. The indicator “the project contributed to the improvement of our way of living” got the highest mean score of 3.83. This is a testament that the project has a significant positive impact on the community, underscoring the project’s vital role in enhancing the community’s way of living. Most of the respondents strongly agree that the fisherfolk livelihood project contributed to reducing poverty, vulnerability, and social exclusion among the Dumagat communities. Next in rank is the indicator “the livelihood program helped in increasing the family income,” with a mean score of 3.74. This reflects a positive impact on the economic well-being of the respondents, highlighting the livelihood programs’ tangible contribution to enhancing the family’s income. Tied in rank are the indicators “the project is well funded and supported by the college and LPU, the project is successful and effective, and the project benefited us to learn new knowledge and information with a weighted mean of 3.43. A well-funded and supported livelihood program can be a transformative force in communities by providing individuals with a means to generate income, thereby enhancing the quality of their lives. The College of Business Administration faculty and students invested in essential fishing resources such as boats, fishing gear, and safety equipment. These projects allow the fisherfolk to increase their income and support their families. However, while the livelihood projects offer immediate benefits and are positively perceived by small-scale fishers, the broader socio-economic and environmental challenges they face contribute to the ongoing struggle with poverty. The study on Sustainable Fisheries Livelihood Programme (SFLP) of the Food and Agriculture Organization of the United Nations (2005) demonstrated that while livelihood projects can significantly improve certain aspects of fisherfolk’s economic condition, persistent poverty remains a complex issue requiring comprehensive strategies and sustained efforts from all stakeholders involved.

Table 4: Effectiveness of the Livelihood Project

Indicators	WM	Verbal Interpretation
The livelihood program helped in increasing the family income	3.74	Strongly Agree
There is enough time allotted in the project to make it successful	3.30	Strongly Agree
The project is well funded and supported by the college and LPU	3.43	Strongly Agree
The project contributed to the improvement of our way of living	3.83	Strongly Agree
The project is successful and effective	3.43	Strongly Agree
The project benefited us to learn new knowledge and information	3.43	Strongly Agree
Overall Weighted Mean	3.53	

Legend: 3.25-4.00=Strongly Agree; 2.50-3.24=Agree; 1.75-2.49=Disagree; 1.00-1.74=Strongly Disagree

Table 5 presents the r-values showing the correlation between economic status and the effectiveness of the livelihood project. The results for Table I to III show that time allotted to the project and its perceived success and effectiveness have the strongest and most consistent relationships with positive livelihood outcomes.

Weak correlations (0.00–0.39) were observed between project funding and outcomes such as increasing family income, gaining regular income, handling finances, and improving quality of life. For example, the correlation between the project being well-funded and increased family income was only 0.006, indicating almost no linear relationship. Similarly, the project’s general contribution to living improvement also showed mostly weak correlations with economic gains.

Moderate correlations (0.40–0.69) appeared prominently between time allotted, project success, and key livelihood results. For instance, the time allotted for the project had moderate positive correlations with increasing family income ($r = 0.541$), handling finances well ($r = 0.575$), and improving quality of life ($r = 0.472$). This suggests that the more time participants dedicate to the livelihood project, the more likely they are to gain tangible financial benefits and better life management skills.

Strong correlations (0.70–1.00) were noted primarily where time commitment and well-organized implementation intersect with savings and financial management outcomes. Notably, the correlation between time allotted and the opportunity to save for the future was 0.801, which is within the strong range. Likewise, the project’s success and its benefit in providing new knowledge strongly correlated with the opportunity to save ($r = 0.715$ – 0.725) and handling finances ($r = 0.854$). These results indicate that structured time investment and effective program delivery significantly enhance participants’ capacity to save and manage finances better. The World Bank (2018) emphasized that the success of livelihood projects is often measured by the financial resilience and savings capacity of the beneficiaries. Orbeta et al I(2022) found that adequate funding and support in

livelihood programs are essential for enhancing the saving capacity of participants.

Table 5: Correlation Table of Economic Status and Effectiveness of Livelihood Project Indicators
The correlation results were grouped and interpreted using standard thresholds based on Guilford's (1956) and Cohen's (1988) widely accepted

		Effectiveness of the Livelihood Project					
		Family Income Improvement	Time Allocation	Project Funding and Support	Quality of Life Improvement	Project Success	Knowledge Acquisition
Impact of Livelihood Project in terms of Economic Status	Provision of Family Needs	.567**	.541**	0.006	0.195	0.007	0.199
	Income Stability	.615**	.691**	0.229	0.161	0.141	0.299
	Savings Opportunity	.399	.801**	.719**	.465*	.715**	.725**
	Financial Management	.575**	.854**	0.24	0.256	0.408	.635**
	Income Improvement	.562**	.649**	0.182	.523*	0.357	.592**
	Quality of Life Enhancement	.472*	.741**	0.298	.439*	0.335	.565**

classifications: coefficients between 0.00–0.39 were considered weak, 0.40–0.69 as moderate, and 0.70–1.00 as strong. This approach aligns with published livelihood impact studies (e.g., Li et al., 2023; Alam et al., 2023).

Table 6 presents the r-values showing the correlation between values gained and the effectiveness of the livelihood project. The results for Table II to III further highlight the importance of time, learning, and active engagement for broader personal and social development.

Weak correlations (0.00–0.39) emerged between project funding or general living improvement and outcomes such as collaboration, confidence, creativity, and productivity. For example, the correlation between project funding and promoting collaboration and communication was only 0.323, which is weak. This indicates that funding alone does not directly build stronger collaboration or confidence.

Moderate correlations (0.40–0.69) were seen between time allotted and certain community aspects, such as feeling that others care ($r = 0.610$) and project benefits related to learning new knowledge and promoting collaboration ($r = 0.558$). These moderate links show that investing time and gaining new knowledge moderately improve community ties and individual perception of social support.

Strong correlations (0.70–1.00) were consistently present in the relationships between time allotted and building confidence ($r = 0.930$), developing creativity ($r = 0.858$), becoming a responsible citizen ($r = 0.858$), and being productive ($r = 0.858$). Likewise, the benefit of gaining new knowledge showed strong ties with personal development, such as building confidence ($r = 0.833$) and developing creativity ($r = 0.734$). These results confirm that when participants spend sufficient time on the project and gain meaningful learning, they significantly strengthen their social and personal development. Suratno and Hutabarat (2018) found that self-confidence significantly influences time management and learning outcomes, as confident individuals are more likely to engage effectively in their tasks.

Table 6: Correlation Table of Values Gained and Effectiveness of Livelihood Project Indicators

		Effectiveness of the Livelihood Project					
		Family Income Improvement	Time Allocation	Project Funding and Support	Quality of Life Improvement	Project Success	Knowledge Acquisition
Impact of Livelihood Project in terms of Values Gained	Collaboration and Communication	.557**	.776**	0.323	0.28	0.362	.558**
	Self-confidence Development	0.36	.930**	.637**	0.335	.716**	.833**
	Creativity Development	0.395	.858**	.425*	0.368	.477*	.734**
	Civic Responsibility	0.395	.858**	.700**	0.368	.786**	.734**
	Productivity Opportunity	0.395	.858**	.700**	0.368	.786**	.734**
	Social Support	.447*	.610**	0.401	0.102	0.295	0.344

The correlation results were grouped and interpreted using standard thresholds based on Guilford's (1956) and Cohen's (1988) widely accepted classifications: coefficients between **0.00–0.39** were considered **weak**, **0.40–0.69** as **moderate**, and **0.70–1.00** as **strong**. This approach aligns with published livelihood impact studies (e.g., Li et al., 2023; Alam et al., 2023).

Table 7 presents the composite mean association between the impact of the livelihood project and the effectiveness of the livelihood project. The r-values indicate a strong positive correlation between the impact of the livelihood program and the effectiveness of the program, which means that the program is effective in improving the living conditions of those who participated in the program. The p-values also suggest that there is a strong positive relationship between the two variables. Given the strong statistical significance, it implies that the impact of the livelihood program is a reliable predictor of its success. The greater the impact, the more effective the programs are. The study of Dokubo and Amadi (2021) and Asio et al. (2024) provides valuable insights into how effective livelihood programs can positively impact the economic and social values of fisherfolk.

Table 7: Relationship between the impact of the livelihood project and its effectiveness

Impact	p-value	r-value	Interpretation
Economic Status	.000	.744**	Significant
Values Gained	.000	.835**	Significant

Challenges in the Implementation of the Livelihood Program

Fisherfolk livelihood programs in Cabog, Matawe, Dingalan, Aurora is essential in enhancing the economic stability and resilience of the Dumagat beneficiaries. However, there are challenges experienced by the beneficiaries that have affected the effectiveness of the implementation program. Among the challenges experienced by the respondents during the implementation of the fisherfolk livelihood program mentioned during the interview and focus group discussion are the following:

1. Limited number of fishing boats and fishing gears: most of the respondents mentioned that the number of boats provided by the College of Business Administration is not enough to accommodate the number of beneficiaries. Two boats are provided for the Dumagats of Dingalan, Aurora, with a total of 23 fisherfolk beneficiaries. With the limited number of boats, not all members are given the chance to use the boat for fishing, which could sometimes lead to conflict among members. In addition, one boat was severely damaged during the typhoon and is beyond repair. The boat's engine is still working, but there is a need to buy or fabricate a new boat. Emily Dupaya, MAEDUP president, mentioned in our interview "*nagkaroon po ng problem nung isa na lang ang tumatakbong bangka kasi naka quota po yung pwede sumakay. Hinde naman po pwedeng marami at maliit lang yung bangka.*" It is the wish of the fisherfolks to provide them with an additional boat that is

durable and long-lasting. Without adequate boats, fisherfolks struggle to access more productive fishing areas, restricting their catch to less abundant coastal waters, resulting in lower income. The Dumagats also struggle to afford essential fishing materials, as many of these are costly. The college provided them with fishing gear like headlamps, goggles, nets, hooks, and baits. However, frequent use of these fishing materials can cause them to deteriorate over time. The need for repair or replacement adds to the financial burden of fisherfolk. According to Jeniline, the chieftain of the community *“malaki ang tulong ng mga flashlight, antipara at iba pang materyales kasi yan po ang ginagamit nila araw-araw sa hanap bubay”*.

2. **Scheduling and coordination on the use of boats:** Many beneficiaries mentioned during the focus group discussion that there is a problem when it comes to scheduling the use of boats. Some members expressed frustration over missed opportunities to join the fishing because of double bookings and biases or favoritism, resulting in inequitable access to boats. Emily and Jeniline both mentioned *“nagkakaroon po ng tampuhan kapag di po nakakasama sa pangingsida yung iba”*. This needs to be addressed to ensure that all fisherfolk benefit equitably. While there are internal ways to settle the perceived unfair scheduling, there must be a clear and transparent scheduling system that all beneficiaries agree upon for better coordination of boat usage.
3. **Maintenance and repairs:** Another concern that the beneficiaries mentioned is the cost of the boat's repairs and maintenance. Repair and maintenance of fishing boats are essential to extend the lifespan of the boat, making it more efficient and seaworthy. Frequent use and environmental factors can accelerate the wear and tear of the boat. Despite the importance of maintenance, many fisherfolks have financial constraints, making it difficult to afford the necessary materials and tools for repairs and maintenance. Members share a percentage of their sale by the members, whoever uses the boats must give a percentage share of their harvest, called *butaw*, for repairs and maintenance. However, not all fishing activities are successful, and sometimes harvests are not even enough to cover the operating expenses. Emily mentioned *“Kung minsan po iilan lang nakakabalik ng konsumo nila na biniram galing sa pondo, yung iba po, hinde na nakakabayad ng konsumo kasi lugi sila kaya nanubos po yung pondo sa bangka. Kaya kadalasan, kapag nasira yung bangka, sinasarili ko po yung gastos”*. Most fishers are operating on a tight budget as earnings from fishing are often not enough to cover the expenses, with many instances of loss or breakeven. This sacrifices the regular upkeep of the boat.
4. **Market Access:** The fishing community is in the remote coastal area of Dingalan, Aurora. It is far from larger markets, and transportation costs exacerbate the problem. The absence of affordable transportation forced Dumagat fishermen to sell their catch to a middleman in the area at a lower price. Most of the fisherfolk rely on middleman to sell their catch, who mostly take advantage of the fishers' lack of direct access to markets, resulting in less control over prices and cuts in their income. To address the issue, fisherfolks would like to establish a small “talipapa” or local wet market where they can directly sell their catch and other products to the community. This will allow fisherfolks to have direct access to consumers without relying on the middlemen as well as eliminating the long-distance transportation, resulting in better prices, reduced post-harvest cost, and increasing their income. Ms. Dupaya mentioned during the interview *“dagdag kita po yan pag may talipapa na po. Kami na po ang magbebenta sa mga turista, hinde na lang sila. At least po yung tubo doon sa amin na po labat mapupunta”*.
5. **Limited income from fishing -** Another challenge that the beneficiaries mentioned is the limited income they earn from fishing especially during typhoons and off-season. Fishing trips are often cancelled due to storms or strong winds. The unpredictable weather conditions in the area limit the fishing activities of the Dumagats, resulting in significant income loss. During the interview with the Chieftain and MAEDUP president, they mentioned *“nung nakaraang taon po habagatin, pero ngayun po madalas po kasi yung sama ng panhon”*. The two leaders mentioned that there are financial struggles, as earnings from fishing are often just enough to cover expenses, with many instances of losses. All respondents requested other livelihood projects as an alternative source of income, such as agricultural activities, to mitigate the economic impact of limited fishing and to reduce their dependence on fishing. Diversifying income sources can help them acquire new skills and reduce their dependence on fishing alone.
6. **Climate change –** The majority of the respondents mentioned that changes in weather patterns have disrupted their fishing activities, resulting in a significant loss of catch and income. Increased frequency and intensity of severe weather conditions can cause damage to boats and fishing gear, leading to financial strain and vulnerability. Many respondents mentioned that *“Nung nakaraang taon po ay habagatin, mas madalas po kasi yung sama ng panhon kaya di kami masyado nakaka pangisda. Aayos yan ng mga ilang araw tapos sasama na naman ang panhon.”* The region is prone to storms and the southwest monsoon, locally known as “habagat.” This brings intense rainfall, strong winds, flooding, and landslides in the area, disrupting fishing and agricultural activities. If fishers are unable to fish, they face immediate financial losses, which can impact their ability to support their families and meet their basic needs. If fishing is not possible, fishers seek alternative sources of income or rely on government assistance.

4. CONCLUSION

The fisherfolk's livelihood project contributed a positive impact on the economic status and values gained by the beneficiaries. The project has brought about improvement in the living standard of community members over the last five years. This is supported by the research findings revealing a strong positive correlation between the impact of the livelihood program and the effectiveness of the program. However, due to the small-scale nature of their operations, environmental conditions, and limited resources, many fisherfolks earn meager incomes not enough to meet their basic needs, hence, there is a need to sustain and enhance those livelihood projects. Addressing these challenges requires a comprehensive and adaptive approach involving collaboration among different actors involved in the livelihood programs, focusing on building resilience within the community. This includes continuous improvement of fishing resources; establishing direct market access to eliminate middlemen; training programs for small business management; creation of alternative livelihood projects in agriculture to provide an additional source of income; and better collaboration among stakeholders to ensure that the project will continue to thrive and support the livelihood of fishers. The assessment can further explore the challenges experienced by the Dumagat fisherfolk so that the College of Business Administration and government bodies can continue to respond to the needs of the community with particular emphasis on the development of supplemental and alternative livelihoods to address the root cause of vulnerability of small-scale fisherfolk.

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Research Article

AI in Service-Learning: Addressing Challenges and Unlocking Opportunities in Vietnamese Higher Education

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ABSTRACT

The integration of Artificial Intelligence (AI) into service-learning represents a significant transformation in higher education, offering innovative ways to enhance student engagement, experiential learning, and instructional efficiency. While AI has been increasingly utilized in various educational contexts, its application within service-learning frameworks remains underexplored, particularly in Vietnam. This study conducts a systematic literature review (SLR) to analyze existing research on the opportunities and challenges of AI-driven service-learning, focusing on its implications for Vietnamese higher education institutions. Adopting a structured SLR methodology, this research examines peer-reviewed studies published between 2014 and 2024, sourced from Scopus, Web of Science, IEEE, Springer, and Taylor & Francis. The selected literature is categorized based on key themes, including AI applications in service-learning, institutional barriers to AI adoption, faculty readiness, and policy considerations. Through a critical synthesis of existing studies, this review identifies both the transformative potential and the persistent challenges associated with AI integration in community-based learning environments. The findings indicate that AI can facilitate personalized learning experiences, automate assessment processes, and improve real-time feedback mechanisms, thereby enriching the service-learning experience. However, institutional inertia, digital infrastructure limitations, and faculty skepticism present significant barriers to AI adoption. Additionally, the absence of standardized frameworks for implementing AI in service-learning programs hinders its widespread integration into university curricula. This study concludes that for AI to be effectively incorporated into service-learning in Vietnam, universities must develop comprehensive institutional policies, invest in faculty development, and establish adaptable pedagogical frameworks. By synthesizing current research, this study contributes to a deeper understanding of AI's role in service-learning, providing practical insights for policymakers and educators seeking to navigate digital transformation in higher education.

Keywords: Artificial intelligence; Service-learning; Higher education; Vietnam; Systematic literature review; Digital transformation; institutional policy

1. INTRODUCTION

The integration of Artificial Intelligence (AI) into higher education has become a significant focus globally, offering transformative potential in enhancing educational practices and outcomes. AI technologies, such as intelligent tutoring systems, have been developed to provide personalized learning experiences, adapt to individual student needs, and offer immediate feedback, thereby improving student engagement and performance (Graesser et al., 2005). In Vietnam, the adoption of AI in education is gaining momentum, with institutions like the University of Information Technology under the Vietnam National University, Ho Chi Minh City, pioneering research and application of AI in various educational contexts.

Service-learning, an educational approach that integrates academic instruction with community service, has been widely recognized for its role in fostering civic responsibility and enhancing student learning through real-world applications (Jacoby, 2015). Research has shown that students engaged in service-learning develop critical thinking skills, a deeper understanding of societal issues, and a stronger commitment to community engagement (Eyler & Giles, 1999). In Vietnam, the concept of service-learning was introduced by educators such as Dong Thi Bich Thuy, who played a pivotal role in integrating this approach into Vietnamese higher education. The integration of AI into service-learning presents opportunities to further enrich these experiences by providing tools for better project management, enhancing communication between students and community partners, and offering data-driven insights to assess and improve service-learning outcomes.

Despite these potential benefits, the application of AI in service-learning within Vietnamese higher education remains underexplored. Challenges such as limited digital infrastructure, lack of faculty training in AI applications, and concerns about the appropriateness of AI in community-based learning contexts pose significant barriers to its widespread adoption. Addressing these challenges requires a comprehensive understanding of both the opportunities and obstacles associated with AI-driven service-learning initiatives.

This study aims to conduct a systematic literature review to analyze existing research on the integration of AI into service-learning, with a particular focus on its implications for Vietnamese higher education institutions. By examining peer-reviewed studies, this research seeks to identify the transformative potential of AI in service-learning, as well as the persistent challenges that need to be addressed to facilitate its effective implementation. The findings are expected to provide valuable insights for policymakers, educators, and researchers interested in leveraging AI to enhance service-learning practices in Vietnam and similar educational contexts.

2. MATERIALS AND METHODS

This study employs a Systematic Literature Review (SLR) approach to analyze existing research on the integration of Artificial Intelligence (AI) into service-learning in higher education, with a particular focus on the Vietnamese context. Instead of conducting primary data collection through surveys or interviews, this research systematically reviews peer-reviewed journal articles, policy documents, and institutional reports to synthesize current findings, identify gaps, and propose future research directions. The SLR methodology ensures a structured, transparent, and replicable approach to understanding the challenges and opportunities of AI in service-learning.

Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, the research is guided by the following questions: What are the key applications of AI in service-learning? What are the primary barriers to integrating AI into service-learning? What institutional strategies have been proposed to support AI-driven service-learning initiatives? A systematic search was conducted across Scopus, Web of Science, IEEE Xplore, SpringerLink, and Taylor & Francis Online to ensure the inclusion of high-quality academic sources. Studies were included based on the following criteria: peer-reviewed journal articles published between 2014–2024, studies explicitly focusing on AI in education and service-learning, and research discussing barriers, opportunities, or policy recommendations for AI integration in higher education. Studies were excluded if they were non-peer-reviewed, focused on AI in education without connections to service-learning, or lacked empirical or theoretical contributions.

The collected studies were analyzed using thematic content analysis, identifying recurring themes and emerging trends in AI-driven service-learning. The literature was categorized into three primary themes: AI applications in service-learning, challenges and barriers, and institutional and policy considerations. To ensure reliability and validity, two independent reviewers conducted the screening and categorization of articles, resolving discrepancies through discussion and consensus.

While a literature-based approach provides valuable insights, this study has certain limitations. Findings rely on existing research, which may not fully capture real-time challenges in Vietnamese universities. The review focuses on published studies, potentially overlooking valuable insights from unpublished institutional reports or grey literature. Although findings offer relevant insights for Vietnam, they may not be fully generalizable to all higher education institutions. Despite these limitations, the systematic nature of the review ensures that the study provides a comprehensive and structured analysis of AI's role in service-learning, contributing to the growing body of knowledge on digital transformation in higher education.

3. RESULTS AND DISCUSSIONS

1. AI Applications in Service-Learning

The integration of Artificial Intelligence (AI) into service-learning presents significant opportunities for enhancing personalized learning, automating assessment, and facilitating student-community collaboration. In higher education, AI-driven tools such as adaptive learning platforms, intelligent tutoring systems (ITS), AI-enhanced reflection tools, and AI-supported assessment systems are transforming the service-learning experience. These applications aim to optimize student engagement, improve learning outcomes, and streamline faculty workload, ensuring a more effective and scalable service-learning framework. While AI offers considerable advantages in improving service-learning methodologies, its application must be carefully aligned with pedagogical principles to maintain the integrity of experiential learning.

3.1. Adaptive Learning in the Context of Service-Learning in Higher Education

Service-learning is a pedagogical approach that integrates academic instruction with community engagement while fostering civic responsibility and critical reflection. Research has demonstrated its significant benefits for students, including improved motivation, critical thinking, and academic performance (Celio, Durlak, & Dymnicki, 2011). Adaptive learning, as an AI-driven educational approach, personalizes instruction by dynamically adjusting content and learning pathways based on student progress, ensuring each learner receives tailored support (Dziuban et al., 2018). These AI-powered systems leverage machine learning algorithms to track student interactions, identify learning gaps, and provide customized instructional materials that align with individual learning needs (Muñoz et al., 2022).

The application of adaptive learning in service-learning settings offers multiple advantages. First, adaptive learning ensures personalized student engagement, allowing students with varying prior knowledge levels to receive customized preparatory materials before engaging in community service projects. This ensures that students develop the necessary competencies before applying their knowledge in real-world settings. Second, AI-driven adaptive systems enable instructors to monitor student progress in real time, making data-driven adjustments to instructional content and reflection activities to better support students' learning trajectories. Lastly, adaptive learning provides just-in-time support, ensuring struggling learners receive additional scaffolding while allowing more advanced students to explore higher-level content. These capabilities enhance student preparedness and engagement, ultimately strengthening the impact of service-learning initiatives (Muñoz et al., 2022).

3.2. Intelligent Tutoring Systems (ITS) in Service-Learning

Intelligent Tutoring Systems (ITS) are AI-powered platforms designed to simulate human tutors by providing real-time, adaptive feedback and personalized learning experiences. ITS integrate domain expertise, student learning models, and pedagogical strategies to offer targeted instructional support (VanLehn, 2011). In service-learning contexts, students often engage in projects that require applying both academic knowledge and practical skills in real-world community settings. ITS help bridge the gap between theoretical learning and hands-on application by identifying individual learning gaps, tailoring content delivery, and assessing student progress dynamically (Aleven et al., 2016).

Empirical research supports the effectiveness of ITS in improving student learning outcomes. A meta-analysis by Kulik and Fletcher (2016) found that ITS can lead to learning gains comparable to human tutoring. For instance, AI-assisted e-tutoring programs, where university students mentor underserved youth using ITS-powered literacy tools, have demonstrated positive outcomes in both academic achievement and social development (Craig et al., 2013; Graesser et al., 2018). By providing scaffolded instruction, on-demand support, and performance analytics, ITS enhance the quality of student preparation and engagement in service-learning. However, while ITS are highly effective in cognitive skill development, research suggests that their role in fostering non-cognitive skills such as civic engagement and ethical reasoning requires further exploration (Chi et al., 2014).

3.3. AI-Enhanced Reflection Tools in Service-Learning

Reflection is a cornerstone of service-learning, as it enables students to analyze their experiences, connect theoretical knowledge with practice, and develop critical thinking skills (Eyler & Giles, 1999). Traditional reflection methods, including journals, essays, and group discussions, provide meaningful learning opportunities but are often subjective, time-intensive, and difficult to scale in large service-learning courses (Moon, 2004). AI-enhanced reflection tools offer a solution by leveraging natural language processing (NLP) and sentiment analysis to assess student reflections in real time, identifying patterns in engagement and thematic depth (Ryan & Ryan, 2013).

AI-powered reflection platforms provide several benefits. They deliver immediate and personalized feedback, guiding students toward deeper and more structured reflections. AI ensures consistency in assessment, minimizing bias in grading reflective assignments. Furthermore, data-driven insights generated by these platforms allow instructors to track student progress, identify common misconceptions, and tailor discussion topics accordingly (Thompson & Pascal, 2012). However, AI systems may struggle to interpret emotional nuance and ethical considerations, requiring human oversight to maintain the depth and authenticity of reflective practices (Ryan & Ryan, 2013). The responsible use of AI-enhanced reflection tools can significantly improve the scalability and effectiveness of service-learning without compromising its experiential value.

3.4. AI-Supported Assessment in Service-Learning

Assessment is a critical component of service-learning, ensuring that students achieve both academic and civic learning outcomes. Traditional service-learning assessments, such as reflective essays, faculty evaluations, and peer reviews, often suffer from subjectivity and inconsistency (Bringle & Hatcher, 1996). AI-supported assessment offers a solution by automating feedback

and standardizing evaluation criteria through machine learning and predictive analytics (Sarofian-Butin, 2024).

AI-driven assessment tools enhance service-learning evaluation by providing real-time feedback, text-based sentiment analysis, and adaptive grading models. NLP technologies analyze student reflections, assessing their depth and critical engagement, while predictive analytics help faculty identify patterns in student performance and engagement (Mearian, 2024). AI tools also improve scalability, allowing instructors to evaluate large cohorts of students without compromising assessment quality (Hultberg et al., 2024).

However, the use of AI in assessment raises concerns about algorithmic bias, potential misinterpretation of nuanced reflections, and the risk of students tailoring responses to fit AI-generated feedback patterns (Stanford University, 2023). To address these challenges, AI should serve as a complementary tool rather than a replacement for human evaluation. Faculty oversight is necessary to ensure that AI-generated assessments align with pedagogical goals and maintain the reflective and experiential essence of service-learning. Moreover, institutions must establish ethical guidelines for AI use in assessment, ensuring transparency and protecting student data privacy (Kimmel, 2024).

The application of AI in service-learning provides innovative solutions for personalizing learning, automating assessment, and enhancing student engagement. Adaptive learning platforms and ITS customize student preparation, ensuring that learners acquire relevant skills before engaging in community projects. AI-enhanced reflection tools help students critically analyze their experiences, while AI-supported assessment provides efficient and consistent evaluation of learning outcomes. However, the integration of AI must be approached ethically and strategically, balancing automation with human mentorship to preserve the authenticity and experiential nature of service-learning. When thoughtfully implemented, AI has the potential to transform service-learning into a more scalable, inclusive, and impactful educational experience.

2. Challenges of AI Integration in Service-Learning

While AI has demonstrated significant potential to enhance service-learning in higher education, its implementation presents numerous challenges. These obstacles can be categorized into technological and infrastructure barriers, pedagogical resistance, ethical and data privacy concerns, and regulatory and policy constraints. Addressing these challenges is essential to ensure that AI-driven service-learning initiatives are effective, ethical, and scalable within the Vietnamese higher education system.

Technological and Infrastructure Barriers

One of the primary challenges of AI integration in service-learning is the lack of adequate technological infrastructure and digital readiness in many Vietnamese universities. AI-powered platforms, such as adaptive learning systems and intelligent tutoring systems, require high-performance computing resources, stable internet connectivity, and reliable cloud-based services (Dziuban et al., 2018). However, digital disparities between institutions, particularly between urban and rural universities, limit the accessibility and scalability of AI-based service-learning programs. Research has shown that insufficient investment in educational technology and the high costs of AI deployment further exacerbate these disparities (Muñoz et al., 2022). Without government and institutional support for digital infrastructure, AI-based learning solutions may only benefit well-funded institutions, widening the gap between universities with varying financial resources.

Additionally, AI expertise and technical support remain limited in Vietnamese higher education institutions (HEIs). The successful implementation of AI in service-learning requires faculty and administrators to develop AI literacy, manage AI-driven platforms, and interpret AI-generated analytics (Kulik & Fletcher, 2016). However, many universities lack specialized training programs to equip educators with the necessary skills to leverage AI tools effectively in service-learning environments. Faculty members often report a lack of confidence in using AI-powered platforms, which hinders widespread adoption (Ryan & Ryan, 2013). Addressing this gap requires comprehensive faculty development programs and ongoing institutional investment in AI capacity-building.

Pedagogical Resistance and Faculty Concerns

Another significant challenge of AI integration in service-learning is faculty resistance to AI-driven educational tools. Service-learning is traditionally characterized by experiential, community-based interactions that emphasize human engagement, civic responsibility, and social impact (Bringle & Hatcher, 1995). Many educators express concerns that automated learning systems and AI-driven assessments may undermine the relational aspects of service-learning, reducing student interactions with faculty, peers, and community members (Eyler & Giles, 1999). This resistance stems from a perceived conflict between AI automation and the core values of experiential education (Moon, 2004).

Furthermore, faculty members often worry that AI may replace traditional instructional roles, diminishing the instructor's influence over the learning process. AI's ability to provide automated feedback and content adaptation can make educators feel displaced or undervalued in service-learning pedagogy (Chi et al., 2014). Research indicates that faculty are more likely to accept AI tools when they are framed as assistive technologies that enhance rather than replace human instruction (Kimmel, 2024). Overcoming this resistance requires institutional policies that emphasize the complementary role of AI in service-learning, reassuring educators that AI serves as a supportive tool rather than a substitute for instructor-led learning.

Ethical and Data Privacy Concerns

The integration of AI in service-learning also raises ethical dilemmas and concerns about data privacy. AI-powered platforms collect, analyze, and store vast amounts of student data, including academic performance metrics, reflection journals, and behavioral patterns (Stanford University, 2023). While AI-driven analytics provide valuable insights into student learning trajectories, they also introduce risks related to data security, privacy breaches, and potential misuse of personal information (Hultberg et al., 2024). Institutions must establish robust data governance policies to protect student privacy and ensure that AI applications comply with ethical and legal standards (Sarofian-Butin, 2024).

Additionally, algorithmic bias in AI models presents a significant ethical challenge. AI-driven assessment tools, such as automated reflection analysis and sentiment detection, may misinterpret student narratives or unintentionally reinforce biases in grading and feedback mechanisms (Ryan & Ryan, 2013). If AI models are trained on non-diverse or skewed datasets, they may produce unfair or misleading assessments, disproportionately affecting certain student groups. Ensuring transparency and fairness in AI-generated evaluations requires regular auditing of AI algorithms, faculty oversight, and the development of inclusive AI training datasets (Mearian, 2024).

Regulatory and Policy Constraints

The lack of standardized policies and regulatory frameworks for AI integration in higher education further complicates its adoption in service-learning. Unlike traditional educational technologies, AI-driven learning platforms require clear guidelines on ethical usage, accountability, and assessment validity (Bringle & Hatcher, 1996). However, Vietnamese higher education institutions currently lack unified national policies governing AI applications in pedagogy and student assessment (Kimmel, 2024). Without well-defined regulatory frameworks, universities struggle to develop consistent AI adoption strategies, leading to fragmented and inconsistent implementation across institutions.

Moreover, institutional policies often lag behind AI advancements, making it difficult for faculty and administrators to make informed decisions about AI deployment (Hultberg et al., 2024). Universities must work closely with government agencies, AI researchers, and educational policymakers to establish ethical guidelines, data protection standards, and best practices for AI-driven service-learning. Collaboration with international AI policy frameworks can also help Vietnamese HEIs develop more robust governance models that align with global standards.

While AI holds immense potential to enhance service-learning experiences, streamline assessment, and provide personalized learning pathways, its integration is hindered by technological limitations, faculty resistance, ethical concerns, and policy gaps. Addressing these challenges requires institutional investment in AI infrastructure, faculty training programs, and ethical AI governance frameworks. Universities must develop clear AI adoption policies that ensure equitable access, data security, and pedagogical alignment with service-learning objectives. Furthermore, collaborative efforts between educators, policymakers, and technology experts are essential to overcoming these barriers and realizing AI's full potential in service-learning.

3. Institutional and Policy Considerations for AI-Driven Service-Learning

The successful integration of AI into service-learning in higher education requires institutional commitment, strategic policy development, and multi-stakeholder collaboration. While AI presents opportunities to personalize learning, streamline assessment, and enhance student engagement, its implementation must be aligned with institutional priorities and national education policies. This section examines the role of university leadership, faculty development, AI-integrated service-learning strategies, and cross-sector collaborations in ensuring the sustainable adoption of AI in Vietnamese higher education.

3.1. The Role of University Leadership and Administrative Support

Institutional leadership plays a critical role in shaping AI adoption in service-learning by establishing a clear vision, securing financial investments, and fostering faculty engagement. Universities that prioritize digital transformation and AI-driven pedagogy tend to experience higher levels of faculty buy-in and student engagement (Kimmel, 2024). Leadership commitment is

essential for addressing technological challenges, ethical concerns, and faculty apprehensions, ensuring that AI is integrated as a tool for enhancement rather than replacement of human instruction.

Successful AI implementation in higher education is closely tied to governance structures and decision-making frameworks. Studies show that universities with centralized AI policies and dedicated digital transformation offices are more effective in scaling AI-driven initiatives (Sarofian-Butin, 2024). For example, institutions in North America and Europe that have established AI advisory committees and interdisciplinary task forces have seen smoother transitions to AI-powered education (Hultberg et al., 2024). Vietnamese universities can learn from these global models by creating institutional policies that set clear guidelines for AI integration while preserving the experiential learning components of service-learning.

However, the lack of AI governance frameworks in Vietnamese higher education poses a significant barrier to adoption. Many institutions lack formal AI implementation strategies, leading to fragmented and inconsistent adoption across faculties and departments (Stanford University, 2023). To overcome this, universities must develop structured AI policies that include guidelines on ethical AI usage, faculty support, and student data protection. Leadership must also communicate the long-term benefits of AI-enhanced service-learning, fostering a culture of innovation and adaptability.

3.2. Faculty Development and AI Training for Educators

A major challenge in AI integration is the readiness of faculty members to adopt and utilize AI tools effectively. Research indicates that many educators lack AI literacy, making them hesitant to incorporate AI-driven technologies into their teaching and assessment practices (Dziuban et al., 2018). In Vietnam, faculty development programs on AI adoption remain limited, further contributing to pedagogical resistance (Muñoz et al., 2022). To ensure the successful integration of AI in service-learning, universities must invest in comprehensive faculty training programs. Effective faculty development strategies include:

- i. AI Literacy Workshops – Offering hands-on training sessions where educators learn how to use AI-powered adaptive learning platforms, intelligent tutoring systems, and AI-assisted reflection tools.
- ii. Peer Mentoring and AI Learning Communities – Encouraging faculty members to collaborate and share best practices in AI-enhanced pedagogy.
- iii. Incentives for AI Adoption – Providing research grants, teaching awards, or workload adjustments for educators who actively engage with AI in service-learning.
- iii. Continuous AI Support and Consultation – Establishing AI help desks or digital learning centers to assist faculty with technical challenges and pedagogical concerns.

Evidence suggests that universities that provide ongoing AI training for faculty members see higher rates of adoption and improved student learning outcomes (Kulik & Fletcher, 2016). Vietnamese higher education institutions must prioritize faculty development initiatives to ensure AI integration does not become an additional burden on educators but rather a tool that enhances their teaching and service-learning facilitation.

3.3. Strategies for AI-Integrated Service-Learning

For AI to be effectively incorporated into service-learning, institutions must develop strategies that align AI applications with experiential learning objectives. The challenge lies in maintaining the humanistic, community-based nature of service-learning while leveraging AI-driven efficiencies (Eyler & Giles, 1999). Research suggests that structured AI implementation models can enhance both student learning and community impact (Thompson & Pascal, 2012). Several key strategies for integrating AI into service-learning include:

- i. Blended AI-Human Interaction Models – Ensuring that AI tools complement rather than replace traditional service-learning activities. For example, AI can be used to automate initial feedback on student reflections, while faculty members facilitate deeper discussion and mentorship.
- ii. AI-Assisted Project Management – Using AI-powered platforms to match students with relevant community projects, track project milestones, and optimize resource allocation (Muñoz et al., 2022).
- iii. AI-Enhanced Reflection and Assessment – Leveraging AI-driven natural language processing tools to analyze student reflections while maintaining human oversight in final evaluations (Ryan & Ryan, 2013).
- iv. AI for Inclusive and Scalable Service-Learning – Employing AI to expand service-learning opportunities to remote

and underserved areas, enabling students to engage in virtual community projects that transcend geographical limitations (Sarofian-Butin, 2024).

By adopting these strategic approaches, institutions can harness AI's potential while preserving the experiential, human-centered aspects of service-learning.

3.4. Cross-Sector Collaboration and Policy Development

The integration of AI in service-learning requires collaborative efforts among universities, government bodies, industry partners, and non-profit organizations. AI adoption in higher education cannot be solely institution-driven; it must be supported by national education policies and cross-sector partnerships (Hultberg et al., 2024). Successful global AI implementations highlight the importance of collaborations between academia, government, and industry. Countries such as Singapore and Germany have national AI education strategies that support universities in AI adoption (Stanford University, 2023). These policies provide funding for AI research, faculty development, and infrastructure investment, ensuring that institutions have the necessary resources to implement AI-driven learning (Kimmel, 2024).

For Vietnamese universities, developing partnerships with AI technology firms, NGOs, and governmental agencies can help bridge the gap between policy and practice. Specific initiatives could include:

- i. Government-Led AI Education Programs – Establishing national frameworks to guide AI adoption in service-learning curricula.
- ii. University-Industry Partnerships – Collaborating with AI firms and educational technology companies to integrate AI tools into service-learning initiatives.
- iii. Ethical AI Guidelines for Higher Education – Developing regulatory frameworks that address AI biases, data security, and ethical considerations in student assessment and reflection analysis.

By fostering these collaborations, Vietnamese higher education institutions can ensure AI integration in service-learning is not only technologically feasible but also pedagogically sound and ethically responsible.

Institutional and policy considerations are critical to the effective integration of AI in service-learning. Strong university leadership, faculty training, structured AI adoption strategies, and cross-sector collaborations are essential for scaling AI-enhanced service-learning initiatives. Universities must develop institutional policies that promote AI literacy, encourage faculty engagement, and maintain the ethical integrity of service-learning pedagogy. Additionally, collaboration with government agencies and technology partners will help establish national AI education strategies, ensuring that AI applications in service-learning align with global best practices while addressing the unique challenges of Vietnamese higher education.

4. Opportunities for AI-Driven Service-Learning in Higher Education

The integration of AI in service-learning presents numerous opportunities for higher education institutions to enhance learning experiences, improve accessibility, and foster student engagement. While challenges exist, AI has the potential to transform service-learning by personalizing instruction, expanding outreach, and increasing efficiency in community-based education. This section explores key opportunities, including enhanced inclusivity, scalability, real-time adaptive learning, and interdisciplinary collaboration in service-learning initiatives.

4.1. AI for Inclusive and Accessible Service-Learning

One of the most promising opportunities of AI integration in service-learning is its ability to enhance inclusivity and accessibility. Traditional service-learning programs often require physical participation, which can be challenging for students with disabilities, those from remote areas, or those with time constraints (Dziuban et al., 2018). AI-powered platforms can help bridge this gap by facilitating virtual service-learning experiences, allowing students to engage in online community projects, remote mentoring, and AI-supported social initiatives (Muñoz et al., 2022). For example, AI-powered speech-to-text tools, real-time translation software, and adaptive learning platforms can help students with disabilities fully participate in service-learning projects (Kulik & Fletcher, 2016). Additionally, AI-driven virtual simulations can allow students to experience real-world service contexts without geographical limitations. Universities that implement AI-supported accessibility tools can create a more inclusive service-learning environment, ensuring that all students, regardless of their backgrounds, have opportunities to engage in meaningful community-based learning.

4.2. Scaling Service-Learning Initiatives with AI

AI enables universities to scale service-learning programs beyond local communities, expanding engagement to national and international levels. Traditional service-learning often relies on small-scale, localized projects, limiting student participation to immediate geographical areas. However, AI-powered project management tools, virtual collaboration platforms, and intelligent matchmaking systems can connect students with global service-learning opportunities (Sarofian-Butin, 2024). For instance, AI can match students with relevant community organizations based on their academic skills, interests, and career goals. AI-driven chatbots and virtual assistants can also support students in navigating their service-learning experiences, providing real-time guidance, answering queries, and ensuring continuous engagement (Kimmel, 2024). By leveraging AI, universities can scale their service-learning programs to reach underserved communities, enabling more students to engage in impactful service initiatives worldwide.

4.3. Enhancing Student Engagement with Real-Time Adaptive Learning

AI's ability to provide real-time feedback and adaptive learning significantly enhances student engagement in service-learning. Traditional service-learning experiences often rely on periodic reflections and faculty assessments, which can delay feedback and limit immediate learning opportunities. AI-powered natural language processing tools, sentiment analysis, and automated feedback systems allow students to receive instant reflections on their experiences (Ryan & Ryan, 2013). For example, AI-driven reflection tools can analyze students' service-learning journals, providing suggestions for deeper critical thinking and social impact analysis (Hultberg et al., 2024). Additionally, AI-powered peer assessment platforms can enable students to collaborate more effectively, fostering interactive learning communities that encourage deeper reflection and engagement (Thompson & Pascal, 2012). These AI-enhanced feedback mechanisms allow students to continuously improve their learning outcomes, ensuring that their service-learning experiences are meaningful and impactful.

4.4. AI-Driven Interdisciplinary Collaboration in Service-Learning

Service-learning is inherently interdisciplinary, requiring collaboration across STEM, social sciences, humanities, and education disciplines. AI facilitates cross-disciplinary integration by analyzing complex social issues, synthesizing data from multiple sources, and identifying interdisciplinary solutions (Mearian, 2024). For example, AI-powered data analytics can help students in public health programs analyze community health trends, while AI-driven language models can assist students in education programs in developing personalized learning plans for underserved communities (Stanford University, 2023). Additionally, AI-assisted environmental modeling tools can support students in sustainability and conservation projects, helping them predict ecological impacts and propose data-driven solutions. By leveraging AI for interdisciplinary collaboration, universities can encourage students from diverse academic backgrounds to work together on service-learning projects, fostering innovative, AI-enhanced solutions to real-world challenges.

AI-driven service-learning presents significant opportunities to enhance inclusivity, scalability, engagement, and interdisciplinary collaboration in higher education. By leveraging AI-powered tools, universities can ensure that service-learning is accessible to all students, expand community engagement beyond local boundaries, and provide real-time adaptive feedback to enhance student learning. Additionally, AI facilitates cross-disciplinary collaboration, enabling students to develop holistic, AI-enhanced solutions to social challenges. To fully realize these opportunities, universities must adopt structured AI strategies, invest in faculty development, and establish ethical AI guidelines. While challenges exist, proactive AI integration in service-learning can significantly enrich student experiences, ensuring that higher education remains innovative, inclusive, and globally connected.

5. Comparative Insights from Global AI-Driven Service-Learning Models

The integration of Artificial Intelligence (AI) in service-learning has gained traction in various higher education systems worldwide. By examining successful implementations in North America, Europe, and Asia, universities in Vietnam can adapt and contextualize AI-driven service-learning strategies to fit local educational and socio-cultural contexts. This section explores key insights from global case studies, identifying best practices and potential applications for Vietnamese higher education institutions (HEIs).

5.1. Lessons from North America: AI-Enhanced Reflection and Assessment

In North America, AI has been increasingly incorporated into service-learning pedagogy, particularly in reflection and assessment processes. Institutions such as Stanford University and Harvard University have developed AI-powered platforms that assist students in analyzing their service-learning experiences through automated reflection analysis and sentiment detection tools

(Stanford University, 2023). These tools leverage natural language processing (NLP) and machine learning algorithms to provide real-time feedback on student reflections, helping them develop deeper critical thinking and self-awareness (Ryan & Ryan, 2013). For example, at Stanford's Haas Center for Public Service, AI-driven tools assist faculty in evaluating student journals and reflection essays. These systems analyze thematic depth, emotional tone, and engagement levels, ensuring that students meaningfully connect their academic knowledge with real-world service (Thompson & Pascal, 2012). Additionally, AI-powered adaptive learning dashboards allow instructors to track student progress throughout service-learning projects, identifying areas where additional guidance or intervention is needed (Hultberg et al., 2024).

Implications for Vietnam: Vietnamese HEIs can adopt AI-enhanced reflection tools to improve service-learning assessment. Since service-learning in Vietnam often relies on subjective faculty evaluations, AI-powered analysis can introduce more consistency and objectivity while reducing faculty workload. However, faculty must ensure that AI-driven assessments complement, rather than replace, human feedback, preserving the relational aspect of experiential learning.

5.2. European Perspectives: AI for Community Engagement and Digital Service-Learning

In Europe, universities have focused on leveraging AI to expand digital and remote service-learning opportunities. Institutions such as The University of Edinburgh and The Open University (UK) have developed AI-powered virtual collaboration tools that enable students to engage in community-based projects across geographical boundaries (Kimmel, 2024). These tools support real-time communication, data analysis, and project tracking, allowing students to participate in service-learning initiatives without physical constraints (Muñoz et al., 2022). For example, The Open University's AI-enabled service-learning programs integrate virtual reality (VR) and AI-driven simulations to immerse students in community challenges. Through AI-powered chatbots and virtual mentors, students engage with local and global community partners, working on projects related to sustainability, public health, and social innovation (Kulik & Fletcher, 2016). These AI-supported models ensure that students gain practical service-learning experience, even in online or hybrid learning environments.

Implications for Vietnam: Given Vietnam's geographical diversity and disparities in digital infrastructure, AI-powered virtual service-learning initiatives could increase accessibility for students in rural areas. Universities could adopt AI-assisted online platforms to facilitate cross-regional community engagement, allowing students to collaborate on national and international service projects. However, policymakers must ensure that AI-enhanced service-learning initiatives remain culturally relevant and do not compromise the authenticity of community engagement.

5.3. Asian Models: AI for Scalable and Inclusive Service-Learning

Several universities in Asia, particularly in Singapore, China, and South Korea, have adopted AI-driven solutions to enhance service-learning scalability and inclusivity. Nanyang Technological University (Singapore) and Seoul National University (South Korea) use AI-powered intelligent tutoring systems (ITS) and predictive analytics to guide students in community-based learning (Stanford University, 2023). For instance, at Nanyang Technological University, AI-powered systems help students identify service-learning opportunities based on their academic skills and career aspirations (Sarofian-Butin, 2024). These platforms analyze student profiles, match them with relevant community partners, and provide real-time progress tracking, ensuring that service-learning projects are aligned with students' competencies and learning goals (Dziuban et al., 2018). Similarly, in China, AI-driven language processing tools assist students in cross-cultural service-learning initiatives, facilitating seamless communication between students and non-native speakers (Muñoz et al., 2022).

Implications for Vietnam: Vietnamese universities can learn from Asian AI-driven service-learning models by implementing intelligent tutoring systems and AI-powered student matching platforms. These tools can help optimize project allocation, ensure skill-based student engagement, and personalize service-learning experiences. Additionally, AI-powered translation tools can enhance cross-cultural service-learning initiatives, making it easier for students to engage in international community projects.

5.4. Adapting Global AI-Driven Service-Learning Strategies to the Vietnamese Context

While global AI-driven service-learning models offer valuable insights, their implementation in Vietnam requires contextual adaptation. The Vietnamese higher education landscape presents unique challenges, including faculty resistance, limited AI infrastructure, and policy gaps (Mearian, 2024). To successfully integrate AI-driven service-learning, universities should:

- i. Develop AI Policies for Ethical and Inclusive Implementation – Establish institutional guidelines that govern AI ethics, data security, and equitable AI adoption (Stanford University, 2023).

- ii. Prioritize Faculty Development and AI Literacy – Offer AI training workshops to help faculty members confidently integrate AI tools into service-learning curricula (Kimmel, 2024).
- iii. Adopt AI-Powered Adaptive Learning for Service Projects – Implement AI-driven personalized learning paths to ensure that students receive tailored guidance and real-time feedback (Dziuban et al., 2018).
- iv. Facilitate AI-Enabled Virtual Service-Learning – Use AI-driven collaboration platforms to enable students from different regions to engage in remote service-learning projects (Muñoz et al., 2022).
- v. Strengthen University-Industry-Government Collaborations – Partner with technology firms, NGOs, and policymakers to expand AI-supported service-learning initiatives and provide funding for digital infrastructure (Sarofian-Butin, 2024).

Comparative insights from global AI-driven service-learning models highlight best practices and innovative approaches that Vietnamese HEIs can adopt. North American universities excel in AI-enhanced reflection and assessment, European institutions focus on digital service-learning scalability, and Asian universities leverage AI for personalized, skill-based student engagement. While Vietnamese HEIs can learn from these strategies, successful implementation requires culturally relevant AI policies, faculty training, and ethical governance. By strategically integrating AI into service-learning, Vietnamese universities can enhance student engagement, expand community impact, and strengthen interdisciplinary collaborations in higher education.

4. CONCLUSION

The integration of Artificial Intelligence (AI) in service-learning represents a transformative shift in higher education, offering opportunities to enhance student engagement, expand accessibility, and improve learning outcomes. However, its implementation also raises challenges related to faculty readiness, ethical considerations, and institutional policies. This study explored global best practices in AI-driven service-learning, highlighting key opportunities and challenges while providing recommendations for Vietnamese higher education institutions (HEIs).

AI-powered tools such as adaptive learning platforms, intelligent tutoring systems (ITS), and virtual collaboration tools enhance service-learning by personalizing learning pathways, automating feedback, and expanding digital service-learning initiatives. These innovations ensure that students receive real-time support, fostering deeper engagement and more meaningful community interactions (Dziuban et al., 2018; Muñoz et al., 2022). Moreover, AI can increase accessibility, allowing students from remote or underserved areas to participate in digital service-learning experiences (Kulik & Fletcher, 2016).

Despite its potential, AI integration in service-learning remains constrained by faculty resistance, digital infrastructure limitations, and regulatory gaps. Research suggests that many educators lack AI literacy, leading to hesitancy in adopting AI-driven teaching methods (Ryan & Ryan, 2013; Kimmel, 2024). Without structured faculty training programs and AI governance frameworks, the implementation of AI in service-learning remains fragmented and inconsistent (Stanford University, 2023).

Comparative insights from North America, Europe, and Asia highlight how AI-driven service-learning has been successfully implemented through AI-enhanced reflection tools, intelligent tutoring systems, and virtual collaboration platforms. North American universities excel in AI-powered assessment and feedback, European institutions focus on scaling service-learning beyond physical classrooms, and Asian universities leverage AI for personalized, skill-based student engagement. While Vietnamese HEIs can learn from these strategies, their successful implementation requires culturally relevant AI policies, faculty training, and ethical governance.

For AI to effectively support service-learning in Vietnam, universities should:

- i. Develop AI governance policies that address ethical concerns, data security, and equity in AI-driven service-learning (Sarofian-Butin, 2024).
- ii. Invest in faculty development and AI literacy to equip educators with the skills needed to integrate AI tools effectively (Kulik & Fletcher, 2016).
- iii. Adopt AI-powered adaptive learning to ensure students receive personalized guidance and real-time feedback (Dziuban et al., 2018).
- iv. Facilitate AI-enabled virtual service-learning to expand cross-regional and international engagement opportunities (Muñoz et al., 2022).
- v. Strengthen university-industry-government collaborations to fund and scale AI-supported service-learning initiatives (Stanford University, 2023).

The findings of this study suggest that while AI has the potential to enrich service-learning, its success depends on ethical and strategic implementation. Future research should explore the long-term impact of AI-driven service-learning models,

particularly in developing contexts like Vietnam, ensuring that AI technologies align with educational values, equity, and experiential learning goals. By strategically integrating AI into service-learning, Vietnamese universities can enhance student engagement, improve community impact, and ensure service-learning remains a transformative educational approach in the digital era.

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Research Article

Enhancing Good Governance in Taguig City's Sangguniang Kabataan (SK): A Multi-Sectoral Perspective for Community Development Initiatives

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ABSTRACT

This study explores the perceptions of various sectors regarding the practice of good governance in Taguig City's Sangguniang Kabataan (SK) and its influence on community development. Grounded in Good Governance Theory, it assessed insights from SK officials, youth constituents, adult residents, and barangay officials, focusing on key governance principles: transparency, participation, effectiveness, accountability, and rule of law. Using a mixed-method approach—surveys and interviews with 150 respondents from selected barangays—the study identified strengths and challenges in SK governance. Findings revealed moderate adherence to good governance standards. Participation (3.65), accountability (3.65), and rule of law (3.66) were rated positively, while audit report preparation and submission received the lowest score (3.20), signaling a need for improvement. Respondents also highlighted gaps in project management, social inclusion, and transparency. The study concludes that although the SK exhibits a foundational commitment to good governance, targeted improvements are necessary. It recommends enhancing audit and reporting systems, expanding youth engagement in policymaking, and strengthening management and legal protocols. These reforms aim to bolster the SK's effectiveness and accountability, ultimately advancing inclusive and sustainable community development across Taguig City.

Keywords: Good Governance; Transparency; Participation; Accountability; Effectiveness; Adherence to Rule of Law

1. INTRODUCTION

According to De Leon (2014), Article II, Section 13 of the 1987 Philippine Constitution emphasizes the crucial role of the youth in national development. It mandates the state to promote and safeguard the youth's physical, moral, spiritual, intellectual, and social well-being, while also instilling patriotism, nationalism, and encouraging their active participation in public and civic life. This constitutional provision affirms the significance of youth engagement in societal affairs, viewing it as an essential means to nurture a sense of patriotism and national service among young Filipinos.

The active involvement of the youth in governance is a unique and defining aspect of the Philippine political system, setting the country apart as a global model in youth participation in public affairs (Palafox, 2020). This advocacy is institutionalized through Republic Act 7160, known as the Local Government Code of 1991, which introduces young individuals to public service at an early stage (Republic Act 7160, 1991). A key feature of this legislation is the creation of the Sangguniang Kabataan (SK), which serves as a formal mechanism for youth involvement in electoral and governance processes (Gonzales, 2018). As the official body representing the Katipunan ng Kabataan (KK), the SK empowers elected youth leaders to voice their constituents' concerns and deliver youth-focused programs at the barangay level (Gonzales, 2018). This system not only cultivates leadership skills but also ensures that young people have a meaningful role in shaping local policies and services (Palafox, 2020).

As the youngest elected officials in the Philippine government, members of the Sangguniang Kabataan (SK) are entrusted with the crucial responsibility of maintaining accountability in public service. This aligns with Article XI of the 1987 Philippine Constitution, which establishes that public office is a public trust. It requires all public officials and employees to demonstrate the highest standards of responsibility, integrity, loyalty, and efficiency in serving the people (Constitution of the Philippines, 1987). This constitutional provision highlights the duty of public servants to act in the best interests of the public and to uphold justice

and patriotism in the delivery of government services.

Effective public service is closely tied to the principles of good governance. Good governance refers to how public institutions manage resources, conduct public affairs, and uphold human rights in a transparent, accountable, and law-abiding manner—free from corruption and abuse. It encompasses the overall process through which services are delivered to the people. Public officials must ensure that all programs and initiatives are executed with integrity and are in full compliance with legal and ethical standards. Ultimately, the well-being of the citizens should be at the heart of all public service efforts, with public interest prioritized over personal gain.

As elected officials of the Sangguniang Kabataan (SK) and the youngest actors in the political landscape, youth leaders must be educated in the principles of good governance. As future leaders of the nation, it is essential that they receive proper guidance in managing and implementing programs effectively and ethically. A solid understanding of good governance will equip SK officials with the knowledge and skills needed to serve their communities with integrity and accountability.

Through this study, the researcher aims to contribute to community development by advocating for good governance in public service. It is crucial that members of the Sangguniang Kabataan are properly guided to prevent the emergence of corrupt practices, as public service is, ultimately, a public trust.

2. MATERIALS AND METHODS

This study utilized a mixed methods design that integrated both quantitative and qualitative approaches to thoroughly assess multi-sectoral perceptions of good governance among Sangguniang Kabataan (SK) officials in Taguig City. The quantitative aspect, based on Sreekumar's (2023) framework, aimed to examine how particular events and influencing factors impact the target population. Structured survey questionnaires, adapted from Dr. Brillantes's "Developing Indicators of Local Governance in the Philippines: Towards an ISO for LGU," were used as the primary data-gathering tool, with prior permission obtained. The questionnaire, shown in Appendix D, consisted of four sections: (1) the demographic profile, which collected information on barangay of residence, length of residency, and stakeholder classification; (2) the status of SK programs and services, which evaluated the implementation in selected barangays; (3) perceptions of good governance across five dimensions—accountability, participation, transparency, effectiveness and efficiency, and adherence to the rule of law; and (4) the governance challenges encountered by SK officials in carrying out their roles. Responses were coded and analyzed using statistical methods such as frequency distributions, mean comparisons, and correlations to identify trends and relationships among the variables.

In parallel, the qualitative component, guided by Girardin (2023), explored the lived experiences and personal perspectives of SK officials. Semi-structured interviews were conducted to gain insight into the challenges faced by these youth leaders in implementing good governance. The interviews were designed to elicit participants' beliefs, emotions, and contextual understanding of their organizational roles. Interview transcripts were then examined through thematic coding, and a systematic content analysis was conducted to identify common patterns and recurring themes.

To ensure the validity and credibility of the findings, data triangulation was employed by combining the quantitative survey results with qualitative interview insights. This mixed methods strategy provided a more comprehensive view of SK governance practices in Taguig City, with measurable indicators supported and enriched by the narratives and contextual realities experienced by the officials themselves.

3. RESULTS AND DISCUSSIONS

1. Assessment of the duties and responsibilities of SK of the selected barangay in terms of the following? (This question is exclusive for SK Officials)

The survey results indicate that Sangguniang Kabataan officials in the selected barangays most consistently fulfill the duty of distributing project funds equitably, earning a mean score of 4.00—interpreted as "Complied." In contrast, adherence to the PYDP program during project implementation received a mean of 3.40 ("Partially Complied") and ranked second, while the preparation and submission of audit reports scored lowest, with a mean of 3.20, also interpreted as "Partially Complied." These findings suggest that, although budget allocation practices are fully observed, there remains room for improvement in both PYDP compliance and timely audit reporting.

Table 1. Assessment on the duties and responsibilities of SK of the selected barangay

Indicator	Mean	VI
Preparation and submission of Audit report.	3.20	Partially Complied
Compliance with the PYDP program in the implementation of the SK Projects.	3.40	Partially Complied
Budget allocation for every project is equally distributed.	4.00	Complied
Overall	3.53	Complied

2. The multi-sector perception of the SK in terms of good governance?

2.1. Participation

Members of the Katipunan ng Kabataan overwhelmingly agree that the SK promotes participation, with an overall mean score of 4.00 (“Strongly Agree”). Among the participation indicators, formulating a vision and mission with youth involvement received the lowest rating—though still strong—at a mean of 3.89 (“Strongly Agree”), placing it fifth in the ranking. Four other indicators each achieved a perfect mean of 4.00 (“Strongly Agree”): holding sectoral meetings and public consultations; consistently involving beneficiaries in programs and decision-making; maintaining a visible presence beyond the barangay hall to bolster community engagement; and installing suggestion boxes in high-traffic areas such as the plaza, market, and barangay hall. These results suggest that while youth leaders believe they excel in facilitating participatory activities, there is slightly less—but still strong—involvement when it comes to collaboratively crafting their vision and mission.

Among Sangguniang Kabataan officials themselves, perceptions of participatory practices remain very positive, with an overall mean score of 3.99 (“Strongly Agree”). The indicator receiving the lowest rating is the conduct of sectoral meetings and public consultations/dialogues, which scored a mean of 3.97 (“Strongly Agree”). Meanwhile, four other participation measures each achieved a mean of 4.00 (“Strongly Agree”): consistently involving beneficiaries in programs and decision-making; maintaining visibility beyond the barangay hall to foster community engagement; placing suggestion boxes in key locations such as the plaza, public market, and barangay hall; and involving youth in the formulation of the SK’s vision and mission. These results indicate that while SK officials believe they excel at most participatory activities, there is slightly less—but still strong—engagement when it comes to holding structured meetings and consultations.

Adult constituents also express strong agreement that the SK fosters participation, yielding an overall mean of 3.62 (“Strongly Agree”). They rated the conduct of sectoral meetings and public consultations highest (mean = 3.84), followed by involving youth in crafting the vision and mission (3.71). Visibility beyond the barangay hall to engage the community ranked third (3.63), while the provision of suggestion boxes in high-traffic areas such as the plaza, market, and barangay hall received a slightly lower score of 3.53. The lowest rating—though still positive—went to the extent beneficiaries are involved and consulted in SK programs and processes (3.37, “Agree”), suggesting that adults perceive these consultations as less consistent than other participatory practices.

Barangay officials offered a more tempered view of SK participation, with an overall mean score of **2.89** (“Agree”). They rated the SK’s community visibility highest (mean = 2.93), followed closely by youth involvement in shaping the vision and mission (2.90). In contrast, the conduct of sectoral meetings and public consultations, the extent to which beneficiaries are consulted, and the provision of suggestion boxes all tied at a mean of **2.87** (“Agree”). These results suggest that while barangay officials generally agree that participatory mechanisms are in place, they perceive these practices as only moderately fulfilled.

Overall, respondents across all sectors strongly agree that the SK excels in fostering participation, with an aggregate mean of 3.65. Leading the list is the conduct of sectoral meetings and public consultations/dialogues (mean = 3.71), indicating that structured engagement is most evident. Close behind is the SK’s visibility beyond the barangay hall into the wider community (3.66), followed by youth involvement in crafting the organization’s vision and mission (3.65). The provision of suggestion boxes in high-traffic areas also scores highly (3.61), while the extent to which beneficiaries are regularly consulted ranks fifth (3.56). These results demonstrate a robust perception of participatory governance among SK officials, with all five indicators receiving a “Strongly Agree” interpretation.

Among the four stakeholder groups, Sangguniang Kabataan officials rate their own participatory practices the highest (mean = 3.99), followed closely by the Katipunan ng Kabataan (mean = 3.98). Adult constituents place them third (mean = 3.62), while barangay officials offer the most reserved assessment (mean = 2.89). This hierarchy underscores varying expectations and experiences of engagement across sectors. As Maela and Selepe (2023) contend, genuine, equitable public participation is a cornerstone of good governance at the local level, enabling organizations to consult with all affected parties before making decisions.

In line with this principle, one SK official emphasized that motivating youth to take part in consultations and dialogues—particularly those that shape programs and procedures affecting them—is a clear indicator of sound governance.

Indicator	Katipunan ng Kabataan		SK official		Adult Constituents		Barangay Officials		Overall	
	Mean	VI	Mean	VI	Mean	VI	Mean	VI	Mean	VI
Conducts Sectoral meetings and public consultations/dialogues.	4.00	SA	3.97	SA	3.84	SA	2.87	A	3.71	SA
The Beneficiaries are always involved and consulted in programs and processes.	4.00	SA	4.00	SA	3.37	A	2.87	A	3.56	SA
Visibility not only in Barangay Hall but also in their community to encourage public participation	4.00	SA	4.00	SA	3.63	SA	2.93	A	3.66	SA
Provides suggestion boxes in built-up areas such as the barangay hall, plaza, public market, and the like.	4.00	SA	4.00	SA	3.53	SA	2.87	A	3.61	SA
Formulates vision and mission that involves the participation of Katipunan ng Kabataan.	3.89	SA	4.00	SA	3.71	SA	2.90	A	3.65	SA
PART-MEAN	4.00	SA	3.99	SA	3.62	SA	2.89	A	3.65	SA

Table 2. Multi-sector perception in terms of Participation

2.2 Accountability

Members of the Katipunan ng Kabataan unanimously rated every accountability indicator at the same high level, each earning a mean score of 4.00—interpreted as “Strongly Agree.” As a result, their overall assessment of the SK’s accountability also reached a mean of 4.00, reflecting their strong confidence in the officials’ responsible conduct.

Sangguniang Kabataan officials themselves also gave uniformly high marks across all accountability measures, with each indicator receiving a mean score of 4.00—interpreted as “Strongly Agree.” Consequently, their collective evaluation of the SK’s accountability likewise averaged 4.00, demonstrating their unanimous confidence in fulfilling their fiduciary and ethical duties.

Adult constituents rated the SK’s accountability practices positively, yielding an overall mean of 3.60 (“Strongly Agree”). They identified project proposal submission as the strongest practice (mean = 3.82, “Strongly Agree”), followed by adherence to the Ethics and Accountability Law and the Anti-Graft and Corrupt Practices Act (3.73, “Strongly Agree”). Proper accounting of assets and liabilities came next (3.61, “Strongly Agree”), with the availability of complete financial and LGU accomplishment reports ranking fourth (3.55, “Strongly Agree”). Posting the Commission on Audit report in conspicuous locations received a mean of 3.47 (“Agree”), while the lowest score—3.45 (“Agree”)—was given to the practice of displaying project implementations on bulletin boards and monitoring ongoing projects. These results suggest that, although adult constituents generally believe SK officials uphold strong accountability standards, they see room for improvement in project posting and monitoring procedures.

Barangay officials rated the SK’s project proposal submissions most favorably (mean = 3.00, “Agree”). Four other accountability measures—posting COA audit reports in visible locations, accurately accounting for assets and liabilities, maintaining complete financial and LGU accomplishment reports, and displaying and tracking project implementations—each scored 2.90 (“Agree”). The lowest score (2.83, “Agree”) was given to the operationalization of public accountability under the Ethics and Accountability Law and the Anti-Graft and Corrupt Practices Act. Overall, the accountability dimension averaged 2.91 (“Agree”), with barangay officials pinpointing ethical and legal compliance as the SK’s primary area for improvement.

Across all stakeholder groups, the strongest accountability practice identified was the submission of project proposals, which earned the highest mean score of 3.74 (“Strongly Agree”). Close behind, public accountability—measured by adherence to the Ethics and Accountability Law and the Anti-Graft and Corrupt Practices Act—scored a mean of 3.67 (“Strongly Agree”). Proper accounting of assets and liabilities followed with a 3.65 mean, and the availability of complete financial and LGU accomplishment reports received a 3.63 mean, both also interpreted as “Strongly Agree.” Posting the Commission on Audit report in visible locations recorded a mean of 3.60, while the practice of displaying and monitoring projects on bulletin boards ranked lowest at 3.59 (“Strongly Agree”). The overall mean of 3.65 underscores that, from a multi-sector perspective, SK officials demonstrate robust accountability in their governance practices.

Khotami (2017) defines accountability as the obligation to explain and justify actions to those who have entrusted responsibility—detailing who is responsible, for what, and how they will be held answerable. According to one respondent, effective data management has enabled SK officials to display project information on barangay bulletin boards and actively monitor ongoing initiatives. This demonstrates that robust record-keeping underpins good governance by ensuring that SK leaders can be held responsible for the programs and projects they oversee.

Table 3. Multi-sector perception in terms of Accountability.

Indicator	Katipunan ng Kabataan		SK official		Adult Constituents		Barangay Officials		Overall	
	Mean	VI	Mean	VI	Mean	VI	Mean	VI	Mean	VI
Public accountability operationalized through Ethics and Accountability Law and Anti-Graft and Corrupt Practices Act.	4.00	SA	4.00	SA	3.73	SA	2.83	A	3.67	SA
Audit report of the COA is posted in conspicuous places.	4.00	SA	4.00	SA	3.47	A	2.90	A	3.60	SA
Their assets and liabilities are well accounted for	4.00	SA	4.00	SA	3.61	SA	2.90	A	3.65	SA
Has a complete and available financial and LGU accomplishment reports.	4.00	SA	4.00	SA	3.55	SA	2.90	A	3.63	SA
Provides proposal projects	4.00	SA	4.00	SA	3.82	SA	3.00	A	3.74	SA
Implemented projects are posted in bulletin board and monitors on-going projects.	4.00	SA	4.00	SA	3.45	A	2.90	A	3.59	SA
ACCNT-MEAN	4.00	SA	4.00	SA	3.60	SA	2.91	A	3.65	SA

2.3 Transparency

Both the Katipunan ng Kabataan and SK officials gave uniformly high marks across every transparency indicator, each item earning a mean score of 4.00—interpreted as “Strongly Agree.” Their collective assessment of the SK’s transparency also averaged 4.00, reflecting a shared conviction that robust transparency practices are firmly in place.

Adult constituents generally agree that the SK maintains transparent practices, with an overall mean of 3.58 (“Strongly Agree”). At the top of their list is the presence of a management information system (MIS), scoring 3.71. Tied for second (both 3.67) are the regular updating of community data boards and spot maps, and the clear presentation of the budget and Annual Investment Plan to all Katipunan ng Kabataan members. Fourth in rank is the community-oriented aspect of the MIS (3.59), followed by two indicators—publication of the annual accomplishment report and holding regular Katipunan assemblies—each at 3.57. The availability of a complaint desk or suggestion box comes next (3.55), with the reporting of cash flows in published form slightly lower at 3.51. The lowest score (3.37, “Agree”) was given to the catalogue of services offered. These results indicate that while adult constituents see strong transparency overall, they view some areas—particularly detailed service catalogs—as needing enhancement.

Barangay officials generally perceive the SK’s transparency practices as satisfactory, though with room for improvement. The highest-rated indicators, both tied at rank 1.5 with a mean of 2.90 and a verbal interpretation of “Agree,” are the presentation of the annual accomplishment report and the Annual Investment Plan (AIP) to members of the Katipunan ng Kabataan. Three other indicators follow closely, all tied at rank 4 with a mean of 2.87—these include the presence of a management information system, regular updates of community data boards and spot maps, and the conduct of regular Katipunan ng Kabataan assemblies. The publication of cash flow reports is placed sixth with a mean of 2.80. Lastly, three indicators tied at rank 7.5, each with a mean of 2.73, include the catalogue of services, the community-oriented MIS, and the availability of a complaint desk or suggestion box. Overall, the total mean for transparency is 2.82, verbally interpreted as “Agree.” This suggests that while barangay officials acknowledge transparency efforts by the SK, they see key areas—especially community feedback systems and service cataloging—as needing enhancement.

The overall results for the transparency variable reveal a total mean of 3.62, which is verbally interpreted as “Strongly Agree.” This indicates that respondents across all sectors generally perceive the Sangguniang Kabataan (SK) to demonstrate a high level of transparency in their governance.

Among the specific indicators, the highest-rated is the presence of a management information system, which holds the top rank with a mean of 3.67, reflecting a strong consensus on its effectiveness. Closely following, in a tie for second rank, are the indicators: “presents the budget and Annual Investment Plan (AIP) to every member of the Katipunan ng Kabataan”—also with a mean of 3.67. In third place is the indicator on regular updates of the community data board and spot map, scoring a mean of 3.66.

Tied at rank 4.5 are the indicators on the annual accomplishment report and the conduct of regular Katipunan ng Kabataan assemblies, each with a mean of 3.63. These are followed by the community-oriented Management Information System (MIS) at rank 6, with a mean of 3.61.

Two indicators share the 7.5 rank: the complaint desk and/or suggestion box, and the publication of cash flow reports,

both receiving a mean of 3.59. Finally, the lowest-rated indicator, though still positively viewed, is the catalogue of services, which holds the last rank with a mean of 3.53, yet still retains a verbal interpretation of "Strongly Agree."

Overall, the data reflect a strong perception among stakeholders that SK officials are transparent in their operations, particularly in terms of information management and public disclosure of financial and planning documents. However, slight gaps remain in community engagement tools like feedback mechanisms and service cataloging, suggesting areas for future improvement.

According to Armenia (2021), transparency within public institutions is a cornerstone of democratic societies, emphasizing that free and open access to information is fundamental to upholding democratic values. This principle holds true regardless of a country's level of development, as both developed and developing nations increasingly recognize the critical role that transparency plays in fostering accountability and trust.

In the context of this study, one of the challenges identified by SK officials is the effective dissemination of information to the public. A key concern raised is the absence of a comprehensive catalogue of services, which directly affects the quality of governance in terms of transparency. Without a readily available and accessible catalogue, the Katipunan ng Kabataan—the youth constituency—remains uninformed about the programs and services being offered by the SK. This gap limits meaningful engagement and reduces the potential for youth participation in community development efforts. Hence, establishing a clear and updated catalogue of services is essential for ensuring that the principles of transparency and participatory governance are upheld.

Table 4. Multi-sector perception of SK good governance in terms of Transparency

Indicator	Katipunan ng Kabataan		SK official		Adult Constituents		Barangay Officials		Overall	
	Mean	VI	Mean	VI	Mean	VI	Mean	VI	Mean	VI
There is presence of a management information system, catalogue of services, annual accomplishment report, community-oriented Management Information System (MIS), complaint desk and/or suggestion box, etc	4.00	SA	4.00	SA	3.71	SA	2.87	A	3.67	SA
Reports of cashflows are published.	4.00	SA	4.00	SA	3.37	A	2.73	A	3.53	SA
Regular updates of community data board and spot map	4.00	SA	4.00	SA	3.57	SA	2.90	A	3.63	SA
Conducts regular Katipunan ng kabataan assemblies	4.00	SA	4.00	SA	3.59	SA	2.73	A	3.61	SA
Presents budget and Annual Investment Plan (AIP) to every member of the Katipunan ng Kabataan.	4.00	SA	4.00	SA	3.55	SA	2.73	A	3.59	SA
TRANS-MEAN	4.00	SA	4.00	SA	3.51	SA	2.80	A	3.59	SA
	4.00	SA	4.00	SA	3.67	SA	2.87	A	3.66	SA
	4.00	SA	4.00	SA	3.57	SA	2.87	A	3.63	SA
	4.00	SA	4.00	SA	3.67	SA	2.90	A	3.67	SA
	4.00	SA	4.00	SA	3.58	SA	2.82	A	3.62	SA

2.4. Effectiveness

The responses of the Katipunan ng Kabataan and SK Officials regarding the effectiveness of SK governance showed consistent and positive perceptions. Both groups rated all indicators under the effectiveness variable equally, with each indicator receiving a mean score of 4.0, which is verbally interpreted as "strongly agree". These indicators were also uniformly ranked at 6.5, indicating that no single item stood out as significantly higher or lower in importance or implementation. The overall mean for the effectiveness variable is likewise 4.0, reflecting a strong consensus among these two sectors that the Sangguniang Kabataan demonstrates good governance in terms of effectiveness. This suggests that both the youth constituents and SK officials recognize that the programs and initiatives are being carried out efficiently and in line with their intended goals.

The adult constituents' perception of SK good governance in terms of effectiveness differed notably from those of the

Katipunan ng Kabataan and SK officials. Their responses revealed a more moderate evaluation, with varying levels of agreement across indicators. The highest-rated indicator was the accessibility of SK basic services distributed in the area, receiving a mean of 3.69, verbally interpreted as strongly agree. This was followed by SK services related to active citizenship, with a mean of 3.57, and health-related services, which scored 3.55—both also receiving a verbal interpretation of strongly agree.

Other indicators, such as equitable distribution of services based on budget, economic empowerment, and adequate funding for devolved services, received slightly lower means (ranging from 3.47 to 3.51) and were interpreted as agree. The lowest-rated indicators included SK services related to peace building and security, governance, environment, global community, education, and especially social inclusion and equity, with the last receiving a mean of 3.35, indicating relatively lower satisfaction.

Overall, the total mean for the effectiveness variable among adult constituents was 3.49, which is verbally interpreted as "agree". This suggests that while adults acknowledge efforts by SK officials, they perceive gaps in service delivery and effectiveness, especially in less visible or less emphasized areas like social inclusion and global engagement.

The overall mean score for the effectiveness variable among the barangay officials is 2.46, which is verbally interpreted as "disagree." This indicates that, compared to other sectors, the barangay officials have the lowest perception of effectiveness in the governance of Sangguniang Kabataan (SK). Among the indicators, the highest-ranked is the equitable and rational distribution of basic services as evidenced in the budget, with a mean of 2.97 and interpreted as "agree." This is followed by better access to SK basic services distributed in the area, which received a mean of 2.87, also interpreted as "agree." The third in rank is the adequate funding of devolved SK services, which has a mean of 2.77. These three areas were the only indicators that barangay officials agreed with, reflecting their appreciation for visible and tangible efforts in budget distribution and service delivery.

However, the remaining indicators mostly received lower scores and were interpreted as "disagree." These include SK services identified for devolution under the nine centers for youth participation, particularly in areas such as economic empowerment (mean = 2.40), education (2.33), social inclusion and equity (2.30), active citizenship (2.30), environment and global mobility (2.27), peace building and security (2.23), and governance (2.23). The consistently low scores in these areas suggest that the barangay officials perceive weaknesses in SK implementation of programs that relate to long-term development and youth empowerment.

In summary, while barangay officials acknowledge certain areas of SK service effectiveness, particularly those that are concrete and budget-related, they largely express dissatisfaction with the broader developmental aspects under the nine centers for youth participation. This highlights a gap in the visibility, communication, or actual implementation of programs in key youth development sectors, pointing to a need for strengthened engagement, planning, and transparency in these areas.

The overall result for the effectiveness variable has a total mean of 3.52, which is verbally interpreted as strongly agree. Among the indicators, the highest-ranked is better accessibility of the SK basic services distributed in the area, which received a mean of 3.67. This is followed by the indicator on being equitable and rational in distributing basic services among beneficiaries as evidenced in the budget, with a mean of 3.63, also interpreted as strongly agree. In third rank are two indicators that tied: SK services identified for devolution under the nine centers for youth participation in terms of health, and adequately funded SK services, both obtaining a mean of 3.57 and likewise verbally interpreted as strongly agree.

Next in the ranking is the indicator on active citizenship under the nine centers for youth participation, with a mean of 3.51 and verbal interpretation of strongly agree. Economic empowerment follows in sixth place with a mean of 3.50, also strongly agreed upon by the respondents. In the eighth rank, three indicators tied with a mean of 3.47 and were verbally interpreted as agree. These include the SK services under the nine centers for education, environment, and global mobility. Tied in the tenth rank are indicators relating to peace building and security and governance, both receiving a mean of 3.46, also interpreted as agree. Lastly, the lowest-ranked indicator is on social inclusion and equity, which received a mean of 3.44 and a verbal interpretation of agree.

Overall, the results reflect that respondents perceive the SK officials' governance as effective, particularly in the areas of service accessibility, budget distribution, and health-focused initiatives. However, slightly lower scores in areas such as social inclusion, education, and global engagement suggest potential areas for further development and increased visibility.

In the article by Beauty (2020), effective service delivery is described as having a clear objective—to meet the expectations of the end-user. While the term "product" is often associated with tangible or physical items, the article emphasizes that services are also part of this definition. A key aspect of service provision is the direct relationship between the service-rendering organization and its consumers. The ultimate goal is to establish a satisfactory interaction that fulfills the expectations of the recipients. The study highlights that measuring service effectiveness should not be limited to the delivery process alone; it must also take into account the extent to which organizational expectations are met. Therefore, if the services provided align with and satisfy the expectations of the organization, the delivery can be considered effective.

According to one of the respondents in the study, a significant challenge lies in the implementation of the Philippine Youth Development Plan (PYDP). Specifically, the nine centers of youth participation outlined in the PYDP are not frequently incorporated into the SK's agenda. Survey results suggest that it is currently unfeasible for SK officials to implement all of the programs mandated by the national government. To address this issue and support effective governance, it is recommended that the programs under the nine centers be formally included in the SK agenda to ensure alignment with national goals and better execution at the local level.

Table 5. Multi-sector perception in terms of Effectiveness

Indicator	Katipunan ng Kabataan		SK official		Adult Constituents		Barangay Officials		Overall	
	Mea n	VI	Mea n	VI	Mea n	VI	Mea n	VI	Mea n	VI
2.1.1 SK Services identified for devolution under the nine centers for youth participation:	4.00	SA	4.00	SA	3.55	SA	2.63	A	3.57	SA
a) Health	4.00	SA	4.00	SA	3.47	A	2.40	D	3.50	SA
a) Economic empowerment	4.00	SA	4.00	SA	3.41	A	2.33	D	3.47	A
b) Education	4.00	SA	4.00	SA	3.35	A	2.30	D	3.44	A
c) Social inclusion and equity	4.00	SA	4.00	SA	3.45	A	2.23	D	3.46	A
d) Peace building and security	4.00	SA	4.00	SA	3.45	A	2.23	D	3.46	A
e) Governance	4.00	SA	4.00	SA	3.57	SA	2.30	D	3.51	SA
f) Active citizenship	4.00	SA	4.00	SA	3.45	A	2.27	D	3.47	A
g) Environment	4.00	SA	4.00	SA	3.45	A	2.27	D	3.47	A
h) Global mobility	4.00	SA	4.00	SA	3.47	A	2.77	A	3.57	SA
2.4.2 Devolved SK services are adequately funded.	4.00	SA	4.00	SA	3.51	SA	2.97	A	3.63	SA
2.4.3 Equitable and rational in distributing basic services among beneficiaries as evidenced in the budget.	4.00	SA	4.00	SA	3.69	SA	2.87	A	3.67	SA
EFFECT-MEAN	4.00	SA	4.00	SA	3.49	A	2.46	D	3.52	SA

2.5. Adherence to Rule of Law

In terms of the Rule of Law, the multi-sector perception of SK good governance reveals consistent results from the Katipunan ng Kabataan and the SK officials. Both groups responded identically in the survey, giving all indicators in this variable a mean score of 4.0, which is verbally interpreted as "strongly agree." Each indicator also received the same rank of 2.5. These results suggest that both the Katipunan ng Kabataan and the SK officials perceive that the Sangguniang Kabataan exercises good governance under the principle of Rule of Law.

Meanwhile, the adult constituents provided varied responses. Among them, the indicator that ordinances are periodically implemented, enforced, reviewed, and updated ranked first with a mean of 3.73 and a verbal interpretation of "strongly agree." This was followed by the indicator on the effective implementation of legal, fiscal, environmental, and cultural laws, which received a mean of 3.71 and the same verbal interpretation. The third in rank was the indicator regarding respect for customary and ancestral laws, such as Shariah Law, which had a mean of 3.63 and was also interpreted as "strongly agree." The indicator ranked lowest among adult constituents was the establishment of a prominently posted workflow for the guidance of all, which received a mean of 3.47 and was verbally interpreted as "agree." The total mean for all indicators under the Rule of Law among adult respondents was 3.63, with an overall verbal interpretation of "strongly agree."

For the barangay officials, the indicator concerning the establishment of a workflow prominently posted for the guidance of all ranked first under the Rule of Law variable, receiving a mean of 2.93 and a verbal interpretation of "agree." Following closely are two indicators tied in the second rank with a mean of 2.90, both verbally interpreted as "agree." These indicators include the periodic implementation, enforcement, review, and updating of ordinances, as well as the respect for customary and ancestral laws, such as Shariah Law. The lowest-ranked indicator was the effective implementation of legal, fiscal, environmental, and cultural laws, which received a mean score of 2.87 and was also interpreted as "agree." The total mean for all Rule of Law indicators among barangay officials is 2.90, with a verbal interpretation of "agree." Overall, barangay officials perceive that SK officials exhibit good governance in terms of adherence to the Rule of Law.

For the overall perception of the Rule of Law, the indicator stating that ordinances are periodically implemented, enforced, reviewed, and updated ranked first, with a mean score of 3.69 and a verbal interpretation of "strongly agree." This was followed by the indicator on the effective implementation of legal, fiscal, environmental, and cultural laws, which ranked second with a mean of 3.67, also verbally interpreted as "strongly agree." In third place was the indicator reflecting respect for customary and ancestral laws, such as Shariah Law, which obtained a mean of 3.65 and was similarly interpreted as "strongly agree." The indicator concerning the establishment of a workflow prominently posted for the guidance of all ranked last, with a mean of 3.61 but still receiving the verbal interpretation of "strongly agree." The overall mean for the Rule of Law variable was 3.66, indicating that the multi-sector respondents perceive that there is good governance among SK officials in terms of adherence to the Rule of Law.

According to Gardner (2021), the Rule of Law is a centuries-old principle that governs how states are administered. Unlike Rule by Law—where the government is considered above the law and uses it primarily as a tool for control—the Rule of Law asserts that all individuals and institutions, including the government, must abide by the supremacy of the law. One of the challenges identified by SK officials involves instances where rules are not consistently followed. However, the establishment and clear posting of workflows for public guidance can help address this issue, reinforcing the perception that there is sound governance and respect for the Rule of Law within the SK leadership.

Table 6. Multi-sector perception in terms of Adherence to Rule of Law

Indicator	Katipunan ng Kabataan		SK official		Adult Constituents		Barangay Officials		Overall	
	Mean	VI	Mean	VI	Mean	VI	Mean	VI	Mean	VI
2.5.1 The ordinances are periodically implemented and enforced, reviewed and updated	4.00	SA	4.00	SA	3.73	SA	2.90	A	3.69	SA
2.5.2 There is establishment of workflow prominently posted for the guidance of all.	4.00	SA	4.00	SA	3.47	A	2.93	A	3.61	SA
2.5.3 Effectively implement legal, fiscal, environmental and cultural laws.	4.00	SA	4.00	SA	3.71	SA	2.87	A	3.67	SA
2.5.4 Respects customary and ancestral laws, e.g., Shariah Law.	4.00	SA	4.00	SA	3.63	SA	2.90	A	3.65	SA
ROL-MEAN	4.00	SA	4.00	SA	3.63	SA	2.90	A	3.66	SA

3. Test of Difference on the Perception of the Respondents in terms of their Classification of Sector Profile (Fisher's ANOVA)

The Fisher's ANOVA analysis on the respondents' perceptions, classified according to sector profile, revealed statistically significant differences across all governance variables. Specifically, the computed F-values for Participation (116.483), Accountability (116.319), Transparency (106.668), Effectiveness (171.724), and Adherence to the Rule of Law (107.289) all substantially exceeded the critical F-value of 2.667. Furthermore, each variable yielded a P-value of 0.000, leading to the rejection of the null hypothesis (H_0) in all cases. These results indicate that the observed differences in perception are not attributable to random variation. Rather, they reflect meaningful distinctions in how each sector views the dimensions of good governance, emphasizing the significance of sector-specific perspectives in the overall assessment of SK officials' performance.

Table 7. Significant Difference between the Perceptions of the respondents in terms of their classification

Variable	F-value		Degree of Freedom		P-value	Decision	Interpretation
	Computed	Critical	Between	Within			
Participation	116.483	2.667	3	146	0.000	Reject H_0	Significant
Accountability	116.319	2.667	3	146	0.000	Reject H_0	Significant
Transparency	106.668	2.667	3	146	0.000	Reject H_0	Significant
Effectiveness	171.724	2.667	3	146	0.000	Reject H_0	Significant
Adherence to the Rule of Law	107.289	2.667	3	146	0.000	Reject H_0	Significant

4. Challenges encountered by the SK officials in terms of good governance.

4.1 Participation

The challenges encountered by the SK officials in terms of participation primarily revolve around the lack of active engagement from their constituents. The most significant issue reported is the minimal participation of the youth in various SK activities and programs. Another common challenge is the low attendance of SK members during special meetings, often due to

scheduling conflicts. Additionally, some SK officials noted minor difficulties such as the failure of certain projects to reach their intended beneficiaries, insufficient training, and limited awareness among the youth about SK initiatives. The lack of constituent participation suggests a broader issue of disinterest in SK programs, which poses a threat to effective governance. Without active community involvement, especially from the youth sector, the SK's capacity to govern and implement meaningful programs may be significantly hindered.

Table 8. Challenges encountered by the SK officials in terms Participation

Problem encountered	No. of respondents
lack of active participation within constituent	5
sk officials is not attending special meeting due to schedule	4
some projects can't reach target audience participants	1
participative in sport activities	1
they guide the youth to participate	1
resources constraint	1
inadequate training	1
competing commitments	1
limited awareness	1
skepticum and distant	1
engaging marginalized gaps	1
communication barriers	1
cultural norms	1
not all sk official is committed	1

4.2 Accountability

The challenges encountered by the SK officials in terms of accountability primarily center on their personal accountability in performing their roles. The most common issue identified is the difficulty of being accountable for the actions and responsibilities expected of them. Another key challenge is the failure of some SK officials to fully commit to their tasks and duties. Additionally, there are minimal but notable issues such as the lack of sufficient audit reports, limited competence in data management and analysis, lapses in ethical conduct, and other related concerns. These findings indicate that the core challenge lies in the SK officials' internal sense of accountability and responsibility in fulfilling their mandates.

Table 9. Challenges encountered by the SK officials in terms Accountability

Problems	No. of respondents
be accountable on what do you do	3
not responsible for their task and duties	2
insufficient audit report and lack of competence	1
so far the council know how to handle situation	1
weak enforcement or manpower for mechanism of accountability	1
data management and analysis	1
ethical conduct	1
political pressure	1
conflict of interest	1
financial management	1
Transparency	1
resistance to change	1
community expectation	1
sk official is not aware of the importance of the role they have	1

4.3 Transparency

The data reveal that the most common challenge encountered by the SK officials in terms of transparency is the difficulty of being fully transparent within the community. This issue highlights a significant barrier to fostering trust and accountability in governance. The second most frequently cited challenge is the limited access to information, which further hinders effective communication between the SK and their constituents. Other minimal yet relevant challenges include inadequate documentation, limited oversight mechanisms, and the ineffective dissemination of information to the public.

Overall, SK officials identified that maintaining transparency in the community remains the most significant obstacle in ensuring good governance.

Table 10. Challenges encountered by the SK officials in terms of Transparency

Problems	No. of respondents
transparent to all in community	4
limited access to information	2
lack of audit report	1
sometimes the council can't a lot time to post transparency	1
Important to have this.	1
youth inexperience	1
technical skills	1
pressure from stakeholders	1
confidentiality concern	1
inadequate documentation	1
language and literacy barriers	1
complex reporting process	1
limited resources	1
limited oversight mechanism	1
dissemination of information to the public	1
very good idea if we have this	1
must have in every purok	1

4.3 Effectiveness

In terms of effectiveness, two challenges were identified as the most pressing by SK officials: the lack of budget and political interference. These issues significantly hinder the successful implementation and sustainability of programs and services. The insufficient budget limits the scope and quality of initiatives, while political interference disrupts decision-making processes and autonomy. In addition to these, SK officials also reported several minimal challenges, such as time constraints, inadequate post-event assessments to address issues, and other operational difficulties. Collectively, these challenges affect the overall effectiveness of the SK in fulfilling its mandate of serving the youth and the community efficiently.

Table 11. Challenges encountered by the SK officials in terms Effectiveness

Problems	No. of respondents
lack of budget to lack of effectiveness	2
political interference	2
not all nine centers of participation is tackled with projects	1
projects are effective and implemented	1
community engagement	1
lack of training and capacity building	1
socio-cultural norms	1
time constraint	1
cooperation and participation for effectiveness	1
ineffective because of error and undone job	1
assessment after the event to fix issue	1
even not committed but they are affective	1

4.4 Adherence to Rule of Law

The challenges encountered by the SK officials in terms of adherence to the rule of law primarily involve three key issues: limited knowledge of legal frameworks, political interference, and difficulties in ensuring legal compliance. These were identified

as the most common challenges that hinder the proper implementation and enforcement of rules within the organization. On the other hand, less frequently encountered issues include cultural norms that may conflict with formal laws, conflicting priorities among stakeholders, and instances of corruption or bribery. These challenges collectively affect the SK officials' ability to consistently uphold and implement the principles of the rule of law in governance.

Table 12. Challenges encountered by the SK officials in terms Adherence to rule of law

Problems	No. of respondents
limited legal knowledge	2
political interference	2
legal compliance	2
the council knows how to adhere	1
lack of established set of local laws concerning the youth	1
inconsistent enforcement	1
inadequate legal support	1
conflicting priorities	1
weak oversight mechanism	1
corruption and bribery	1
capacity building	1
cultural norms	1
some of them are not giving importance to the law especially compliance with SOCE	1
not able to follow the rules sometimes	1

4. CONCLUSION

1. What is the status of the implementation of the SK duties and responsibilities in selected barangay in Taguig?

The self-assessment conducted by the SK officials of the selected barangays reveals a strong commitment to equitable budget management, as demonstrated by a perfect score in the area of budget allocation. This indicates a commendable effort in ensuring fair and responsible distribution of financial resources. Additionally, the SK officials exhibit a moderate level of compliance with the Philippine Youth Development Plan (PYDP), although there is a clear recognition of the need for strengthened adherence to the program's objectives. The most notable area requiring improvement is the preparation and timely submission of audit reports, which received the lowest score among the assessed indicators. This highlights a critical gap in accountability practices. Overall, the assessment reflects the SK officials' dedication to fiscal responsibility and transparency, while also emphasizing the need for continued capacity-building, particularly in audit compliance and documentation processes.

2. What is the multi-sector perception of the SK in terms of good governance?

The study reveals that the Sangguniang Kabataan (SK) is broadly viewed across various sectors as a committed and capable body in delivering good governance. Across all five core areas—**Participation, Accountability, Transparency, Effectiveness, and Adherence to the Rule of Law**—the youth and SK officials consistently express strong satisfaction and approval, indicating internal confidence in their governance efforts.

Participation is one of the SK's strengths, with both the SK and youth recognizing the value of inclusive decision-making. However, there is a shared call for improved consultation processes and more strategic engagement of constituents, particularly from adults and barangay officials who encourage deeper outreach.

In terms of **Accountability**, the SK is perceived as trustworthy and responsible, especially by the youth and SK leaders themselves. Yet, feedback from adult and barangay constituents points to a need for stronger project implementation practices and clearer mechanisms for public accountability.

On the matter of **Transparency**, while the SK earns praise for information dissemination and management systems, gaps remain—especially in areas like the accessibility of a service catalogue and public reporting. These are seen as critical to reinforcing public trust and ensuring full transparency.

Regarding **Effectiveness**, there is strong recognition of the SK's efforts to deliver accessible basic services. Nonetheless, adults and barangay officials emphasize the importance of addressing underserved areas such as social inclusion and equitable

service distribution. This feedback signals a need for the SK to ensure that programs reach all sectors of the youth community.

Lastly, the SK is widely acknowledged for its **adherence to the Rule of Law**, with unanimous approval from the youth and officials. However, both adult and barangay respondents suggest that more structured workflows and clearer procedural guidelines would enhance compliance and consistency.

Overall, the SK's governance performance is viewed positively, especially by the youth it serves. Still, insights from other sectors highlight specific areas for growth. Strengthening institutional processes, expanding stakeholder engagement, and enhancing transparency and accountability mechanisms will further empower the SK to fulfill its mandate as an effective and inclusive youth governance body.

3. Significant difference between the perceptions of the respondents in terms of their classification?

The findings from the ANOVA analysis reveal that respondents' perceptions of key governance dimensions—Participation, Accountability, Transparency, Effectiveness and Efficiency, and Adherence to the Rule of Law—differ significantly based on their sector profile. These differences are statistically significant and not due to chance, indicating that each group brings a unique perspective to how SK governance is evaluated. These distinctions highlight the importance of considering sector-based viewpoints when assessing governance performance, and they should be carefully factored into future assessments and policy-making efforts.

4. What are the challenges encountered by the SK officials in terms of good governance?

As the youngest public servants, Sangguniang Kabataan (SK) officials play a vital role in promoting good governance within their communities. However, despite their efforts, several challenges persist. Among the key governance variables, adherence to the rule of law poses the greatest difficulty for SK officials. Limited legal knowledge often results in weak compliance, while external political interference further undermines their ability to uphold the law. Effectiveness ranks as the second most significant challenge, primarily due to budget constraints and political influences that hinder the efficient delivery of services and fulfillment of duties. On the other hand, the SK officials face relatively fewer challenges in participation, accountability, and transparency, where only minimal issues were reported that affect their overall performance in practicing good governance.

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Research Article

The Implementation of Green Public Procurement (GPP) in the Province of Albay

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ABSTRACT

The main objective of this study is to examine the implementation of Green Public Procurement in the province of Albay. This study explores awareness of procurement officers and city government officials on Green Public Procurement, evaluates the compliance of the three cities in Albay with its legal mandates, assesses the sustainability practices they have adopted, and identifies key challenges and strategic solutions to enhance the effectiveness of sustainable procurement initiatives. This employs a mixed-methods approach, blending qualitative and quantitative techniques to thoroughly analyze how Green Public Procurement is being implemented. To gain deeper insights, semi-structured interviews and focus group discussions are conducted with key stakeholders, including procurement officers and city government officials to shed light on their experiences and perspectives regarding Green Public Procurement. Additionally, relevant documents and policies are reviewed to better understand the existing framework and uncover any potential gaps. To complement this, structured surveys are distributed to key respondents, providing a means to measure awareness, compliance levels, and challenges related to Green Public Procurement. The collected data is then carefully analyzed using statistical tools to identify trends, patterns, and opportunities for improvement. This well-rounded approach ensures that the evaluation of Green Public Procurement practices in Albay is both detailed and insightful. The findings highlight that the cities of Tabaco, Legazpi, and Ligao in the Province of Albay have a basic awareness of Green Public Procurement, particularly in relation to Republic Act 9184. However, they lack a deeper understanding of how to effectively integrate green criteria into their regular procurement processes. While these cities engage in various sustainable development initiatives, there are no specific programs in place to encourage end users to prioritize green products during procurement. Moreover, the implementation of Green Public Procurement in these cities is hindered by the absence of essential elements such as binding policies, local ordinances, established procedures, and clear targets for Green Public Procurement adoption. These gaps present significant challenges to fully embrace sustainable procurement practices in the region.

Keywords: Green Public Procurement (GPP), Implementation, Awareness, Compliance, Environmental Impact, Challenges & Barriers, Sustainability, Albay

1. INTRODUCTION

Economic activities depend on environmental protection, as the economy operates within the constraints of ecological systems (Daly, 1990). Without proper stewardship, resource depletion and ecological degradation threaten sustainability and societal welfare, necessitating collaborative governance among governments, businesses, financial institutions, and grassroots organizations (Brundtland, G. H., 1987; Elkington, 1997). In the Philippines, Section 16, Article II of the 1987 Constitution reinforces the state's duty to safeguard a balanced and healthful ecology, shaping environmental jurisprudence through cases like *Oposa v. Factoran*, which highlighted intergenerational responsibility (La Viña, 2010). However, the worsening impacts of climate change call for urgent resilience-building through adaptive strategies and sustainable practices (Adger, W. N., 2000). Continued inaction risks the depletion of Earth's life-supporting systems (Omusebe, 2017), making government intervention critical. Sustainable public procurement offers a viable approach, reducing the ecological footprint of expenditures and fostering the transition to a circular economy (Sönnichsen, S. D., & Clement, J., 2020). Green procurement, in particular, integrates environmental considerations into policies, driving progress toward Sustainable Development Goal 12, which emphasizes responsible consumption and production (United Nations, 2015). Green Public Procurement (GPP), according to the European Union, is "a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their lifecycle when compared to goods, services and works with the same primary function that would otherwise be procured." (European

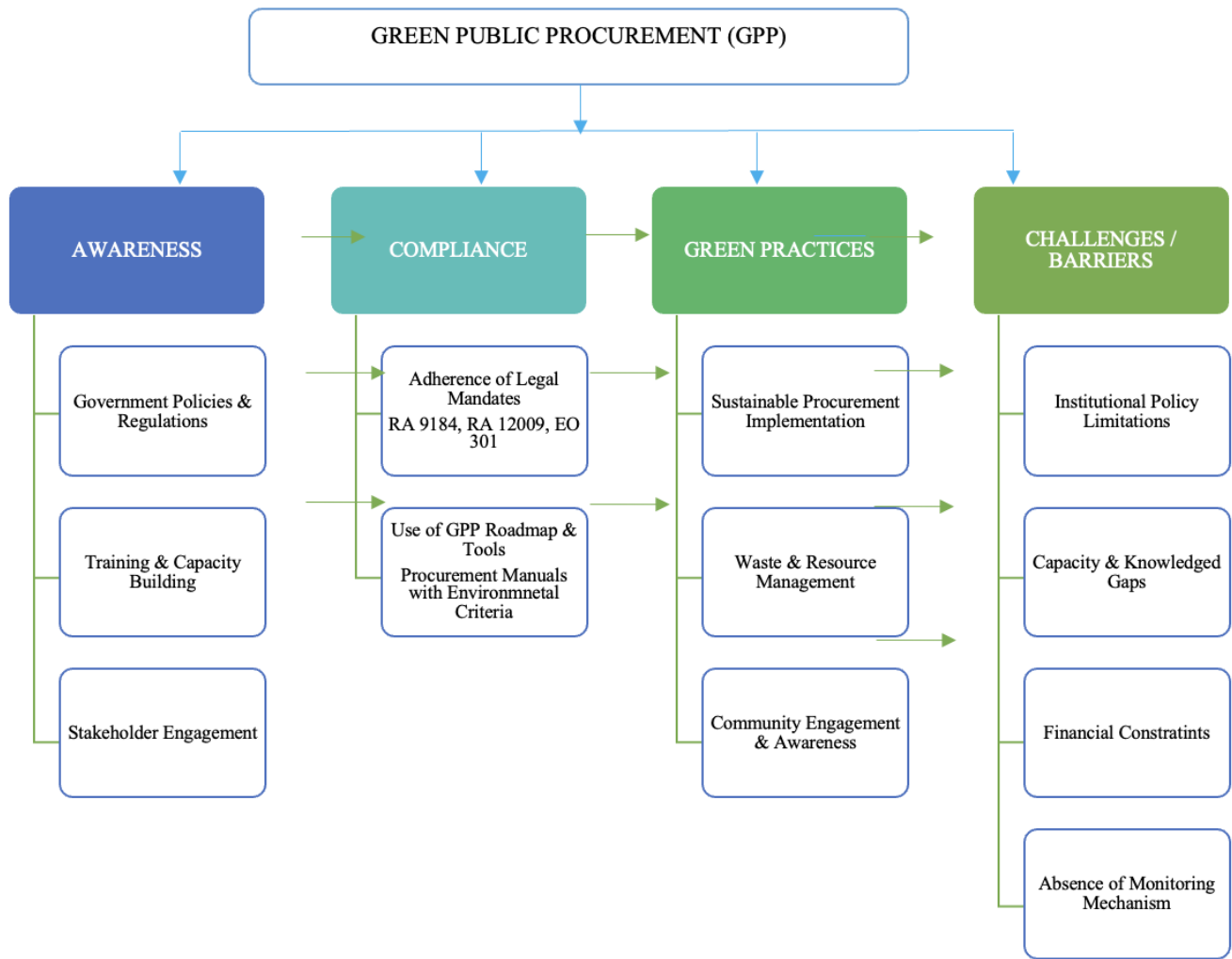
Commission, 2019b). GPP has gained significant attention in academic literature as a strategic tool for promoting sustainability through government purchasing decisions. Research highlights that GPP encourages the adoption of environmentally friendly goods and services, reducing the ecological footprint of public expenditures while fostering sustainable development (Chersan et al., 2020). Studies indicate that integrating green criteria into procurement policies enhances resource efficiency, minimizes waste, and supports the transition to a circular economy (Schotanus & Telgen, n.d.). Additionally, scholars emphasize the role of GPP in raising awareness among stakeholders and driving innovation in sustainable production practices (Chersan et al., 2020). The Green Public Procurement (GPP) in the Province of Albay emphasizes the interplay between awareness and compliance in fostering sustainable procurement practices. Awareness serves as a critical foundation, ensuring that procurement officers and stakeholders understand GPP principles. This understanding is facilitated by government policies, stakeholder engagement, capacity-building initiatives, and the Philippine Green Public Procurement Roadmap (Government Procurement Policy Board - Technical Support Office, 2017). Compliance, on the other hand, ensures adherence to legal mandates such as Republic Act No. 9184 (Government Procurement Reform Act), Executive Order No. 301, and relevant procurement laws that mandate eco-friendly procurement approaches. Together, awareness and compliance create a structured pathway for integrating sustainability into government purchasing processes, addressing challenges like knowledge gaps, stakeholder engagement, market readiness, and regulatory enforcement. By combining these components, the framework strengthens GPP adoption, enhances procurement efficiency, and promotes environmental responsibility within Albay's public procurement system.

2. MATERIALS AND METHODS

This work involved a mix of qualitative and quantitative methods of collecting data to answer the research problems. To quantify the level of awareness of the respondents on Green Public Procurement, the quantitative method was used through survey research. Cross-sectional surveys helped in assessing the level of awareness of the target population. To determine the measures, responses, and challenges of the cities in the Green Public Procurement program the qualitative method was used to conclude the research problems. This method focused on obtaining data through open-ended and conversational communication. A one-on-one interview and/or forum group discussion with the respondents was preferred in collecting data. It also included a case study research of the 2020-2022 public bidding documents of the three cities to assess whether, in their procurement process, they considered the 12th sustainable development goal which is responsible consumption and production. This work is regarded as primary research for this intends to explore a novel research problem and the data to be collected are original to answer the research problem. Structured survey questionnaires were used to collect information directly from the respondents. This list of questions was prepared to know the respondents' personal views and assess their knowledge regarding GPP. Also, unstructured survey questionnaires were distributed to gain a comprehensive understanding of the opinions of respondents. From then, an interview was scheduled with the key informants to collect rich and context-specific data. By engaging in conversation, the researcher was able to explore, validate, and delve deeply into the subject being studied. To obtain additional knowledge on the research topic, the secondary sources coming from books, articles, reviews, and other reading materials were considered as secondary sources of data.

3. RESULTS AND DISCUSSIONS

The successful implementation of Green Public Procurement (GPP) in the Province of Albay is guided by four interrelated components: awareness, compliance, green practices, and challenges/barriers. First, awareness is a crucial foundation for fostering an environmentally conscious procurement system. This involves familiarizing stakeholders with government policies and regulations such as RA 9184 (Government Procurement Reform Act), RA 12009 (establishing the Green Public Procurement program), and Executive Order 301. Training and capacity-building programs are essential for procurement officers, suppliers, and other stakeholders to internalize GPP principles and procedures. Additionally, engaging stakeholders—from government agencies to civil society organizations and the private sector—ensures multi-sectoral collaboration and shared accountability. Compliance with national legal mandates forms the second pillar of the framework. Local government units (LGUs) in Albay are expected to align their procurement activities with the GPP roadmap and utilize prescribed tools such as procurement manuals and monitoring templates that include environmental criteria. This legal alignment ensures that procurement decisions reflect both cost-efficiency and environmental responsibility.



The three cities in Albay implement various green initiatives that indirectly support Green Public Procurement (GPP) by fostering sustainable infrastructure, environmental policies, and responsible community behavior. These efforts, such as waste management programs, conservation projects, and awareness campaigns, create conditions that encourage eco-friendly procurement practices. While not directly part of GPP, they influence supplier readiness, public demand for sustainable products, and policy alignment, making green procurement more feasible. By strengthening these initiatives, cities can enhance GPP implementation and contribute to long-term environmental sustainability. However, several challenges and barriers hinder full implementation. These include institutional and policy limitations such as the absence of GPP-specific local ordinances and weak enforcement mechanisms. Capacity and knowledge gaps remain, especially in areas lacking trained personnel and suppliers unfamiliar with green criteria. Budget constraints also pose difficulties, with green products often perceived as costlier despite their long-term benefits. Lastly, the lack of clear monitoring and evaluation systems prevents the effective assessment of GPP progress and impact. These components form a comprehensive framework that supports the institutionalization of Green Public Procurement in Albay, aiming to promote sustainability, resource efficiency, and climate resilience in public sector purchasing decisions.

Awareness. Awareness plays a crucial role in the successful implementation of Green Public Procurement (GPP), as it influences the adoption and effectiveness of sustainable purchasing practices. Studies highlight that increasing awareness among policymakers, procurement officers, and suppliers enhances compliance with environmental standards and fosters a culture of sustainability in public procurement processes (Chiappinelli, 2022). The Philippine Green Public Procurement Roadmap emphasizes the need for capacity-building initiatives and stakeholder engagement to ensure that procurement entities understand the benefits and requirements of GPP (Government Procurement Policy Board - Technical Support Office, 2017). Additionally, research suggests that awareness campaigns and training programs can address barriers such as regulatory challenges and market readiness, ultimately driving the transition toward greener procurement practices (Barnie, 2019). By integrating awareness strategies into procurement policies, governments can strengthen the impact of GPP and contribute to broader sustainability goals (Chiappinelli, 2022).

Table 1. Summary of the Level of Awareness on GPP of the Three Cities in Albay

City	Total Average	Description
TABACO	2.60	Aware
LEGAZPI	2.82	Aware
LIGAO	2.78	Aware

The table Summary of the Level of Awareness on GPP of the Three Cities in Albay presents a comparative analysis of Green Public Procurement (GPP) awareness among procurement officers in Tabaco, Legazpi, and Ligao. It provides a total average score for each city, categorizing their awareness levels based on their respective descriptions. Legazpi recorded the highest total average score of 2.82, followed by Ligao with 2.78, and Tabaco with 2.60. Despite slight variations in scores, the awareness level across all three cities is consistently categorized as "Aware." This indicates that procurement officers in these cities have a general understanding of GPP, which suggests positive engagement with sustainable procurement policies and practices. However, while the scores reflect basic awareness, they do not necessarily indicate deep knowledge or implementation capability. Further research may be needed to assess whether procurement officers fully comprehend GPP principles and actively integrate them into purchasing decisions. Additionally, enhancing awareness through capacity-building programs, training sessions, and stakeholder engagement could strengthen GPP adoption in Albay, ensuring that knowledge translates into actual policy compliance and implementation.

The table reveals that procurement officers in Tabaco, Legazpi, and Ligao are not yet fully aware of Green Public Procurement (GPP), possessing only partial knowledge of its components. While their current understanding reflects some familiarity with sustainable procurement, it does not indicate comprehensive knowledge or active implementation. However, their ongoing learning efforts suggest a commitment to adopting GPP practices in the future. GPP follows conventional procurement procedures but offers additional benefits, contributing to sustainable development, economic growth, inclusivity in business and consumer society, and environmental protection (International Institute for Sustainable Development, IISD). The Province of Albay has demonstrated strong environmental commitment through local ordinances and initiatives, prioritizing various programs to safeguard natural resources. Despite this, the significant role of government purchasing power in advancing sustainability must not be overlooked, as strategic procurement decisions can shape economic, societal, and environmental outcomes.

Regular training sessions and seminars for procurement personnel primarily focus on Republic Act No. 9184 (Government Procurement Reform Act) to keep them informed of public procurement policies. However, GPP awareness efforts have remained limited and inconsistent. While some procurement officials have accessed information via the Government Procurement Policy Board (GPPB) website, many Bids and Awards Committee (BAC) members remain unaware of GPP's existence in the Philippines. Key questions arise regarding why it is termed "green" and how public procurement can transition toward sustainable practices, further emphasizing the need for enhanced awareness. Interestingly, some respondents revealed that this is their first exposure to the concept of GPP, highlighting an urgent need to integrate sustainability education into procurement training.

Albay's commitment to environmental protection is evident through its numerous local policies designed to achieve sustainability goals. Studies, such as those by Jabbour (2023), demonstrate that GPP generates significant environmental benefits, including reduced greenhouse gas emissions, lower waste production, and minimized energy consumption. Additionally, GPP leads to long-term cost savings by reducing resource consumption while promoting the adoption of efficient, eco-friendly products and services. Ultimately, the success of GPP depends on the awareness and commitment of local governments, procurement officers, and suppliers. Strengthening policy frameworks, enhancing capacity-building programs, and fostering collaboration among stakeholders will be crucial in achieving full compliance and effective implementation of GPP in Albay.

Compliance. Compliance with Green Public Procurement (GPP) in the Philippines is guided by legal frameworks and policy initiatives that promote sustainable purchasing practices among government agencies. The Philippine Green Public Procurement Roadmap outlines strategies for integrating environmental considerations into procurement processes, ensuring adherence to sustainability goals and regulatory requirements (Government Procurement Policy Board - Technical Support Office, 2017). Additionally, Republic Act No. 9184, also known as the Government Procurement Reform Act, mandates transparency and efficiency in procurement, supporting the implementation of GPP through standardized guidelines (Government Procurement Policy Board, 2017). Executive Order No. 301 further establishes a GPP program, encouraging public entities to prioritize eco-friendly goods and services in their procurement decisions (Government Procurement Policy Board, 2017). Compliance with these policies ensures that procurement activities align with environmental objectives, fostering responsible consumption and production practices.

Table 2. Summary of the Level of Compliance on GPP of the Three Cities in Albay

City	Total Average	Description
TABACO	2.76	Substantially Compliant
LEGAZPI	2.63	Substantially Compliant
LIGAO	2.84	Substantially Compliant

The table Summary of the Level of Compliance on GPP of the Three Cities in Albay provides insights into how procurement officers in Tabaco, Legazpi, and Ligao adhere to Green Public Procurement (GPP) guidelines. While all three cities fall under the category of "Substantially Compliant," indicating a general alignment with GPP principles, their compliance levels vary. Ligao recorded the highest average score of 2.84, followed by Tabaco with 2.76, and Legazpi with 2.63, suggesting that Legazpi may face greater challenges in implementing and monitoring GPP practices effectively. One potential issue affecting compliance is the lack of binding policies, making GPP adoption voluntary rather than mandatory. Without strict enforcement, procurement officers may not consistently apply green technical specifications, sustainability criteria, or eco-friendly purchasing strategies in their processes. Additionally, stakeholder engagement remains an area for improvement, as training programs primarily focus on Republic Act No. 9184 (Government Procurement Reform Act) but do not necessarily integrate comprehensive GPP education. Although some procurement officers have accessed materials from the Government Procurement Policy Board (GPPB) website, many members of the Bids and Awards Committee (BAC) remain unaware of its existence in the Philippines. Questions such as "Why is it called green?" and "How can public procurement transition into GPP?" indicate significant gaps in awareness that need to be addressed through targeted training, localized capacity-building sessions, and proactive information dissemination.

Furthermore, monitoring and evaluation mechanisms across local government units (LGUs) need improvement, as compliance tracking may be inconsistent or lack a standardized reporting process. Regular audits and performance reviews could strengthen adherence to GPP guidelines and ensure procurement officers actively integrate sustainable practices into their purchasing decisions. Additionally, ongoing legislative efforts—such as the Green Public Procurement Act (House Bill No. 6468), which the House of Representatives passed on December 12, 2022 (Representatives, 2022)—signal a move towards mandatory GPP adoption rather than voluntary compliance. If passed into law, this measure would require all government agencies to integrate sustainability considerations into their procurement processes. Moreover, studies such as those by Jabbour (2023) emphasize the long-term benefits of GPP, including reduced greenhouse gas emissions, lower waste production, and decreased energy consumption, demonstrating that a fully compliant procurement system could lead to both environmental sustainability and economic efficiency. Ultimately, while procurement officers in Albay exhibit substantial compliance, a stronger regulatory framework, continuous education, and improved monitoring mechanisms are necessary to achieve full implementation and lasting impact in sustainable procurement.

Green Practices. Green Public Procurement (GPP) plays a critical role in promoting sustainability by integrating environmental considerations into government purchasing decisions. One of its primary objectives is to reduce greenhouse gas emissions, thereby contributing to climate change mitigation. According to Testa et al. (2016), GPP is an essential policy tool that governments can use to drive environmental sustainability, as it incentivizes businesses to adopt greener practices and innovate towards eco-friendly solutions. By prioritizing products and services that adhere to sustainability standards—such as energy-efficient technologies and waste-reduction strategies—GPP fosters long-term environmental benefits, including resource conservation and waste minimization. The concept of a circular economy further strengthens GPP, as it encourages reuse, repair, and recycling, reducing overall ecological footprints (Geissdoerfer et al., 2017). Additionally, procurement decisions directly impact biodiversity and ecosystems. Studies indicate that deforestation, pollution, and industrial expansion caused by unsustainable procurement practices pose significant risks to biodiversity (Steffen et al., 2015). Thus, incorporating sustainability in public purchasing policies ensures that natural habitats and ecological balance remain protected.

Many cities implement green initiatives that indirectly support the adoption of Green Public Procurement (GPP) by fostering an environmentally conscious infrastructure, policies, and community behavior. While not explicitly categorized as procurement strategies, these initiatives create the necessary conditions for sustainable purchasing decisions. In Tabaco City, it has initiated several environmentally sustainable programs that reflect the principles of Green Public Procurement (GPP), especially in infrastructure and waste management. One of the city's landmark GPP-related projects is the eco-friendly Tourist Rest Area (TRA) constructed at Hiraya Manawari Nature Park. Developed in partnership with the Department of Tourism, the TRA incorporates green building features such as solar panel roofing and a rainwater harvesting system. This project not only supports sustainable tourism but also demonstrates Tabaco City's commitment to environmentally responsible public infrastructure (When In Manila, 2023).

In the field of waste management, the City Environment and Natural Resources Office (CENRO) of Tabaco has undertaken several impactful initiatives. In April 2024, the city engaged a third-party service provider to ensure the proper collection and disposal of medical waste, highlighting its efforts toward safe and sustainable healthcare waste management (GovServ, 2024a). The city also regularly conducts coastal clean-up drives, such as the "Kalinisan sa Bagong Pilipinas Program," which actively involves government employees and community volunteers in preserving the cleanliness of coastal areas (GovServ, 2024b). Moreover, Tabaco City has become a benchmark for other LGUs, such as Pasacao in Camarines Sur, in showcasing nature-based coastal protection strategies (GovServ, 2024c). Further reflecting GPP principles, Tabaco City creatively utilized recycled materials in a city-sponsored public display. In 2022, the city built a candyland-themed Christmas village made entirely from ecobricks and repurposed plastics. This initiative emphasized both environmental awareness and community engagement, serving as a unique demonstration of how recycled materials can be incorporated into public projects (Rappler, 2022). Through these green initiatives, Tabaco City exhibits a strong commitment to sustainable development by integrating environmental considerations into public procurement, infrastructure, and community projects.

Legazpi City has launched a range of green initiatives that underscore its commitment to environmental sustainability and climate resilience. One of the city's hallmark programs is the "Plastic for Rice" initiative, which incentivizes residents to exchange

five kilograms of residual plastic waste for one kilogram of rice. This program encourages waste segregation and promotes recycling at the household level (Wikipedia, 2024). To further enhance its waste management strategy, the city has deployed a smart waste management system—a digital platform that optimizes garbage collection routes and monitors efficiency, ultimately reducing fuel consumption and operational costs (Asian Development Bank, 2020). Additionally, the city began operating a granular plastic shredding machine in 2023 to process plastic waste from homes and establishments, significantly minimizing waste volume and preventing environmental pollution (Philippine News Agency [PNA], 2023).

Legazpi City has also prioritized climate-resilient infrastructure. It has constructed flood control systems including pumping stations, dikes, and drainage systems, particularly along the Tibu and Macabalo Rivers. A 2.7-kilometer coastal road has also been built to serve as a protective barrier against storm surges (Wikipedia, 2024). Urban greening is another focal area of Legazpi's sustainable development strategy, with tree planting efforts under the National Greening Program contributing to increased vegetation cover and improved microclimates (HLS-ESC, n.d.). In terms of environmental education and community engagement, Legazpi City promotes awareness through initiatives like the Green Film Festival, where students are exposed to educational documentaries on solid waste management (PNA, 2018). The city is also involved in bamboo propagation projects supported by international organizations, such as the Global Center on Adaptation. These efforts contribute not only to carbon sequestration and erosion control but also offer sustainable livelihood opportunities for local communities (GCA, n.d.). Legazpi City's integrated approach—combining waste management, green infrastructure, and public engagement—reflects a strong alignment with sustainable development and climate adaptation goals.

Ligao City in Albay has launched various green initiatives aimed at promoting environmental sustainability and improving community well-being. One of the city's most notable programs is its comprehensive waste management effort, including the "Trash to Treasure" and "May Kabuhayan sa Basura" programs. These initiatives encourage residents, students, and barangays to segregate and recycle waste materials in exchange for food and household items, promoting both environmental responsibility and livelihood support (Philippine News Agency [PNA], 2022; GovServ, n.d.). The city has also implemented the "Kalakalan" or "Palit Basura" program, which allows recyclable materials to be traded for essential goods, fostering a culture of ecological responsibility (GovServ, n.d.).

In addition to waste management, Ligao City emphasizes environmental conservation through efforts such as the mangrove plantation project in Barangay Cabarian, which protects against storm surges and supports coastal livelihoods. The city has also cultivated sunflower fields in locations like Kawakawa Hill, California Village, and Dunao Highway to boost eco-tourism and enhance natural beauty (Albay 3D, 2014a; 2015). Kawakawa Natural Park, featuring life-sized Stations of the Cross and panoramic views of Mayon Volcano, further reflects Ligao's eco-tourism potential and environmental education goals (Albay 3D, 2014a). On the renewable energy front, the city inaugurated a Class "AA" slaughterhouse in Barangay Tinago powered by a mini-hydroelectric power plant—demonstrating a commitment to clean energy and hygienic public infrastructure (Albay 3D, 2014b). Additionally, the Tricycle Boundary-Hulog Program (TBHP) supports sustainable transport by assisting drivers in replacing old 2-stroke engines with more efficient 4-stroke engines, thus reducing air pollution and increasing operational efficiency (City Government of Ligao, n.d.). Through these initiatives, Ligao City has established itself as a local government eco-champion, earning recognition for its environmental governance and innovative practices.

Challenges. The cities of Tabaco, Legazpi, and Ligao have collectively identified critical challenges in implementing Green Public Procurement (GPP), including lack of awareness, absence of local policies, limited availability of green products, and insufficient monitoring mechanisms. These obstacles highlight the pressing need to improve stakeholder education, enhance regulatory support, and develop tools that ensure compliance and effectiveness. A lack of awareness among city personnel, manufacturers, and suppliers significantly limits the adoption of GPP. Nearly 90% of survey respondents emphasized the importance of extending GPP education beyond procurement personnel to ensure market readiness. Additionally, the absence of local policies that promote and prioritize eco-friendly products hinders efforts toward sustainability. 98% of respondents acknowledged that local ordinances play a crucial role in institutionalizing GPP practices and stimulating demand for sustainable goods.

Another major challenge is the limited availability of green products in the market. Manufacturers and suppliers often lack sufficient awareness regarding the importance of producing environmentally positive goods, resulting in a market gap. 83% of respondents indicated that green criteria are deprioritized due to inadequate market readiness. This issue underscores the need for stronger incentives and collaboration between policymakers and suppliers to expand the availability of sustainable alternatives. Furthermore, the absence of a monitoring mechanism creates gaps in tracking GPP implementation. While current systems like the Agency Procurement Compliance and Performance Indicators (APCPI) monitor national procurement compliance, they fail to measure the environmental impact and progress of GPP. 100% of respondents emphasized the necessity of an exclusive monitoring tool to assess, validate, and optimize GPP practices within local government units.

These findings align with the challenges reported by the Asia-Pacific Economic Cooperation (APEC), which highlights difficulties in defining technical specifications, integrating a life cycle approach, training personnel, communicating GPP standards, and developing effective monitoring systems (APEC, 2013). Addressing these barriers is essential for ensuring the successful implementation of GPP and its long-term sustainability. Recognizing these challenges enables local government officials to formulate targeted action plans that strengthen GPP integration and advance sustainable development goals. Overcoming GPP obstacles is crucial for positioning the city governments of Albay as responsible procurers—serving as a model for environmental sustainability in public procurement.

To overcome these barriers, policy reinforcement, stakeholder education, and incentivizing green industries are essential. Strengthening institutional frameworks, implementing training programs, and providing financial support to businesses that adopt sustainable practices can enhance GPP effectiveness and ensure that public procurement contributes meaningfully to environmental protection and sustainability.

4. CONCLUSION

The data indicates that procurement officers in Tabaco, Legazpi, and Ligao in the Province of Albay have only a basic awareness of Green Public Procurement (GPP) as outlined in RA 9184 but lack a comprehensive understanding of how to effectively integrate green criteria into procurement processes. While some GPP practices are partially implemented, progress is significantly hindered by the absence of binding policies, such as local ordinances, clearly defined procedures, and specific targets for GPP adoption. The compliance levels of Tabaco, Legazpi, and Ligao with Green Public Procurement (GPP) demonstrate a notable commitment to sustainability, yet there remain areas requiring enhancement to achieve full and consistent implementation. While all three cities exhibit substantial adherence to GPP principles, strengthening policy enforcement, stakeholder engagement, and monitoring mechanisms can further improve compliance and ensure more effective integration of eco-friendly procurement practices. To effectively implement Green Public Procurement (GPP) in the Province of Albay, targeted interventions are needed to address existing gaps. Enhancing awareness through comprehensive orientation sessions and seminars for all government departments—not just the Bids and Awards Committee—will ensure uniform understanding of GPP principles. Strengthening local policies, monitoring systems, and formal market research is essential for integrating sustainable procurement standards into everyday practices. Additionally, providing incentives and recognition for suppliers promoting eco-friendly products will encourage broader participation. These strategic measures will help transition GPP from partial implementation to a fully integrated procurement system, aligning with environmental conservation and Albay's long-term developmental goals.

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“No duty is more urgent than that of returning thanks.” — James Allen

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Research Article

Bridging Policy and Practice: The Status of Bicol University's Graduate Education Under CHED's New Graduate Education Framework

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ABSTRACT

Graduate education plays a crucial role in shaping a nation's academic and research landscape, particularly in producing highly skilled professionals and scholars. In the Philippines, the Commission on Higher Education (CHED) has issued CMO No. 15 series of 2019 which prescribes the policies, standards, and guidelines for graduate programs in the Philippines. This policy study examined the status of Bicol University's graduate education in response to this new framework, focusing on program alignment, institutional challenges, and opportunities for development. Using a qualitative-descriptive approach, the study assessed the extent to which Bicol University's graduate programs comply with CHED's updated policies and standards. Key areas of analysis included curriculum structure, faculty qualifications, research productivity, accreditation status, among others. Findings indicate that while Bicol University has made significant progress in aligning its graduate education with CHED's mandates, challenges persist. These include inadequate faculty complement, limited faculty research engagement, limited publication, and the need for more strategic industry and international partnerships. Additionally, compliance with new accreditation and quality assurance measures requires further institutional support and policy refinements. Based on these findings, the study provides strategic recommendations for improving the implementation of CHED's New Graduate Education Framework at Bicol University. Key recommendations include strengthening faculty complement, enhancing faculty research and publication support, increasing institutional funding for graduate research, fostering collaborative programs with industry and global institutions, and continuously refining policies to ensure sustainable program development. By addressing these areas, Bicol University can enhance the quality and competitiveness of its graduate programs, ultimately contributing to national higher education goals and international academic standards. This study contributes to the ongoing discourse on policy implementation in graduate education, particularly in bridging regulatory frameworks with institutional realities. It underscores the importance of proactive institutional strategies in navigating policy transitions while ensuring that graduate education remains responsive to both national and global academic demands..

Keywords: Graduate education; Policies and standards; Graduate faculty; Research; Publication

1. INTRODUCTION

The state of graduate education in the Philippines has been a subject of concern in recent years. Many graduate programs have been criticized for lacking rigor, relevance, and responsiveness to the needs of the labor market. Undoubtedly, proliferation of substandard graduate programs has compromised the integrity of higher education institutions (HEIs) which offer these programs.

To address above concerns, the Commission on Higher Education (CHED) issued CMO No. 15, s. 2019 which outlines the new policies and standards for graduate programs in the Philippines. The new policies aim to enhance the quality, relevance, and responsiveness of graduate programs, and to ensure that they aligned with the country's development priorities and needs of the labor market. The issuance of CMO No. 15, s. 2019 marks a significant step towards reforming the state of graduate education in the Philippines.

The CMO includes several important features designed to enhance the quality and relevance of graduate education in the country. It mandates stricter requirements on faculty qualifications, research and publication of both graduate faculty and students,

curriculum design, and program delivery, aiming to cultivate a culture of academic excellence and innovation in Philippine graduate education. The CMO mandates that HEIs offering graduate education must ensure that they have the necessary faculty expertise to support the offering of graduate programs. Moreover, the requirement for research publication for both graduate quality and students is also stressed in the policy guidelines. It specifically mandates that graduate students must publish in refereed journals as a prerequisite for graduation. The emphasis on research publication suggests that graduate faculty should have research experience and are capable of mentoring and guiding graduate students towards publication in refereed journals.

With the issuance of CMO No. 15, s. 2019, HEIs offering graduate programs have to reassess their programs to ensure compliance with the updated policies, standards, and guidelines. As the premier HEI in the Bicol Region and one of the top performing universities in the country, Bicol University (BU) has long been committed to providing high-quality graduate education that is responsive to national development goals and aligned with global academic standards. CHED's new graduate education framework presents both challenges and opportunities for BU as it seeks to maintain its relevance and leadership in graduate education.

The policy reforms introduced by CHED in graduate education necessitates a critical evaluation of BU's existing graduate programs to ensure compliance and competitiveness. It is along this line that this policy study was undertaken to examine the current status of BU's graduate education program in relation to CHED's policies, standards, and guidelines for graduate programs. It specifically attempted to determine the extent to which BU's existing programs comply with CHED's new requirements. A key focus of the assessment was the identification of gaps and areas for improvement in programs design and curriculum structure, faculty qualifications, research productivity, and student support services. In addition to assessing compliance, the study explored the challenges faced by BU in adapting to CHED's new policies and opportunities to strengthen its graduate education program.

2. MATERIALS AND METHODS

The study employed a descriptive-evaluative research design to assess the status of BU's graduate education program in relation to CMO No. 15, s. 2019. The approach involved gathering and analyzing secondary data, key informant interviews (KIIs), and focus group discussion (FGD) during environmental scanning using SWOT analysis. The data collection focused on program compliance, faculty qualifications, research productivity, curriculum alignment, and institutional support services. Quantitative data were analyzed using descriptive statistics, such as frequency distribution, means, and percentages; while qualitative data from FGD, KIIs, and document analysis were subjected to thematic analysis to extract key themes related to challenges, opportunities, and policy recommendations.

3. RESULTS AND DISCUSSIONS

Current Status of BU Graduate Education Program

A. Organization and Management

The Bicol University was created on June 21, 1969 by virtue of RA 5521 to give professional and technical training and provide advanced and specialized instruction in literature, philosophy, science and arts, besides providing for the promotion of scientific and technological researches. Section 6(e) of RA 5521 also required the Board of Regents to immediately establish a post-graduate course in liberal arts and sciences or in education leading to a master's degree.

Operating in the spirit of its charter, BU organized its Graduate School in 1971 through BOR Resolution No. 39 series of 1971. Thus, on June 1971, the BU Graduate School (BUGS) welcomed its first batch of 473 graduate students (1971-1972 Annual Report).

The BUGS, which exercises administrative jurisdiction over all graduate programs of BU following a semi-matrix organizational structure, is headed by a Dean and is assisted by a College Secretary. It is now operating on a fully decentralized set-up in accordance with the provisions of BOR Resolution No. 42, series of 1999 and BOR Resolution No. 080 series of 2004 where graduate programs were decentralized to selected colleges/units with in-house capability. This BOR resolution redefined the role of the Graduate School according to a policy framework where it will institute and administer the programs while receiving units will implement, supervise, and coordinate the decentralized graduate programs.

B. Program Offerings

From an initial offering of three (3) master's degree programs upon its creation in June 1971, it has metamorphosed into its present state with a total curricular offering of 46 degree programs, seven (7) of which are in the doctoral level and 39 in the

master's level (see Table 1). At present, seven (7) graduate degree programs, one (1) doctoral and six (6) master's, are being offered via distance learning mode under the Bicol University Open University.

Following the provisions of BOR Resolution No. 42 series and BOR Resolution No. 080 series of 2004, graduate programs of BU are being offered through Delivering Academic Units (DAUs) which have the required faculty complement and facilities. A DAU, may engage the faculty members from other academic units as affiliate faculty or from other agencies as adjunct faculty in order to meet the faculty requirement of the program. There are 13 academic units which serve as DAUs of graduate degree programs in BU. The College of Education (CE) offers the most number of graduate degree programs with three (3) doctoral degrees and 14 master's degrees, followed by the Jesse M. Robredo Institute of Governance and Development (JMRIGD) and BU Guinobatan with six (6) graduate degree programs each. These 12 academic units offer the graduate degree programs through the residential mode which require graduate students to be physically present in the classroom.

With the establishment of the BU Open University (BUOU), as authorized by BOR Resolution No. 24 series of 1997, three (3) of the five (5) approved graduate degree programs were offered through distance education mode in 2005, namely, Master in Management (MM), Master of Arts in Public Administration (MAPA), and Master in Local Government Administration (MLGM). Additional programs were offered by BUOU after the passing of BOR Resolution No. 236 series of 2017 such as Ed.D. in Educational Leadership and Management (Ed.D. ELM), Master of Arts in Educational Leadership and Management (MAELM), Master of Arts in English Education, and Master of Arts in Social Studies Education.

Table 1. Graduate degree programs being offered by Bicol University by delivering academic units

Delivering Academic Units	Doctoral Degree	Master's Degree
College of Education	1. Ed.D. in Educational Leadership and Management 2. Ph.D. in Educational Foundations 3. Ph.D. in Mathematics Education	1. M.A. in Educational Leadership and Management 2. M.A. in Biology Education 3. M.A. in Chemistry Education 4. M.A. in Physics Education 5. M.A. in Cultural Education 6. M.A. in English Education 7. M.A. in Filipino Education 8. M.A. in General Science Education 9. M.A. in Guidance and Counselling 10. M.A. in Mathematics Education 11. M.A. in Music Education 12. M.A. in Pre-School Education 13. M.A. in Reading Education 14. M.A. in Social Studies Education
College of Business Economics and Management		1. Master in Cooperative Management 2. Master in Economics 3. Master in Entrepreneurship 4. Master in Management 5. Master in Management (major in: Human Resource Management)
Jesse M. Robredo Institute of Governance and Development	1. Ph.D. in Public Administration - Ph.D. in Development Management	1. Master of Public Administration 2. Master in Public Administration (major in: Health Emergency and Disaster Management) 3. Master in Public Administration (major in: Public Procurement) 6. Master in Local Government Management
College of Social Sciences and Philosophy	2. Ph.D. in Peace and Security Administration	4. M.A. in Peace and Security Studies
College of Arts and Letters	3. Ph.D. in Filipino	1. M.A. in Literature 5. M.A. in Filipino
College of Industrial Technology	4.	2. M.A. in Industrial Technology (major in: TLE and Instructional Technology)
College of Nursing	5.	1. M.A. in Nursing 3. M.A. in Nursing Education (non-thesis)

Delivering Academic Units	Doctoral Degree	Master's Degree
Institute of Physical Education, Sports, and Recreation		1. M.A. in Physical Education
Institute of Design and Architecture		1. M.S. in Architecture
BU Guinobatan		1. M.S. in Agriculture (major in: Agronomy, Animal Science, Crop Production, and Animal Production) 2. Master in Rural Development 3. M.S. in Biodiversity and Environmental Management 4. M.S. in Sustainable Food Systems
BU Tabaco		1. M.S. in Fisheries (major in: Aquaculture and Coastal Resource Management) 2. M.S. in Fisheries Technology
BU Open University	1. Ed.D. in Educational Leadership and Management	1. M.A. in Educational Leadership and Management 2. M.A. in English Education 3. M.A. in Social Studies Education 4. Master in Management 5. M.A. in Public Administration 6. Master in Local Government Administration

C. Program Accreditation and CHED Recognition Status

As shown in Table 2, BU has 45 accreditable graduate programs as of February 2025. Majority of these programs (51.11%) or 23 of the 45 accreditable programs had already passed different accreditation levels as follows: Level 4- 1; Level 3- 8; Level 2- 13; Level 1- 1; and Candidate Status- 22.

The MA in Public Administration is the lone Level 4 accredited program. Level 3 accredited programs include: Ph.D. in Public Administration, Ed.D. in Educational Leadership and Management, Master's in Management, M.A. in Music Education, M.A. in Filipino Education, M.A. in English Education, M.A. in Mathematics Education, and

Table 2. Accreditation status of graduate programs as of February 2025

Accreditation Level	Number
Candidate Status	22
Level 1	1
Level 2	13
Level 3	8
Level 4	1
Total Number of Accredited Programs	23
Accreditable Programs	45
Percentage	51.11

Source: BU IQA Office

Table 3. COPC status of graduate programs as of February 2025

Delivering Academic Unit/Degree Program	Number of Programs	Number of Programs w/ COPC	Number of Programs w/o COPC
<u>Doctoral Degree</u>			
College of Education	3	-	3
College of Arts and Letters	1	-	1
College of Social Sciences and Philosophy	1	-	1
Jesse M. Robredo Institute of Governance and Development	2	2	-
Subtotal	7	2	5
<u>Master's Degree</u>			
College of Education	14	-	14
College of Arts and Letters	2	-	2
College of Social Sciences and Philosophy	1	-	1
Jesse M. Robredo Institute of Governance and Development	4	1	3
College of Nursing	2	-	2
College of Science	2	1	1
College of Business Economics and Management	5	2	3

College of Industrial Technology	1	-	1
Institute of Physical Education, Sports, and Recreation	1	-	1
Institute of Design and Architecture	1	-	1
BU Guinobatan	4	-	4
BU Tabaco	2	-	2
Subtotal	39	4	35
Total	46	6	40

M.A. in Industrial Education. The 13 Level 2 accredited programs include: Ph.D. in Development Management, Ph.D. in Educational Foundations, Ph.D. in Filipino, Ph.D. in Mathematics Education, Ph.D. in Peace and Security Administration, M.A. in Literature, Master in Filipino, M.A. in Nursing, M.A. in Physical Education, Master in Economics, M.S. in Agriculture, M.A. in Peace and Security Studies, and Master in Rural Development. The lone Level 1 accredited program is the Master in Public Administration (major in Health Emergency and Disaster Response). The remaining 22 graduate programs are candidates for Level 1 accreditation.

As of February 2025, only six (6) out of the 46 graduate degree programs, two (2) for the doctoral and four (4) for the master's, had been awarded their Certificate of Program Compliance (COPC) by CHED. These are: Ph.D. in Public Administration, Ph.D. in Development Management, Master in Management, Master in Management (major in Human Resource Management), Master in Information System, and Master of Public Administration.

Three (3) of the remaining five (2) doctoral programs which do not have yet COPC had been visited already by the Regional Quality Assurance Team (RQAT) and are required to submit compliance report to CHEDRO V not later than March 14, 2025. The remaining two doctoral programs have yet to submit their application.

For the 35 master's degree programs without COPC, 13 programs had been visited already by RQAT while application for COPC evaluation for 10 programs was already submitted to CHEDROV. Records at the IQA Office further revealed that online evaluation for six (6) programs had been completed while another one (1) is scheduled for online evaluation by the RQAT. The other programs are in various stages of the COPC process like compliance with faculty requirement, submission of compliance report, and review of compliance by experts.

D. Graduate Faculty Profile

As of February 2025, BU has a total of 186 graduate faculty consisting of 182 full-time faculty members from the 12 host colleges/units and four (4) part-time faculty members consisting of two (2) non-teaching personnel, one (1) Professor Emeritus, and the SUC President (see Table 5). For the purpose of this paper, a full-time faculty member is one who holds a permanent position and academic rank and is assigned a full teaching load every semester.

Out of the 182 full-time graduate faculty, one (1) has an academic rank of University Professor, 46 are full Professors, 98 are Associate Professors, 36 are Assistant Professors, and one (1) Instructor. Table 5 further shows that 143 of the 186 graduate faculty have their Ph.D./Ed.D. degrees, while 20 are still working on their doctoral studies. Table 5 further shows that 21 graduate faculty have MA/MS as their highest educational attainment.

Table 5. Distribution of BU graduate faculty according to highest educational attainment and academic rank/position.

Academic Rank/Position	Highest Educational Attainment				Total
	MA/MS	MA/MS units	Ph.D./Ed.D.	With Ph.D./Ed.D. units	
Instructor I	1	-	-	-	1
Assistant Professor I	1	1	4	1	7
Assistant Professor II	2	-	2	2	6
Assistant Professor III	3	1	9	1	14
Assistant Professor IV	3	-	4	2	9
Associate Professor I	3	-	13	4	20
Associate Professor II	4	-	8	2	14
Associate Professor III	-	-	9	1	10
Associate Professor IV	2	-	12	2	16
Associate Professor V	1	-	33	4	38
Professor II	-	-	5	1	6
Professor III	-	-	12	-	12
Professor IV	-	-	9	-	9
Professor V	-	-	2	-	2

Professor VI	-	-	17	-	17
University Professor	-	-	1	-	1
Administrative Officer V	1	-	-	-	1
Supervising Admin. Officer	-	-	1	-	1
Professor Emeritus	-	-	1	-	1
SUC President IV	-	-	1	-	1
Total	21	2	143	20	186

E. Graduate Faculty Research and Publication

Research Engagement. Graduate faculty are expected to have research engagement because it is a fundamental pillar of graduate education. Their active involvement in research ensures the continuous advancement of knowledge and allows them to bring cutting-edge developments and methodologies into the classroom. Their engagement in research also enhances the academic rigor and relevance of the curriculum,

Table 6. Distribution of graduate faculty per mother college/unit with and without research engagement as of CY 2023.

Mother Unit	No. of Graduate Faculty				
		With Research	%	Without Research	%
College of Education	36	21	58.33	14	38.89
College of Business Economics and Management	17	7	41.18	9	52.94
College of Industrial Technology	10	5	50.00	5	50.00
College of Arts and Letters	19	11	57.89	8	42.11
College of Social Science and Philosophy	11	7	63.64	4	36.36
College of Nursing	7	4	57.14	3	42.86
College of Science	22	14	63.64	8	36.36
Jesse M. Robredo Institute of Governance and Development	9	2	22.22	7	77.78
Institute of Physical Education, Sports, and Recreation	5	-	-	5	100.00
Institute of Design and Architecture	3	1	33.33	2	66.67
BU Guinobatan	16	11	68.75	5	31.25
BU Tabaco	9	6	66.67	3	33.33
BU Polangui	1	1	100.00	-	-
BU Gubat	1	1	100.00	-	-
BU Open University	7	4	57.14	3	42.86
OVRPDE- Research and Dev't Management Division	5	4	80.00	1	20.00
OVRPDE-Extension Management Division	3	1	33.33	2	66.67
OVRPDE-Regional Center for Science, and Math Education	2	2	100.00	-	-
General Administration and Support Services	3	1	33.33	2	66.67

Source: RDMD

Table 7. Status of implementation of researches implemented in 2023 per college/unit.

Mother Unit	Number of Researches Implemented	Status	
		Ongoing	Completed
College of Education	21	17	4
College of Business Economics and Management	7	2	5
College of Industrial Technology	5	4	1
College of Arts and Letters	11	9	2
College of Social Sciences and Philosophy	7	7	0
College of Nursing	4	4	0
College of Science	14	11	3
Jesse M. Robredo Institute of Governance and Development	2	-	2

Institute of Physical Education, Sports, and Recreation	-	-	-
Institute of Design and Architecture	1	-	1
BU Guinobatan	11	8	3
BU Tabaco	6	6	-
BU Polangui	1	-	1
BU Gubat	1	1	-
BU Open University	4	1	3
OVRPDE-Research and Development Management Division	4	2	2
OVRPDE-Extension Management Division	1	-	1
OVRPDE-Regional Center for Science, Mathematics Education	1	-	1
General Administration and Support Services	1	1	-
Total	102	73	29

Source: RDMD

aligning it with current trends and scholarly debates. Moreover, their research experience equips them to provide meaningful guidance to their thesis/dissertation advisees/mentees in formulating research questions, designing methodologies, and interpreting data.

Along the foregoing premises, the study sought to find out the extent of graduate faculty's engagement in research. The study revealed that majority of the graduate faculty (55.38%) had research engagement as of CY 2023, either as project leader or study leader. As shown in Table 6, only the graduate faculty of the Institute of Physical Education, Sports, and Recreation (IPESR) had no research engagement as of CY 2023. The data further show that majority of the graduate faculty in eight (8) of the 13 DAUs of the Graduate School had research engagement as of CY 2023. BU Guineaman had the greatest number of graduate faculty engaged in research at 68.76%, followed by BU Tabaco with 66.67%, then by the College of Social Science and Philosophy and College of Science at 63.64% each.

As shown in Table 7, there were 102 researches which were implemented in CY 2023 involving graduate faculty. Majority of their researches (71.57) were still on-going while close to one-third were completed in CY 2023.

Research Publication of Graduate Faculty. Graduate are expected to have research publications because these serve as evidence of their academic credibility and expertise in the field. Engaging in research and publishing their work allows faculty members to remain in the forefront of knowledge, which enhances the quality and relevance of their teaching. Research publication is, therefore, a vital component of a graduate faculty's role in advancing scholarship and instruction.

With the foregoing considerations, the study also looked into the research productivity of graduate faculty in terms of papers published in refereed journals. As shown in Table 8, a total of 154 papers authored by graduate faculty were published in 72 journals for the period 2020-2024. There were two (2) journal categories where graduate faculty published their papers, namely, international journals and national journals. Majority of the papers (69.48%) or 107 out of 154 papers were published in international journals while the remainder (30.52%) were published in national journals. The journals where the papers were published were of five (5) types, namely, refereed, non-refereed, CHED-JIP recognized, book chapter, and SCOPUS-listed. Refereed journals had the greatest number of papers published with almost 40.00%, followed by CHED-JIP recognized journal with 27.27%, and non-refereed journals with 18.18%. The remaining papers were either published either in SCOPUS-listed journals or as book chapter with 7.79% each. Of the 72 journals, the BU R&D Journal had the highest number of papers published with 41 out of 154 papers. The BU R&D Journal, which is published by BU, is CHED-JIP recognized national journal.

Table 9 shows the number of faculty per mother unit who had papers published for the period 2020-2024. Among the 13 DAUs of the Graduate School, the College of Science which had a total of 49 papers published, had the highest number of graduate faculty (68) with published papers. It is followed by BU Tabaco with 18 published papers involving 23 graduate faculty, and College of Education with 21 papers published involving 22 graduate faculty. The OVRPDE, which is not a DAU of the Graduate School, had a total of 32 graduate faculty with papers published during the same period. Overall, there were 193 graduate faculty who were able to publish 154 papers. The data implies multiple authorship where one graduate faculty is able to publish several papers credited to his/her name and one (1) published paper having several authors.

Table 8. Number of papers published per year and per mother unit.

Mother Unit	Number of Publication per Year					Total
	2020	2021	2022	2023	2024	
College of Education	-	12	1	1	7	21
College of Business Economics and Management	-	-	-	1	3	4
College of Industrial Technology	-	-	-	-	-	-
College of Arts and Letters	-	1	-	-	1	2
College of Social Science and Philosophy	1	4	5	1	4	15
College of Nursing	-	2	4	1	-	7

College of Science	6	3	11	5	24	49
College of Engineering	-	1	2	1	1	5
Jesse M. Robredo Inst. of Governance and Dev't.	-	-	-	-	-	-
Institute of Physical Education, Sports, and Recreation	-	-	-	-	-	-
Institute of Design and Architecture	-	-	-	-	-	-
BU Guinobatan	1	-	1	1	1	4
BU Tabaco	3	2	7	4	2	18
BU Polangui	-	-	-	-	-	-
BU Gubat	-	-	-	-	-	-
BU Open University	-	-	-	-	3	3
OVRPDE	5	6	5	8	2	26
Total	16	31	36	23	48	154

Source: OVRPDE-PKMD

Table 9. Number of graduate faculty with publication per year and per mother unit.

Mother Unit	Number of Publication per Year					Total
	2020	2021	2022	2023	2024	
College of Education	1	12	1	1	7	22
College of Business Economics and Management	-	-	-	1	5	6
College of Industrial Technology	-	-	-	-	-	-
College of Arts and Letters	-	1	-	-	2	3
College of Social Science and Philosophy	1	4	7	1	5	18
College of Nursing	-	2	4	2	-	8
College of Science	7	5	11	7	38	68
JMRIGD/College of Engineering	-	1	2	1	-	4
JMRIGD/College of Social Sciences and Philosophy	-	-	-	-	1	1
Institute of Physical Education, Sports, and Recreation	-	-	-	-	-	-
Institute of Design and Architecture	-	-	-	-	-	-
BU Guinobatan	1	-	2	-	1	4
BU Tabaco	3	3	7	4	6	23
BU Polangui	-	-	-	-	-	-
BU Gubat	-	-	-	-	-	-
BU Open University	-	-	1	-	3	4
OVRPDE	6	11	5	6	4	32
Total	19	39	40	23	72	193

Source: OVRPDE-PKMD

F. Enrolment**Table 10.** Total enrollment by type of degree program, mode of delivery, and year

Degree Program/Mode of Delivery	2020		2021		2022		2023		2024	
	1 st Sem	2 nd Sem	1 st Sem	2 nd Sem	1 st Sem	2 nd Sem	1 st Sem	2 nd Sem	1 st Sem	2 nd Sem
<i>Residential Mode</i>										
Doctoral Degree	319	308	306	277	260	273	243	274	253	240
Master's Degree	1,583	1,525	1,835	1,637	1,666	1,565	1,701	1,675	1,691	1,539
<i>Distance Mode</i>										
Doctoral Degree	0	32	32	35	32	34	30	25	22	28
Master's Degree	0	263	363	279	290	259	236	233	211	184
Total for Doctoral Degree	319	340	338	312	292	307	273	299	275	268
Total for Master's Degree	1,583	1,788	2,198	1,916	1,956	1,824	1,937	1,908	1,902	1,723

Table 9 presents the total number of students enrolled in doctoral and master's degree programs by mode of delivery – residential and distance – from SY 2020 to the first semester of SY 2024. A close examination of the data reveals several notable

trends in graduate education over the five-year period. For the residential mode, doctoral degree enrolment during the first semester of 2020 started at 319 and gradually declined over time, reaching 240 in the second semester of 2024. This steady decrease may be due to some factors like diminishing interest, constraints in pursuing face-to-face doctoral studies, presence of other higher education institutions offering graduate studies, and other factors which the BU Graduate School should look into. Similarly, while master's degree enrolment under the residential mode saw a peak of 1,835 in the first semester of 2021, the numbers have slightly decreased over the years, settling at 1,539 in the second semester of 2024. This suggests that although traditional learning remained strong in the earlier years, there has been a gradual shift or drop in enrolment in recent semesters.

In contrast, the distance mode experienced a notable upward trend, particularly for master's programs. The data shows that master's programs under distance mode, which had no enrollees in 2020, quickly grew to 263 in the first semester of 2021 and continued to rise, peaking at 299 in the first semester of 2023. This increase indicates a growing preference for flexible learning arrangements, possibly accelerated by the COVID 19 pandemic and its lingering effects on higher education. The doctoral degree program under distance mode, introduced in 2021, has had but minimal but consistent enrolment figures, ranging from 30 to 35 students each semester, reflecting a modest uptake.

When aggregated, total enrolment for doctoral degrees initially decreased from 319 in the first semester of 2020 to 292 in the second semester of 2022 but saw a slight recovery in 2023 before declining again in 2024. This fluctuating pattern may point to changing dynamics in graduate school participation or challenges specific to doctoral programs. Meanwhile, total enrolment in master's programs increased significantly from 1,583 in 2020 to a peak of 2,198 in 2021, followed a slight and steady decrease, reaching 1,723 by the second semester of 2024. Despite this decline, the total number of enrollees in the master's programs remains comparatively high, indicating sustained interest in advanced professional education.

Overall, the data highlights a gradual transition in graduate education, with distance learning gaining ground, especially at the master's level. The increased accessibility and flexibility offered by distance programs may continue to reshape enrolment patterns in the years to come. At the same time, the decreasing numbers in residential mode, particularly in the doctoral programs, call for a deeper analysis and programmatic adjustments to meet the evolving needs of graduate learners.

G. Graduation

Table 11. Number of graduates by type of degree program, mode of delivery, and year

Degree Program/Mode of Delivery	2020		2021		2022		2023		2024	
	1 st Sem	2 nd Sem	1 st Sem	2 nd Sem	1 st Sem	2 nd Sem	1 st Sem	2 nd Sem	1 st Sem	2 nd Sem
<u>Residential Mode</u>										
Doctoral Degree	5	15	5	7	3	20	3	43	7	0
Master's Degree	25	5	13	44	22	104	37	238	62	0
<u>Distance Mode</u>										
Doctoral Degree	0	0	0	0	0	3	0	6	1	0
Master's Degree	0	3	1	1	2	9	4	21	0	0
Total for Doctoral Degree	5	15	5	7	3	23	3	49	8	0
Total for Master's Degree	25	8	14	45	24	113	41	259	62	0

As shown in Table 11, a clear upward trajectory is observed, particularly in the number of master's degree graduates in the residential mode, which peaked in 2023 with a total of 275 graduates (37 in the first semester and 238 in the second semester). Similarly, doctoral degrees also saw a significant rise in 2023, culminating in 49 graduates, before dropping sharply in 2024.

The pattern of graduation aligns with previously discussed enrolment trends, where a notable surge in enrolments during the years 2021 and 2022 likely contributed to the peak graduation figures in 2023. The sudden decline in 2024, especially in the second semester, may reflect a gap in new enrolments during the pandemic years or a longer time-to-completion for those enrolled later. Interestingly, distance mode programs have yet to produce significant number of graduates, with zero graduates reported in certain school years, indicating structural and policy challenges in delivering programs through this mode.

These graduation outcomes suggest that while enrolment initiatives have successfully increased the number of students in residential graduate programs, there is a need to strengthen support systems to ensure consistent graduation rates and to enhance distance education delivery for broader accessibility.

Compliance of BU Graduate Programs to CHED's New Graduate Education Framework

CHED's new graduate education framework, outlined in CMO No. 15, series of 2019, represents a significant shift in graduate education in the Philippines. It outlines the policies, standards, and guidelines for graduate programs, aligning it with international standards. This framework aims to enhance the quality and global competitiveness of higher education by

emphasizing research and innovation. The key areas of compliance which the study looked into are: (1) curriculum alignment; (2) faculty qualification and expertise; and (3) research engagement of faculty.

A. Curriculum Alignment

CMO No. 15, series of 2019 emphasizes the need for curriculum alignment in graduate programs to ensure they meet the new standards and guidelines. Specifically, graduate programs must align with the types specified in CMO No. 15 such as academic and professional tracks. Each track has distinct requirements and outcomes, ensuring that programs cater to different student needs and career goals. The CMO further recommends the minimum number of units for each degree program.

Table 12. Credit-unit distribution of graduate programs in Bicol University vs. CMO No. 15, series of 2019 recommendation

Graduate Program	Bicol University				CMO No. 15, s. 2019		
	Number of Programs	Course Work	Thesis/ Diss.	Total No. of Units	Course Work	Thesis/ Diss.	Total No. of Units
Doctoral Degree	5	48	12	60	24	12	36
	2	30	12	42			
Master's Degree (thesis)	1	39	6	45	24	6	30
	6	36	6	42			
	12	33	6	42			
	1	30	15	45			
	16	30	6	36			
	1	27	6	33			
	1	24	6	30			
Master's Degree (non-thesis)	1	30	0	30	30	3*	33

Note: The requirement is a capstone project or its equivalent.

As per CMO No. 15, series of 2019 guidelines, there are eight (8) types of master's degree programs, namely, (1) Master of Arts Academic Track, (2) Master of Arts by Research, (3) Master of Science Academic Track, (4) Master of Science by Research, (5) Master's Degree Professional Track, (6) Straight Bachelor's-Master's (SBM) Program, (7) Dual Doctor of Medicine-Master's Degree (MDMD) Program, and (8) Dual Master's Degrees (DMD) Program. On the other hand, there are five types of doctoral programs, namely, (1) Doctor of Philosophy Academic Track, (2) Doctor of Philosophy by Research, (3) Doctoral Degree Professional Track, (4) Straight Master's-Doctoral (SMD) Program, (5) Double Doctoral Degrees (DDD) Program.

BU offers seven (7) doctoral programs which follow the academic track wherein the requirement is at least 24 units and 12 units dissertation. As shown in Table 12, has five (5) doctoral programs whose course work requirement is 48 units and 12 units dissertation and two doctoral programs with 30 units course work requirement and 12 units dissertation.

For the master's degree program, BU offers two types/tracks, namely, academic track and non-thesis (professional track). The 38 master's degree programs under the academic track have different credit-unit distribution with course work requirement ranging from 24 to 36 units and thesis credit unit ranging from 6 to 15 units. As stipulated in CMO No. 15, series of 2019, the academic requirement for master's degree programs under the academic track is at least 24 units course work and six (6) units thesis.

BU has one (1) master's degree which is non-thesis or under professional track. The program requires a course work of 30 units without thesis. The CMO, however, prescribes a 3-unit capstone project or its equivalent as part of the requirement.

Table 13. Average number of semesters/terms to earn the degree for SY 2023-2024 graduates

Degree Program	Ave. Number of Semesters for Coursework	Ave. Number of Semesters for Thesis/Dissertation	Ave. Number of Semesters to Earn the Degree
Doctoral Degree	5.38	7.75	9.25
Master's Degree	4.30	6.70	8.36

Based on the data presented, there is a need for BU to review and revise its graduate degree programs to align them with the curriculum structure as prescribed in CMO No. 15, series of 2019. The graduate degree programs of BU require more course work than what the CMO prescribes which is one of the reasons for the extended residence of graduate students. As shown in Table 13, graduates of SY 2023-2023 in doctoral program took an average of 9.25 semesters to earn the degree while master's degree graduates took 8.36 semesters to earn their degrees. Reducing the course work requirement in accordance with CMO No. 15, series of 2019 will help fast track graduate degree completion.

B. Faculty Qualification and Expertise

CMO No. 15, series of 2019 places significant emphasis on the qualifications of the graduate faculty. The CMO requires that for the master's programs on the thesis track there shall be at least four (4) full-time faculty members who have doctoral degrees in the discipline. If there is a dearth in the doctoral degree holders in the discipline, there shall be at least one (1) full-time faculty who has a doctoral degree in the discipline and at least three (3) full-time faculty who are master's degree holders, but with doctoral units in the discipline.

For the non-thesis track master's programs, there shall be at least four (4) full-time faculty who have doctoral degrees in the discipline. If there is a dearth in doctoral degree holders in the discipline, at least one (1) full-time faculty who has a doctoral degree in the discipline and at least three (3) full-time faculty who are master's degree holders but with doctoral units in the discipline or three (3) full-time faculty who are master's degree holders, but with extensive industry experience for industry-oriented programs.

For doctoral programs, CMO No. 15, series of 2019 requires at least four (4) full-time faculty members per doctoral program at all times. They are doctoral degree holders in the discipline.

Table 14. Distribution of graduate faculty according to graduate program assignment and highest educational attainment/field of specialization

Graduate Program	Number of Faculty Members	Highest Educational Attainment	
		Degree	Number
<u>Doctoral Program</u>			
Ed.D. Educ. Leadership and Mgt. (Residential)	9	Ed.D. in Educational Management	2
		Ed.D. in Educ. Leadership and Management	1
		Ph.D. in Development Education	1
		Ed.D. in Guidance and Counselling	1
		Ph.D. in Extension Education	1
		Doctor of Communication	1
		Ph.D. in Social Development	1
		Ph.D. in Community Development	1
Ed.D. Educ. Leadership and Mgt. (Open U)	4	Ed.D. in Educational Management	2
		Ph.D. in Extension Education	1
		Ph.D. in Development Management	1
Ph.D. Educational Foundations	10	Ph.D. in Educational Foundations	4
		Ph.D. in Social Development	1
		Ph.D. in Educational Development	1
		Ed.D. in Educational Management	1
		Ed.D. in Guidance and Counselling	1
		Ph.D. in Community Development	1
Ph.D. in Public Administration	10	Ph.D. in Public Administration	5
		Ph.D. in Development Management	1
		Ph.D. in Counsellor Education	1
		Ph.D. in Educational Development	1
		Ph.D. in Agricultural Economics	1
		Ph.D. Educational Foundations	1

Table 14. (continuation . . .)

Graduate Program	Number of Faculty Members	Highest Educational Attainment	
		Degree	Number
Ph.D. in Development Management	7	Ph.D. in Development Management	4
		Ph.D. in Community Development	1
		Ph.D. in Educational Development	1
		Doctor of Information Technology	1
Ph.D. in Peace and Security Administration	3	Ph.D. in Peace and Security Administration	1
		Ph.D. in Public Administration	1
		Ph.D. in Educational Foundations	1

Ph.D. in Filipino	4	Ph.D. in Filipino	4
Ph.D. in Mathematics Education	2	Ph.D. in Mathematics Education	2
<u>Master's Program</u>			
M.A. in Educ. Leadership and Mgt. (Residential)	6	Ed.D. in Educ. Leadership and Management	2
		Ed.D. in Educational Management	1
		Ph.D. in Educational Foundations	3
M.A. in Educ. Leadership and Mgt. (Open U)	8	Ed.D. in Educational Management II	2
		Ed.D. in Educ. Leadership and Management I	1
		Ph.D. in Extension Education I	1
		Ph.D. in Development Management- I	1
		Master in Public Administration- I	1
		Master in Information System- 1	1
		Doctor in Information Technology- I	1
M.A. in Biology Education	8	Ph.D. in Biology	1
		Ph.D. in Molecular Biology and Biotechnology	1
		Ph.D. in Science Education (with units)	1
		Ed.D. in Educ. Leadership and Management	1
		Ph.D. in Educational Foundations	1
		M.A. in Biology Education	1
		M.A. in Chemistry Education	2
M.A. in Chemistry Education	4	Ph.D. in Agricultural Chemistry	1
		Ph.D. in Science Education	1
		M.A. in Chemistry Education	2
M.A. in Physics Education	4	Ph.D. in Atmospheric Science	1
		Ph.D. in Science Education (with units)	1
		M.A. in Chemistry Education	1
		Ph.D. in Educational Foundations	1
M.A. in General Science Education	4	Ph.D. in Educational Foundations	2
		Ph.D. in Development Management (CAR)	1
		M.A. in Chemistry Education	1
M.A. in Math Education	4	Ph.D. Mathematics Education	2
		Ph.D. Mathematics Education (with units)	2
M.A. in Cultural Education	5	Ed.D. Educational Management	2
		Doctor in Communication	1
		Ph.D. in Educational Foundations	1
		M.A. in Cultural Education	1
M.A. in English Education (Residential)	5	Ph.D. in Liberal Arts	1
		Ph.D. in Educational Foundations	3
		Ed.D. in Educ. Leadership and Management	1
M.A. in English Education (Open U)	4	Ed.D. in Educational Management	1
		Ph.D. in Educational Foundations	2
		Ph.D. in Liberal Arts	1

Table 14. (continuation . . .)

Graduate Program	Number of Faculty Members	Highest Educational Attainment	
		Degree	Number
M.A. in Filipino Education	3	Ph.D. in Filipino	3
M.A. in Pre-School Education	4	Ed.D. in Guidance and Counselling	1
		Ph.D. in Educational Foundations (with units)	1
		Ed.D. in Educ. Leadership and Mgt. (with units)	2
M.A. in Guidance and Counselling	4	Ed.D. in Guidance and Counselling	1
		Ed.D. in Educational Management	2
		Ph.D. in Guidance and Counselling (CAR)	1

M.A. in Music Education	3	Ed.D. in Educational Management	1
		Ph.D. Educational Foundations (with units)	2
M.A. in Reading Education	5	Ph.D. in Educational Foundations	3
		Ed.D. in Educ. Leadership and Mgt.	1
		Ed.D. in Educ. Leadership and Mgt. (with units)	1
M.A. in Social Studies Education (Residential)	8	Ph.D. in Educational Foundations	2
		Ph.D. in Sociology (with units)	1
		Ph.D. in Educational Foundations (CAR)	2
		Ed.D. in Educ. Leadership and Mgt. (with units)	1
		Ph.D. in Extension Education	1
		Doctor of Philosophy (with units)	1
M.A. in Social Studies Education (Open U)	6	Ph.D. in Educational Foundations	2
		Ph.D. in Extension Education	1
		Ph.D. in Counsellor Education	1
		Ph.D. in Public Administration	1
		Doctor of Philosophy (with units)	1
Master in Cooperative Management	4	Doctor of Business Administration	2
		Ph.D. Agricultural Economics	1
		Ph.D. in Development Management (CAR)	1
Master in Economics	6	Ph.D. in Agricultural Economics	1
		Ph.D. in Agricultural Economics (CAR)	2
		Ph.D. in Public Administration (with units)- I	1
		Ph.D. in Management (with units)- I	1
		Ph.D. in Public Administration	1
Master in Entrepreneurship	7	Doctor of Business Administration	2
		Ph.D. in Development Management (CAR)	1
		Master in Entrepreneurship	2
		Ph.D. in Business Administration	1
		Ph.D. in Human Resource Development	1
Master in Management (Residential)	12	Doctor of Business Administration	1
		Ph.D. in Business Administration	1
		Ph.D. in Development Management	2
		Doctor of Education	1
		Doctor in Business Administration (with units)	2
		Ph.D. in Management (with units)	2
		Ph.D. in Development Management (CAR)	1
		Ph.D. in Counsellor Education	1
Master in Management (Open U)	5	Ph.D. in Educational Management	1
		Ph.D. in Development Management	1
		Ph.D. in Counsellor Education	1
		Ph.D. in Management (with units)	1
		M.A. Nursing (Mirandilla)	1

Table 14. (continuation . . .)

Graduate Program	Number of Faculty Members	Highest Educational Attainment	
		Degree	Number
Master in Management (major in HRM)	7	Ph.D. in Business Administration	1
		Doctor of Business Administration	1
		Doctor of Business Administration (with units)	1
		Ph.D. Development Management (CAR)	1
		Ph.D. in Development Management	2
		Ph.D. in Counsellor Education	1
Master of Public Administration (Residential)	8	Ph.D. in Public Administration	4
		Ph.D. in Development Management	1
		Ph.D. in Educational Foundations	1

Master of Public Administration (Open U)	7	Ph.D. in Public Administration (with units)	1
		M.A. in Social Science	1
		Ph.D. in Public Administration	2
		Ph.D. in Extension Education	1
		Ph.D. in Development Management	1
		Ph.D. in Counsellor Education	1
		Ph.D. in Development Management (with units)	1
Master in Local Gov't. Mgt. (Residential)	1	Doctor of Philosophy (with units)	1
		M.A. in Social Science	1
Master in Local Gov't. Mgt. (Open U)	4	Ph.D. in Development Management	1
		Ph.D. in Counsellor Education	1
		Doctor of Philosophy (with units)	1
		Master in Information System	1
Master in Public Admin. (maj. HEDM)	4	Ph.D. in Educational Foundations	1
		Master in Nursing	1
		Ph.D. Public Administration (with units)	1
		Ph.D. in Development Management (with units)	1
Master in Public Admin. (maj. In Public Proc.)	4	Ph.D. in Public Administration	4
M.A. in Peace and Security Studies	3	Ph.D. in Peace and Security Administration	1
		Ph.D. in Public Administration	1
		Ph.D. in Educational Foundations	1
M.A. in Literature	5	Ph.D. in Literature	1
		Ph.D. in English Language and Literature	1
		Ph.D. in Philippine Studies (CAR)	2
		Ph.D. in Educational Foundations (with units)	1
M.A. Filipino	2	Ph.D. in Filipino	2
M.A. in Industrial Education (major in TLE)	7	Ed.D. in Industrial Education	1
		Ed.D. in Educ. Leadership and Mgt.	1
		Ph.D. in Development Management (with units)	1
		Ph.D. in Development Education (with units)	1
		Ph.D. in Development Management (CAR)	2
		Ph.D. in Educational Foundations	1
M.A. in Industrial Education (major in IT)	4	Ph.D. in Educational Foundations	1
		Ed.D. in Industrial Education	1
		Ph.D. in Development Education	1
		Ed.D. in Educ. Leadership and Mgt. (with units)	1
M.A. in Nursing	6	Ph.D. in Nursing Education	1
		Ph.D. in Public Administration	2
		Ph.D. in Educational Foundations	1
		Ph.D. in Educational Management	1
		Ed.D. in Educational Management	1

Table 14. (continuation . . .)

Graduate Program	Number of Faculty Members	Highest Educational Attainment	
		Degree	Number
M.S. in Biology	7	Ph.D. in Biology	1
		Ph.D. in Molecular Biology and Biotechnology	1
		Ph.D. in Forestry (Forest Biological Science)	1
		Ph.D. in Biotechnology	1
		Ph.D. in Biology (CAR)	1
		Master in Biology	1
		M.S. in Biology	1
Master in Information System	8	Doctor in Information Technology	5
		Master in Information Technology	1
		Doctor in Information Technology (with units)	1

		Doctor of Engineering (with units)	1
M.A. in Physical Education	5	Doctor of Science in Physical Education	2
		Ph.D. in Education	1
		Ed.D. in Educ. Leadership and Mgt.	1
		Ed.D. in Educ. Leadership and Mgt. (with units)	1
M.S. in Architecture	3	Ph.D. in Development Management	1
		Ph.D. in Development Management (with units)	1
		Ph.D. in Environmental Mgt. (with units)	1
M.S. in Agriculture (major in Agronomy)	3	Ph.D. in Soil Science	2
		Ph.D. in Plant Science	1
M.S. in Agriculture (major in Crop Science)	6	Ph.D. in Entomology	1
		Ph.D. in Agronomy	1
		M.S. in Agricultural Engineering	1
		Ph.D. in Soil Science	1
		Ph.D. in Plant Science	1
		Ph.D. in Horticulture (with units)	1
M.S. in Agriculture (major in Animal Science)	3	Ph.D. in Animal Science	1
		Ph.D. in Plant Science	1
		Ph.D. in Soil Science	1
M.S. in Agriculture (Agri. Extension)	6	Ph.D. Plant Science	1
		Ph.D. in Development Education	1
		Ed.D. in Educational Management	1
		Ed.D. in Educational Management (CAR)	1
		M.S. in Agricultural Extension	1
		M.A. in Education	1
M.S. in Biodiversity and Environmental Mgt.	6	Ph.D. in Soil Science	1
		Ph.D. in Forestry	1
		M.S. in Environmental Science	1
		Ph.D. in Forestry (CAR)	1
		Ph.D. in Environmental Science (CAR)	1
		Ph.D. in Marine Science (CAR)	1
M.S. in Sustainable Food System	6	Ph.D. in Soil Science	1
		Ph.D. in Plant Science	1
		Ph.D. in Fish Ecology	1
		Ph.D. in Horticulture (with units)	1
		Master in Human Ecology	1
		M.A. in Education	1
Master in Rural Development	5	Ph.D. in Development Education	1
		M.S. in Agricultural Extension	1
		Ed.D. in Educational Management	1
		Ed.D. in Educational Management (CAR)	1
		Ph.D. in Environmental Science (CAR)	1

Table 14. (continuation . . .)

Graduate Program	Number of Faculty Members	Highest Educational Attainment	
		Degree	Number
M.S. in Fisheries (major in CRM)	5	Ph.D. in Fish Ecology	1
		Ph.D. in Kuroshio Science	1
		Ph.D. in Marine Science (CAR)	1
		Ph.D. in Fisheries (with units)	1
		M.S. in Environmental Science	1
M.S. in Fisheries Technology	6	Ph.D. in Fish Ecology	1
		Ph.D. in Kuroshio Science	1
		Ph.D. in Marine Science (CAR)	2
		Ph.D. in Development Management (CAR)	1
		M.S. in Environmental Science	1

Based on Table 14 and in reference to the provisions of CMO No. 15 series of 2019, several programs meet the required faculty complement in terms of number, qualifications, and vertical alignment. These compliant programs have a sufficient number of faculty members holding doctoral degrees that are aligned with the discipline or field of specialization of the program as mandated by CHED for both master's and doctoral programs.

Once good example is the Ph.D. in Public Administration which has 10 faculty members, five (5) of whom hold Ph.D. in Public Administration. The others have related doctorates such as in Development Management, Counsellor Education, Agricultural Economics, and Educational Foundations. The number and alignment of these faculty members fulfill CHED's requirement for doctoral degrees which is four (4) faculty members with doctoral degrees in the discipline.

Similarly, the Ph.D. in Educational Foundations program is compliant, with 10 faculty members, four (4) of whom hold a Ph.D. in Educational Foundations and others holding doctorates in closely allied fields, such as Social Development, Educational Leadership and Management, and Guidance and Counselling. This reflects adequate faculty strength and vertical alignment with the program.

The Ph.D. in Development Management program also appears compliant, with seven (7) faculty members, four of whom hold Ph.D. in Development Management degree. The remaining faculty hold related degrees in Community Development, Educational Leadership and Management, and Information Technology, all of which can be considered aligned depending on program content and focus.

On the other hand, the Ed.D. in Educational Leadership and Management, both for the residential and distance education modalities, is compliant with the CMO. With a total of 13 faculty members, many of whom hold doctoral degrees specifically in Educational Leadership and Management or in closely related disciplines such as Educational Management and Development Education, the program meets and exceeds the minimum number of qualified faculty.

The Ph.D. in Filipino is also compliant. It has exactly four (4) full-time faculty members, all of whom holds doctoral degrees in Filipino. This makes it fully aligned with the CMO's stipulation that doctoral programs must be staffed with at least four (4) full-time faculty holding doctoral degrees in the discipline. The alignment between faculty qualifications and the academic program further affirms the program's compliance.

The Ph.D. in Peace and Security Administration is non-compliant with the faculty qualification requirements. It has only three (3) faculty members, one (1) of whom holds a Ph.D. in Peace and Security Administration, while the others have doctoral degrees in allied fields such as Public Administration and Educational Foundations. Moreover, the total number of full-time doctoral faculty falls short of the minimum required number which is four (4).

Similarly, the Ph.D. in Mathematics Education is also non-compliant. Although the two (2) faculty members assigned to the program hold doctoral degrees directly aligned with the discipline, the program lacks the minimum number of four (4) full-time faculty with doctoral degrees in the discipline as mandated by the CMO for graduate programs at the doctoral level. One way to address the gap is by assigning the two (2) faculty members holding Ph.D. in Mathematics Education, who are handling the M.A. in Mathematics Education, to the Ph.D. in Mathematics Education program.

Table 15 provides the summary of the evaluation of compliance of 46 master's degree programs (residential and distance modes) with the faculty qualification requirements prescribed in CMO No. 15, series of 2019. The CMO requires that each graduate program must have either four (4) full-time faculty members with doctoral degrees in the discipline or, in the absence of such, at least one (1) full-time faculty member with a doctoral degree in the discipline and three (3) others with master's degree and doctoral units in the same field.

Based on this standard, programs were categorized as compliant, partially compliant, or non-compliant. A program is considered compliant if it meets both the minimum number of faculty and the required qualifications in the discipline. It is partially compliant if it either lacks the full complement of faculty or does not have sufficient doctoral qualifications aligned with the discipline. A non-compliant program fails to meet both the faculty number and qualification requirements.

Out of the 46 master's programs assessed in both the residential and distance learning modes, 22 were found to be compliant, 10 were partially compliant, and 14 were non-compliant. The compliant programs such as the M.A. in Educational Leadership and Management, M.A. in Mathematics Education, Master of Public Administration (residential), M.S. in Biology, and Master in Information System, demonstrate strong institutional capacity, with faculty members whose qualifications are well-aligned with the programs they are teaching. These programs reflect effective faculty development strategies and a commitment to maintaining academic quality, suggesting further that sustained investment in doctoral education and careful program staffing lead to better compliance with national standards.

On the other hand, partially compliant programs, such as the M.A. in Chemistry Education, M.A. in Pre-School Education, and Master in Public Administration (distance learning mode), either have enough faculty but lack sufficient doctoral qualifications in the discipline, or have qualified individuals but fewer than the required four (4) full-time faculty members. These programs show potential for compliance but require targeted interventions such as sending faculty to doctoral studies in the discipline, providing incentives for professional development, or hiring new qualified staff.

The 14 non-compliant programs, which include M.A. in Physics Education, M.A. in English Education, M.A. in Social Studies Education, and M.S. in Architecture, suffer from a more serious deficiency, either in the number of faculty, or the alignment of qualifications, or both. The presence of non-compliant programs raises concerns about the sustainability and academic credibility of these academic offerings. The university may need to consider program consolidation, faculty retooling, or partnerships with other higher education institutions to address the lack of qualified faculty.

In conclusion, the findings reveal that fewer than half of the graduate programs fully comply with CHED's faculty qualification requirements. This underscores the need for strategic institutional planning and faculty development. The university must focus on recruiting, retaining, and developing faculty with doctoral qualifications in relevant disciplines, as well as aligning program offerings with the availability of qualified human resources. Ensuring compliance not only strengthens academic quality but also enhances institutional reputation and accreditation prospects.

Table 15. Compliance of master's degree programs quality qualification requirements based on CMO No. 15, series of 2019

Program	Evaluation of Compliance	Reason/Remark
M.A. in Educational Leadership and Management (Residential)	Compliant	Meets minimum faculty requirement; with 2 doctoral degree holders in Educational Leadership and Management, 1 in Educational Management, and the rest in related fields
M.A. in Educational Leadership and Management (Open U)	Compliant	Meets minimum faculty requirement; with 2 doctoral degree holders in Educational Leadership and Management, 1 in Educational Management, and 1 in Extension Education,
M.A. in Biology Education	Compliant	Meets minimum faculty requirement with 8, 1 of whom has a doctorate in Biology and 1 in Molecular Biology and Biotechnology, 1 with doctoral units in Science Education, and 1 with a master's in Biology.
M.A. in Chemistry Education	Partially Compliant	Meets minimum faculty requirement with 4 and has 1 with doctoral degree in Agricultural Chemistry
M.A. in Physics Education	Non-Compliant	No doctoral degree holder or faculty with doctoral units in the discipline
M.A. in General Science Education	Non-Compliant	No doctoral degree holder or faculty with doctoral units in the discipline
M.A. in Mathematics Education	Compliant	Meets minimum faculty requirement with 4, 2 of whom are doctoral degree holders in the discipline while the remaining 2 has doctoral units
M.A. in Cultural Education	Non-Compliant	No doctoral degree holder or sufficient faculty with doctoral units in the discipline
M.A. in English Education (Residential and Open U)	Non-Compliant	No doctoral degree holder or sufficient faculty with doctoral units
M.A. in Filipino Education	Partially Compliant	While it has 3 doctoral degree holders in Filipino, it does not meet minimum faculty requirement with only 3
M.A. in Pre-School Education	Partially Compliant	Meets minimum faculty requirement with 4; has one doctoral degree holder in Guidance and Counselling but the rest have no doctoral units in the discipline
M.A. in Guidance and Counselling	Compliant	Meets minimum faculty requirement with 4, 1 is a doctoral degree in the Guidance and Counselling while another 1 has doctoral units in the discipline; the remaining 2 are master's degree holder in the discipline

Table 15. (continuation . . .)

Program	Evaluation of Compliance	Reason/Remark
M.A. in Music Education	Non-Compliant	Does not meet minimum faculty requirement with only 3 and lacks required doctoral-level faculty in the discipline
M.A. in Reading Education	Non-Compliant	No doctoral degree holder or master's degree holder in the discipline
M.A. in Social Studies Education (Residential and Open U)	Non-Compliant	No doctoral degree holder or sufficient faculty with doctoral units in the discipline
Master in Cooperative Management	Non-Compliant	No qualified doctoral faculty in cooperative management
Master in Economics	Compliant	Has 1 doctoral degree holder in Agricultural Economics and 2 with completed course works; the rest of the have a master's degree in economics
Master in Entrepreneurship	Compliant	Meets the requirement with 3 doctoral degree holders in Business Administration and 2 with a master's degree in Entrepreneurship
Master in Management (Residential)	Compliant	Meets requirement with 2 doctoral degree holders in Business Administration, and 3 with doctoral units in Management
Master in Management (Open U)	Non-Compliant	Lacks doctoral-level faculty
Master in Management (major in HRM)	Compliant	Meets requirement with 2 doctoral degree holders in Business Administration, 1 with doctoral units in Business Administration, and the rest have a master's degree in Management
Master of Public Administration (Residential)	Compliant	Has 4 doctoral degree holders in Public Administration and 1 with doctoral units in Public Administration
Master of Public Administration (Open U)	Partially Compliant	Has 2 doctoral degree holders in Public Administration, 1 with doctoral units in Public Administration, while others have degrees related to Public Administration
Master in Local Government Management (Residential and Open U)	Non-Compliant	Lacks required faculty qualifications
Master in Public Administration (major in Health Emergency and Disaster Management)	Non-Compliant	No qualified faculty with doctoral degree in the discipline
Master in Public Administration (major in Public Procurement)	Compliant	Has 4 doctoral degree holders in Public Administration
M.A. in Peace and Security Studies	Partially Compliant	Has one doctoral degree holder in the discipline but lacks the minimum number of faculty of 4

Table 15. (continuation . . .)

Program	Evaluation of Compliance	Reason/Remark
M.A. in Literature	Compliant	Meets the requirement with 1 doctoral degree holder in Literature and another 1 in English Language and Literature, while 2 have a master's in Literature
M.A. Filipino	Non-Compliant	Lacks doctoral degree holder in the discipline; does not meet the minimum requirement of 4
M.A. in Industrial Education (major in TLE)	Compliant	Meets minimum requirement of faculty,

		with 1 doctoral degree holder in Industrial Education, while the rest have master's degree in Industrial Education
M.A. in Industrial Education (major in IT)	Compliant	Meets minimum requirement of faculty, with 1 doctoral degree holder in Industrial Education, while the rest have master's degree in Industrial Education
M.A. In Nursing	Partially Compliant	Meets the minimum faculty requirement; with 1 doctoral degree holder in Nursing Education
M.S. in Biology	Compliant	Fully meets the requirement
Master in Information System	Compliant	Fully meets the requirement
M.A. in Physical Education	Compliant	Meets minimum requirement of faculty, with 2 doctoral degree holders in Physical Education while the rest have master's degrees in related field
M.S. In Architecture	Non-compliant	Lacks doctoral degree holder in the discipline and minimum requirement of faculty
M.S. in Agriculture (major in Agronomy)	Partially Compliant	Has 3 doctoral degree holders in Plant Science and Soil Science but does not meet minimum faculty requirement
M.S. in Agriculture (major in Crop Science)	Partially Compliant	Has 1 doctoral degree holder in Animal but does not meet minimum faculty requirement
M.S. in Agriculture (Agri. Extension)	Partially Compliant	Meets minimum faculty requirement of 4, with 1 doctoral degree holder in Development Education, and 1 with MS in Agricultural Extension
M.S. in Biodiversity and Environmental Mgt.	Compliant	Meets full requirement
M.S. in Sustainable Food System	Compliant	Meets full requirement
Master in Rural Development	Partially Compliant	Meets minimum faculty requirement of 4 but lacks a doctoral degree holder in the discipline
M.S. in Fisheries (major in CRM)	Compliant	Meets full requirement
M.S. in Fisheries Technology	Compliant	Meets full requirement

C. Research Engagement of Graduate Faculty

Table 16. Distribution of researches implemented in 2023 by graduate degree program

Graduate Program	Number of Faculty Members	Number of Researches	Status	
			On-going	Completed
<i>Doctoral</i>				
Ed.D. in Educational Leadership and Mgt. (Residential)	9	5	5	-
Ed.D. in Educational Leadership and Mgt. (Distance)	4	No Data	No Data	No Data
Ph.D. in Educational Foundations	10	3	3	-
Ph.D. in Public Administration	10	2	-	2
Ph.D. in Development Management	7	3	2	1
Ph.D. in Peace and Security Administration	3	-	-	-
Ph.D. in Filipino	4	1	1	-
Ph.D. in Mathematics Education	2	-	-	-
<i>Master's</i>				
M.A. in Educational Leadership and Management (Residential)	6	1	1	0
M.A. in Educational Leadership and Management (Distance)	8	No Data	No Data	No Data

M.A. in Biology Education	8	5	5	-
M.A. in Chemistry Education	4	3	2	1
M.A. in Physics Education	4	1	1	-
M.A. in General Science Education	4	3	3	-
M.A. in Mathematics Education	4	3	3	-
M.A. in Cultural Education	5	1	-	1
M.A. in English Education (Residential)	5	4	2	2
M.A. in English Education (Distance)	4	No Data	No Data	No Data
M.A. in Filipino Education	3	1	-	1
M.A. in Pre-School Education	4	2	2	-
M.A. in Guidance and Counselling	4	1	-	1
M.A. in Music Education	3	3	2	1
M.A. in Reading Education	5	1	1	-
M.A. in Social Studies Education (Residential)	8	1	1	-
M.A. in Social Studies Education (Distance)	6	No Data	No Data	No Data
Master in Cooperative Management	4	-	-	-
Master in Economics	6	1	-	1
Master in Entrepreneurship	7	4	1	3
Master in Management (Residential)	12	-	-	-
Master in Management (Distance)	5	No Data	No Data	No Data
Master in Management (major in HRM)	7	1	1	-
Master of Public Administration (Residential)	8	2	1	1
Master of Public Administration (Distance)	7	No Data	No Data	No Data
Master in Local Government Management (Residential)	1	1	-	1
Master in Local Government Management (Distance)	4	No Data	No Data	No Data
Master in Public Administration (major HEDM)	4	1	1	-
Master in Public Administration (major in Public Procurement)	4	1	1	-
M.A. in Peace and Security Studies	3	1	1	-
M.A. in Literature	5	4	4	-
M.A. Filipino	2	1	1	-
M.A. in Industrial Education (major in TLE)	7	No Data	No Data	No Data
M.A. in Industrial Education (major in IT)	4	4	3	1
M.A. in Nursing	6	4	4	-
M.S. in Biology	7	4	4	-

Table 16. (Continuation . . .)

Graduate Program	Number of Faculty Members	Number of Researches	Status	
			On-going	On-going
Master in Information System	8	4	3	1
M.A. in Physical Education	5	-	-	-
M.S. in Architecture	3	-	-	-
M.S. in Agriculture (major in Agronomy)	3	No Data	No Data	No Data
M.S. in Agriculture (major in Crop Science)	6	2	2	-
M.S. in Agriculture (major in Animal Science)	3	2	1	1
M.S. in Agriculture (Agri. Extension)	6	2	2	0
M.S. in Biodiversity and Environmental Management	6	5	-	5
M.S. in Sustainable Food System	6	5	4	1
Master in Rural Development	5	2	2	-
M.S. in Fisheries (major in CRM)	5	5	3	2
M.S. in Fisheries Technology	6	1	1	-

Research engagement is a requirement for graduate faculty as it ensures the delivery of advanced, research-based instruction that is expected at the graduate level. Graduate education is inherently rooted in the creation, dissemination, and application of new knowledge and faculty members who are actively engaged in research are better equipped to mentor students in developing critical thinking, scholarly rigor, and methodological competence. Moreover, research-active faculty contribute to the relevance and quality of graduate programs by integrating current findings into their teaching, guiding student theses and

dissertations effectively, and ensuring that the institution maintains its academic credibility. Thus, research engagement is not only a compliance measure but a cornerstone of quality assurance in graduate education.

With the foregoing considerations, the study tried to ascertain the distribution of researches implemented in 2023 by graduate degree program, highlighting the number of faculty members involved, and the status of their research. Among the doctoral programs, the Ed.D. in Educational Leadership and Management (residential) program showed the highest engagement, with five (5) on-going researches among nine (9) faculty members, although none were completed. The Ph.D. in Educational Foundations and the Ph.D. in Development Management also demonstrated research activity, with on-going and completed researches. It is also notable to mention that the Ph.D. in Public Administration had two (2) completed studies, indicating a productive output relative to its faculty size. In contrast, two doctoral programs, namely, the Ph.D. in Peace and Security Administration and the Ph.D. in Mathematics Education, had not recorded research activity.

At the master's level, research engagement was more varied but generally higher. Programs such as the M.A. in Biology Education, M.A. in Chemistry Education, M.A. in General Science Education, M.A. in Mathematics Education, and M.A. in English Education (residential) each recorded multiple research activities, with a balanced mix of on-going and completed studies. Some programs, like the M.S. in Biodiversity and Environmental Management and M.S. in Sustainable Food System, had a notable number of completed researches. However, certain programs – including Master in Cooperative Management, Master in Management (residential), and M.A. in Physical Education – did not report any research activity, pointing gaps that need to be addressed in future academic planning.

It can be observed also that in some programs, the number of researches is proportionate – or even high – relative to faculty size, indicating strong research engagement. For example, the M.A. in Biology Education has eight (8) faculty members and five (5) completed researches, showing a high level of productivity and possibly a collaborative research culture. Similarly, the M.S. in Biodiversity Environmental Management, with six (6) faculty members and five (5) completed researches, demonstrates efficient use of resources and a mature research environment. These cases suggest that with the right support and motivation, small- to mid-size faculty groups can yield significant research outputs.

Conversely, there are programs with a relatively large number of faculty members but with minimal or no research outputs. The Master in Management (residential), for instance, has 12 faculty members but no reported research activity in 2023. The same is true for the Ph.D. in Peace and Security Administration and Ph.D. in Mathematics Education, where faculty presence did not translate to research engagement. These gaps may indicate issues such as heavy teaching load, insufficient administrative support, lack of alignment between faculty expertise and research priorities, or inadequate research expertise.

The disparity in research engagements across programs suggests a need for differentiated strategies. Programs with low research output despite adequate faculty resources may require targeted intervention such as mentoring, capacity building workshops, and institutional support for proposal development and funding. On the other hand, high-performing programs can serve as models and mentors, sharing best practices and helping build a stronger research culture across the institution.

Overall, the findings reflect a generally positive trend in research implementation among graduate programs, especially at the master's level. However, the absence of research in some programs and the lack of completed outputs in others indicate the need for strengthened research support systems, more deliberate mentoring, and perhaps policy reinforcement to ensure a more consistent culture or research productivity across all programs.

Challenges Faced in Implementing the Reforms Mandated by CMO No. 15, series of 2019

The implementation of reforms mandated by CMO No. 15, series of 2019 presents a significant shift on the delivery and management of graduate education in the Philippines. The CMO aims to enhance the quality and relevance of graduate programs through stricter faculty qualifications, higher research productivity, and outcome-based education. Many HEIs, however, are facing considerable hurdles in meeting the requirements. As HEIs, strive to comply with these standards, they encounter both structural and operational constraints that hinder the full realization of the policy reforms.

With this in mind, the study tried to ascertain the challenges posed by CMO No. 15, series of 2019 by interviewing 10 key informants, comprised of four (4) graduate students, three (3) graduate faculty, and three (3) DAU officials involved in implementing the graduate programs. The following challenges were identified by the key informants along the following areas:

1. Meeting the faculty qualification requirement

Meeting the faculty qualification requirement under CMO No. 15 series of 2019 presents a significant challenge for BU according to the key informants. That CMO requires that for master's program to be recognized, an institution must have at least four (4) full-time faculty members with doctoral degree in the discipline, or, in the absence of four (4), at least one (1) full-time doctoral degree holder and three (3) full-time faculty members with master's degrees and doctoral units in the discipline.

While BU has made significant strides in faculty development, there remain programs – especially newly introduced or highly specialized fields (e.g., M.S. Architecture, M.A. in Physics Education) – where doctoral degree holders are few. This greatly affects the university's ability to secure or maintain compliance during CHED evaluation. Further exacerbating the lack of faculty members with doctoral degrees in the discipline is the retirement of faculty members. Case in point is BU Guinobatan and BU Tabaco which lost several faculty members during the last five (5) years due to retirement. Although BU has massively invested in capacity building during the last eight (8) years, the return on these investments takes years. Furthermore, it also takes years before

they develop the competencies lost due to retirement.

It can also be noted that several of BU's graduate programs (e.g., public administration, development management, biodiversity and environmental management, sustainable food system, peace studies) are interdisciplinary in nature. Strict compliance with the "in the discipline" requirement of CMO No. 15 series of 2019 can be problematic, as faculty credentials may span multiple fields rather than one clearly defined discipline.

Meeting the faculty requirement based on the CMO is also difficult since access to local doctoral training programs in the region is still limited. This creates a dependency on HEIs outside the Bicol region or abroad, further complicating the development of an adequate faculty pool that is consistent with the requirements of CMO N. 15 series of 2019.

2. Accreditation and certification of graduate programs

The CMO sets the policy standards for quality assurance in graduate education and part of compliance by subjecting graduate programs to external quality assurance mechanism through accreditation (e.g., AACCUP) and CHED certification (e.g., COPC). Several challenges were identified along this area such as stringent accreditation standards, resource-intensive accreditation process, faculty qualification as a pre-requisite, need for research-based program certification, and university-wide coordination and compliance.

Accrediting bodies like AACCUP require evidence of outcomes-based education, research productivity, internationalization efforts, and community engagement – areas where some, if not majority, of graduate programs in BU are still in the developmental stage. Meeting these standards requires intensive documentation, preparation, and sustained improvement. This is, however, difficult to achieve considering that BU faculty members are expected to perform instruction, research, and extension functions leaving them with a very limited time, or none at all, to gather documentary evidences. It must also be understood that graduate faculty members are not only teaching in the Graduate School but they have their regular teaching load in their mother units.

Preparing for and subjecting the graduate programs for accreditation is resource-intensive as it entails administrative work, faculty training, curriculum revisions, infrastructure improvement, and data collection. BU, like many public universities, has to meet these requirements within limited budget and administrative manpower, which does not only delay accreditation timelines but also sacrifices other priorities.

A key requirement in accreditation and CHED certification process is compliance with faculty qualifications. The lack of or inadequate doctoral degree holders in certain disciplines tend to hinder BU's ability to move forward in the accreditation and CHED certification process.

The accreditation and CHED certification need research-based program certification as graduate programs are expected to demonstrate a strong research orientation. While BU encourages faculty members to be actively involved in research, heavy teaching load (due partly to inadequate faculty), uneven research capacity across programs and publication requirement in refereed or indexed journals make it difficult for some programs to meet the bar set for certification or Level III or IV accreditation.

As a comprehensive university with multiple campuses and colleges, BU faces the added challenge of ensuring uniform compliance across its system. Coordinating program review, self-survey preparation, mock accreditation, and actual accreditation visits across units require good coordination and communication.

3. Publication in refereed journal as requirement for graduation

One of the key requirements under CMO No. 15, series of 2019 is that graduate students must have at least one publication in a refereed journal (or its equivalent) before they can be conferred their degree. While this aims to elevate the quality and global competitiveness of graduate education, the key informant identified significant challenges for both graduate students and BU on the following grounds that include limited access to quality journals, varying levels of research competence of graduate students, lengthy review and publication timelines, and unequal research opportunities across disciplines.

Many graduate students at BU struggle to find accessible, credible, and CHED-recognized refereed journals, especially those that are open access and do not charge high publication fees. While BU has its CHED-recognized journal (i.e., the BU R&D Journal), it cannot accommodate a substantial number of graduate students who wish to publish their theses and dissertation due to the additional administrative work and expenses that they will entail. It is not also clear among student's which part of their research will be published as there is no clear guidelines yet on this matter.

As per observation, not all graduate students who are admitted into the program do not have strong foundations in research and academic writing. For these students, producing a publishable paper that meets the rigorous standards or peer-reviewed journals can be an overwhelming task. The process often requires extensive revisions, guidance, and time – factors that can significantly delay the completion of their degree. The publication, thus, becomes a major hurdle rather than an opportunity for scholarly growth.

The peer review process in reputable journals can be lengthy and unpredictable, often taking several months to over a year from submission to publication. This extended timeline is due to several factors like the initial editorial screening, time needed for multiple rounds of expert peer review, revisions by the author, and final editorial decisions. This delay can be highly consequential especially those nearing the end of their programs. It can prevent them from meeting the graduation requirement on time as mandated by CMO No. 15 series of 2019, which requires publication before awarding the degree. As a result, students

may be forced to postpone their graduation, extend their residency, and bear additional financial burdens. The delay may disrupt their career plans, especially for those who are lined up for promotion.

The key informants also noted the unequal research opportunities across disciplines. Some graduate programs have limited access to established publication platforms compared to others, making it difficult for their students to fulfill the publication requirement. For instance, natural and physical sciences (e.g., biology, chemistry, physics, environmental science), social sciences (e.g., sociology, psychology, economics), and education have more publication platforms compared to public administration and governance, business and management, and agriculture and fisheries. This disparity creates unequal difficulty across BU's graduate programs, despite the uniform requirement.

4. Curriculum review, revision and development

Curriculum review, revision, and development is a critical yet challenging task for BU in ensuring compliance with CMO No. 15 series of 2019. The CMO mandates that graduate curricula must be outcome-based, research driven, globally aligned, and responsive to national development goals. While BU is committed to academic excellence, there are several factors that make curriculum enhancement a challenging undertaking like alignment with evolving standards and outcomes-based education (OBE), integration of research and publication requirements, limited faculty with curriculum development experience, and need for vertical articulation and internationalization.

CMO No. 15 series of 2019 emphasizes the use of OBE framework which requires that program outcomes, course learning outcomes, and assessment tools are clearly articulated and aligned. The key informants representing graduate faculty raised the concern that shifting older curricula to the OBE framework demands a comprehensive overhaul of course syllabi, teaching strategies, and evaluation methods that will require intensive faculty training.

The CMO mandates stronger research orientation and inclusion of requirements such as publication prior to graduation. Embedding these into the curriculum without overloading the students or disrupting the program structure requires careful sequencing of courses, research mentoring system, and capacity-building among faculty. It must be noted that graduate students of BU have varying research competencies. The publication requirement also demands for faculty research mentoring, but faculty members are already burdened with heavy teaching loads and administrative responsibilities. Furthermore, the publication requirement may also prolong the time-to-degree completion as it takes months or even year from submission to publication.

Limited faculty with curriculum development experience is a significant challenge for BU in implementing the provisions of CMO No. 15 series of 2019. The CMO emphasizes OBE, research integration, program differentiation, vertical articulation, and global relevance which require a high level of curriculum planning expertise. Except for those from the College of Education, BU has a dearth of faculty members adequately equipped to meet these demands. Faculty members without formal training in OBE may find it difficult to design courses that will fulfill these requirements. The key informants further shared their apprehension about faculty members who are unfamiliar with curriculum mapping, benchmarking, and academic program development may find it difficult to create vertically articulated and internationally comparable curricula.

The need for vertical articulation and internationalization also presents a significant challenge for BU in implementing the provisions of CMO No. 15 series of 2019. These two requirements – ensuring coherence across academic levels and aligning programs with global standards – are essential to elevating the relevance and competitiveness of graduate programs. Vertical articulation requires that graduate programs be logically and academically linked with undergraduate offerings in terms of content, skills development, and research orientation. Ensuring vertical articulation of academic programs is a big challenge for BU because it will require a comprehensive curriculum audit across all programs. Moreover, in order to achieve vertical articulation, BU must ensure that graduate programs build upon the competencies developed at the undergraduate level.

5. Maintaining international standards

The key informants believed that maintaining international standards poses a serious challenge for BU in implementing CMO N. 15 series of 2019 due to a number of factors such as limited exposure to global academic benchmarks, variability in faculty expertise and international engagement, infrastructure and resource limitations, and quality assurance and accreditation requirements.

To maintain international standards, programs must be benchmarked against those of leading universities globally. Without adequate international linkages or visibility, BU will face difficulty in aligning its graduate programs with evolving global standards in content, delivery, and assessment. Adopting international standards will also entail huge financial support from the university.

International standards also require faculty who are not only academically qualified but also globally engaged through research, collaborations, and continuing education. While many BU faculty members are highly competent, not all have extensive exposure to international conferences, research partnerships, or global academic networks. This affects their ability to fully integrate global perspectives into course content.

In adhering to international standards in graduate education, the key informants claimed that BU will face a huge challenge due to infrastructure and resource limitations. BU needs advanced laboratories, digital libraries, updated software, reliable learning management systems, to name only a few. These resources support quality teaching, research, and innovation. However, resource constraints in some DAUs of the Graduate School prevent graduate students from accessing such tools, especially for disciplines

requiring specialized facilities.

International standards also demand rigorous internal and external quality assurance processes such as accreditation, curriculum audits, and certification. However, the volume of documentation, monitoring, and continuous improvement efforts needed to maintain compliance with international frameworks (e.g., ASEAN Qualification Reference Framework, Washington Accord) can strain BU's institutional capacities in terms of budget and manpower requirements.

4. CONCLUSION

The study was conducted to assess the compliance of BU's graduate education programs with the mandates of CHED's new graduation education framework, particularly the provisions stipulated in CMO No. 15 series of 2019 on curriculum alignments, faculty qualifications, and graduate faculty research engagement.

The findings reveal that while BU's graduate programs generally conform to the typologies and academic tracks prescribed under CMO No. 15 series of 2019, there is a significant misalignment in terms of the prescribed curriculum structure, particularly in the number of credit units required for course work. The doctoral and master's programs offered by BU tend to exceed the minimum course work and thesis or capstone requirements stipulated in the CMO, leading to extended periods of study and delayed program completion among graduate students. This deviation suggests an urgent need to rationalize the curricular offerings in accordance with the policy's intent of fostering efficiency, flexibility, and academic rigor aligned with national standards. Aligning BU's graduate programs with the provisions of CMO No. 15 series of 2019 will not only enhance program compliance but also contribute to more timely graduation, improved student satisfaction, and more effective use of institutional resources. A comprehensive review and revision of all graduate curricula is, therefore, imperative to ensure their relevance, responsiveness, and compliance with regulatory standards.

In terms of faculty qualification and expertise, several programs have demonstrated compliance by maintaining a sufficient number of full-time faculty with doctoral degrees in the discipline. A significant number of programs remain either partially compliant or non-compliant. Specifically, out of 46 master's programs reviewed both for residential and distance mode, only 22 met the full faculty qualification requirements, while 10 were partially compliant, and 14 were non-compliant. Similarly, although most doctoral programs are compliant, two, like the Ph.D. in Peace and Security Administration and Ph.D. in Mathematics Education, fall short in faculty number and/or discipline-specific qualifications. These findings highlight the urgent need for strategic faculty development initiatives such as targeted recruitment of qualified faculty, and reassignment of faculty to backstop and align with program requirements. Moving forward, BU must adopt a proactive and data-informed approach in faculty deployment and capacity building to ensure that all programs are staffed with qualified experts who are capable of delivering high-quality graduate education.

Finally, the findings affirm that many of BU's graduate programs – particularly at the master's level – demonstrate encouraging levels of faculty research engagement. However, there remains a clear need for institutional strengthening to ensure consistent compliance with the expectations of CMO No. 15 series of 2019. Although several programs have shown a commendable output of completed and on-going research relative to their faculty size, others, including some doctoral programs reported minimal to no research activity. This uneven research engagement suggests systemic and program-specific challenges such as teaching overload, limited institutional incentives, or gaps in faculty research capacity. These must be addressed through strategic interventions, such as capacity building initiatives, structured research mentoring, workload adjustments, and increased access to funding and administrative support. To meet the full intent of the CMO, BU must institutionalize research engagement as a core performance metric for graduate faculty. Strengthening this dimension will not only enhance graduate instruction and student research output but also solidify BU's standing as a research-oriented institution committed to academic excellence and national development.

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Research Article

Compliance with the Full Disclosure Board Policy in the Municipality of Boac, Province of Marinduque

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ABSTRACT

This study compliance with the full disclosure policy in the municipality of Boac, Marinduque. The study determined the (1) level of compliance of the Sangguniang Kabataan and barangays to the full disclosure policy in terms of accuracy, completeness, accessibility, and mode of posting; (2) challenges encountered by the selected barangays in complying with the full disclosure policy in terms of budget reports, procurement reports, and special purpose fund reports; (3) recommendations of the respondents to address the challenges encountered in complying with the full (4) intervention proposed out of the findings of the study. The data were collected through the distribution of researcher-created questionnaires and interviews. The respondents to this survey were from seven (7) barangays in Boac, Marinduque. The researcher-created questionnaires were distributed to respondents between October and November 2024, with the interview taking place in November 2024. For the quantitative approach, the study used a descriptive method, while the qualitative approach used an interview. The findings of the study revealed that the degree of compliance with the full disclosure policy in the Municipality of Boac in terms of accuracy and accessibility was complied. In terms of posting style and completeness, barangays were partially compliant. This merely demonstrates that the policy needs improvement and thorough rules in order for the barangay to fulfil its mandates. On the other hand, the barangay's budget reports revealed that the procedure of completing various documents and budget forms was time-consuming. In terms of procurement reports, the barangay determined that missing or incomplete procurement records, such as bid documents, contracts, and purchase orders, have an influence on compliance. While, in terms of special purpose fund reports, the Barangays experienced mismanagement of funds, such as overspending in certain areas while neglecting essential projects and programs of the Sangguniang Barangay. The respondents highly recommend establishing a culture of transparency and accountability by interacting with the community on a regular basis through forum discussions, information sessions and outreach initiatives to create awareness of the full disclosure policy. Since the findings of the study was evident that the implementing agency, Department of the Interior and Local Government (DILG) has lack of implementation strategy on the policy for the barangay level as well as on-sites monitoring was not enforced that lead to barangay to partially complied on different reports for full disclosure policy, the researcher recommended a monitoring tool for barangay level wherein budget, procurement, and special purpose fund reports may be posted and monitored on it.

Keywords: Sangguniang Barangay, Compliance, Full Disclosure Policy, Transparency

1. INTRODUCTION

The Philippines is still facing lack of accountability and transparency when it comes to public funds and transactions, which hinders the country's development and may affect the vision and objectives outlined in the Philippine Development Plan for 2023–2028. Higher levels of budget transparency positively influence the quality of governance, and vice versa (Bisogno & Ballesteros, 2021). However, how can people trust an office that is not transparent with the public? The Philippines ranked 115th out of 180 countries in the 2023 Corruption Perceptions Index of Transparency International. This ranking shows that government officials continue to manipulate public funds for their own interests. To address this issue, the Department of the Interior and Local Government (DILG) implemented the Full Disclosure Policy (FDP), which mandates local government units (LGUs) to disclose specific documents, such as the annual budget, summary of income and expenditures, 20% of the internal revenue allotment (IRA), annual procurement plan, notices of award, and itemized monthly collections and disbursements. This policy enables the public to access information about how public funds are spent and allocated.

The Basay local government took appropriate measures to comply with the FDP program. However, underlying issues, such as a lack of communication among various LGU offices, resulted in Basay municipality being regularly late or non-compliant. There was also an unclear schedule for preparing and providing essential financial documents for posting on the FDP portal. Despite these challenges, local constituents remain confident that the FDP program will improve accountability and transparency in their municipality, even though program advocacy efforts have been minimal (Andaya et al., 2019).

Locally, in the Municipality of Boac, Marinduque, approximately 40% of barangays are late in complying with Procurement and Special Purpose Fund Reports. This may reflect poorly on their Barangay Full Disclosure Boards. According to Memorandum Circular 2010-083, every document report has specific deadlines for submission. Late submissions can hinder the policy's objectives and make it less effective if barangays consistently fail to comply on time.

This information has led the researcher to continue studying the compliance with the Full Disclosure Policy in selected barangays in the Municipality of Boac, Marinduque. Based on the National Competitiveness Council, Boac is classified as a first-class municipality in Marinduque, meaning it has the highest annual revenue. This serves as a key reason to assess the barangays' financial transactions, ensuring they comply with the DILG's mandates and guidelines. The study also investigated whether the challenges faced by selected Sangguniang Barangay and Kabataan officials affect compliance with the Sangguniang Kabataan and barangay accomplishments in terms of Budget Reports, Procurement Reports, and Special Purpose Fund Reports.

2. MATERIALS AND METHODS

In this study, the research design used was mixed methods of research. The study was conducted in the Municipality of Boac, Province of Marinduque. The researcher focused on the selected Sangguniang Barangay and Kabataan Officials in the selected Barangays in the Municipality of Boac, Province of Marinduque, specifically Amoingon, Daypay, Tagwak, Mainit, Mataas na Bayan, Ihatub, and Lupac. The participants of the study were the Punong Barangay of seven (7) mentioned Barangays and the Municipal Local Government Operation Officer. In the quantitative portion, the self-made questionnaire has 49 respondents specifically the SB & SK Chairman, SB & SK Secretary, SB & SK Treasurer, and the Committee on Appropriation of the Barangay from the seven (7) participating Barangays. On the other hand, the researcher used purposive sampling to select the participants for the qualitative method. The participants for the qualitative method were this study has a total of 57 respondents. Data were collected using a research-made questionnaire, conducted from the period of OCTOBER 2024 to NOVEMBER 2024. The statistical treatments utilized to answer the research questions were weighted mean. The respondents' responses to the questionnaires were examined and interpreted with the use of statistical treatment.

3. RESULTS AND DISCUSSIONS

Compliance by Selected Sangguniang Kabataan and Barangay in Full Disclosure Policy in terms of Accuracy, Completeness, Accessibility, and Mode of Posting

Table No. 6.1. Compliance with the Full Disclosure Board in the Barangay in terms of Accuracy

INDICATORS	WM	INTERPRETATION
The Sangguniang Barangay & Kabataan has clear documentation for Budget Reports, Procurement Plan Report, and Special Purpose Fund Reports.	3.71	Complied
The required documents of the Department of the Interior and Local Government are posted in Barangay Full Disclosure Board.	3.41	Complied
The Sangguniang Barangay & Kabataan submitted its documents are disclosed in timely manner.	3.39	Partially Complied
Reports of the Sangguniang Barangay & Kabataan are done with proper formats.	4.18	Complied
The Sangguniang Barangay reports are in accordance with IRR of Full Disclosure Policy.	4.39	Fully Complied
AVERAGE MEAN:	3.82	Complied

The statement "The Sangguniang Barangay reports are in accordance with IRR of Full Disclosure Policy" has the greatest weighted mean (WM), 4.39 (Fully Complied), according to Table 6.1, which displays the accuracy level of the full disclosure board in the barangay. However, with a mean of 3.39 (Partially Compliant), the statement "The Sangguniang Kabataan and barangay

submitted its documents are disclosed in a timely manner” has the lowest weighted mean.

The Sangguniang Kabataan (SK) and barangay officials demonstrate adherence to the Department of the Interior and Local Government's (DILG) Full Disclosure Policy (FDP) by fulfilling the requirements for transparency and accountability in governance. They ensure compliance by preparing and submitting the necessary reports in accordance with the Implementing Rules and Regulations (IRR) outlined under the policy. These regulations specify the modalities for posting barangay financial transactions, such as income, expenditures, and budget allocations, on designated Full Disclosure Boards (FDBs) accessible to the public. The policy mandates the timely submission of these reports within specified posting periods to promote transparency and encourage civic participation. Among the essential reports required for posting are the Barangay Budget, Statement of Receipts and Expenditures, Annual Investment Program, and procurement-related documents. The barangay and SK officials utilize clear guidelines provided in the IRR to ensure that their financial disclosures are accurate, complete, and accessible to the community.

By consistently following these directives, barangay and SK officials not only comply with the DILG's requirements but also uphold their commitment to fostering public trust. This practice emphasizes their accountability to their constituents while promoting an environment of openness and transparency in local governance. Hence, the barangay somehow impacts the deadline of the reports as they are not totally disclosed in a timely manner. This finding shows that the implementing agency of Full Disclosure Policy may have an intervention on how our officials disclose their reports prior to its deadline as the Barangay is partially complied in terms of disclosing their reports on a timely manner.

Making useful government data available to the public is only one aspect of openness; another is encouraging meaningful public interaction with governments. In order to provide more transparent and accountable governance, this calls for policies that mandate adherence to open government data standards and a capacity building process to make sure the public, to whom the data is intended, is aware of and able to use the data (Canares, 2014)

Table No. 6.2. Compliance with the Full Disclosure Board in the Barangay in terms of Accuracy

THEME	CODE	ACTUAL RESPONSE
Barangay Full Disclosure Board Accuracy	Reports Deadline	P1-7 “Pagdating sa deadlines ng mga report Sir hindi namin masasabing lahat ay napopost namin agad at ‘yong iba ay matagal ang proseso non. Treasurer namin sa Barangay ang nagaintindi niyan Sir ay laging madaming lakad at transaksyon kaya makikita mo sa FDB namin kulang-kulang ang nakapost”
	Document Formats	P1-7 “Mahabang proseso Sir kung paano namin nagawa ang mga reports dito sa Barangay, sa Budget Plan, napakadaming kailangan ayusin talaga at kapag hindi namin apagtiyagaan ay apabalik-balikin kami sa Budget Office pero ‘yan ay naconsult namin sa BDC naten or Barangay Development Council. Lahat naman ng reports ay may mga formats na ‘yan na nababa sa amin kailangan lang namin i-update ‘yong mga dokumento para makita ng mga kabarangay namin ‘yon mga nagawa na namin dito sa Barangay”.

The information collected from various Punong Barangays about their opinions on the accuracy of their barangay's status on the full disclosure board was displayed in Table 6.2. The incomplete posting of financial reports by the barangay highlights a significant challenge in complying with the Full Disclosure Policy. One of the primary reasons for this non-compliance is the lengthy and complex procedures involved in preparing and finalizing the required documents. These procedures demand substantial time and effort, which often delay the timely submission and posting of reports. Compounding the issue is the overburdened role of the Barangay Treasurer, who is tasked with handling numerous financial transactions and administrative responsibilities across various agendas. This heavy workload limits their capacity to focus exclusively on fulfilling the requirements of the Full Disclosure Policy.

As a result, the barangay fails to fully adhere to the policy's stipulation that all necessary documents must be uploaded within the allotted submission timeframe. This non-compliance not only impacts the barangay's standing with the Department of the Interior and Local Government (DILG) but also undermines the intended goals of transparency and accountability. The inability to post all financial reports on time creates gaps in public access to critical information and diminishes the community's trust in their local leaders. Addressing these challenges requires streamlining reporting procedures, enhancing resource allocation, and providing additional support to overworked personnel to ensure full compliance with the policy. Hence, they follow the forms provided by the Municipal or Budget Office.

Transparency is essential to good governance in order to provide residents with services in an appropriate manner. In general, transparency is predicated on the notion that the public would have greater faith in the state the more transparency it exhibits (Moore, 2018). According to Memorandum Circular No. 2024-021 Sec. 5 (5.2.1), barangay reports must adhere to prescribed formats issued by the Municipal and Budget Office. Barangay Secretaries and other relevant officials are mandated to follow these standards to ensure consistency and clarity in reporting. This requirement streamlines the preparation process and enhances the accuracy of submitted documents. Quantitative results from compliance assessments further indicate that the barangays are aligning with the appropriate formats, demonstrating their adherence to established guidelines. This structured

approach promotes transparency and accountability by ensuring that financial and administrative data are presented in a clear and standardized manner.

Table No. 6.3. Compliance with the Full Disclosure Board in the Barangays in terms of Completeness

INDICATORS	WM	INTERPRETATION
The Sangguniang Kabataan and Barangay Annual Budget Plan are posted in Barangay Full Disclosure Board.	2.43	Not Complied
Summary of Income and Expenditures of the Sangguniang Kabataan and Barangay are complete and posted.	2.78	Partially Complied
The 20% Component of the IRA Utilization of the Barangay are listed in Barangay Full Disclosure Board.	3.27	Complied
The Annual Procurement Plan or Procurement List of the Sangguniang Kabataan and Barangay are disclosed and updated.	3.80	Complied
List of Notices of Award of the Sangguniang Kabataan and Barangay are done and posted.	3.82	Complied
The Itemized Monthly Collections and Disbursements of Sangguniang Kabataan and Barangay are posted and completed.	2.49	Not Complied
AVERAGE MEAN:	3.10	Partially Complied

The completeness of the barangay's full disclosure board is shown in Table 6.3. The statement "List of Notices of Award of the Sangguniang Kabataan and barangay are done and posted" has the highest weighted mean (WM), 3.82 (Complied), which indicates that the barangay is in compliance in that area. With a mean of 2.43 (Not Complied), the indicator "The Sangguniang Kabataan and Barangay Annual Budget Plan are posted in Barangay Full Disclosure Board" had the lowest weighted mean (WM), suggesting that the barangay had trouble complying with the reports. While some reports from the Sangguniang Kabataan (SK) and barangay suggest partial adherence to the Department of the Interior and Local Government's (DILG) Full Disclosure Policy, the majority highlight a significant lack of policy implementation within their jurisdiction. Many reports remain outstanding because compliance with reporting requirements is not prioritized, primarily due to the overwhelming volume of the tasks of barangay officials. This lack of prioritization creates delays in submitting and posting critical financial and administrative reports, undermining the policy's goal of transparency and accountability.

This situation reflects poorly on the barangay's commitment to holding its stakeholders accountable for their responsibilities. The insufficient enforcement of reporting requirements signals a lack of urgency in promoting openness and fostering public trust. Furthermore, the failure to ensure that all reports are accessible to the public hinders the ability of constituents to monitor and evaluate the barangay's performance effectively.

To address these issues, barangay may establish clear timelines, streamline compliance procedures, and allocate sufficient resources to manage reporting tasks. Additionally, enhancing accountability measures and providing training for barangay officials on the importance of transparency can improve the consistent implementation of the DILG's policy, ensuring that all stakeholders meet their obligations. In contrast to these conclusions, Canares (2014), emphasized that obligatory information disclosure is rooted in the principle that all citizens have the fundamental right to access government documents, fostering transparency and accountability in governance. However, Canares also noted that certain documents are exempt from public disclosure due to constitutional restrictions, such as those related to national security, privacy, or confidential government operations. These exceptions are carefully defined to balance transparency with the protection of sensitive information, ensuring that the public can hold officials accountable without compromising security or individual rights.

Table No. 6.4. Compliance with the Full Disclosure Board in the Barangay in terms of Completeness

THEME	CODE	ACTUAL RESPONSE
Completeness of Barangay Full Disclosure Board	Mandated Documents	P1-7 "Ang mga documents or reports na napost namin sa Full Disclosure Board (BFDB) na nandito sa loob ng Barangay Hall namin ay Annual Budget Plan, Summary of Income and Expenditures, 20% Component of IRA/NATA Utilization, Itemized Monthly collection and Distribution, list of Notice of Awards and Annual Procurement Plan"
	Reports Consistency	P1-7 "Usually Sir nagkakaproblema 'yan pagdating sa summary of income and expenditures namin o hindi kaya ay sa mga na procured namin dito sa Barangay Sir like mga office supplies kase kadalasan ang nangyayari kapag nagacanvas"

		kami nakadraft lang ang mga items tapos kapag nabili na namin ‘yon hindi na nagagawan ng maayos na documentation kase hindi rin naman lahat ng nasa procurement plan ay nabibili ‘yan parang guide lang siya kung ano mga bibilhin namin at may mga changes din talaga ‘yan’

The data collected from various Punong Barangays regarding the completeness of their Full Disclosure Boards (FDB) is presented in Table 6.4. The findings shows that the barangay officials are generally aware of the reports required to be posted on their boards, indicating a good understanding of the Full Disclosure Policy’s guidelines. However, the data also reveals a few minor gaps in compliance, particularly the failure to post some essential documents such as the Procurement Plan and the Summary of Income and Expenditures reports. These reports are critical for ensuring transparency in the barangay’s financial and procurement activities, and their absence undermines the goals of public accountability.

The barangay officials acknowledged encountering minor issues that contributed to these gaps. One of the main challenges they faced was ensuring that the products they purchased, along with the allocated funds for these purchases, were accurately recorded and reflected in their reports. This oversight suggests that the barangay may not have fully implemented robust internal monitoring systems to track and verify these financial transactions. Such lapses highlight the need for better documentation practices and increased attention to detail when reporting on procurement activities. Addressing these minor gaps would significantly improve the barangay’s compliance with the Full Disclosure Policy and enhance transparency in their community.

Transparency, or the right to know, is viewed as a critical component in evaluating the government’s accountability to the people or constituents in a democratic nation-state. This is because transparency is an essential tool for local government officials to understand and analyze democracy (Shrivastava, 2015). Because these reports require more work to complete, according to Punong Barangays, the results of the quantitative and qualitative approaches show that barangays are not fully compliant with various reports, particularly the Annual Budget, Summary of Income and Expenditures, and Procurement Plan. Therefore, to promote transparency and ensure an open government, the Department of the Interior and Local Government (DILG) mandates that all barangay transactions be posted in accordance with Memorandum Circular No. 2014-81. This policy aims to provide the public with easy access to important financial and administrative documents, fostering accountability and enabling citizens to monitor the actions of their local government. Failure to comply with these posting requirements can result in penalties, including sanctions or disqualification from certain programs, which emphasize the importance of following the prescribed guidelines. This regulation holds barangays accountable for their duty to provide transparent governance.

Table No. 6.5. Compliance with the Full Disclosure Board in the Barangay in terms of Accessibility

INDICATORS	WM	INTERPRETATION
The Sangguniang Kabataan and Barangay reports are visible to the stakeholders and their constituents.	3.37	Partially Complied
Reports of the Sangguniang Kabataan and Barangay are posted in conspicuous places (Barangay Hall or Facilities).	3.98	Complied
Reports are clear and understandable for stakeholders.	3.26	Partially Complied
AVERAGE MEAN:	3.54	Complied

The full disclosure board’s accessibility status in the barangay is shown in Table 6.5. The statement “Reports of the Sangguniang Kabataan and barangay are posted in conspicuous places (Barangay Hall or Facilities)” has the highest weighted mean (WM), 3.98 (Complied), indicating that the barangay complies with that indicator. With a weighted mean (WM) of 3.26, the barangay, on the other hand, is Partially Compliant on the statement “Reports are clear and understandable for stakeholders,” suggesting that the barangay had only minor issues with that criterion.

Although the barangay’s reports are partially visible to its constituents, the data reveals that the public does not have full access to these reports. The primary issue is that the Full Disclosure Board (FDB) is typically located inside the barangay hall, which limits access to those who are not authorized to enter the facility unless they are conducting official transactions. This setup restricts the ability of ordinary citizens to view the critical documents that should be made available to them under the Full Disclosure Policy. Such limitations create barriers to transparency and hinder the barangay’s efforts to ensure that all constituents can monitor the government’s financial and administrative activities. This highlights an urgent action for barangay officials to re-evaluate their approach to public information dissemination. To achieve true transparency, it is essential that reports be easily accessible to all members of the community, not just those with specific business within the barangay hall. Barangay officials may take immediate action to make these reports more widely available, possibly by exploring alternative locations for the Full Disclosure Board, such as placing it in a public space outside the hall or creating online access platforms.

Furthermore, the barangay may actively engage with the Department of the Interior and Local Government (DILG) to advocate for updating the policy’s accessibility provisions. The DILG, as the implementing agency, could amend the guidelines to

ensure that full disclosure boards are placed in locations where they are visible and accessible to all members of the community, thereby ensuring the reports fulfill their purpose of promoting transparency and accountability. Susanto and Meiryani (2019) define full disclosure as the complete and comprehensive disclosure of financial facts to inform the public about the fiscal issues.

Table No. 6.6. Compliance with the Full Disclosure Board in the Barangay in terms of its Accessibility

THEME	CODE	ACTUAL RESPONSE
Barangay Full Disclosure Board Accessibility	Reports Visibility	P1-7 “Visible naman siya sa aming mga kabarangay Sir kaya laang ngani ay syempre sa mga napunta lamang dito sa Brgy. Hall namin, kase ito lamang ‘yong building na meron kaming nakalagay na FDB.
	Stakeholders Level of Understanding	P1-7 “Ay sa totoo lamang Sir ay kung alam nila ‘yan ay syempre maintindihan nila, kase ang mga Barangay ay may nasunod ‘yan na mga formats hindi naman namin ‘yon pwede baguhin at kami ang mahihirapan. Kami din halos laang naman Sir ang nagatingin niyan, minsan kapag may mga studyante na may kailangan ayon nasisilip nila pero karamihan kahit may FDB kami hindi sila aware Sir na meron niyan.

The status of the Barangay’s full disclosure board in terms of accessibility is shown in Table 6.6. The Punong Barangay stated that their Full Disclosure Board is accessible to constituents, but only on a case-by-case basis. Since the barangay hall is the only building with the Full Disclosure Board, a concerned citizen can view the reports only if they have official transactions within the barangay. This limited access creates a barrier to public transparency, as it excludes citizens who may not have any business at the barangay hall but still have a right to view the financial reports. Ideally, the Full Disclosure Board should be located in a more accessible public space, or made available digitally, to ensure that all members of the community can freely access the necessary information. Additionally, the Punong Barangay mentioned that while some viewers found the reports perplexing, the documents are formatted according to the prescribed templates. This suggests that while the Reports are technically compliant with the required formats, the complexity of the information may deter constituents from fully understanding the data. To address this issue, barangay officials could consider providing supplementary explanations or guides that help the public navigate and interpret the reports effectively.

Furthermore, Punong Barangay recognized that other types of information, such as updates and announcements, are made available to the public via official websites and social media accounts. It would be beneficial for these platforms to also host financial reports and other relevant data related to policy goals. Expanding the accessibility of information in this way would enhance transparency and accountability, allowing for a broader and more inclusive sharing of information with the public. By leveraging digital platforms, the barangay could significantly improve communication and public engagement. According to Gabriel (2017), the information must be current, relevant, understandable, and practical. Consequently, based on the data collected using both quantitative and qualitative methods, it appears that the two types of information are similar.

The barangay disclosed that because of its selected area for inspection, which demonstrated noncompliance with the rules, their Full Disclosure Board is not entirely available to the public. According to Memorandum Circular No. 2011-134, which requires barangay officials to post reports in three prominent locations where the public can easily view and access them, the Barangay should improve their approach to disclosing reports since their constituents are not fully aware of the full disclosure board. For the public to be aware of the Barangay Full Disclosure Board's complete contents and to understand how the barangay spent the budget and the overall expenses for programs and projects that are being carried out, they can think about posting it in a public place.

Table No. 6.7. Compliance with the Full Disclosure Board in the Barangay in terms of Mode of Posting

INDICATORS	WM	INTERPRETATION
The Sangguniang Kabataan and Barangay Reports are posted through LGU website.	3.37	Partially Complied
Reports of Sangguniang Kabataan and Barangay are posted in privately-owned buildings or facilities.	2.57	Not Complied
Required documents issued by Department of the Local Government (DILG) are disclosed and posted in the Barangay Full Disclosure Board (BFDB).	3.74	Complied
AVERAGE MEAN:	3.23	Partially Complied

With a mean of 3.74 (Complied), the statement “Required documents issued by Department of the Local Government (DILG) are disclosed and posted in the Barangay Full Disclosure Board (BFDB)” had the highest weighted mean (WM) among the full disclosure boards in the barangay, as shown in Table 6.7 regarding Mode of Posting. However, the statement “Reports of Sangguniang Kabataan and barangay are posted in privately-owned buildings or facilities” had the lowest weighted mean (WM), 2.57 (Not Compliant), suggesting that the Barangay has little trouble posting reports on the Full Disclosure Board. Although the Sangguniang Kabataan and barangay officials are not utilizing privately held buildings or facilities for posting reports, they demonstrate compliance with the requirements for publishing reports on the Barangay Full Disclosure Board (BFDB). The current practice is to place these reports inside the barangay hall, which is a public facility that is accessible to constituents under specific circumstances. However, the process of utilizing privately owned buildings for posting financial data involves obtaining prior authorization from the building owner. This additional step can be time-consuming and may delay the timely posting of required documents, which has led the barangay to deprioritize this strategy in favor of more straightforward methods.

Given the challenges associated with obtaining permission for posting reports in privately owned spaces, the barangay has focused its efforts on other means of compliance. However, with the increasing reliance on digital platforms for communication and access to information, there is a growing opportunity to rethink how reports are shared. Modern technology offers a much more accessible and efficient alternative to traditional physical postings, allowing for quicker dissemination of information to the public.

These findings highlight the need for the implementing agency, such as the Department of the Interior and Local Government (DILG), to reconsider the strategy for report accessibility at the barangay level. Emphasizing digital platforms for publishing financial reports would not only make the information more readily accessible but also align with the modern trends in communication. Digitalization could bridge the gap in public access and significantly improve the transparency and accountability of local government operations. Barangay through FDP portal shows an increase of compliance percentage for the LGU's of Asuncion, New Corella, San Isidro and Sto. Tomas (Lagura, 2017).

Table No. 6.8. Compliance with the Full Disclosure Board in the Barangay in terms of Mode of Posting

THEME	CODE	ACTUAL RESPONSE
Mode of Posting for Barangay Financial Transactions	Area for Posting	P1-17 “Sa ngayon ay nandito na lamang siya sa loob ng barangay hall namin nakalagay pero dati meron kami niyan sa mga waiting shed namin kaso ay hindi man laang natagal ng ilang buwan Sir at napagsisira ng mga bata ay sayang ‘yong nagastos ng barangay kaya dito na laang namin siya pinuwesto sa barangay hall ‘yon lamang ngani ay kaunti lamang kakakita niyan at kapag may mga meeting lamang dito maraming tao.
	Digital Adaptation	P1-7 “Ay Sir hindi kami nag-aupload sa mga websites ng ganyan at ang mga barangay natin ay wala namang websites may portal kaming alam sa ganyan Sir ay parang ang sabi sa amin ay pang Municipal ‘yon tapos hindi naman kami marunong gumamit non kaya ang paraan laang namin para makapag-comply sa policy na ‘yan ay itong Full Disclosure Board natin.

The Information obtained from various Punong Barangays through an interview approach about the compliance of their full disclosure boards in their barangay regarding mode of posting is shown in Table 6.8. They disclosed that the boards are only set up inside the barangay hall, which is restricted to the audience until additional meetings are held. It also demonstrates that they are no longer interested in using waiting sheds and other structures to disclose the findings because of issues with the board's sustainability. While the barangay currently lacks the computer literacy required to modernize its compliance reporting, there are indications of interest in digital adaptation. However, their progress is hindered by the unavailability of websites or online portals at the barangay level, which are currently limited to the municipal and provincial levels. This lack of access has restricted the barangay from fully embracing digital tools for transparency and accountability. As a result, the Barangay Full Disclosure Board (BFDB) has not fully achieved its goals, as reports are not shared with a broader audience, leaving constituents unaware of key financial transactions and activities within the barangay.

The limited accessibility of reports prevents constituents from participating in governance processes and undermines the transparency objectives of the Full Disclosure Policy. Additionally, the inability to adopt modern posting methods similar to those used successfully in other cities and provinces highlights a missed opportunity for innovation. Barangay officials could benefit from adopting best practices in online reporting, such as using websites and social media platforms to reach a wider audience effectively.

To address this gap, training programs aimed at enhancing computer literacy and digital skills for barangay officials are essential. These programs could empower them to navigate online platforms, manage digital reporting tools, and publish reports efficiently. With proper training and access to technology, barangays can align themselves with modern standards of governance, ensuring that their constituents remain informed and engaged. This shift toward digitalization would strengthen transparency and

accountability at the grassroots level.

II. Challenges Identified by Sangguniang Kabataan and Barangay in Compliance with the Full Disclosure Policy

Table No. 7.1. Challenges Identified by the Barangay in Compliance with the Full Disclosure Policy in terms of Budget Reports

INDICATORS	WM	INTERPRETATION
Many documents and budget forms to be accomplished are time consuming processes.	4.31	Always
No consultation to civil societies and other stakeholders can hinder the overall process of budgeting.	4.27	Always
Changes in the budget forms affect the timeframe for submissions.	3.98	Often
Estimation or projection of expenditures for programs and activities requires in dept-knowledge.	4.22	Always
AVERAGE MEAN:	4.20	Always

With a mean of 4.31 (Always), the statement “Many documents and budget forms to be accomplished are time consuming processes” had the highest weighted mean (WM), indicating that the barangay encountered it constantly. Table 7.1 lists the difficulties that Sangguniang Kabataan and the barangay identified with regard to the full disclosure policy in terms of Budget Reports. The statement that receives the lowest weighted mean, 3.98 (Often), is “Changes in the budget forms affect the timeframe for submission,” suggesting that the barangay frequently faced difficulties with that indication. According to the respondents, creating the documents took a lot of time, which could have an impact on the reports’ due date or timeline. Additionally, modifications to the budget forms could have an impact on the reports’ submission timeline, which could reduce their effectiveness and potentially have a cascading effect on the policy because the creation of the documents is delayed. Finally, the posting of the reports on the Full Disclosure Board could also have an impact. Although the reports follow the correct formats, the lengthy document processing process interferes with the duties of the affected barangay authorities, causing them to comply late. Barangay officials regarding the Municipality of Santo’s local budgeting process. According to Tomas, the first issue with budget preparation is the sheer volume of paperwork and budget forms that needed to be filled out. This comprises the Annual Investment Plan, Executive and Legislative Agenda, Budget Call, Budget Message, and more (Dagohoy, 2021). These results allow the implementing agency to keep holding workshops and seminars for report mastery, allowing the barangay to complete the reports successfully and efficiently. This also helps the Department of the Interior and Local Government (DILG) fulfill its policy obligations.

Table No. 7.2. Challenges Identified by the Barangay in Compliance with the Full Disclosure Policy in terms of Budget Reports

THEME	CODE	ACTUAL RESPONSE
Budget Reports Challenges	Budget Reports Barrier	P1-7 “Hindi naman siya Sir ganon kahirap pero totoo na matagal siya bago namin matapos pero sa aking posisyon naman hindi ako basta basta nagalagay ng mga kailangan namin dito sa opisina o proyekto na sa tingin ko ay tama.
	Civil Societies Participation	P1-7 “Ay oo naman Sir lalo na don sa mga bagong appointed kailangan talaga nilang i-consult yon, ‘yan Sir ay bago i-submit sa budget office at suriin ng Sangguniang Bayan inadaan muna namin sa BDC.
	Budget Forms Transformation	P1-7 “Makakaapekto talaga siya kung papalitan at aralin pa ulit namin ‘yon kung paano ang proseso.

Table 7.2 presents the data gathered from different Punong Barangay in an interview approach regarding their challenges on full disclosure board in terms of Budget Reports. They reveal that the long process of budget reports affects their compliance with the policy, as usually their budget is approved mid-quarter, which also indicates the late posting of budget reports on their full disclosure board. They also show that engaging with different civil societies affects the reliability and credibility of the reports, indicating that the barangay should consult with an organization to reduce their difficulties, specifically for newly appointed officials. Punong Barangay also reveals that changes in formats lengthen the overall process as they need to learn new procedures again. The barangays suffer more in the process of their compliance due to lack of mastery, which impacts the deadline of their

reports, leading to late compliance with the full disclosure policy. The barangay reveals the importance of civil societies for additional inputs for their reports, which may shorten the overall process.

Furthermore, local governments are well-positioned to interact with people and react to their concerns. They can solve the most urgent development challenges with the right incentives, resources, and authority. This indicates the extent to which the government fosters and enables the engagement of citizens not just in the delivery of services but also in the assessment (Asia Foundation, 2017). Furthermore, this data matches the quantitative results showing that the Barangay experience a bulk of challenges pertaining to budget reports as well as to the compliance for full disclosure policy based on Republic Act No. 10155, also known as General Appropriation Act. The annual budgets of LGUs are prepared in accordance with the forms, procedures, and schedules prescribed by the Department of Budget and Management and those jointly issued with the Commission on Audit.

Table No. 7.3. Challenges Identified by the Barangay in Compliance with the Full Disclosure Policy in terms of Procurement Reports

INDICATORS	WM	INTERPRETATION
Failures in the delivery of goods or completion of services beyond the agreed-upon deadline affects the Sangguniang Barangay project timelines or service delivery schedules.	4.39	Always
Missing or incomplete procurement records, such as bid documents, contracts, and purchase orders, could make it more challenging to Sangguniang Barangay to figure out the legality and fairness of transactions.	4.45	Always
Procurement reports might reveal instances where goods or services procured do not meet the specified quality standards, leading to Sangguniang Barangay wastage of resources.	4.04	Often
AVERAGE MEAN:	4.29	Always

Table 7.3 presents the challenges identified by the barangay in Compliance with Full Disclosure Policy in terms of Procurement Reports. The highest weighted mean (WM) is determined for the statement “Missing or incomplete procurement records, such as bid documents, contracts, and purchase orders, could make it more challenging for Sangguniang barangay to figure out the legality and fairness of transactions” with a mean of 4.45 (Always), indicating that the barangay always encounters challenges in this area. On the other hand, the lowest weighted mean (WM) is shown for the statement “Procurement reports might reveal instances where goods or services procured do not meet the specified quality standards, leading to Sangguniang barangay wastage of resources” with a mean of 4.04 (Often).

The Sangguniang barangay and Kabataan faced significant challenges in managing Procurement Reports, particularly with records management. Missing and incomplete documents are a recurring issue, which directly impacts their compliance with the Full Disclosure Policy. This policy mandates a strict timeframe for the submission of required documents, with penalties for delays or non-compliance. The inability to meet these deadlines not only exposes the barangay to sanctions but also downgrades the principles of transparency and accountability that the policy aims to promote.

Additionally, the quality of procured items has financial implications for the barangay. Poor procurement decisions can lead to resource wastage, affecting the overall budget and efficiency of operations. Without proper records, it becomes difficult to evaluate the value and impact of these purchases, further exacerbating resource management issues.

The bulk of transactions and the sheer volume of documentation required present another challenge. With limited time and resources, barangay officials often struggle to organize and maintain their reports effectively. This disorganization leads to conflicts in data retrieval, making it harder to provide accurate information when needed. To address these issues, implementing a streamlined records management system, coupled with training for barangay staff, could significantly improve compliance, enhance accountability, and optimize resource utilization in the long term.

Table No. 7.4: Challenges Identified by the Barangay in Compliance with the Full Disclosure Policy in terms of Procurement Reports

THEME	CODE	ACTUAL RESPONSE
Procurement Reports Challenges	Management of Procurement Records	P1-7“Minsan Sir hindi talaga maiiwasan na may mawala na dokumento gawa ng andaming transaksyon ng barangay at kulang ang mga napaglagyan din namin kaya madalas Sir halo-halo na mga reports ng barangay kaya kapag may ahanapin ang barangay na reports ay natatagalan pa at may mga cases din na hindi na namin nahahanap”
	Procured Items/Projects	P1-7“Actually ang mga barangay Sir bago magpurchase ng

	Quality	mga supplies dumadaan muna sa canvassing para maverify namin 'yong pricing and quality nung mga items pagdating namin sa mga proyekto ng barangay lahat ng 'yan ay kalidad naman kase dumadaan 'yan sa assessment kaya inasigurado namin na walang magiging problema lalo na pagdating sa mga documentation namin"

Table 7.4 presents the data gathered from different Punong Barangay regarding their challenges in terms of Procurement Reports. They reveal that there are instances where reports and some documents are misplaced due to lack of records storage. Additionally, the bulk of transactions hinders their responsibility to keep the reports organized. These issues delay data retrieval for concerned citizens, as they also reveal that some reports are unable to be found.

However, the Barangay seems to show no problem regarding their procured items and projects, as they say that these are of quality and undergo an assessment to ensure that services or products are useful to the public. These findings contradict the data from the quantitative approach, which reveals that the quality of the procured items may impact on the reports as they don't meet quality standards, resulting in wastage of resources.

Thus, it shows similarities regarding the challenges in terms of mismanagement of reports due to lack of proper storage for documents, which leads to Sangguniang Barangay conflicts in terms of retrieving reports. A prevalent challenge identified in public institutions, specifically in terms of poor records management capacity, hinders effective human resource management (Claude, 2024).

Table No. 7.5. Challenges Identified by the Barangay in Compliance with the Full Disclosure Policy in terms of Special Purpose Fund Reports

INDICATORS	WM	INTERPRETATION
Insufficient monitoring systems for ensuring that special purpose funds are used effectively and in compliance with rules and regulations.	4.18	Often
Barangays frequently have limited resources, including individual and financial capacity to efficiently oversee and report on special purpose funds.	4.14	Often
Incomplete or missing information make it more challenging to Sangguniang Barangay to monitor fund consumption and verify expenses.	4.20	Often
Mismanagement of funds, such as overspending in certain areas while neglecting essential projects and programs of the Sangguniang Barangay	4.37	Always
AVERAGE MEAN:	2.74	Highly Observed

Table 7.5 shows the challenges identified by the Barangay in Compliance with the Full Disclosure Policy in terms of Special Purpose Fund Reports. The highest weighted mean is shown for the statement "Mismanagement of funds, such as overspending in certain areas while neglecting essential projects and programs of the Sangguniang Barangay" with a mean of 4.37 (Always), indicating major problems for the barangay. However, the statement "Barangays frequently have limited resources, including individual and financial capacity to efficiently oversee and report on special purpose funds" has the lowest weighted mean of 4.14 (Often).

The Sangguniang Kabataan and barangay faced several barriers when it comes to accountability for their funds, which negatively impact their ability to effectively implement programs and projects. One key issue is the allocation of funds, where discrepancies may arise in how resources are distributed or spent. While there are guidelines in place regarding the appropriate percentage for the allotment of funds, these barriers often result in inefficient use of resources or delays in the execution of planned initiatives. The lack of accountability mechanisms can also lead to difficulties in tracking and ensuring that funds are spent according to the approved budget and for their intended purposes. These findings highlight the need for the barangay to adopt more comprehensive planning practices when managing special purpose funds. Proper planning can ensure that these funds are used efficiently and effectively, aligning with the needs and priorities of the community.

Furthermore, to address the lack of transparency in fund management, it is crucial for the barangay to consider implementing a monitoring system that tracks the allocation and transfer of funds. This system would allow for real-time oversight of how funds are being used and ensure that they are appropriately allocated to proposed programs and projects.

Establishing a robust monitoring and evaluation system would also enable barangay officials to identify and address any gaps or inefficiencies in the use of funds. It would help strengthen accountability, improve financial management, and ultimately contribute to the successful implementation of community development projects and programs. This finding is supported by the

study of Liwanag (2024), which discovered that there is underspending in the budget utilization of barangays in the Municipality of Concepcion from 2020 to 2022.

III. Recommended Strategies to Address the Challenges Identified by Sangguniang Kabataan and Barangay in Compliance with the Full Disclosure Policy

Table No. 8.1. Recommended Strategies by the Barangay Officials to Address the Challenges in Compliance with the Full Disclosure Policy

INDICATOR	WM	INTERPRETATION
Invest in training and capacity building programs for Barangay Officials to help them improve their knowledge and abilities in data management, transparency, accountability, and other relevant practice	4.47	Very Interested
Advocate for improved technical infrastructure, data management systems, and human resource capability for successful disclosure through increased resources and support from higher levels of government.	4.20	Interested
Consider the use of technology, such as online platforms and digital tools, to speed up data collection, management, and disclosure, making it easier for barangay officials to comply with the Full Disclosure Policy.	4.45	Very Interested
Establish internal and external monitoring and supervision systems to maintain Full Disclosure Policy compliance, such as frequent audits, performance reviews, and community feedback mechanisms.	4.12	Interested
Collaborate with organizations affiliated with civil society, academic institutions, and other stakeholders to effectively utilize their professional expertise, resources, and networks to advocate for transparency and accountability initiative.	4.16	Interested
Establish a culture of transparency and accountability by interacting with the community on a regular basis through forum discussions, information sessions and outreach initiatives to create awareness of the Full Disclosure Policy.	4.49	Very Interested
Overall Weighted Mean	4.32	Very Interested

Table 8.1 presents the recommended strategies from the barangay officials to address the challenges in the Compliance with the Full Disclosure Policy. The highest weighted mean is determined for the statement: “Establish a culture of transparency and accountability by interacting with the community on a regular basis through forum discussions, information sessions, and outreach initiatives to create awareness of the Full Disclosure Policy,” with a mean of 4.49 (Very Interested). The findings also reveal that the statement, “Investment in training and capacity-building programs for barangay officials to help them improve their knowledge and abilities in data management, transparency, accountability, and other relevant practices,” is considered important and beneficial, with a mean of 4.47 (Very Interested), in order to comply efficiently with the required reports mandated for submission by the Department of the Interior and Local Government (DILG).

This finding highlights the need for the implementing agency to prioritize training programs for Sangguniang Kabataan and barangay officials to enhance their understanding and execution of the Full Disclosure Policy. These training sessions should not only focus on the technical aspects of complying with reporting processes, such as proper documentation and timely submission, but also emphasize the broader importance of transparency and accountability at the local level. Through such programs, officials can gain a deeper appreciation of how the Full Disclosure Policy supports good governance, promotes public trust, and enables community participation in decision-making. The training should cover practical strategies for managing reports in alignment with policy mandates, including records management, data presentation, and accessibility to the public. Furthermore, these sessions can provide solutions to common challenges, such as delays in submission, incomplete documentation, and limited public awareness.

By equipping officials with the necessary skills and knowledge, the training programs will empower them to implement the policy more effectively and confidently.

Employees need to understand the purposes and objectives of the training program to help improve their skills in service delivery. This program refers to a planned effort by a local government unit to facilitate employees' learning of job-related competencies, knowledge, skills, and behaviors. The goal of the training program is for employees to master the knowledge, skills, and behaviors emphasized in the training and apply them to their daily work (Lussier & Hendon, 2019).

Table No. 8.2. Recommendations of Punong Barangay and Municipal Local Government Operation Officer (MLGOO) to Address the Challenges in Compliance with the Full Disclosure Policy

Theme	Code	Actual Response
Recommendations for the challenges in Compliance with the Full Disclosure Policy	Planning	P1-7“Kailangan hindi lang interest naming mga barangay ang isaalang-alang importante ang opinion ng aming kabarangay, kase sila ‘yong mas nakakaalam ng mga problema andito kami sa posisyon para bumuo ng plano kung paano namin ‘yon masolusyunan, barangay muna bago ang sarili. Kung ang mga programa at proyekto namin ay maging matagumpay bunga ng aming pagsisikap sa pagplano ay madali natin ‘yan Sir magagawan ng mga reports o documentation”
	Plans Implementation	P1-7“Kung ano ‘yong nasa Plano Sir kailangan gawin ‘yon kase madalas matatapos na laang ang fiscal year ay wala pang progress, i-implement naten kase before matapos ang fiscal year ga-propose na naman kami ng mga programa at proyekto sa barangay ay hindi man laang pa nagawa ‘yong sa current ay sayang naman may pondo namang nakaallot don”
	Projects Monitoring	P1-7 “Kailangan pala Sir makialam kaming barangay pagdating sa mga proyekto kase hindi lahat ay kasama sa kontrata mamalay na lamang kaming barangay na kami pala ang galakad ng building permit, pagpintura nung building ay hindi pala kasama sa contract kaya sa barangay fund pa namin siya inakuha so, hindi pala dapat maging tahimik ang barangay kahit kontrata na siya sa isang ahensiya kase kami din Sir ang nagahirap, kaya minsan talagang delay ang submission namin ng reports”

Table 8.2 presents the recommendations of the Punong Barangay and the Municipal Local Government Operations Officer (MLGOO) to address the challenges in Compliance with the Full Disclosure Policy. They reveal that proper planning would impact their compliance by ensuring that the needs of their constituents are the top priority, and that the proposed programs and projects should be implemented. Additionally, to minimize issues with the documents, Punong Barangay states that they must engage with the overall process of the projects to avoid conflicts concerning financial aspects. Continuous orientation for concerned officials also seems beneficial for ensuring that their reports are complete and accurate. The Municipal Local Government Operations Officer also reveals that Barangay Secretaries should not be replaced frequently, as they are the officials who have enough knowledge and background to accomplish the required documents. These recommendations are crucial for the Barangay to take the initiative in addressing the challenges in Compliance with the Full Disclosure Policy.

Furthermore, based on the data from both methods, there are differences in the concepts of the recommendations. The respondents focus more on training and public awareness of the Full Disclosure Policy, which is beneficial for the implementing agency to meet the policy mandates. They recommend that continuous capacity-building programs be implemented for Barangay officials in Sablan, focusing on leadership development, financial management, and public service delivery. Providing Barangay officials with regular training opportunities will not only enhance their skills but also enable them to manage local resources more effectively and address the evolving needs of their communities. Conversely, the participants prioritize the importance of incumbent officials ensuring their capability to manage reports accurately, and for their mastery, they find it beneficial to attend continuous orientation. Given the recommendations, the researcher focuses on a monitoring tool for the Full Disclosure Policy at the Barangay level. The Full Disclosure Policy Monitoring Website for the Barangay Financial Transactions in the Municipality of Boac, Marinduque will provide full access to the public to view and download Barangay reports.

4. CONCLUSION

Based on the findings of the study, it is evident that the Compliance with the Full Disclosure Policy in the Municipality of Boac exists but lacks proper implementation and intensive on-site monitoring. Additionally, the majority of the Barangay officials encountered major problems with their reports, leading to delays in compliance. Furthermore, the implementing agency, the Department of the Interior and Local Government (DILG), showed a lack of intervention, as they did not conduct quarterly assessments of the Barangay, which resulted in a domino effect on the policy's mandates.

The study underscores the importance of modernization strategies that would allow Barangay officials to upload the

required documents and reports more easily. The proposed Full Disclosure Policy Monitoring Website for the Barangay Financial Transactions in the Municipality of Boac, Marinduque, addresses these gaps and ensures that compliance is visible to all stakeholders.

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Research Article

The Feature and Components of the Arabay Festival of Arimbay, Legazpi City

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ABSTRACT

This study is a documentation of the salient features and components of the Arabay Festival of Barangay Arimbay, Legazpi City. *Arabay* is derived from a local term which means to do things together. The festival was deemed a good start-up initiative for a community-wide program on culture, with the end-view of forging community identity and solidarity, and encouraging local development. Data for the study were gathered through review and analyses of pertinent documents and materials such as narrative reports, facilitator's notes, training design, and evaluation by theater workshop participants. The study is grounded in theoretical paradigms which view culture as an important basis for social solidarity and for alternative local and regional growth. The findings showed that the Arabay Festival is rooted in the culture and history of the community of Barangay, Arimbay. Its creation is in line with the provisions and tenets of culture-based governance and national development agenda of the country, which recognize culture as a crucial pillar of sustainable development. In giving shape and form to the festival, two major approaches were employed - community-based development theater approach and capacity-building for festival managers and culture-bearers in the community. The findings of the study may serve as template and inspiration for similar endeavors on growing a signature festival.

Keywords: Creative Spaces, Cultural Capital, Resilient Communities, Shared Celebration

1. INTRODUCTION

Why are people drawn to festive events? What makes them come back year after year to the same events? In every culture, people recognize the need to set aside certain times and spaces for communal creativity, joy and celebration. This impulse for joyful revelries has been around as early as 534 B.C. (Rutagand, 2024). Festivals allow people a unique space where they can break free from their humdrum existence, and experience a heightened sense of vitality and expressions. The Peñafrancia Festival in the Bicol Region, considered the largest Marian observance in Asia, for example, illustrates the captivating effects of a festival on entire communities. In his study on the Marian festival, Peterson (2020) paints a vivid picture of devotees from all walks of life engaged in various ritual performances. The entire community erupts with colors, songs, sounds, dances, gestures, aromas, and all kinds of activities and expressions which make the festival something to look forward to each year.

The stimulating effects of celebratory events can act as elixir, that even in the face of bondage, enslaved people found a certain degree of freedom and respite in their cultural expressions. Negro Slaves through their music, rooted in their traditions and Christian beliefs, were able to transcend the physical oppression. (Garett, 2023). Their spirits soared free and strong with the strains of their music, sustaining them in their quest for freedom. It is a fact that throughout human history, the plight of colonized people who were totally alienated from their cultural tradition or any manifestation thereof, almost always ended up in wholesale decimation of races, as in the case of the Maoris of New Zealand (Smale, 2017) and the Indigenous tribes of Canada (Voce, Cecco & Michael, 2021). But, for as long as there remain traces of cultural expressions to serve as totem pole to preserve memories, then the race has a chance to survive well into the next generation.

Significant impacts on various aspects of society are attributed to festivals. These benefits are summarized as follows:

Community Well-Being

Festivals become a platform for collective participation which allows individuals to form connections and networks,

engendering in them a sense of psychological sense of community (Hassanli, et.al., 2020). A sense of identity and belonging is fostered, which becomes a powerful tool for building resilient communities. (Rutagand, 2024). As societies become more fragmented, and people become footloose, there is a growing need for human connections. Sharing in a community tradition, bridges social divides. (Smith & Doe, 2023), (Coldevero & Aguila, 2020). This contributes to increased social capital which is essential for community development.

Cultural and Aesthetic Contributions

Art and music festivals animate the life of the community. Art has therapeutic effects which contribute to the improvement of mental health. (Qu & Cheer, 2020). For instance, the refreshing beauty of open spaces and parks in urban centers offer relief for wearied residents and visitors alike. Revitalizing places enhance quality of life. Moreover, festivals help preserve local heritage by showcasing traditional cultural expressions, thereby strengthening community identity and pride.

Economic and Tourism Benefits

Cultural tourism allows tourists to savor the unique and authentic cultural facets of a place. In doing so, they influence the community to devise ways to meet visitors' expectations, through improvement of necessary services, infrastructure and event offerings (Lopes & Hiray, 2024). This revitalizes the place of destination and stimulate growth of local economies.

Individual Happiness and Sustainability

Repeat engagement in cultural activities has been found to foster happiness and community bonding, leading to the sustainability of the observance. Mesana and De Guzman (2022), brought up the notions of festival happiness. "Aesthetics, spirituality and nostalgia play a role in storing up pleasant memories of a cultural event. This strengthens the sense of rootedness in participants. Also sense of pride and self-satisfaction are developed when participants are able to contribute altruistically to the success of the festival. This concept provide incentives for repeat participation in festivals."

Identity and Reputation

The Arabay Festival has been celebrated annually for eight years now. Residents credit the festival with strengthening community cohesion and with imbuing their community with a positive renown.. Kumari's(2024) study on Indian festivals noted the close link between place and cultural images in creating a distinct identity. She also averred that not only does the local businesses get a big boost, but the folklife of people are enhanced. Her papers also provided insights on how policymakers can help encourage eco-friendly and sustainable cultural practices within the festival. A positive reputation encourages more tourist arrival creating more demand for services. This leads to the creation of jobs and employments. Infrastructure are also improved and so is the surrounding environment. (Nyandoro, 2024)

When it comes to selling reputation, South Korea has shown the way. It is said to be the only country in the world that is so single-minded in exporting its pop culture to gain soft power (Roll, 2021). Soft power was coined by 1990s American social scientist, Joseph Nye, to refer to the "intangible power that a country wields through its image, and not through force." The intangible power of culture has encouraged many countries to gain international influence and persuasion through cultural exchanges and development initiatives (Hanes & Andrei, 2015)." This certain image or brand that South Korea has cultivated has imbued its other export products. Its Samsung cars, appliances and computer wares are among the most-preferred brands in the world today.

Countries like South Korea which have learned to leverage their cultural assets into flourishing creative industries have greatly boosted their economic status. These countries used to rely on a purely materialistic model of development. But in the 21st Century a big change has come to shape the world's economic mindset. It is now viewed that imagination and creativity will fuel the world's economic engine (UNCTAD, 2010). Culture and arts provide the best training ground for imagination and creativity. Towards this end, these countries have made the smart decision to put a high premium on their heritage.

The first attempts to measure the value of the creative industry was done in Australia and Great Britain in the 1990s. Today, the concept of the 'creative industries has evolved into an inclusive wider creative economy. Notions of what creative industry is may vary, but one thing is common among them, it revolves closely around arts and culture.

Filipinos are no strangers to festivities. They thrive on them. No matter how humble or remote a community is, there is longing among its people to animate their mundane existence through some forms of cultural expression or activity. It is like they have grasped intuitively the power of Albert Camus' observation that "without culture and the relative freedom it involves, society, even when perfect, is but a jungle. This is why any authentic creation is a gift to the future." (Camus)

Festivals like the Sinulog of Cebu (The Spirit of the Sinulog Festival, n.d.), the Penafrancia of Bicol (Peterson, 2020), and the Black Nazarene of Quiapo (Fortunado, n.d.) have grown in stature and fame, not just in the country, but even overseas. The fame and success of these iconic cultural events has fueled the race among local government units to have their own signal festival - that there are those who cook up festivals with scant historical bases. But without the backing of cultural research and without any sound historical bases, these festivals appear contrived and may even lead to festival fatigue.

But, while it has now been acknowledged by practically every country in the world that the combination of culture and commerce generates wealth, and invest a place with distinctive image, the Philippines has been lagging behind their Asian neighbors in this aspect. But recent developments has indicated the determination of Philippine Government to harness its cultural capital for national development, with the passage of a law on the promotion of the creative industries in the country (Deligero, 2024). The current slogan of the Department of Interiors and Local Government (DILG), “There is money in culture (May Pera sa Kultura),” draws inspiration from this. The DILG through Memorandum Circular 2017-133 has mandated each Local Government Unit (LGU) to create Local Culture and Arts Council (LCAC) in its respective area. The LCACs are supposed to oversee the culture and arts programs of the LGUs and ensure that it is inclusive, responsive and deeply rooted in authentic local heritage. Additionally, the DILG, through the Seal of Good Local Governance award, recognizes that culture should be an essential benchmark for good governance. It has gone further by enjoining local communities with cultural events to learn how to “position themselves to the world”, by finding a distinct handle by which a cultural event may be recognized and remembered on the global stage.

Inspired by this vital insight, a festival was conceptualized and birthed in Arimbay, Legazpi City. Called the Arabay Festival, the event intended to rekindle interest in local culture among Arimbayanos. More than imbibing in the locals a sense of pride of place, the long goal is to use the festival to stimulate the development of small-scale creative enterprises. The festival was launched in 2018 during the barangay fiesta celebration. The pandemic, however, and the lockdowns which ensued in 2020 momentarily stymied the observance of the event. The festival is relatively new and small in scope compared to the more established ones. However, its proponents see it as an important contribution to the national agenda to harness culture for development. Inclusive development, ideally, must start at the grassroot, and the festival could be a means towards this goal.

The study determined the features and components of the Arabay Festival of Barangay Arimbay in Legazpi City. The study objectives were: 1.) Determine the socio-demographic profile of Barangay Arimbay, Legazpi City. 2.) Identify the features and components of the Arabay Festival in terms of: a.) History and Background, b.) Activities and Objectives, c.) Legal Mandates, d.) Persons and Agencies Involved, and 3.) Identify the training design and approaches that were adapted for the festival theater play.

The following theoretical lenses were considered in this study. In his seminal work, *Division of Labor in Society* (Jones, 1986), Durkheim highlights the concept of social cohesion which arises when people of shared values and belief form bonds. The Arabay Festival typifies this by becoming a medium for shared celebrations, enhancing community solidarity.

Beyond the aesthetics and entertainment aspect, the festival was conceived to eventually encourage the emergence of creative industries in the community. The link between culture and economy is further bolstered by the Creative Economy Model of Economic Growth, refined and popularized by the United Nations Development Program (UNCTAD, 2010) and the UNESCO (UNESCO, 2020). Creative industries have paved the way for local and regional communities as alternative sites of growth areas, and have vastly contributed to the efforts of creating live-able spaces and cities.

Additionally, the Sociological Aesthetic Theory espoused by George Simmel (2020) assumes “art as a social phenomenon involving body, mind and symbols”. Festival dances reflect cultural history and identity. Festival dances, including the Arabay are shaped to be dynamic expressions of the local heritage and of what communities aspire for.

2. MATERIALS AND METHODS

The study employed qualitative-descriptive phenomenological method, combined with desk research in exploring the essential features and components of the Arabay Festival. Desk research involved collecting, reviewing and analyzing data from existing resources (Rutagand, 2024). These primary resource materials were generated in the process of conceptualizing and implementing the Arabay Festival, such as documentation narrative reports on the theater and capacity-building trainings, the training designs, facilitator’s notes on real-time observation and participation in actual festival events, and evaluation by participants. The study leader who was herself a facilitator and proponent of the festival project, leveraged her first-hand knowledge, experience and compiled resource materials to support and enhance memory recall for the study. Secondary data included enabling laws which provided legal bases for the creation of the festival. Given the nature of desk research, field work was not required.

3. RESULTS AND DISCUSSIONS

1.) Profile of Barangay Arimbay in Legazpi City

The locale of the project, Barangay 47- Arimbay, is a coastal barangay of Legazpi City, Albay, Philippines. It is located four kilometers north of Legazpi City proper. It is bounded on the north by Barangay Bigaa; on the east by the Albay Gulf; on the

northwest by Barangay Bagong Abre; on the southwest by Barangay San Joaquin; and on the south by Barangay Rawis. Barangay Arimbay used to be part of Barangay Bigaa, until it evolved into an autonomous barangay. It has a total land area of 151.4 hectares, of which 33% or 49.99% hectares is estimated to be build-up areas, classified as residential, commercial, light industrial (non-polluted and non-hazardous) and institutional. It has a public elementary school and a secondary school. Topographically, the locale has upland, lowland, coastal and riverside communities.⁴ Barangay 47-Arimbay, as determined by the 2020 Census had a population of 4,004. This represented 1.91% of the total population of Legazpi. Owing to its topographical make-up, Barangay Arimbay, has a diverse culture. As Legazpi City continues to grow into a highly urbanized city, development efforts has spilled over from the center of the city to communities in the north which includes Barangay Arimbay. The barangay has benefitted economically from this spill-over, particularly the community proper (Barangay 47 - Arimbay, n.d.).

2.) Features and Components of the Arabay Festival

a.) History and Background of the Arabay Festival

The Arabay Festival started as an extension project of the Performing Arts Department of the College of Arts and Letters of Bicol University in 2018. The project is a theater-based initiative aimed at stimulating interest in local culture, and eventually pave the way for the development of creative industries in the area. The project is in line with the National Development Agenda (*Philippine development plan 2023-2028, January 18, 2023*) which calls for culture-sensitive plans and programs at all levels. This reflects the view popularized by UNESCO that in the 21st century culture will be the engine for inclusive and sustainable development. The project proponents utilized developmental and participatory theater to mobilize the community of Arimbay in support of the project's objectives. A festival with street dancing was deemed a good start-up to a full blown communitywide program on culture.

The initiative for the project came from Ms. Ma. Teresa A. Ruivivar, the head of the secondary school in the community. The school was looking to provide a living laboratory for its senior high school students taking up the Humanities strand. The course requires students to go out to the community and acquire real-world experience in endeavors related to their course. This initiative is aligned with the provision in the New Education Curriculum (Republic Act 10533, 2013) which encourage teachers to contextualize, indigenize and localize instructional materials using local heritage. Knowing that the Bicol University has a performing arts department, they requested training in theater so they can come up with culture and arts program, heralded by a signature festival. The university responded by drawing up a Memorandum of Agreement with the school and the local government of Arimbay. A training design for a festival street dance theater was developed. The University tapped relevant line agencies of the government to assist them in the project.

Two major strategies were employed in accomplishing the objectives of the project: 1.) community mobilization through the use of developmental/participatory theater, and 2.) capability-building for culture-sensitive governance which included festival management.

a.1.) Community mobilization through development/participatory theater

Building a full-blown program on culture and arts for a community needs to start somewhere. In this case, a festival was the most feasible way to go.. For starter, an initial 6-day theater workshop adapting the BITAW Method (Basic Integrated Theater Arts Workshop), popularized by the Philippine Educational Theater Association (Philippine Educational Theater Association, n.d.). the methods of Viola Spolin (Backstage Staff, 2025), Rudolf Laban (University of Maryland, n.d.) and Augusto Boal (Markham, 2024), was conducted for fifty-five (55) secondary students and faculty of Arimbay High School (AHS). This select group became the core members of the cast of the festival dance theater. The theater approaches enabled the exploration of prevailing social realities in a community, while serving as vehicle for cultural expressions. The theater course made use of participatory and developmental techniques for this purpose. Participants shared experiences and insights about their community. In these sharing they identified prevailing issues, as well as their vision and aspirations for their community. These sharing provided them with narratives for their improvised storytelling which they mounted into mini-dramas. From this initial workshop, a play script was developed and mounted for public consumption during the barangay fiesta, marking the launch of the Arabay Festival. Later a choreography based on the playscript was developed for street dancing, which took place a day after the launching activity of the festival. The Arabay Festival dance has become a medium for cultural storytelling, echoing Chandanasaro's (2025) view that the intricate interplay between body movement, symbolism, and spatial dynamics are the physical embodiments of the interpretation of local cultural heritage. Edwards (2020) concurs by saying that in dance performers express messages through bodily movements. It is a continual interplay between the body, mind and environment.

To reinforce the learning in the initial workshop, another week-long refresher dance theater course was given the following year. This time, sessions on creative costume and props-making, and composition of festival music were included. This enabled a faculty participant to compose music distinct for the Arabay Festival. The trained core members later served as guide-facilitators to those intending to join the festival dance cast.

The festival has become a rallying point for the entire community. It also shows how local heritage can be harnessed for educative purposes. These are in line with the mandate of the New Basic Education Curriculum (BEC), otherwise known as the K-12 Curriculum to utilize the community as living laboratory for learners. The cultural products produced become part of the heritage of the school and the community. The Arabay project is a work in progress. It has also become an umbrella program under which other artistic and cultural activities can be added as the community grows in its capacity to grow and nurture its cultural program.

The Arabay Festival Dance

Choreography for the Arabay Dance was developed by the lead choreographer, Prof. Ian V. Bello, former faculty of the Arimbay High School, and currently faculty of the Humanities Department of Bicol University. The festival dance is based on the Arabay Play which was written by Prof. Agnes G. Lasin of the same university. She was the lead proponent of the Arabay Festival Project, and also served as overall training-workshop facilitator.

Table 1. Structure of the Arabay Festival Dance

Dance Segments	Meaning/Symbolism	Description of Basic Steps/Movements/Gestures
Pag-Harang	Asking for prayers for protection from natural disasters like volcanic eruptions, frequent typhoons, and other misfortunes; and blessings for abundant produce and good health and wellbeing.	Arms, extended upward, head/face turned upward, knee bent a little in a genuflecting or supplicatory posture to signify humility before the Divine. Arms lifted then lowered. Turning side to side.
Pag-Arabay	Communal Spirit/Bayanihan – local folks come together in conviviality to help out one another in facing whatever challenge there is, ensuring community well-being and continuity. A metaphor for the challenge faced is a bridge which represent the trek to a new settlement to start a new community.	Dancers' hands interlocked in a wave-like movements simulating crossing a bridge to get to another side to start a new settlement.
Kabuhayan	Livelihood – fishing, farming	Simulate/Depict farming and fishing activities
Pagrukyaw	Honoring/Glorifying/Thanking God and his Blessed Mother for all the graces received	Movements similar to Pagharang, but done in livelier pace accompanied by chanting and yells.

Background of the Arabay Play

The forty-five (45) minute play is entitled, ARABAY: Tulay sa Kapungawan (Nostalgia for the Past), Paghinguwa (Struggles and Toil) buda Pangaturugan (Hopes and Aspirations). Arabay is a local term evoking unity, harmony and care for one another. The short play gives a glimpse of the culture of the community going all the way back to pre-colonial times, to its present situation, as well as its hopes and aspirations. Through the long years of toil and existence of the barangay, the golden thread of oneness and communitarian spirit prevails, helping Barangay Arimbay thrive. The play incorporated Tanawan Bridge as a trope around which the events unfolded. Tanawan comes from the word Tanaw which means to view, or to take a look. According to locals, the bridge used to be made of bamboos, and the people, in crossing the bridge would often say “Arabay na kita pagbalyo sa ibong (Let us go together in going over to the other side.)” Later on the word Arabay became Arimbay. The past, present and future of the community was made to meet up and unfold by the bridge before the very eyes of the lead characters – a precocious young boy and his grandmother, who was steeped in the history and culture of the community. Also, in developing the play, the authors derived inspiration from the previous studies done on local culture by internationally recognized Bicol Historian, Dr. Danilo M. Gerona (*Albay: Winding down the historic abaca Trail, 2011*). As a scholar and researcher in three prominent university-museums in Spain, Dr. Gerona perused first-hand accounts of pre-colonial life in Bicol Region. He wrote that during the pre-Spanish period, communities situated at the hem of Mayong had the belief that the volcano was the resting place of their Anitos (spirits of dead relatives). This is very similar to early Austronesian belief that once a relative passed away, his/her spirit is placed in limbo - awaiting a time when he/she is sent back to earth to take the form of nature in order to serve as guide for the living relatives (Chua, 2025). Dr. Gerona, observed that nowhere in the manuscript he studied was there any mention of Mt. Mayon or Mt. Magayon. But there was mention of Mayong. In Dr. Gerona's study, Mayong during ancient times, was considered sacred ground that no one dared to climb it or haunt in its vicinity. It was also believed that the Mayong's restiveness was due to the struggles to be free by a strapping young warrior-hunter. The adventurous warrior was caught and imprisoned in the bowels of the volcano, by an enchantress who was guarding the place. The hunter was pursuing a wild boar, and wandered over to the forbidden area, where he was prevailed upon by the enchantress. This long forgotten tale was woven into the play but given a twist. The enchantress took a fancy to the warrior but he rejected her, thus earning her wrath. She then had him chained deep in the bosom of the mountain.

Costumes and Hand Props

Costume for the Arabay Dance consists of the colors yellow representing ripe grains in the farm; blue for the sea and fishing livelihood, and green to reflect the lush natural environment. Dancers wear kerchiefs called putong which are worn by farmers in the field. They also carry hand props like bamboo spears for fishing, baskets for gathering the rice grains, and candles indicating prayers of thanksgiving.

Arabay Dance Music

The music for the festival dance was composed by Mr. Alvin Nonsol, faculty of the Arimbay High School. Musical arrangement was done by Prof. Ramil Chavenia of the Department of Humanities of Bicol University. Arabay has a simple AB Structure with modulation on the Finale part. It has a simple melody for easy recall. Rhythmically, the music is set to a duple meter in fast to moderate tempo. Yells or chants were incorporated to add color to the mood of a happy and rhythmical celebration of Arabay festival. The music has become so associated with the community of Arimbay – that it has become iconic.

a.2.) Capability-building for culture-sensitive governance

To ensure the sustainability of the festival project, the college conducted a 2-day Culture-Sensitive Governance Training for Barangay Arimbay, which included a session on Festival Management. A total of twenty (20) participants composed of Barangay Council members, Department of Education (DepEd) faculty, and youth leaders attended. Invited resource speakers for the seminar were the Chief of the Arts Education Department of the Cultural Center of the Philippines (CCP), and a Local Government Specialist from the DILG-Albay Provincial Office.

The DILG representative tackled the salient points of culture-focused legal mandates. She provided insights on how the council can explore their fiscal capacity to provide adequate funding for the cultural project. The latter expressed pleasant surprise at what the BUCAL was able to achieve at Barangay Arimbay. She said that the college has jumpstarted the national call for a cultural resurgence at the local level. She underscored the call of the national government to utilize culture for livelihood, succinctly captured in the tagline: “May pera sa kultura” (there is money in culture). It was pointed out to the community that the resources needed for sustaining their creative programs are within their power to legislate. This is crucial to the continuous survival and growth of its culture and arts program. Culture and arts is the life blood of the creative economy. She bared that forty percent of Filipinos, based on data of the Department of Trade and Industries (DTI), are employed in the creative sector -- clearly illustrating that there is money in culture and the arts. But LGUs are still grappling with the question of where to incorporate culture and arts in their development plans. They seem to gloss over the obvious fact that they have legislative powers which they can use to enact plans and programs for converting culture into a livelihood. It’s like hitting two birds with one stone – do economics and culture and arts at the same time.”

She added that it is no longer a choice but a mandate for the local government units to have a functional culture and arts council in their locale. Their performance in this aspect will be their ticket to gaining the Good Governance Seal.

a.3.) Festival Management

Prior to the workshop on festival management, a discussion was held with the resource speaker, Mr. Ronie B. Mirabuena of the Cultural Center of the Philippines (CCP), to apprise him of the need of the stakeholders of the Arabay Festival Project, which must be addressed in the seminar. It was articulated in the discussion that Mr. Mirabuena should dwell on: 1.) the importance of having a culture-based festival; 2.) give practical tips on how to grow a festival reflective of the local culture; and 3.) provide feedback on areas for improvement for the current festival.

The resource person walked the participants through the experiences of select LGUs in the country, in creating and managing festival projects. Lessons and challenges from these experiences were highlighted to serve as inspiration for the Arimbayano community. He also pointed to the Philippine Development Philippine (PDP) as the strategic framework and legal basis for promotion of culture and arts. “One’s own culture is important because it gives a sense of identity, dignity and belonging. As a people, Filipinos love to relate to others, to nature and to God. They show this penchant for relating through festivals and merry making. But festivals should not be done out of imposition, as in the case of the school imposing such kind of activity on students, or simply out of a whimsical desire to have one, regardless of its cultural or historical moorings. In the case of Arabay Festival, the people behind it will have to determine the future directions of their festival. To do this, it is necessary to go back to the basics – the artistic vision of the festival. Having big dreams is good but the community has to start somewhere. Undertaking an inventory of cultural resources of Arimbay can generate new stories and perspectives which then can be incorporated into the festival. The name of the game is collaboration. Taking care of the newly created festival requires a show of many willing hands. Important questions or issues need to be dealt with such as: Is the Arabay Festival necessary? Has it potential for commercialization? Has it been an opportunity for education?”

The Covid Pandemic dampened and hampered the celebration of the Arabay Festival, but once normalcy returned the community went full blast in the observance of their festival. The Arabay Festival was integrated into the barangay fiesta and other activities were added. The repertoire of events and activities in the Arabay Festival of Barangay Arimbay can be categorized as;

b.1.) Religious – Novena Masses and Christening

The nine-day novena masses for the patron saint of the barangay – Mary, under the title of Lady of Salvacion – continued to be observed. Baptism of newly-born and very young infants were included. This is an occasion for expanding the family clan by adding “ninangs and ninongs” These are persons chosen by the child’s parents to serve as spiritual parents for the child.

b.2.) Cultural- Street Dance Competition, Rawit-Dawit/Tigsik, Laro ng Lahi, Arabay Play

Cultural events take the form of street dance competition based on the Arabay signature choreography. This traffic-stopping event is looked forward to as it really adds color to the celebration. Baton twirling of the school bands are part of the attraction. There are readings of indigenous Bicol poetry called rawit-dawit and tigsik. The former has rhymes but its measure can somewhat vary from line to line. The latter – the Tigsik – observes exact/uniform meter and must rhyme at the end of each line. It is Bicolanos answer to the Japanese Haiku. The cultural part also is an avenue for re-learning and enjoying the traditional games (Laro ng Lahi), which sadly are no longer played much at home. The games encourage children and adults to be physically active which good for body and brain health. Then there is the presentation of the Arabay story in dance theater form.

b.3.) Environmental – Clean and Green, Coral Viewing

Greening and making the surroundings spic and span in order to make the community live-able is part of the observance. Each block or purok in the barangay engages in a friendly competition to beautify their place. One place of interest which the barangay is proud of are the coral islands. In order to protect the corals, the Barangay Council has included coral-viewing in their festival program. This serves to make people aware of the need to protect these natural heritage.

b.4.) Sports – Basketball Tournament, Fun-Run

Sports activities consist of inter-purok basketball tournaments and the fun-run. Basketball Fun-runs are usually done early morning before the sun is up. This activity provides platform for the more sports minded populace of the barangay.

b.5.) Talent Show - Singing, Dancing

Talents show consists of singing and dancing competitions. Anyone can join simply for the fun of it, or as a way to showcase one's talents and gain more confidence in performance. This activities have served as a social leveler as residents and visitors from all walks of life could join regardless of social and economic status. What counts is pure talent and willingness to perform in public.

b.6.) Beauty Pageants – Ms. and Mr. Arabay Festival, Ms. Gay Arabay

One of the usual crowd-drawers and highlights of the celebration are the beauty pageants. The former is open to ladies and the latter for members of the LGBTQ community. Participants are expected to be well-versed in the culture of their community, and demonstrate appreciation for it. The pageant usually has a portion where participants must wear attire made out of found materials or indigenous materials. This opens up an avenue for those with talents in fashion design to showcase their talents. Lately, the pageant organizers have allowed the participation of outsiders as a way to promote the festival.

b.7.) Socials - community dances for the senior citizens, youth, and the general population

Social dancing for different sectors of the community take place during the festivities which could last a week. These activities enable the residents to come together in mutual conviviality, which contributes to the strengthening of community solidarity.

c.) Legal Bases for the Creation of the Arabay Festival

Issuances such as those listed below provided the legal framework for the creation of the Arabay Festival of ArimBay, Legazpi City.

1. Republic Act 7356 – The Establishment of the National Commission for Culture and the Arts - Sections 4, is about creating and distributing cultural opportunities especially to the marginalized sectors of the society; tasked the Commission with the development of the vast potentials of Filipinos as responsible catalyst of change in society, and ensuring the freedom and creativity of the human spirit. Section 5, states that the Filipino national culture shall be evolved and developed by the people themselves in a climate of freedom and responsibility.; and Section 6, provides for the creation, promotion and dissemination of artistic and cultural products to the greatest number of people (Republic Act No. 7356, 1992)
2. Republic Act 11961 - The Cultural Mapping Law. Mandates Local Government Units to undertake cultural mapping and enhanced cultural education in their locality as a way to conserve and protect Philippine cultural Heritage. The republic act amended R.A. 10066 otherwise known as the National Heritage Law of 2009 (Republic Act No. 11961, 2023).
3. Memorandum Circular 3017-133 of the DILG enjoins Local Government Units to put in place a functional local culture and arts council in their respective cities and municipalities (Memorandum Circular No. 2017-133).
4. Republic Act 10533 New Basic Education Curriculum – Otherwise known as the K-12 Curriculum. In section 5 of the law, there is provision for the contextualization, localization and indigenization of instructional materials through integration of local heritage, in order to make learning effective and meaningful for the learners (Republic Act 10533, 2013).
5. The National Development Agenda of 2022-2028 recognizes culture as one of the important pillars of sustainable and inclusive development. Culture is a national asset (*Philippine development plan 2023-2028*).
6. Republic Act 11292 Seal of Good Local Governance is an institutionalized recognition for local government units (LGUs) in the Philippines with the aim to promote good governance and encourage continuous improvement in various areas. Tourism, Heritage and Culture and Arts is one area that the LGU is expected to perform well (Government of the Republic of the Philippines, 2019).
7. The UNESCO – Development to be sustainable must be informed and harmonious with local culture (UNESCO, 2020).

d.) Persons and Institutions Involved

The partnership and collaboration of the following agencies/institutions were crucial in the creation of the Arabay Festival. These entities may be considered the gatekeepers of the festival project.

1. The Bicol University College of Arts and Letters (BUCAL) was the lead proponent and implementer of the project. The

college acted on the request of the principal (Ms. Ma. Teresa Ruivivar) of Arimbay High School to help them create a festival which shall serve as a community laboratory for students under the Humanities course of the Senior High School. Right away, the college tapped the Department of Performing Arts and the Humanities Department to render the needed extension services to the high school. The Performing Arts faculty designed a course package consisting of a Theater Workshop and a Culture-Based Local Governance Training-Seminar. The Faculty of Humanities Department provided training in festival music composition, and in costume and props making.

2. The Arimbay High School at the onset of the project was implementing the New Education Curriculum which was cognizant of the role of culture in teaching and learning. Section five of the republic act 10533, challenges teachers to indigenize, localize and contextualize their instructional materials using local heritage. The school deemed that a festival woven out of local narratives may be a good way to encourage faculty and students to be aware and appreciative of their heritage. The school fielded students and faculty to assist in the formation of the core group of the Arabay Festival Dance Theater. The official music for the festival dance was composed by a faculty of the school.
3. The Barangay Council of Arimbay provided necessary support, material and in kind, for preparatory activities leading to the creation of the festival until the launch, and subsequent annual observances.
4. The National Commission for Culture and the Arts was tapped by BUCAL to send a resource person from the Cultural Center of the Philippines to provide assistance and insights into how the fledgling festival can be management and grown sustainably. The Commission provided funds for the honoraria and plane ticket of the resource person.
5. The Cultural Center of the Philippines, represented by Mr. Ronnie Mirabuena, provided practical insights and know-how on managing a festival.
6. The Department of Interiors and Local Government was the agency responsible for mobilizing the Local Government Units (LGUs) in the entire country to form functional culture and arts councils in their respective locales. It provided encouragement for the creation of the Arabay Festival. It challenged the community to think of placing the festival on the world map, and to think of ways economic revenues may be generated from it.

3.) Training Design and Approaches

The theater module made use of improvisational and participatory approaches in the building of community theater like the Basic Integrated Theater Arts Workshop (BITAW) developed by the Philippine Educational Theater Association (PETA). The module is community-based and utilizes participatory theater techniques. It incorporates insights from Viola Spolin, Rudolf Laban and Augusto Boal. BITAW provides an avenue for understanding artistic expression through an approach that blends creative drama, movement, sound, writing, and visual arts. (Philippine Educational Theater Association, n.d.)

Viola Spolin is considered the mother of improvisations. At the heart of her pedagogy is spontaneity. She changed the craft of acting by encouraging actors to connect with their spontaneous impulses, and to respond from their subconscious rather than their intellect, releasing childlike creativity (Backstage Staff, 2025). The output of the training-workshops unleashed the creative imagination and artistry of the participants enabling them to contribute much to the creation of the Arabay Festival.

Rudolf Laban's (Edwards, et.al., 2020)) revolutionary ideas bridged the gap between the performing arts and science. For him, movement is expressive, transformative, organic, and 3-dimensional. His theory and method revolved around 3 basic elements common to all movements and dances. These are Efforts, Shape and Space. According to Laban there is an inner impulse that supports movement, which become evident through man's organization of Space and the qualities of the movement, called Effort. Combination of these elements can be used for creating narratives for the theater such as what was done in the Arabay Festival Street Dance.

Image Theatre is a technique developed in theater by Augusto Boal. It is a tool for helping participants to embrace a practice of seeing and knowing things in different ways. It allows for more expressivity among participants through learning experiences that are playful in various contexts. Audiences are transformed into active participants ("spect-actors") who can identify and address oppression in their lives and offer possible solutions to the problem situation (Markham, 2024).

The theater course developed for the Arabay made use of techniques such as improvisation, creative movements and choreography, creative drama and storytelling, group dynamics, festival music development, props and costume-making. The training started with an opening program where the rationale and objectives of the training, including the overview of project were laid out. This was followed by the main workshops. At the onset, the participants played games and did group dynamics to dispel their inhibitions and warm them up to the succeeding activities. Since the participants were the core cast members of the Arabay Festival Theater, it was important that they develop camaraderie, so they underwent team-building sessions. In the succeeding workshops participants explored movements, themes and symbols which they can use for creating narratives. From simple movements, they went on to more complex ones. Mini showcases were mounted. In crafting the storyline for the Arabay, a collaborative approach was employed. To start off, participants were asked about their sense perceptions of their barangay, and the events happening there as a way to stimulate their imagination and gut feel about their community. As an example, they were asked questions like, "What color do you associate your community with? Give explanation." Participants candidly and eagerly shared experiences and insights about their community. Facilitators took notes of the sharing, highlighting issues prevailing in the community that were elicited in the creative storytelling. In addition, participants were asked to share their vision and aspirations for their community. Out of the sharing, they improvised storylines and mounted mini-dramas using movements and dialogues, blockings, improvised sounds and music. These provided material for the play script entitled, *ARABAY: Tulay sa Kapungawan (Nostalgia for the Past)*, *Pagbinguwa (Struggles and Toil)* buda *Pangaturugan (Hopes and Aspirations)*. The play was mounted for the public,

marking the launch of the festival. The Arabay story was also translated to street dance theater. Workshop on developing moving choreography was conducted to the tune of the Arabay music. The music was the output of a session on festival music composition conducted for the participants. As a result of the workshop, a faculty participant was able to compose the music distinct to the Arabay Festival. To round out the entire theater workshops, a session on costume and props making was added, in order to help the participants create fitting design for their costumes and other festival paraphernalia. Participants rated the training experience and the facilitators excellent. They expressed gladness that they were part of the making of the festival.

4. CONCLUSION

The study reveals the following findings:

1. The socio-demographic profile of Barangay Arimbay, Legazpi City.

The community of Arimbay is culturally diverse. It's proximity to the city has benefitted its economy.

2. The features and components of the Arabay Festival in terms of :

- a. History and Background

The festival project came about in response to the need of a local school for the establishment of the festival project to cap off their yearly culture and arts celebration in light of the directive emanating from the K_12 Curriculum for an indigenized, localized and contextualized instruction. The project implementation is in line with national legal mandates which view culture as important pillar of community development. Several line agencies collaborated to birth the project. The festival is grounded in local history and culture of the community.

- b. Activities and Objectives. The festival since its inception has expanded and offers activities which cater to different interest groups within the community encouraging participation from various sectors.
- c. Legal Mandates. the festival's existence and relevance is covered by several strong mandates on culture and arts.
- d. Persons and Agencies Involved. participation and commitment of a number of line agencies of government and the resources they invested in the project was crucial to its success and continuing existence

3. The training design and approaches that were adapted for the festival theater play.

The training design incorporated methodologies and approaches that are participative, improvisational and developmental. This enabled the participants to discover narratives about their community which they used as bases for their creative storytelling.

RECOMMENDATION

1. Profile of Barangay Arimbay – The barangay is one of the fast-growing barangays in the city not only in terms of population, but more so in terms of economic development. It has diverse cultural qualities. This has ramifications for the socio-cultural aspects of the community. The community can grow its signature festival and have it included as one of the significant events in the city's calendar of festivities.
2. Features and Components of the Arabay Festival
 - a) History and Background

The Arabay Festival is based on the culture and history of Barangay Arimbay. It was created out of the desire of the community to have a signature festival. It is aligned with landmark laws on utilization of local heritage as foundation for sustainable development. Several agencies and institutions helped in bringing the project to fruition.
 - b) Activities and Objectives
 - a. There are varied activities covered by the festivals which entail communitywide participation. These contributed to making the celebration vibrant. However, there is no indication of the contribution of the festival to the local economy. This aspect can be the focus of another study. Capitalizing on the festival to boost local economy should be the next step to be taken by the community. In this way, it can be demonstrated that culture and arts are viable capital for livelihood.

- c) Legal Mandates
 - a. The festival project stands on solid legal grounds. It would be best to explore the nuances and provisions of these enabling laws and harness them fully, for long-term cultural and economic impact in the community.
 - d) Persons and Agencies Involved
 - a. The creation and implementation of the Arabay Festival involved not only the local community and the local school, but engaged the expertise and resources of several line agencies of the government. Significant stakeholders or gatekeepers are essential to sustaining the spirit and intent of the community event.
3. Training Design and Approaches
- The training approaches were community-based and encouraged active participation and inputs from the participants. This approach gave the participants a sense of ownership of the festival right at the birthing of the community cultural event. It was also designed to capacitate the local community to manage their own event sustainably. The training design used in the creation of the festival can be used as template for those attempting a similar community project

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Research Article

Digital Inclusion in Agriculture: Profiling the Factors Influencing Social Commerce Adoption among Farm Cooperatives

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ABSTRACT

Social commerce (SC) enables direct product sales and purchases and expands vendors' market reach. From the current literature, although SC adoption has been extensively studied, still few studies examine its adoption in relation to digital inclusion issues. Therefore, this research investigates digital inclusion in agriculture, focusing on the factors influencing SC adoption among farm cooperatives. Employing a mixed-methods approach, 52 farm cooperatives across the Bicol Region, Philippines were surveyed and interviewed to address three key research objectives. Firstly, key SC adoption factors were identified and examined. Results show that digital literacy, perceived usefulness, and organizational readiness facilitate adoption. Secondly, digital inclusion challenges faced by farm cooperatives were explored, highlighting issues such as limited internet connectivity, and scarce digital resources. Lastly, the role of technological infrastructure and digital resources was assessed. Access to reliable internet connectivity and digital resources emerged as crucial facilitators, while inadequate infrastructure posed significant barriers. Furthermore, the study provides valuable insights into the roles of digital literacy, perceived usefulness, and organizational readiness. These findings highlight the importance of equipping farm cooperatives with the necessary skills and understanding to leverage digital tools effectively.

Keywords: digital inclusion, social commerce, social commerce adoption, digital divide

1. INTRODUCTION

Agriculture is a significant contributor to the economic advancement of developing nations (FAO, 2017b), since it aids in reducing poverty, increasing income, and improving food security (World Bank, 2023). However, the agricultural sector continues in facing notable challenges such as meager farm revenues, restricted rural job prospects, inadequate food safety, and reduced agricultural competitiveness resulting from limited market connections (Sumalde & Quillooy, 2015). Additionally, exploitative traders or intermediaries who impose suggested retail prices further compound these challenges (Piabuo et al., 2020). Intermediaries exert significant control over the agricultural market in numerous developing countries, thereby dominating the supply chain (Acosta et al., 2019). Following the harvest, farmers often find themselves with limited choices and are compelled to sell their crops directly to intermediaries on their own farms, receiving significantly lower prices compared to the market (Giles et al., 2019). The complex network of intermediaries in the supply chain causes delays, resulting in increased pricing for both farmers and consumers. Consequently, both producers and consumers incur economic losses (Moreno et al., 2020).

With widespread Internet and electronic device use, commercial activities such as e-commerce, the buying and selling of products and services, are executed electronically. E-commerce is a popular method of value exchange with various payment alternatives, increasing business competition and sales (Wahyuni et al., 2020). Farmers in developing nations have embraced e-commerce for rural economic growth (Couture et al., 2021) allowing farmers to participate in the local, national, and international economies (World Bank, 2016). Consumers and farmers in developing nations, through e-commerce, may gain benefits from reduced price dispersion, and less wastage of agricultural products (Liu et al., 2021).

With the progress and widespread use of Internet-based apps developed on Web 2.0, namely social media, e-commerce activities are merged with these platforms such as Facebook and Instagram. This approach allows consumers to directly comment on product pages (Huang et al., 2018), promotes online business models (Lin & Lo, 2016), and affects trust, engagement, and loyalty (Dzulfikar et al., 2019). This emerging approach of e-commerce known as social commerce (SC) uses social media to

facilitate electronic activities and transactions in online markets and communities. SC allows people to generate and share content and expands vendors' market reach by integrating consumers' social networks (Hajli, 2015). It allows people to sell and acquire products without intermediaries, which is popular in developing nations (Camacho & Barrios, 2022).

Farm Cooperatives

Cooperatives are widely prevalent in several countries, encompassing a wide range of industries such as agriculture, food production, finance, healthcare, marketing, insurance, and credit services (ILO, 2016). A cooperative is a self-governing organization formed by individuals who come together voluntarily to fulfil their shared economic, social, and cultural objectives and goals through a collectively owned and democratically managed firm. It is a type of business organization that uses its guiding principles to pursue initiatives aimed at promoting both broad and specific sustainability goals (Verhofstadt & Maertens, 2015). It possesses inherent benefits in tackling the difficulties related to reducing poverty, ensuring food security, and generating employment (Pérez-González & Valiente-Palma, 2021). Traditional cooperatives involved community members pooling their financial resources through an association of people with common goals to mobilize resources, particularly financial ones, and distribute them among members (Masuku et al., 2016). Similarly, economic democracy and marginalized community empowerment are essential to sustainable development and collective accountability (Innocent & Adefila, 2014).

Moreover, cooperatives are the main institutional and organizational instrument for independent farmers to compete with local and worldwide retailers. Farm cooperative has been a key component of the social economy (Kalogiannidis, 2020). Similarly, smallholder farmers can benefit from institutions that help them overcome hurdles and improve their collective bargaining power. Agricultural cooperatives can also help farmers overcome market inefficiencies and increase production and market access. Cooperatives also help allocate agricultural credit to producers and laborers, supply agricultural inputs like seeds, fertilizers, and agrochemicals, organize storage, marketing, and processing of agricultural produce, secure raw materials for industries, and provide technical guidance like technology introduction to farmers, all while promoting social and economic welfare. Thus, donors, governments, and researchers are refocusing on cooperative farmer organizations to institutionalize smallholder agricultural performance, particularly market involvement.

In addition, agricultural cooperatives play a crucial role in agro-food systems, enabling farmers to collaborate, make collective decisions, and expand market connections, resulting in economies of scale that individual farmers cannot achieve (Abate, 2018). These organizations can also help small-scale farmers negotiate for inputs, transportation, and market information. Since cooperative commercial operations influence them, farmers can actively participate in and benefit from established value chains (Feng et al., 2016).

Use of Digital Technology in Agriculture

Information and Communication Technologies (ICTs) have great potential to be a beneficial instrument for boosting the development of rural areas, especially in the areas of online commerce, digital healthcare, and agriculture (FAO, 2017a). ICTs also improve rural people's consumption options and agricultural productivity, promoting sustainable rural and agricultural development. It also helps farmers get finance, reducing their poverty risk, and promote e-commerce platforms, which boost rural economies (Ma et al., 2023).

This generation is experiencing a huge transition toward digitalization, or the use of digital technologies in agriculture. The UN Global Compact (UN Global Compact, 2017) defines 'digital agriculture' as the integration of new and advanced technology into one system to increase food production for farmers and stakeholders in the agriculture value chain. Its main goal is to improve farming practices' profitability and sustainability, support global food systems, and achieve sustainable agriculture development to ensure the production of safe, nutritious, and affordable food for all. Digital agriculture can boost agricultural productivity, lower prices, and open new markets, as well as increase communication and inclusivity (Rashida, 2020).

In addition, the Internet has also changed agriculture's marketing, distribution, and consumer value chain (ADB, 2018). Digitalization in agriculture involves integrating digital technologies into production, supply chains, and financial access. Similarly, digital technologies can reduce waste and costs in supply chains, improve relationships between farmers, institutional buyers, and consumers, and increase connectedness in the agri-food system (Labios et al., 2021). To address information asymmetry in food chains, digital technologies can improve collaboration and supply chain management by decentralizing information (Abideen et al., 2021).

Additionally, there is a growing need for support to educate farmers about the use and benefits of e-commerce in agriculture and to help them acquire information about online sales and marketing, including selecting the best online technologies for their business needs and guiding their effective use. Cultural attitudes and practices must be adjusted to help farmers switch to online sales using computers or mobile phones. However, rural farmers' low literacy, limited financial resources, and limited

infrastructure, networks, and technology, combined with the need to quickly adapt to digital technology, present a significant challenge (OECD, 2023).

Farmers may be unable to participate in the market if they lack reliable and affordable broadband internet access at their farms and homes (Pesci et al., 2023). Farmers in small-scale agricultural operations not only need mobile networks and devices, but also pay for data services (Mehrabi et al., 2021). Farmers face a digital divide due to restricted access to energy, inadequate ICT infrastructure, and low ICT knowledge (Upadhyaya et al., 2019; Moni, 2017). Poor ICT penetration may also put countries behind and hinder them from receiving the economic and social benefits of ICT deployment, which could widen the economic gap between rich and poor (UNESCAP, 2021).

Digital Divide in the Information Era

The digital divide is a major social and economic issue in the 21st century (Rogers, 2016). The US government coined the term “digital divide” in the 1990s to characterize socio-economic inequities caused by widespread computer and internet use (Lupač, 2018). It refers to the gap between those who can access, accept, and apply new technology and others who cannot, despite the rapid pace of technological innovation.

This inequality can widen, creating the digital divide (Soomro et al., 2020; Ojo & Raman, 2017). Global economic inequality underpins the digital gap (Kumm et al., 2021; Guo & Wan, 2022). Similarly, poverty and the digital divide are linked by limited access to ICTs, hindering development due to factors such as race, income, location, and demographics (Schneider & Droege, 2014). It encompasses not only physical access to computers and the Internet, but also the skills needed to utilize them effectively and user behaviors (Correa et al., 2020).

Digital inequality in various regions is a major concern for sustainable development in developing nations (UNDP, 2023). Lack of access to technology, excitement or incentive to utilize technology, and poor literacy rates may produce the digital divide. The cost of technology, lack of broadband internet, poor access for individuals with impairments, and poor-performing gadgets all contribute to a lack of technological access. Digital gap is now recognized as a social issue that includes social, economic, cultural, and educational inequality (Van Dijk, 2020). For instance, information literacy education will help prevent society from becoming split between those with and without access to information. Additionally, lack of computer and communication technology skills prevents people from accessing digital information (Ha & Chuah, 2023; Aminullah et al., 2022).

Van Dijk and Hacker (2003) argue that the digital divide is complex and dynamic, with no single factor (e.g. gender, age, race, education, income, or geographic location) fully explaining the first order (physical access) gap. Digital inequality increases earlier exclusion by excluding people on multiple dimensions (Tongia et al., 2005). Low income levels and financial constraints, inadequate or costly access to electricity and communication networks, limited digital literacy, insufficient technical support, limited availability of high-quality ICT content, and inadequate education can all contribute to uneven community digitalization (Deineko et al., 2022).

Digital gaps in knowledge, economic and social resources, technology performance and dependability, and value realization have been highlighted by scholars. Furthermore, digitalization requires large financial investments and infrastructure development, especially in rural and underdeveloped areas, making socio-economic disparities relevant (Zhang et al., 2022). Low- and middle-income populations find digital technology scarce. This is due to high expenses and a lack of infrastructure for these technologies.

Additionally, these villages struggle with inconsistent electricity and insufficient ICT resources. The digital gap in rural areas is caused by a variety of injustices, including limited access to education and training, which limits their lifetime computer usage (Van Deursen & Van Dijk, 2014; Facer & Selwyn, 2021). As value chains and transactions become more digital, rural stakeholders may face exclusion and disenfranchisement from crucial information (Tilley et al., 2022). Rural residents face isolation, limited training and employment options, and poor telecommunications infrastructure due to their distance from large cities and low population density (Jung et al., 2014). Thus, limiting ICT use negatively impacts rural economies, societies, health, and communities (Palvia et al., 2018). These digital gaps keep rural communities behind urban ones despite their abundant natural resources (Koo & Easley, 2021). Disparities, affecting all genders and ages, hinder rural community development (Van Dijk, 2017), and the COVID-19 pandemic has exacerbated the digital divide, resulting in greater dispersion of Internet and technology access (Ahmmed et al., 2022).

Existing literature indicates that numerous studies have focused on investigating SC from the buyers' point of view, but there has been limited research undertaken on examining this phenomenon from the sellers' viewpoints (Braojos et al., 2019; Chen et al., 2021; Chen & Zhu, 2021). In addition, while most research studies have concentrated on commercial corporations, particularly big and medium-sized enterprises, there is still a scarcity of studies that specifically target smaller enterprises such as non-profit organizations, cooperatives, and associations (Abed, 2020; Chang & Li, 2019; Dwivedi et al., 2021). Furthermore, there

have been just a few studies that have investigated the extent to which SC is being adopted in the agricultural sector, specifically in the context of the Philippines. Therefore, this research aims to: (1) to identify and analyze the primary factors influencing the adoption of SC among farm cooperatives; (2) to explore the digital inclusion challenges faced by farm cooperatives and their impact on SC adoption; and (3) to assess the role of technological infrastructure and digital resources in enabling or hindering SC adoption within farm cooperatives. In order to address the objectives, a mixed-methods approach will be employed.

2. MATERIALS AND METHODS

This study utilizes a comprehensive methodology to examine the digital inclusion landscape in agriculture, with a specific focus on the factors that affect the adoption of SC among farm cooperatives. In order to fully understand the complex interactions involved, a mixed-methods approach was utilized, incorporating both qualitative and quantitative methodologies. The population being examined consists of agricultural farm cooperatives that are actively engaged in agricultural activities.

Sources of Data

The research focus on 52 farm cooperatives across the Bicol Region in the Philippines that are involved in agricultural activities. The study used a convenience selection method to guarantee inclusion of diverse geographic locations and differing degrees of digital infrastructure.

Data Collection

In-depth interviews of key stakeholders, including farmers and cooperative managers were interviewed to gather rich, context-specific insights into the factors influencing SC adoption. Open-ended questions were used to encourage participants to share their experiences, perceptions, and challenges related to digital inclusion in agriculture. A structured questionnaire was administered to a larger sample of farm cooperatives. The survey was designed to quantify the extent of SC adoption and measure various factors influencing this adoption, including digital literacy, perceived benefits, perceived risks, and external support.

Data Analysis and Synthesis

The quantitative data obtained were evaluated using descriptive statistics. For the qualitative data analysis, thematic analysis was conducted to discover repeating patterns and storylines, providing insights into the contextual intricacies of the adoption of SC.

Ethical Considerations

During the process of gathering the data, informed consent was sought from all participants with clear and comprehensive information regarding the study's purpose, procedures, and potential implications. Confidentiality and privacy safeguards were implemented to protect the identities and personal information of participants. The outcomes and conclusions of this research study were anonymized, and no associations of the respondents, such as their names, were included in any of the findings or results.

3. RESULTS AND DISCUSSIONS

The research findings reveal the current level of acceptance of SC among farm cooperatives in Bicol Region, showing a diverse landscape with different levels of involvement. Figure 1 illustrates that thirteen (13) farm cooperatives have adopted SC utilizing Facebook through the use of smart phones. Thirty four (34) farm cooperatives did not adopt which may be attributed to reasons including restricted digital literacy, unstable internet connectivity, and resource constraints that lead to their unwillingness. And, five (5) farm cooperatives initially engaged in SC but later withdrew due to various reasons. The discontinuation of SC initiatives indicates the challenges of managing online operations, and poor signal strength inside the cooperative. In fact, merely starting SC initiatives may not be enough but rather, ongoing support and resources are essential for their long-term sustainability.

Moreover, transitioning to SC can be particularly challenging for many farmer cooperatives accustomed to traditional sales methods. The majority of these cooperatives, with 50 out of 52 situated in rural locations as depicted in Figure 2, face unique hurdles in adapting to digital marketing practices. In rural areas, access to technology and internet connectivity are limited, exacerbating the difficulties of embracing SC.

Additionally, the lack of familiarity with digital platforms and marketing techniques among cooperative members further complicates the transition process. Furthermore, rural cooperatives often operate within tight-knit communities where face-to-face interactions and word-of-mouth marketing have been the primary means of conducting business. Shifting to an online model requires not only technological adaptation but also a fundamental shift in marketing strategies and customer engagement approaches. Moreover, rural areas lack the necessary infrastructure and support systems to facilitate the adoption of SC, such as reliable delivery services and e-payment options. These challenges can deter cooperatives from fully embracing SC, despite recognizing its potential benefits. Overall, the rural context presents unique challenges for farmer cooperatives seeking to engage in SC, necessitating tailored strategies and support mechanisms to facilitate their digital transition effectively.

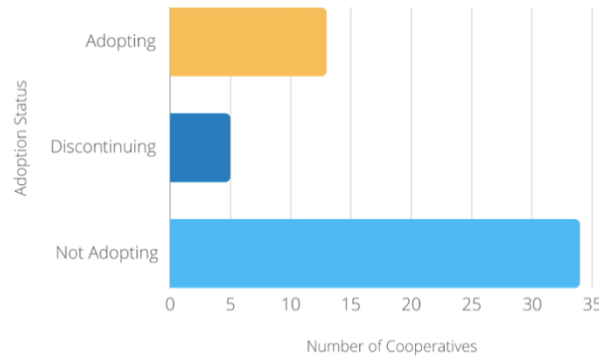


Figure 1: Adoption Status of Social Commerce among Bicol Farm Cooperatives

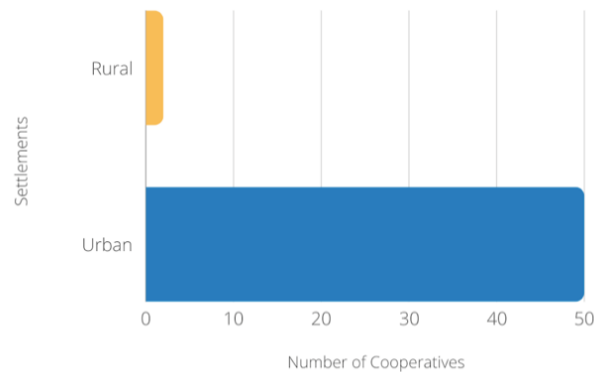


Figure 2: Distribution of Farm Cooperatives in Urban and Rural Areas

Primary factors influencing the adoption of social commerce among farm cooperatives

The amount of digital literacy among cooperative members was a crucial element. Findings from the survey and interviews indicated that cooperatives with greater digital literacy among their members were more inclined to successfully implement SC platforms. Moreover, the presence of training and support for utilizing digital tools significantly aided in the adoption process. Secondly, the importance and convenience of SC platforms were identified as critical elements. Cooperatives that viewed SC platforms as advantageous for their business operations and user-friendly were more likely to implement them. Important concerns included user-friendly interfaces, accessibility, and compatibility with existing workflows. Additionally, adoption was influenced by organizational characteristics inside the cooperatives. This encompassed management backing for digital projects, a corporate culture that fosters innovation, and the existence of specialized staff or committees in charge of overseeing digital platforms. Cooperatives with proactive leadership and a supportive culture were more inclined to adopt SC.

Furthermore, agricultural products are perishable, which hinders their ability to effectively utilize social media platforms. Farmers may hesitate to implement online selling if they see an increase in complexity or risk in providing commodities within a tight timeframe. In fact, some cooperatives do not realize the advantages of digital platforms, which results in a lack of willingness to consider other options. In addition, insufficient productivity poses a significant hindrance for farmer cooperatives to fully embrace SC. Due to limited output, these cooperatives primarily serve local communities and existing markets, constraining their ability to expand their customer base. Consequently, when confronted with potential online orders, they may struggle to fulfill demand due to a lack of supplies. This limitation stems from various factors, including resource constraints, labor shortages, and inefficiencies in production processes. Without sufficient productivity to meet online demand, farmer cooperatives risk losing out on opportunities for growth and market expansion. Therefore, addressing productivity challenges through improved agricultural practices, enhanced supply chain management, and investments in technology and infrastructure is essential for enabling farmer cooperatives to capitalize on the benefits of social commerce and reach a broader customer base.

Digital inclusion challenges faced by farm cooperatives and its impact on social commerce adoption

The research study uncovered various digital inclusion obstacles encountered by farm cooperatives, affecting their uptake of SC. A major obstacle was the limited availability of dependable internet connection, especially in rural areas where several

cooperatives are situated. Inadequate infrastructure and restricted internet coverage impeded cooperative members' capacity to participate in online activities efficiently. In addition, farm cooperatives face challenges in digital inclusion due to scarce resources, hindering their ability to embrace SC, and engage in online markets and utilize digital platforms for business expansion. Also, financial limitations hindered investment in digital technology, and training programs.

Several cooperatives faced challenges in covering the early expenses related to establishing and sustaining SC. Also, confidence in the security of online agricultural transactions does significantly affect cooperatives' interest in adoption. Moreover, the study shed light on key elements influencing the integration of farmer cooperatives into SC. One notable factor is the significant challenge faced by elderly members due to their inadequate digital literacy when attempting to navigate online platforms effectively. Figure 3 illustrates that the majority of cooperative members are elderly, further exacerbating the digital literacy gap within these organizations.

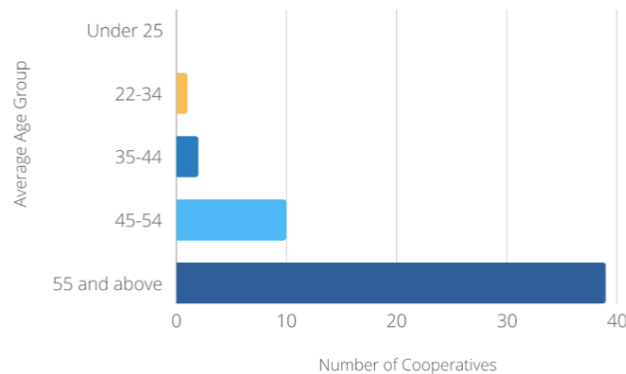


Figure 3: Average Age Group of Members

The reluctance of younger generations to engage in farming exacerbates this issue. As depicted in the findings, many younger individuals express a preference for white-collar professions over agricultural endeavors. Consequently, there is a lack of interest among the youth in participating in cooperative activities, including adopting digital technologies for marketing and sales purposes.

Furthermore, the gap between older individuals and technological advancements widens, leading to their isolation as they persist in relying on traditional marketing methods while the rest of the world progresses with technology. This isolation exacerbates the challenges faced by farmer cooperatives, as they struggle to effectively engage in SC activities without sufficient skills and knowledge among their members. Without embracing technological innovations, farmer cooperatives risk falling behind competitors who leverage social commerce to reach wider audiences and streamline their operations. In addition, the isolation of older individuals within cooperatives can lead to a loss of valuable knowledge and experience, further undermining the cooperative's capacity to innovate and adapt to changing market dynamics. The collective wisdom accumulated over years of farming experience may remain untapped, hindering the cooperative's ability to capitalize on emerging opportunities and navigate challenges effectively. This intergenerational divide presents a formidable barrier to the successful integration of farmer cooperatives into SC. Moreover, the disparity in digital skills between generations not only hinders the adoption of SC but also limits knowledge transfer and capacity building within cooperatives. To address these issues, targeted interventions are needed to empower older individuals within farmer cooperatives with the skills and knowledge necessary to participate in social-commerce activities. This may involve providing training and support tailored to their needs, fostering intergenerational collaboration, and promoting a culture of continuous learning and adaptation within the cooperative community. By bridging the digital divide and harnessing the collective expertise of all members, farmer cooperatives can position themselves for sustainable growth and success in the digital age.

Role of technological infrastructure and digital resources in enabling or hindering social commerce adoption within farm cooperatives

Technological infrastructure and digital resources were crucial in either supporting or hindering the implementation of SC inside farm cooperatives. Cooperatives with strong technological infrastructure, such as high-speed internet and dependable hardware, were more prepared to implement SC. Moreover, the presence of digital resources including online marketplaces, e-payment systems, and social media platforms played a role in the adoption. Cooperatives with access to a variety of digital resources customized to their unique requirements were more effective in incorporating SC into their activities. Insufficient technological infrastructure and restricted access to digital resources were substantial obstacles to implementation. In addition, cooperatives without necessary infrastructure and resources had challenges entering the digital marketplace, which limited their competitiveness and growth prospects.

Despite their diverse stances on SC, the cooperatives unanimously acknowledge the critical importance of several key factors in navigating the digital landscape effectively. Firstly, there is a shared recognition among farmer cooperatives of the necessity to enhance their members' knowledge and skills in digital technologies. This includes understanding how to utilize online

platforms for marketing, sales, and communication purposes, as well as staying updated on emerging digital trends and tools relevant to their agricultural activities. Access to the internet and digital technologies is another universally acknowledged priority. Farmer cooperatives recognize the transformative potential of digital connectivity in accessing markets, gathering information, and facilitating communication both within the cooperative and with external stakeholders. In addition, formal training in digital skills and marketing strategies is identified as essential for empowering cooperative members to navigate the complexities of the digital marketplace confidently. By equipping members with the necessary knowledge and competencies, cooperatives can enhance their capacity to leverage digital platforms effectively and adapt to evolving consumer preferences.

Moreover, the active utilization of digital devices such as smartphones, laptops, and computers is highlighted as crucial for applying acquired knowledge and skills in practical contexts. These devices serve as indispensable tools for accessing online resources, managing digital assets, and engaging with customers and partners in the digital sphere. By prioritizing these foundational elements, cooperatives can position themselves for success in the digital economy and contribute to the sustainable development of agricultural communities.

Furthermore, cultural considerations contributed to digital exclusion, especially among marginalized members in these cooperatives. In addition, government policies and activities are crucial in promoting the adoption of SC among agricultural cooperatives. Governments can support these cooperatives in implementing digital transformation by investing in infrastructure, providing skills training, and offering financial assistance programs.

Ultimately, the decision of Bicol farmers' cooperatives to implement SC is influenced by a complex interplay of interconnected elements. Despite facing ongoing hurdles such as inadequate digital literacy and intermittent internet connectivity, targeted interventions have the potential to support these cooperatives in their digital advancement journey. One key aspect that can significantly impact the adoption of SC is digital inclusion. By addressing the digital literacy gap and providing tailored training programs, cooperatives can empower their members to navigate digital platforms effectively and capitalize on the opportunities presented by SC. Additionally, efforts to improve access to reliable internet connectivity in rural areas can mitigate one of the primary barriers to SC adoption, enabling cooperatives to engage more seamlessly in online commerce activities. Also, stakeholders play a crucial role in promoting greater adoption of SC among farmer cooperatives in the region. By collaborating with local authorities, educational institutions, and non-profit organizations, stakeholders can facilitate initiatives aimed at enhancing digital inclusion and bridging the digital divide. This may involve organizing workshops, providing educational resources, and establishing community-based support networks to assist cooperatives in their digital journey. Furthermore, enhancing access to technology infrastructure and resources is essential for unlocking the full potential of SC for farmer cooperatives in Bicol. This includes investing in the development of digital marketplaces tailored to the needs of agricultural producers, facilitating access to e-payment solutions, and promoting the adoption of digital tools and technologies that streamline agricultural processes and enhance market visibility.

4. CONCLUSION

This study involved a thorough examination of digital inclusion in agriculture, specifically looking at the factors that affect the adoption of SC by farm cooperatives. A mixed-methods approach was used to achieve three main research goals: identifying core factors influencing adoption, investigating problems related to digital inclusion, and evaluating the impact of technological infrastructure and digital resources.

The main elements affecting the adoption of SC in farm cooperatives highlighted the significant roles of digital literacy, perceived utility, and organizational readiness. Cooperatives with advanced digital literacy among members and supportive organizational structures were more likely to effectively adopt SC platforms.

This research study discovered other digital inclusion challenges encountered by farm cooperatives, such as limited internet access, and budgetary limitations. The challenges impeded the adoption of SC and limited cooperatives' participation in the digital economy, affecting their competitiveness and growth prospects.

Finally, the evaluation of the impact of technological infrastructure and digital resources emphasized their importance in facilitating or impeding the development of SC. Access to dependable internet connection, as well as a variety of digital resources designed for agricultural use, was essential in promoting adoption. Inadequate infrastructure and restricted access to digital resources were key obstacles for entering the digital sector.

Ultimately, it is crucial to tackle the issues affecting SC adoption, overcome digital inclusion obstacles, and invest in technology infrastructure and digital resources to enhance digital inclusion in agriculture. Empowering agricultural cooperatives with essential tools and resources may bridge the digital divide, boost competitiveness, stimulate economic growth, and support sustainable development in rural communities. In the future, governments, stakeholders, and industry participants need to work together to create plans and projects that support digital inclusion and utilize the revolutionary capabilities of technology in agriculture.

Limitations of the Research. Although this study offers vital insights into digital inclusion in agriculture in the investigated setting, it is crucial to recognize specific constraints that could affect the application and extent of the findings. The research

findings are dependent on the particular context and may not be universally relevant to all organizational environments. The distinct attributes and corporate culture of the examined setting can impact the efficiency in a manner that differs from other settings. In addition, the data for this study is based on self-reported replies provided by farm cooperatives. Although attempts are made to provide accurate and precise answers, there is a chance of response bias or the impact of social desirability. Participants may have provided answers that were swayed by their personal prejudices, rather than offering a truthful reflection of their real actions or ideas.

Future Research Direction. There have been few studies examining disparities in technology access and usage among farmers who engage in social commerce in agriculture, based on socio-economic, cultural, and infrastructural aspects. Therefore, it is crucial to research the digital gap in social commerce in agriculture to identify challenges to adoption and explore the socio-economic consequences of unequal access to social commerce platforms. Developing strategies to address disparities can bridge the gap and promote widespread technological adoption in the agricultural sector. This can maximize the transformative potential of digital tools, assess the impacts of farmers' market opportunities and information access, enhance economic empowerment, and establish a more inclusive and sustainable digital ecosystem that advances agricultural practices and livelihoods.

Furthermore, there is a lack of study examining the determinants of individuals' intention to continue in adopting social commerce in the agriculture industry. Studying the ongoing use of social commerce is essential to provide insights into the long-term sustainability and efficacy of platforms used in the agricultural industry. Undertaking future study would enable researchers and professionals to investigate the shifting requirements and anticipations of users in the swiftly growing realm of social commerce. Future study could offer solutions to boost user engagement, overcome barriers, and encourage the ongoing adoption of technology in agricultural practices by examining user motivations, barriers, and satisfaction levels.

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Research Article

Assessing The Politico-Cultural and Socio-Economic Needs of Fisherfolks in the Province of Marinduque: A Pilot Study

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ABSTRACT

Marinduque's inhabitants rely heavily on marine resources since it is bound by four bodies of water where the north bounds the Tayabas Bay, northeast by Mongpong Pass, South-east by Tayabas Strait, and Sibuyan at the south. This research presents a pilot study aimed at comprehensively examining the intricate reciprocity between politico-cultural and socio-economic factors that influenced the well-being of fisherfolk in the province of Marinduque. Through a quantitative approach, the gathered data sets out a holistic understanding of the challenges and opportunities faced by fisherfolk, represented by the forty (40) individuals who are residents of the nearby shore. The politico-cultural aspects of this paper are rooted in the political structure and cultural dynamics shaping the lives of fisherfolk in the province, including governance system, policy frameworks, and cultural traditions that influenced their daily experiences. On one hand, the socio-economic dimension explored the economic factors affecting their livelihoods, such as market trends, resource management, and access to essential services. The needs like the provision of alternative sources of income, land ownership, and social infrastructure (safe drinking water, electricity, etc.) are fundamental, as they address these foundational necessities for the fisher folks in the province. These findings indicate that a comprehensive approach that combines economic recognition and cultural understanding is crucial for supporting artisanal and small-scale fisheries.

Keywords: politico-cultural, socio-economic needs, fisherfolks, Marinduque province

1. INTRODUCTION

Marinduque is an island province with a rich cultural heritage that continuously faces unique challenges in its fishing communities. Factors affecting the fishery sectors are rapid urbanization, environmental degradation, and changing market dynamics which add layers of complexity to the lives of fisherfolk. This study is supported on the article entitled Cultural Political Economy approach (Bryant, 1998), where the understanding of culture and politics intersects with economic processes.

In an international setting, the fishery sector faces a diverse challenge that ranges from several factors such as poverty, hunger, overfishing, climate change impacts, and geopolitical tensions which the United Nations Sustainable Development Goal 1, 2, and 17, continuously regulates, in order to sustain the needs of a more worthwhile use of marine resources. The research entitled Tragedy of the Commons (Hardin, 1968) posits a formative concept in terms of environmental and resource economics. Additionally, the Social- Ecological Systems Framework pioneered by seminal author Berkes et al., offers deep insight on the interconnectedness of the social and ecological systems. The theory provides a framework for understanding how human societies and their environmental inhabitation co-evolves. In this context of fisheries, this theory recognizes the complex relationship of movement of the fishing communities and the ecosystem they depend on, highlighting the need for adaptive and sustainable management approaches from the local government units.

In the national setting, the Philippines heavily relies on its coastal resources, which makes the socio- economic well-being of fisherfolk is integral to national development. The Philippine Fisheries Code of 1998, amended in 2015, provides the legal framework for sustainable fisheries management. However, issues arising such as illegal, unreported, and unregulated fishing persist, worsening the vulnerability of fishing communities. The Political Ecology of Fisheries (McCay, 1978) sets a framework that look into the political and social dimensions of fisheries management. Additionally, the Community-Based Resource Management theory (Pomeroy, 1995) pertains to the importance of the local community in the management of natural resources, with the help

of the local authority. The current trend in the Philippine fishing society, leans on the community-based approaches to fishery management. In which, the role of local communities in decision-making processes, recognizing their knowledge, needs and aspirations in sustainable development is found crucial in community building. The synthesis of the perspective of this study is essential to gain understanding of the political, cultural, and economic forces that influence the well-being of fisherfolk in Marinduque. Through an associative lens, this research seeks not only to assess needs but also to contribute valuable ideas for the formulation of policies by the local policy makers and interventions that can foster sustainable and equitable development in fishing communities

2. MATERIALS AND METHODS

This study is quantitative in nature. Particularly, descriptive survey design which allows respondents to discover the perspective and gauge the impacts of the municipal programs within the community. This research design could provide a comprehensive understanding of the effects of municipal programs on the socio-economic and political development of coastal barangays, which could be useful for policy and program development in the future. Distribution of survey questionnaire to forty (40) respondents was used to gather data on their perspectives, and perceptions of community members, program beneficiaries, and local officials in Barangay Balogo, Santa Cruz, Marinduque. This provides information on how the municipal programs have impacted the socioeconomic and political development of the coastal barangay.

3. RESULTS AND DISCUSSIONS

The study aimed to investigate the following objectives:

1. To determine the demographic profile of the respondents, specifically in terms of:
 - a. Gender
 - b. Age
 - c. Marital status
 - d. Educational attainment
 - e. Years of residence in the barangay
2. To identify government programs considerations, particularly those related to:
 - a. Socio-economic development
 - b. Politico-cultural development
3. To assess the needs of the respondents in relation to their socio-economic and politico-cultural development.

Table 1. Profile of the Respondents

Group	Profile	Frequency	Percentage (%)
Gender	Male	34	85
	Female	6	15
Age	20-24	2	5
	25-30	2	5
	31-35	3	7
	36-40	5	12
	41-45	10	25
	46-50	14	35
	51-55	2	5
	56-60	1	3
	>60	1	3
Marital Status	Married	40	0
	Single	-	-
	Widow/widower	-	-
Educational Attainment	No Formal Schooling	1	2
	Elementary	6	15
	Secondary	20	50
	College / units in College	13	33
Year of residence	10 years and below	5	12
	11- 20 years	3	7
	21-30 Years	9	23
	31-40 Years	17	43
	>40 Years	6	15

Table 1 presents the profile of the 40 respondents in terms of gender, marital status, age, years of residence, and

educational attainment. A large majority of the respondents were male (85%), while only 15% were female, indicating a notable gender imbalance in the sample. In terms of age, most respondents fell within the mid-adult range, with 35% aged 46–50 and 25% aged 41–45. The 36–40 age group accounted for 12%, while younger adults (20–35) and older individuals (51 and above) were minimally represented. This suggests that the perspectives gathered primarily reflect those in their mid-working years. All respondents reported being married, implying that the findings are shaped by individuals with family and household responsibilities. Regarding educational background, 50% had completed secondary education, 33% had attended or completed college, 15% finished only elementary school, and 2% had no formal schooling. This reflects a mix of educational attainment levels, with a majority having basic to moderate education, though support and training programs should still consider those with limited schooling. In terms of residency, 43% have lived in the barangay for 31–40 years, followed by 23% who have stayed for 21–30 years. Meanwhile, 15% have been residents for over 40 years, indicating long-term settlement and deep community ties. Only 12% had lived in the area for 10 years or less, suggesting that the community is largely stable and well-established, which can be an advantage when implementing community-based programs and interventions.

2. Government programs consideration, particularly those related to:
 - a. Socio-economic development

The criteria for the elaboration and implementation of national programs are envisioned for responsible conservation of fisheries resources and fisheries management and development, this ranked first on the bases of the government officials' consideration on socio-economic needs with mean (3.36). The result from Table 2 was moderately agreed by the respondents, that the elaboration of the implementation processes involves integrated process planning, consultation, decision making, formulation, and implementation of resource allocation. They find it necessary to ensure that the fishery activities are governed by the existing policies, rules and regulations for the continued productivity of resources and achievement of fishery objectives. Also, it appears that respondents like to have a precise delineation of specific tasks to each of the processes. It could also be suggested then that the dynamics of state and society in which the fisherfolks take proof of interaction, that social groups like theirs could achieve higher end. This is justified in Migdal's theory of state-society relations that social control is inherent upon state & could be undermined by operative roles and active interaction of the people in the society which is in this case represented by the fisherfolks.

The open access for aquaculture, farming or other small-scale business ventures government is an alternative source of income provided by the province is ranked second on the bases of the government officials' consideration on socio-economic needs equivalent to (3.35). In Flores (2014) aquasilvi culture is defined as a national program of the government for multi-purpose production system that allows production of fish within the mangrove reforestation project. This technique enables to produce fish without cutting the mangrove tree. The program envisioned to rehabilitate mangrove resource, provide livelihood, and address problems on climate change, food security and poverty among municipal fisherfolks. This is based on the response for the follow-up interview with the government official who is in charge for this program.

The programs are in accordance with the relevant rules of international law, for responsible fishing and fisheries activities, taking into account all their relevant biological, technological, economic, social, environmental and commercial aspects is ranked third or fourth on the bases of the government officials' consideration on socio-economic needs with mean (3.25). This finding is supported by Balton (2003), who cited that some of the notable international instruments on fisheries regulations include the following:

International Convention for the Regulation of Whaling (ICRW) of 1946, United Nations Convention on the Law of the Sea of 1982, Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas of 1993, Food and Agriculture Organization (FAO) Code of Conduct for Responsible Fisheries of 1995, Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem of 2001, Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing of 2009. The participants of the study moderately agreed that in their sector they should have maintained compliance with international standards believing that the instrument creates legal rights and duties for efficient use and management of marine resources. They knew that the instruments would have enormous exchange and would have a greater impact to their politico-cultural and socio-economic development in the long run.

Livelihood programs for fisherfolks are also considered by the government such as fish preservation, weaving, pottery making, canning of fish to help align the income of the fisherfolks, this also ranked third or fourth on the bases of the government officials' consideration on socio-economic needs equivalent to (3.25). This result is supported by the records from the office of the provincial and municipal agriculture offices.

Table 2. Socio-economic needs

the government official's consideration on socio-economic needs	Mean	D.E.	Rank
The programs are in accordance with the relevant rules of international law, for responsible fishing and fisheries activities, considering all their relevant biological, technological, economic, social, environmental and commercial aspects.	3.25	MA	3.5
The criteria for the elaboration and implementation of national programs are envisioned for responsible conservation of fisheries resources and fisheries management and development.	3.36	MA	1
It promotes the contribution of fisheries to food security and food quality, giving priority to the nutritional needs of local communities.	3.20	MA	5.5
Infrastructure and facilities are appropriately constructed aimed at uplifting the standard of life of every member of the fisherfolks.	3.20	MA	5.5
The government prioritizes health programs for the fisherfolks through regular monitoring of the rural health units.	3.14	MA	8
Open access for aquaculture, farming or other small –scale business ventures government is an alternative source of income provided by the provincial.	3.35	MA	2
Trainings and seminars, or granting scholarships to fisherfolks and their children aimed at upgrading the skills and basic knowledge of fisherfolks	3.15	MA	7
Livelihood programs for fisherfolks are also considered by the government such as fish preservation, weaving, pottery making, canning of fish to help align the income of the fisherfolks.	3.25	MA	3.5
MEAN	3.24	MA	

Legend:

Mean Range Descriptive Equivalent (D.E.)

3.5 -4.0 Strongly Agree (SA)

2.5 -3.4 Moderately Agree (MA)

1.5- 2.4 Slightly Agree (SLA)

1.1- 1.4 Disagree (D)

It promotes the contribution of fisheries to food security and food quality, giving priority to the nutritional needs of local communities and is ranked fifth or sixth on the basis of the government officials' consideration on socio-economic needs equivalent to (3.20). The fisherfolks have moderately agreed that the consideration entails the balance of marine resource utilization and food security objectives. In Bennett (2018) in view of the 2030 Sustainable Development, the goals which drive at ending hunger and poverty, achieving food security and improving nutrition. In this study, the above manifests especially the case of the fisherfolks far from the ideal reality. When one fisherman was asked, why did you catch that crab that will still give many fingerlings? (Bakit mo hinuli ang isda na yaan ay manganganak na?) He replied, "It has been caught, why let it go? (Ang sagot niya, ay nahuli na po bakit pa po Apakawala-an pa ay dagdag kita at may apakain pati sa pamilya?) This attitude appears to be assertive to claim such for food or income, but it does not conform to the fishery goal to achieve food security in the long run. Good as well that the government, especially at the municipal level, has instituted policies through an ordinance that will determine legally caught marine resources.

The infrastructure and facilities are appropriately constructed aimed to uplift the life standard of every of the fisherfolks is also ranked fifth or sixth on the bases of the government officials' consideration on socio- economic needs with a mean of (3.20). In Republic Act 8435 otherwise known as Agriculture and Fisheries Modernization Act (AFMA) of 1997, the welfare of the small farmers and fisherfolks towards the modernization of agriculture, declares a policy that anybody who belongs to this sector shall have the participation and share to the fruits of growth and development and the utilization of resources efficiently thru establishment of basic income, support services and infrastructure. Briones, (2022) stressed that in one of the theories of change under AFMA that in order to address the micro constraints at the farm level and enterprises, there must be direct provision of irrigation, infrastructure, public education and promotion of new technology. Observed related fishing facilities and infrastructure in the sites under study revealed that the construction of infrastructure and facilities through the initiative of the provincial government have to be upgraded. In the nine (9) barangays of the three municipalities, it is observed that most of their boats are stationed in beaches and in other places where these are secured. In barangays where there are landing or berthing facilities, the boats are docked. These are necessary to reduce operational cost and damages to dock, increase safety control, and monitor registered or illegal boats that come and go to their shore.

The Trainings and seminar or granting scholarship to fisherfolks and their children aimed at upgrading the skills and basic knowledge of fisherfolks is ranked seventh on the bases of the government officials' consideration on socio-economic needs (3.15). Records can tell that there are trainings, seminars, and grant of scholarship but limited only to few recipients. However, participants affirmed that their attendance is for meal purposes only. For the scholarship grant children of the fisherfolks were given opportunities to enjoy and enroll in Agriculture and Fisheries programs in college on full scholarship. This is to encourage secondary school graduates to pursue these programs to have more specialized in this field.

The government prioritizes health program for the fisherfolks through regular monitoring of the rural health units is ranked eight based on the government officials' consideration on socio-economic needs with the mean of (3.14). Being the least among the choices, the respondents also moderately agreed that the government should provide health programs for the fisherfolks, but they knew also that this is for all residents of the barangays under rural health system. It should be clearly stated in the program that the municipal doctor with his staff must visit the barangay to conduct physical examination especially who needs most of medical attention. Generally, the common activities of the rural health team include general consultation, minor surgeries, family planning and counselling, immunization, distribution of medicines, blood temperature and pre-natal check-up and other ailments and vaccination during the time of pandemic. They also knew that except for the health center, there are lacking facilities like for lying-inn services and medicines and equipment for emergency situation.

b. Politico-Cultural Needs

The recognition of the important contributions of artisanal and small-scale fisheries to employment, income and food security is ranked first on their political perspective about the impact of the programs of the government with mean (3.42). Generally, the suppliers of food in the market are fisherfolks. The quantities of fish they catch every day determine the price per kilogram noting on the law of supply and demand. Fisherfolks also serve as caretakers and overseer of the coastal area against strange fishermen. Considering these roles of the fisherfolks, the provincial government and its counterpart at the municipal and barangay level, together with the other agencies of the government like the Bureau of Fisheries and Aquatic Resources had intensified launching of programs to increase their income through value chain system. Moreover, they uphold substantial programs that would enhance empowerment and self-reliance among fisherfolks. The government programs need to be aligned to the national and international standards, laws and code is ranked second on their political perspective about the impact of the programs of the government with mean (3.42). One of the identified challenges in the province is the issue of boundary delineation. The fisherfolks had moderate agreement that the national laws, particularly the fishery code of the country, stipulate the boundaries of each of the municipal waters. In the case of the municipalities under investigation, they found boundary issues like intrusion of fishermen from other provinces. They are within the municipal water boundaries with sophisticated equipment causing catch depletion which eventually loses fish spot. This caused a decrease in their income due to overfishing. In the implementation of the programs under existing law, it may be regarded as a challenge for benefits between farmers and fisherfolks that exist due to competition within their sector. The fisherfolks claim that they counterpart receives more assistance because there are multi agencies that are attached to their sector. Recognition of the paramount importance to fishers of cultural understanding about the conservation and management of the fishery resources on which they depend is ranked third on their political perspective about the impact of the programs of the government with mean (3.40). The respondents have revealed that they must be recognized in terms of politico-cultural and socio-economic landscape of fisherfolks in the province. As traditional workers in the waterfront, the government has to assist the fisherfolks in understanding the culture of conservation and management of the fishery resources. For Bihasa (2015), the prevalence of several social organizations like the fisherfolks is influenced by Filipino values like voluntary and charity concepts in connection with the mentioned development will form part of state and society relation dynamics. The group of fisherfolks as a civil society may counterbalance the major interest of the state in fulfilling its duty in serving the people. Their participation and consciousness in the process of government actions is intended to provide scrutiny in all of the program undertakings of the state. Likewise, in Auzzir et al. (2014), the notion of public-private partnership (PPP) which is derived from the concepts of political economy and public choice theories can be viewed as a form of governance system that brings together all stakeholders in the development and implementation of a policy program or project

To include fisherfolks in public discussions regarding pressing issues of their concern is ranked sixth on their political perspective about the impact of the programs of the government (3.27). The respondents emphasized that this nature of interaction between the government and their sector is limited in terms of public discussion on the programs they received. As mentioned earlier, the government has generally doled out the programs without consulting their priorities and interest. Most of these programs had been set aside due to lack of interest among the fisherfolks. One observed project in the field like fiber glass boats are now unusable is either lack of finances for repair or they preferred the traditional banca. In the study of Perazzini (2020) it is still necessitated to some level of public sector participation while the government has engaged in effective risk management planning to motivate and engage the entire community with positive results and achieve risk mitigation goals.

The government conceptualized that aquaculture, farming or other small-scale business ventures as alternative source of income is the nearest cultural interest of fisherfolks is ranked seventh on their political perspective about the impact of the programs of the government with the mean of (3.27). One of grey areas about this is lack of appreciation of the fisherfolks about the programs like aquaculture and other small-scale business venture. Since the type of programs are delivered through association, individual ownership is wanting. Moreover, its concept is not actually an alternative source of income but a type of job that the main income on their part would derive. One conception about this is job-substitution which is interpreted "stop fishing and do something else" rather than adding other activities to an income portfolio. Since the programs need longer time to obtain the output, it requires labor and effort, the fisherfolks may find easier solutions to address their daily subsistence.

Table 3. Politico-Cultural Needs

Political cultural perspective on the need of the government's programs	Mean	D.E.	Rank
Recognition of the important contributions of artisanal and small-scale fisheries to employment, income, and food security.	3.42	MA	1.5
Include fisherfolks in public discussions regarding pressing issues of their concern.	3.27	MA	6.5
Recognition of the paramount importance to fishers of cultural understanding the conservation and management of the fishery resources on which they depend.	3.4	MA	3
The government programs need to be aligned to the national and international standards, laws and code.	3.42	MA	1.5
The government conceptualized that aquaculture, farming or other small-scale business ventures as alternative source of income is the nearest cultural interest of fisherfolks.	3.27	MA	6.5
The identification of livelihood programs is formulated and implemented must be related to cultural interest and commodities.	3.24	MA	8
Training and seminar, or granting scholarships to fisherfolks and their children aimed at upgrading the skills and basic knowledge of fisherfolks.	3.3	MA	5
Infrastructure and facilities, subsidies, and social security packages are important investments in improving the quality of life of fisherfolks.	3.37	MA	4
MEAN	3.34	MA	

Legend:

Mean Range Descriptive Equivalent (D.E.)

3.5 -4.0 Strongly Agree (SA)

2.5 -3.4 Moderately Agree (MA)

1.5- 2.4 Slightly Agree (SLA)

1.1- 1.4 Disagree (D)

The identification of livelihood programs that are formulated and implemented must be related to the fishing cultural interest and commodities is ranked eight on their political perspective about the impact of the programs of the government (3.24). The fisherfolks have ingrained fishing activity and will not leave fishing for cultural reasons. In this case, the identified livelihood programs must be assumed and emphasized by the government to be non-specialized and non-professional also. Since the livelihood programs require expertise, a technical team for this purpose may be provided by the government.

3. The needs of the respondents in relation to their socio-economic and politico-cultural development.

The fisherfolks strongly agree that the enjoyment of right to determine and decide on their own priorities for cultural, political, social and economic development is ranked first with mean (3.56) as far as their politico- cultural and socio-economic development needs are concerned. In Article 1 of the International Covenant of Economic, Social and Cultural Rights adopted by the General Assembly in 1976 thru Resolution No.2200A, recognizes such right of self-determination to freely determine their political status and freely pursue their economic, social, and cultural development. The finding is indicative of an assertion of right, which means that the respondents had claimed their own version of development. They are people on the ground that practically know their interest and priorities as members of the community. They have said that the programs of the government are either national or local and generally cascaded from them down to their level. It may also suggest that the participative political culture as mentioned by Almond and Verba is embedded upon fisherfolks to actively involve themselves with the program undertakings of the provincial government. Politically, this is the right to live in democracy and the enjoyment of right with the meaningful representation, participation, and decision-making about individual and community concerns.

They moderately agree that the provision social security like group accident insurance scheme for active fishermen and social amelioration in cases of death and partial and permanent disability with mean (3.49) ranked second. It could be noted from the results that fisherfolks hold for social protection they can get from the programs of the government to reduce poverty and vulnerability. As they had stated, there is a need to be capacitated through social amelioration programs at times when their physical strength has diminished. This poor condition of the fishermen who have lost their income due to disability may again revitalize by enhancing growth and productivity and create opportunities for self-reliance.

The provision of fish preservation facility to intensify the processing, storage and transportation ranked third in their politico cultural and socio-economic development needs with mean (3.47), the facilities referring to the importance of facilities in fishing. A processing or storage facility helps to attain self-sufficiency in fish. It is likely suggested that in instances of oversupply of fish particularly during season, such can be used to prolong high perishable fish, therefore, it keeps up with its quality which will help to increase the income of the fisherfolks. This line of perspective enables them to manage food security in terms of adequacy in quantity and sufficiency of fish quality that can be supplied domestically and nationally. To be food secure, the people always

have access to food and maintain fish supply amidst climatic crises and the closed fishing season.

Table 4. Politico cultural and socio-economic development needs

Politico cultural and socio-economic development needs	Mean	D.E.	Rank
Implementation of poverty eradication programs must be aimed at developing fisherfolks socio-economic needs and priorities	3.46	MA	4
Provision of alternative sources of income to minimize unemployment and hunger	3.42	MA	6
Grant land ownership for fisherfolks outside of easement territory.	3.41	MA	7
Provision of social infrastructure like water facility that provide safe drinking, electricity, recreational, medical and other facility such as banking facility and community hall.	3.39	MA	9
Provision of fish preservation facility to intensify the processing, storage, and transportation.	3.47	MA	3
Provision social security like group Accident Insurance Scheme for active fishermen and social amelioration in cases of death & partial and permanent disability	3.49	MA	2
Provision of adequate landing and berthing facilities to fishing vessels.	3.40	MA	8
Improvement of the cooperative system that is vital for fisheries sector.	3.31	MA	11
Fisherfolks enjoy the right to determine and decide to their own priorities for cultural, political, social and economic development.	3.56	SA	1
Subsidy of vessel or gear for catch individual system resulting in higher income.	3.37	MA	10
Provision of assistance to capacitate fishers in terms of subsidy package, mechanized boats and deep-sea fishing vessels.	3.25	MA	12
Provision of trainings, seminars, and technology like Global Positioning System device to enhance fish catch capabilities of fisherfolks.	3.44	MA	5
MEAN	3.1	SA	

Legend:

Mean Range Descriptive Equivalent (D.E.)

3.5 -4.0 Strongly Agree (SA)

2.5 -3.4 Moderately Agree (MA)

1.5- 2.4 Slightly Agree (SLA)

1.1- 1.4 Disagree (D)

As gleaned from Table 4, the respondents contend that the subsidy of vessel or gear for catch individual system resulting in higher income which is ranked tenth in their politico cultural and socio-economic development needs is equivalent to (3.37). In Bennagen (1998), who studied the environmental damages in seaside due to mining, there was a genuine decrease in their caught fish which pushed them to go beyond the normal fishing spot. Evidently, they need a subsidy from the government, a bigger boat to catch fish farther seaward and additional fuel to reduce consumption. In the present study, the fisherfolks reside in coastal areas very close to the deep sea, needs bigger boats. The result assumes that the more subsidies the fisherfolks avail themselves from the government the more income they could generate from fishing, hence, could provide more for their families.

Meanwhile, the improvement of the cooperative system that is vital for the fisheries sector is ranked eleventh in their politico cultural and socio-economic development equivalent to (3.31). Although this is one of the least choices, the respondents moderately agreed that the cooperative system would help them to improve their living conditions like small-scale fishers. It is also believed to show significance in the co- management of fishery resources as well as to slow down the rapid depletion of these resources.

As has been mentioned earlier, a subsidy from the government entails higher income, hence, the respondents also revealed that provision of assistance to capacitate fishers in terms of subsidy package, mechanized boats and deep-sea fishing vessels which is ranked twelfth (3.25) in their socio-economic needs.

Similarly, the finding indicates that subsidy packages that would enhance their fishing capability to go beyond the regular fishing spot using mechanized boats could mean a wider fishing area. Eventually, this could help them to harvest a bigger catch in a short period of time and meet the fish demand for the increasing population.

4. CONCLUSION

The findings of the study show how interconnected nature of the politico-cultural and socio-economic needs affects the fisherfolk in Marinduque Province. The recognition of the contributions of infrastructure and facilities, subsidies, and social security packages appears as the highest priority, indicating a clear understanding about tangible factors which directly impact the well-being of the fisher folks. Additionally, the involvement of fisherfolk in public discussions and decision-making processes ranked second, which emphasize the importance of considering their participation in addressing pressing issues.

Moreover, the health programs, responsible fisheries management, and infrastructure give emphasis on the multi-dimensional strategy employed by the local government. Overall, the findings support a holistic and informed approach to address the diverse needs of fisherfolk in the province of Marinduque, the combined economic recognition, cultural understanding, and sustainable practices for a resilient and thriving fishing community creates better opportunities for the fisherfolk.

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Research Article

The Implementation of Physical Education in the Senior High Schools in DepEd Legazpi City Division

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ABSTRACT

This research study assessed the implementation of PE in the Department of Education (DepEd) in Legazpi City division among senior high schools, focusing on the nature of implementation including issues and concerns, as well as proposed plan of action for improvement of the implementation. This research employed a descriptive research design and quantitative methods in gathering data through a questionnaire checklist. It's a total enumeration of respondents (N=14), including the teacher-respondents of the senior high schools from 12 schools. Data was analyzed through frequency, percentage, ranking, and weighted mean. Results revealed that PE teachers are young, newly hired, as well as in some instances, non-specialized in PE with less access to the profession. Resource allocation for the PE programs had to be increased especially in budget and human resources; schools found that sports facilities were inadequate. More so, learning materials were seldom available and supplied. Large class sizes also prevented more personalized teaching to the students. Key challenges involved minimal budget allocation and sports and Pe equipment as part of the PE program implementation. Strategies were developed to strengthen the implementation of senior high school PE, with the prioritization of resources, teacher specialization, and professional development plans. Recommendations include hiring qualified PE teachers, increasing budget allocations, and enhancing facilities and learning materials to address administrative and academic issues that are critical in improving PE program implementation. Future research is invited to take on these findings and rev up sustained improvement in Physical Education programs.

Keywords: Physical Education, program implementation, senior high school, resource allocation, teacher specialization, sports facilities, professional development

1. INTRODUCTION

Education is universally accepted as a powerful tool for individual and national development, preparing individuals to have the know-how and capability to work and grow as individuals (Freire, 2007). Education is a right in the Philippines (Batas Pambansa Blg. 232, 1982) and highly prized by society because it begets responsible, educated citizens. Yet, the quality and pertinence of education have been issues of enduring concern that have occasioned reforms like the adoption of the K to 12 Basic Education Program. This reform, institutionally required by Republic Act No. 10533 (Enhanced Basic Education Act of 2013), extends the duration of basic education into 10 or 12 years and seeks to synchronize Philippine basic education with international peers' quality and, in the process, provide children adequate time for acquisition of valuable competence.

The K to 12 Program in the Philippines seeks to address the earlier weaknesses of the former 10-year basic education and prepare the students even more for the tertiary level, the workforce, and the industry. It is supported by the Senior High School (SHS) program with different tracks and strands including enhanced curriculum for specific subjects. The most basic content of the curriculum is Physical Education (PE) under the 1987 Constitution (Article XIV, Section 19) and internalized in SHS through the Health Optimizing Physical Education (H.O.P.E.) series. PE in this context constructs physical literacy, enables long-term fitness and health to be achievable, and constructs 21st-century skills such as teamwork, critical thinking, and creativity. The subject matter of the topic is theoretical as well as practical in nature, and what the purpose in developing the same is to incorporate healthy living among the students as well as overall progress.

For all its noted potential benefits, nonetheless, the launching of the K to 12 PE curriculum was marred by problems, among others facility deficiencies, including facility availability, and calls for more training of the trainers. There were, however,

some complaints by some of the stakeholders against the government's willingness to carry out the reform, with the critics complaining of insufficient classrooms, study materials, and job security of the teachers in higher education during the program implementation. Physical Education is a compulsory and required course in the study program, and such courses are designed to research whether the implementation is proceeding smoothly, specifically in the secondary public schools in Legazpi City. It considers the effect of system and school support to K to 12 PE's own effectiveness and its cumulative effect on students' global competitiveness, especially in the context of the ASEAN Economic Community.

2. MATERIALS AND METHODS

This research utilized a descriptive research design using quantitative methods in examining the application of Physical Education (PE) in Senior High Schools under the Department of Education (DepEd) Legazpi City Division. The descriptive design is based on Ethridge (2004), whose goal is to obtain data on what exists and happens as it is, therefore suitable to represent the reality of education practice. The mixed qualitative-quantitative method enabled deeper analysis, with numerical data and findings from teacher experiences (Fox & Bayat, 2007). The participants were 14 PE teachers from 12 public senior high schools of the Legazpi City Division, using total enumeration. These schools were institutions like Legazpi City Science High School, Pag-asa National High School, and Taysan Resettlement Integrated School. Data sources were primary data from teacher responses and secondary data from DepEd memos and manuals. Data were gathered through a validated questionnaire-checklist, which was piloted in different divisions like Sorsogon, Albay, and Catanduanes. With the Schools Division Superintendent and school heads' consent, the end instruments were given and retrieved personally by the researcher. In order to reach valid and reliable analysis, statistical methods were employed which include frequency distribution, ranking, and calculating weighted mean. Weighted mean was calculated by formula: $WM = \sum fx/n$, where f is frequency, x is weight, and n is number of respondents. 3-point Likert Scale was used to measure the sufficiency of PE curriculum implementation, wherein ratings were labeled as "More Sufficient," "Sufficient," and "Insufficient" accordingly based on value representation. Tabulation step-by-step and interpretation were utilized in the analysis of data to deduce conclusions from tabular displays and statistical summaries.

3. RESULTS AND DISCUSSIONS

Part 1. Nature of Implementation

This portion introduces and discusses the results on the nature of implementation of the Physical Education (P.E.) program of the Senior High Schools of DepEd Legazpi City Division. Particularly, it discusses noteworthy dimensions that affect program implementation, i.e.: teacher-related dimensions, resource distribution, schedule and class size, physical plant and facilities, and learning materials availability. Data were obtained from P.E. teachers using a questionnaire-checklist and were subjected to analysis in order to identify how these factors enhance or hinder the successful delivery of the P.E. curriculum. The discussion points out key trends in the data and sets these within recent studies and policy, hence gaining an insight into current practice and areas which potentially need intervention or change.

Profile of the Teachers

Out of fourteen (14) that was surveyed, ten (10) were males and four (4) were females. The gender imbalance with more male than female representation in the Physical Education profession mirrors the stereotypical gendered view of the subject as physically demanding, sporting, and male-dominated. This trend concurs with the identification that males are more physically active than females and are more likely to undertake high-intensity physical activities (Cleland et al., 2016). This gender skew could have effects on the learning environment, such as supporting inclusivity and representative equality in physical education. It also signals Kotter's non-equal access theory to structural opportunity and power, with ramifications noted by the Asian Development Bank (2013) report stating that Philippine employment continues to carry a gender divide, excluding women from accessing certain job types, such as those that entail physical education.

Most of the respondents were aged 32–37 and included five (5) males and two (2) females. There was one male aged 20–25, and one female aged 26–31. Three (3) males aged between 38–43, and two teachers—one male and one female—aged between 44–49. There were no more than 50 years of age among the respondents.

This mid-career concentration of teachers means that the majority are those who were appointed after acquiring earlier teaching experience or educational credentials in other environments, perhaps to fit DepEd's merit-based appointment system under Order No. 32, s. 2016. Teachers more than 50 years old probably hold senior administrative posts or non-teaching assignments. As Korthagen (2017) has contended, mid-career teachers possess the perfect level of energy and experience, which is appropriate for mentoring and long-term curriculum implementation, but need to be supported continuously so that they do not burn out.

Table 1.a. Profile of the Teachers

Variables	Frequency	
	Male	Female
Age		
20-25 yrs. Old	1	0
26-31 yrs. Old	0	1
32-37 yrs. Old	5	2
38-43 yrs. Old	3	0
44-49 yrs. Old	1	1
50 above	0	0
Employment Status		
Contractual	1	0
Substitute	0	0
Permanent	9	4
Educational Attainment		
Bachelor's Degree		
P.E Specialization	7	2
Non-specialist/Non-education	3	2
With Graduate Units		
P.E Specialization	4	1
Non-P.E	3	1
TOTAL	9	
Years Teaching Physical Education		
Less than 5 years	4	3
5-10 years	4	0
11-16 years	2	0
17-22 years	0	0
23-28 years	0	1
29 above	0	0
Seminars/Trainings Attended with relevance to SHS P.E:		
• Sports Coaching	7	1
• Sports Officiating	6	1
• Folk Dance	0	1
• P.E and Sports Pedagogy	3	1
• Fitness Training of Trainers	1	1

Results show that thirteen (13) out of the fourteen (14) teachers are of permanent status, and only one is contractual. This shows a stable staff in the division, which is beneficial for long-term implementation of curriculum and institutional stability. A study by Carless and Winstone (2017) suggested that teacher job security increases teacher commitment, professional development, and quality of teaching. Permanent teachers invest in school development and training, which again positively impacts curriculum fidelity.

All were bachelor degree holders, but only nine (9) of them were graduates of Physical Education. The other five (5) were from non-P.E. or non-education courses. Additionally, nine (9) are taking postgraduate level, and only four (4) are in line for P.E. These results indicate a misalignment between the specialist of the teacher and their teaching role, probably because some schools lack a sufficient number of available P.E. specialists. This aligns with the warning provided by Hardman et al. (2018), where they cautioned that non-specialist teacher deployment into P.E. would undermine the subject's efficiency, especially in providing age-suited and science-based instruction. This would mean a call for DepEd to revisit the deployment policies and urge P.E. teachers to seek higher degrees within their field of specialization, thus upgrading curriculum implementation and instructional competence.

Seven (7) are with less than five years, four (4) with 5–10 years, two (2) with 11–16 years, and a single (1) teacher is with 23–28 years of experience. None were within the teaching years of 17–22 and 29 and above. This distribution represents predominance by early-career teachers, both challenged and offered opportunities. Even though new teachers might lack classroom experience and self-esteem (Richards, Templin, & Graber, 2016), their recent college exposure and desire to acquire knowledge can be a source of positive influence on new pedagogy if directed suitably. Having only one veteran teacher also indicates the need for school-based mentorship programs to aid teacher growth.

The most frequent training courses undertaken were sports coaching (7 men, 1 woman) and refereeing (6 men, 1 woman). Teachers went to fewer seminars in pedagogy (3 men, 1 woman), fitness instruction (1 man, 1 woman), and folk dance (1 woman).

The results indicate focus on training in the sport technical skills and not pedagogy or various forms of movement. This is indicative not only of provision of such training but also of focus of existing professional development frameworks on competitive sport and not physical education in general. As Harvey and Pill (2016) hinted, continuous professional development in physical education must incorporate training in pedagogy, health literacy, fitness, and inclusive practice to meet the needs of the 21st century. Without a good balance of training opportunities, the teachers may lack the capacity to deal with all aspects of the curriculum maximally, especially the non-sport elements like dance and health-related fitness.

Resource Allocation

Resource allocation is an important component in the effective rollout of the Physical Education (P.E.) program in Senior High Schools. As has been discussed under research, resource allocation entails human resources, that is, the number of trained P.E. teachers, and monetary resources to cover the costs of operating the program, for example, the budget and on-time release. The figures given in Table 2 indicate that the provision of resources to deliver the P.E. program in the schools covered by the survey is inadequate, as revealed by the weighted mean of 1.20 and the adjectival rating of "insufficient" across all indicators.

Table 1.b Resource Allocation

Indicators	Weighted Mean	Adjectival Description
Number of faculty/teachers teaching Physical Education	1.36	Insufficient
The allocated budget is sufficient in the implementation of Physical Education Program	1.14	Insufficient
The allocated budget is downloaded on-time	1.29	Insufficient
Alternative resources are observed that augment the needs in Physical Education	1.00	Insufficient
Overall Mean	1.20	Insufficient

In the faculty/teachers' allocation who are to provide Physical Education, the research reveals a wide gap, with the weighted mean of 1.36, reflecting insufficient faculty. This implies a call for more and improved P.E. instructors. It is important that the Department of Education (DepEd) sees to it that P.E. instructors are adequately endowed with the requisite credentials and experience to effectively implement the curriculum (Danao, 2017). The results concur with the study of Quismundo et al. (2018), which emphasized that there is insufficient qualified P.E. teachers is a widespread problem in most of the schools throughout the Philippines that prevents the complete implementation of the P.E. program.

The research also indicates that the budget allocated to the P.E. program is inadequate with a weighted mean of 1.14 and a grade of "insufficient." The allocation of funds is important in the purchasing of teaching materials, sporting equipment, and other necessary resources that facilitate effective delivery of P.E. classes (Ruiz et al., 2019). A drawback to implementing the program is a lack of funds, and in addition to that, delays in releasing the fund. Prior to early proposal submissions and granting the budget request are the urgency priorities to aid speedy funding to the P.E. program pursuant to DepEd Order No. 13 (2016). This is also attested to by a research conducted by Castillo (2017), which stated that delayed release of the budget has a significant effect on the execution of sports and extracurricular activity in schools.

The findings also indicate that alternative resources to support the P.E. program are not adequate, having a mean of 1.00. This would indicate that the schools lack facilities or external funds that support their P.E. programs. Other sources, including collaboration with local government units, NGOs, and private entities, must also address the scarcity of financial and material resources. Gonzales et al. (2019) also noted the same issue for the majority of Philippine schools, which essentially depend on limited pieces of available government funds and lack enough external finances to improve the physical education in their schools.

These results pinpoint the essence of proper management of resources when carrying out P.E. programs in Senior High Schools. Unavailability of teachers, delayed budget release, and absence of other resources are among the causal variables for the failure to roll out an effective physical education program. For this purpose, it is important that the DepEd redesign policies in a way to enable timely fund disbursement, enhance faculty hiring and training, and identify additional sources of funding. The research also points out the necessity for more strategic planning and budgeting for P.E. programmes, in line with findings of earlier research (Danao, 2017; Ruiz et al., 2019) stressing the importance of providing appropriate resource allocation in an effort to optimize the efficiency of teaching and learning P.E.

Scheduling and Class Size

Scheduling and class size are two important determinants of the successful operation of the Physical Education (P.E.) curriculum in Senior High Schools. Both determinants have a direct effect on instruction quality, the teacher's capacity to work with children, and the learning environment as a whole. The information contained in Table 3 shows the P.E. scheduling needs and class sizes for twelve schools belonging to Legazpi City Division and has an idea of the way these variables are set up and their effects on the execution of P.E. program.

The data for scheduling is such that most of the schools within Legazpi City Division (11 schools out of 14) hold P.E. classes on a weekly basis, while three schools hold classes twice a week. This means that even if certain schools may be attempting

to meet the minimum of 80 hours for P.E. in accordance with DepEd Order No. 4, s. 2014, most schools continue to allocate very little time to physical education. Class once a week only amounts to 1.25 units of instruction weekly, or about 40 hours per semester. Such limited time distribution can hinder the students from learning, working out, and engaging in extracurricular activities (Gupta et al., 2018). The Philippine Council for Health Research and Development (PCHRD) recommends that heavy exercises are performed early in the morning to shun the sun's heat during the day, as seen in facts revealing that 10 out of the 12 schools hold P.E. classes during early morning sessions (7:00-10:00 A.M.). The timing of P.E. classes in the afternoon (1:00-4:00 P.M.) in certain schools, though, may not be compliant with health standards, which can have some impact on students' body health when they play outdoor games.

Table 1.c Scheduling and Class Size

System/Scheme of Scheduling of P.E Class	Frequency
Once a week	11
Twice a week	3
Thrice a week	0
Schedule per Day	
Early morning [7:00-10:00 A.M]	10
Noon time [10:00-12:00 Noon]	3
Afternoon [1:00-4:00 P.M]	7
Late afternoon [5:00 P.M onwards]	2
Class Size	
20-29	1
30-39	5
40-49	8
50 above	0
Number of P.E Classes Handled by Teachers	
Less than 3	5
4-6	4
6-9	3
More than 10	2

The accommodating P.E. timetabling is able to adjust according to teacher schedules and school provision, yet the regularity of morning lessons means that schools try to maximize students' engagement and reduce the effects of heat. A more equitable strategy with more P.E. lessons would improve students' physical fitness because research has demonstrated that frequent attendance of physical education lessons is associated with improved health (Dunton et al., 2016).

The class size statistics show that 8 schools out of 12 have 40-49-student P.E. classes, 5 schools have 30-39-student classes, and 1 school only has 20-29-student classes. Class size for P.E. teaching is overall in accordance with DepEd guidelines, which provide an optimal ceiling number of 40 students per grade level for grades 5 to 12 (DepEd, 2016). However, larger class sizes identified in this study may be challenging to teach and engage students fully. Study indicates that smaller classes are more likely to contribute to better learning because teachers can dedicate more time to each student (Hattie, 2015). Larger class sizes could lead to decreased student participation and difficulties in handling classes particularly in subjects that involve classroom interaction like physical education. The results indicate that while the largest class sizes are not larger than DepEd's, they may still be potential sources of problems in terms of managing the students as well as addressing each one of their needs. To start with, large classes would decrease opportunities for direct instruction, personalized feedback, and student protection during sporting activities. The teachers would also have greater pressures in monitoring and involving all the students, which would generally have a negative impact on the P.E. program.

According to the number of P.E. classes worked by teachers, statistics indicate that 5 teachers work fewer than three sections, 4 teachers work 4-6 classes, 3 teachers work 6-9 classes, and 2 teachers work more than 10 classes. This indicates that the distribution of loads is not equal in other schools. Instructors who have fewer than three sections may also be allocated other responsibilities such as P.E. classes at junior high school or as administrative staff. Teachers with over 10 sections will, however, be likely to be overwhelmed and this will have an impact on the quality of their lessons as well as being able to give meaningful student-staff interactions (Puhan & Swarnakar, 2016). Overloaded teachers tend to feel exhausted and burned out, which could adversely affect their performance in class. Ideally, there should be an even distribution of loads such that all teachers can maintain their sections in tip-top shape and still have enough time and energy to engage in professional development and planning.

Physical Plant and Facilities

Physical facility adequacy is a determining factor in the Physical Education (P.E.) program success because the physical facilities have a direct impact on the quality of instruction and student participation. Schools, as per the Department of Education (DepEd) Educational Facilities Manual, need to have safe, secure, and satisfactory educational facilities like sports facilities, classrooms, and playgrounds if they are to deliver an equalled education. Despite this, the data obtained from Table 4 show some

of the schools under the Legazpi City Division that have inadequacies when it comes to sports and physical education equipment, and these might be preventing the implementation of the P.E. program.

Table 1.d Physical Plant and Facilities

Physical Plant and Facilities	Weighted Mean	Adjectival Description
Number of Classroom to hold P.E classes	1.86	Sufficient
Sports Facilities	1.36	Insufficient
• Basketball Court	1.50	Sufficient
• Volleyball Court	1.00	Insufficient
• Tennis Court	1.43	Insufficient
• Sepak Takraw Court	1.21	Insufficient
• Badminton Court	1.29	Insufficient
• Table Tennis Area	1.00	Insufficient
• Swimming Pool	1.00	Insufficient
• Oval (Track and Field)	1.14	Insufficient
Gymnasium/ Multi-Purpose Building	1.07	Insufficient
Dance Room/Hall	1.26	Insufficient
Overall Mean		Insufficient

Classrooms that are open to use in providing exercise and physical training courses in physical and exercises training in school structures of the Legazpi City Division was rated good with a mean of 1.86. That is, schools might even have enough space for P.E. classes even in the classrooms themselves but are to blame in finding rooms for physical education activity. Even if rooms are available, these cannot be utilized for functional P.E. classes, since this will no be conducive for physical activities

The availability of sporting facilities is crucial in the quality of physical education curriculum. As indicated by evidence, there are sufficient volleyball courts in Legazpi City, with a weighted mean of 1.50. But other significant sporting facilities such as basketball courts (1.36), tennis courts (1.00), sepak takraw courts (1.43), badminton courts (1.21), table tennis spaces (1.29), swimming pools (1.00), oval tracks (1.00), gymnasiums (1.14), and dance halls (1.07) were not found to be sufficient throughout the schools. It indicates a gross deficiency in the number of various sporting facilities available for the whole spectrum of physical exercises required by the P.E. curriculum. The lack of facilities such as swimming pools and gymnasiums, which were assessed as poor with a weighted mean of 1.00, is especially worrying given that such facilities are highly essential to the provision of a well-rounded physical education program incorporating aquatic sports, gymnastics, and other indoor sports. Moreover, the inability or lack of facilities such as tennis courts, badminton courts, and table tennis rooms can restrict student exposure to several sports needed in the accomplishment of different physical abilities and enhancing life-long fitness (Bates, 2017). The importance of investment in such facilities is brought forth by research that shows the great influence set school sport facilities have on level of physical activity and health outcome among the students (Telford et al., 2016).

Low mean rating (1.26) in physical plant and facilities shows that most of the schools in Legazpi City lack the facilities needed in order to effectively perform the P.E. program as the DepEd envisages. Such deficiency can contribute to lost opportunity time for learners to participate in numerous physical exercises, especially equipment-involving like swimming and track and field. The absence of sporting facilities can also lead to over-loaded classes, where various classes of students share a shared facility, which decreases the quality of education and student participation (Sallis et al., 2017).

Learning Materials

Effective physical education (P.E.) teaching often hinges on the accessibility and proper utilization of diverse learning materials. These learning materials contribute to better lesson presentation and learners' participation in physical activities. Table 5 shows information regarding the learning materials utilized by P.E. educators in Legazpi City Division and their rate of use, which identifies the most utilized resources and their effects on the delivery of the P.E. program.

We learn from the data that teachers most commonly use teacher's guides (weighted mean = 3.64), books and other references (weighted mean = 4.00), sporting equipment (weighted mean = 3.86), and audio-visual materials (weighted mean = 3.79). These are crucial to the effective delivery of the P.E. curriculum since they offer systematic guidance, physical activity materials, and visual aids to facilitate learning.

Table 1.2 Learning Materials

Learning Materials	of Using	Number Teachers Mean	Frequency of Use Weighted	Adjectival Description
Teachers guide		14	3.64	Frequently Used
Modules		7	3.43	Sometimes Used
Audio-visual materials		8	3.79	Frequently Used
ICT Materials		9	3.21	Sometimes Used
Books and other reference		10	4.00	Frequently Used
Sports Equipment		10	3.86	Frequently Used

The teacher guide was the most used resource (3.64), possibly because it is an official format of presenting lessons. This aligns with the anticipated expectation that teachers use official guides to ensure they are fulfilling curriculum needs and goals. Books and other references also found their highest weighted mean at 4.00, showing their core place in lesson preparation and as major sources for P.E. instructors. The teachers can easily have access to books, and they offer ample amounts of information easily incorporated into lesson plans. Conversely, though, modules (3.43) and ICT materials (3.21) are employed infrequently, with modules ranked as being used only "sometimes used." This indicates that teachers do not heavily depend on modules, perhaps because they are more concerned with applying skills hands-on in practical activities rather than theory. The lower utilization rate of ICT facilities like laptops, overhead projectors, and LCD projectors (weighted mean = 3.21) indicates that the resources are not a central aspect of the P.E. curriculum. This might be due to the fact that physical education, especially in senior high school, is more of a practical skills acquisition, which may not necessarily involve technology (De Meester et al., 2016). Additionally, the practical aspect of P.E. teaching has to require physical participation and interaction more than passive learning through technological assistance.

The numbers in Table 5 show total dependence on sports equipment and books, which are required to equip students with the required knowledge and practical skills for physical education. The usage of sports equipment is high (3.86), which verifies the practical nature at the heart of P.E., as students require access to various tools and materials to undertake physical activities effectively. This highlights the need for sufficient sports facilities and equipment to aid the curriculum.

4. CONCLUSION

Initially, teacher aspects of P.E. implementation are concerned with strengths and weaknesses. Although most teachers are permanent with a secure teaching position, which allows for long-term curriculum delivery, there is a wide gap in terms of their qualifications. Fifty percent of the respondents have specialized training in physical education only, and some of the teachers do not have non-P.E. degrees. This mismatch between teacher qualifications and the assignments to which they are deployed has the potential to impact the quality and extent of P.E. instruction. The report highlights the necessity of DepEd providing training programs tailored to specialized skill sets and reconsidering deployment policy in order to have more qualified P.E. teachers available to meet the growing demands of the curriculum.

Second, the distribution of resources is also a pressing issue. Despite the critical role that human resources play in effective P.E. program implementation, the research shows a critical shortage of qualified P.E. teachers and insufficient funds for needed materials and equipment. The insufficient funding of the P.E. budget and the late disbursement of money inhibit the implementation of quality physical education programs. The recommendations advocate that DepEd should reconsider its budget forecasts and enhance resource allocation to facilitate schools to obtain timely and sufficient assistance so that they can acquire essential resources like sports equipment and teaching materials. Additionally, schools need to identify other sources of finance and partnerships to supplement the available funds for P.E. activities.

Furthermore, the physical plant and facilities condition is another area that needs to change significantly. As great as there are schools that are provided with sufficient class time to fit in P.E. classes, the absence of the specialized facilities for sports, such as swimming pools, gymnasiums, and tracks, is a serious obstacle to program success. The absence of these facilities keeps students from being exposed to a variety of physical activities and keeps the full implementation of the P.E. curriculum from being achieved. To combat this, it is essential that DepEd invest and give top priority to the construction of school sports facilities. Better facilities would enable more varied and interesting physical education classes, thus ensuring greater physical fitness among students.

Scheduling and class size are also a success determinant for P.E. programs, the findings reveal. Most schools conduct P.E. classes on a weekly basis, short of the suggested 80 hours yearly of instructional time. Furthermore, the generally denser classes taught in most schools are a weight for instructors to lead student participation and individualized attention. Low proportions of lessons per entire classrooms, in addition to most classrooms' overcrowding, could compromise the ability to deliver excellent

physical education classes. To the report, frequency should be elevated to offer P.E. better classes and embrace smaller classes that offer satisfactory learning environments where active learning and skill mastery are encouraged.

Finally, utilization and accessibility of teaching materials have a significant role to play in the success of the implementation of the P.E. curriculum. Research of the questionnaire indicates that utilization of sports apparatus and textbooks is high, but ICT materials and modules are infrequently used. Such an imbalance brings out the experiential character of P.E. education, with bodily experience and body activities given much priority over studies.

However, the point that technology and learning materials are not being used up to a significant level implies that it can be possible to further incorporate digital support to serve the curriculum. Learning materials and technology must be funded by schools in order to better aid the supply of lessons and introduce learners to more varied experiences of learning.

Effective implementation of the P.E. program in Senior High Schools in DepEd Legazpi City Division relies on a chain of interdependent variables such as teacher capability, resource availability, physical infrastructures, timetabling, and instructional materials. Addressing such problems through rational policy modification, augmented spending in resources, and enhanced infrastructure will result in a better and more sustainable P.E. program promoting the physical and personal growth of the learners.

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Research Article

Knowledge and Experience on Gender-Based Sexual Harassment Among Students of Marinduque State University: Input to Localized Gender and Development Framework of Implementation

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ABSTRACT

From as simple as catcalling to the heinous act of rape, violence knows no gender. Probing the awareness and experiences of students related to Safe Spaces Act could avert gender-based sexual harassment (GBSH) incidents. Using questionnaire, data were collected from 535 students of Marinduque State College. Results revealed that respondents were mostly female, single, 21-25 years old, fourth year students, and residents of Boac Municipality. 40-46% of them are moderately aware on selected provisions of the Act. 51% experienced GBSH in streets and public places, mostly committed by strangers however 78% were not reported. Institutionalizing GBSH preventive approaches among HEIs was highly recommended. This includes collaborative implementation with agencies of PNP and LGU.

Keywords: Safe Spaces Act; Gender violence, Gender protection, Gender advancement and development; GAD

1. INTRODUCTION

Gender-based violence is a reality that has become increasingly present in different areas of contemporary society (United Nations, 2013). Scholars are theorizing and describing situations from street harassment, academic and work harassment to sexual violence in many contexts (Padrós, 2014). Scientific research has been conducted on the issue, focusing not only on the causes of harassment but also on measures for its prevention and response (Gross et al., 2006).

For Philippine Commission on Women, in the Philippines, the enactment of Republic Act No. 11313, otherwise known as the Safe Spaces Act states that Gender-Based Streets and Public Spaces Sexual Harassment are crimes of gender-based streets and public spaces sexual harassment are committed through any unwanted and uninvited sexual actions or remarks against any person regardless of the motive for committing such action or remarks both online and public spaces. And the Local government units (LGUs) shall bear primary responsibility in enforcing it. Likewise, all educational and training institutions, whether public or private, shall designate an officer-in-charge to receive complaints regarding violations of the law, and shall ensure that the victims are provided with a gender-sensitive environment that is both respectful to the victims' needs and conducive to truth-telling.

At the PNP MIMAROPA CIRS website, rape and sexual harassment related cases topped among the most prevalent crimes in the region. There were 347 rape and sexual harassment related cases reported from the period of January 2020 to December 2021.

Hence, the need to raise awareness among citizens on the deep and invisible problem of sexual harassment, and so the different social sectors can develop actions that would contribute to the prevention and response to gender-based violence in our society (Vidu et al., 2017). With these foregoing circumstances, this study aimed to determine the knowledge and experiences on gender-based sexual harassment among students of Marinduque State College and provide input to gender and development policies and programs.

2. MATERIALS AND METHODS

This study utilized a descriptive correlational approach since the study focused on describing relationships between variables rather than supporting inferences of causality (Polit & Beck, 2017). This research design is applicable to this study since it determined how one variable influences the other remaining variable. Likewise, the independent variables were not controlled.

The respondents were the students of Marinduque State College – Main Campus, enrolled during 2nd Semester, AY 2021-2022. A researcher-made questionnaire was utilized and designed specifically for this study based on related literature and related studies. The questionnaire is comprised of three parts. First part determined their profile, the second part determined the level of awareness on Safe Space Act, and the third part determined the experiences of the respondents on gender-based sexual harassment acts. Part II of the questionnaire was composed of 4-point Likert scale questions with designated verbal interpretation of Not, Slightly, Moderately, and Fully, respectively. While part III was answered by choosing from the options provided in the questionnaire.

A preliminary phase was conducted to assess the reliability and validity of the questionnaire (Alabed et al., 2020). The researcher-made questionnaire was validated by students, research professor, statistician, and other experts (Psychologist or Behaviorist) in the field to assess the degree of relevance. A pilot study with 30 participants was accomplished. Using Cronbach's Alpha, the results were tested for internal consistency. The 30 participants for the validation of the questionnaire were randomly selected. 20 from the students of Marinduque State College and 10 experts in the field, combination of Social Studies/Public Administration professors, researchers, statisticians, Psychologist or Behaviorist. Students who participated in the validation no longer served as participants in the actual conduct of the study.

The statistical tools used in interpreting and analyzing the gathered /data were frequency distribution, mean, ranking and percentage. Ethical considerations were also integrated into this research process to maintain and protect the rights of the participants. The protocol was submitted to and approved by Marinduque State College – Research Ethics Review Committee. Ethical principles were thoroughly observed in the research. The privacy of the participants was safeguarded. They were not obliged to provide their names or any sort of identification that can be linked to them. This provided a pressure-free environment to allow the participants to give their responses freely. Throughout the data collection and analysis phase, the confidentiality of respondents was maintained. Reporting all the data honestly and without alteration or manipulation of the respondents' answers to satisfy certain predictions or interest groups was also guaranteed. With this, the researchers ensured to provide accurate and valid results.

3. RESULTS AND DISCUSSIONS

Table 1. Profile of the Respondents

1.1 Gender		
Category	Frequency	Rank
Male	169	2
Female	333	1
LGBTQ+	33	3
1.2 Age		
Category	Frequency	Rank
16-20	259	2
21-25	267	1
26-30	6	3
31 and above	3	4
16-20	259	2
1.3 Civil Status		
Category	Frequency	Rank
Single	523	1
Married	12	2
Separated	0	
Annulled	0	

Table 1 shows the profile of the respondents of the study. Result showed that the greater number of the respondents are female; aged 21 to 25; and are single. Responses were taken from both voluntary and randomly selected respondents. Voluntary

responses were gathered from the online (google form) administered questionnaire. While, others are from randomly selected students of MSC to be respondents of the study.

Table 2. Awareness of the Respondents to RA No. 11313

PROVISION ON SEC. 5 OF RA 11313		4	3	2	1	TWF	WM	Interpretation
a.	The crime is committed through any unwanted and uninvited sexual actions or remarks against any person regardless of the motive for committing such action or remarks.	245	217	62	11	535	3.30	Fully aware
b.	Includes the following:							
1.	Catcalling, wolf-whistling, unwanted invitations, misogynistic, transphobic, homophobic, and sexist slurs;	219	232	64	18	533	3.22	Moderately aware
PROVISION ON SEC. 5 OF RA 11313		4	3	2	1	TWF	WM	Interpretation
2.	Persistent uninvited comments or gestures on a person's appearance;	211	231	74	15	531	3.20	Moderately aware
3.	Relentless requests for personal details;	183	235	104	13	535	3.10	Moderately aware
4.	Statement of sexual comments and suggestions;	229	220	70	13	532	3.25	Moderately aware
5.	Public masturbation or flashing of private parts, going, making offensive body gestures at someone, and other similar lewd sexual actions;	282	173	67	19	535	3.36	Fully aware
6.	Any advances, whether verbal or physical, that is unwanted and has threatened one's sense of personal space and physical safety. This may include cursing, leering and intrusive gazing, and taunting.	233	215	68	19	534	3.24	Moderately aware
7.	Persistent telling of sexual jokes, use of sexual names; and	254	207	58	16	535	3.31	Fully aware
8.	Stalking.	316	156	52	9	533	3.46	Fully aware
Over -All Mean							3.27	Fully aware
PROVISION ON SEC. 13 OF RA 11313		4	3	2	1	TWF	WM	Interpretation
a.	Include acts that use information and communications technology in terrorizing and intimidating victims.	197	253	73	12	535	3.19	Moderately aware
PROVISION ON SEC. 13 OF RA 11313		4	3	2	1	TWF	WM	Interpretation
b.	The act includes:							
1.	Physical, psychological, and emotional threats, unwanted sexual misogynistic, transphobic, homophobic and sexist remarks and comments online	292	198	35	10	535	3.32	Fully aware
2.	Invasion of the victim's privacy through cyberstalking and incessant messaging;	201	248	75	11	535	3.19	Moderately aware
3.	Uploading and sharing without the consent of the victim any form of media that contains photos, voice, or video with sexual content;	232	224	66	11	533	3.27	Fully aware
4.	Any unauthorized recording and sharing of any of the victim's photos, videos or any information online;	294	179	48	13	534	3.41	Fully aware

5.	Impersonating identities of victims online or posting lies about victims to harm their reputation; or	297	181	44	10	532	3.44	Fully aware
6.	Filing false abuse reports to online platforms to silence victims.	268	198	53	15	534	3.35	Fully aware
c.	Include acts that use information and communications technology in terrorizing and intimidating victims.	239	202	74	18	533	3.24	Moderately aware
Over- All Mean							3.32	Fully aware

PROVISION ON SEC. 17 OF RA 11313		4	3	2	1	TWF	WM	Interpretation
Higher penalty will apply if act was committed on following cases:								
1.	If the act takes place in a common carrier or PUV including, but not limited to jeepneys, taxis, tricycles, or app-based transport network vehicle services where the perpetrator is the driver of the vehicle and the offended party is a passenger;	149	270	92	24	535	3.02	Moderately aware
2.	If the offended party is a minor, a senior citizen, or a person with disability (PWD), or a breastfeeding mother nursing her child;	221	210	84	19	534	3.19	Moderately aware
3.	If the offended party is diagnosed with a mental condition tending to impair consent;	199	232	76	24	531	3.14	Moderately aware
4.	If the perpetrator is a member of the uniformed services, such as the PNP and the Armed Forces of the Philippines (AFP), and the act was perpetrated while the perpetrator was in uniform;	186	225	101	23	535	3.07	Moderately aware
5.	If the act take place in the premises of a government agency offering frontline services to the public and the perpetrator is a government employee.	160	254	103	17	534	3.04	Moderately aware
Over- All Mean							3.09	Moderately aware

Table 2 shows the awareness of the respondents on selected provisions of RA No. 11313 or Safe Spaces Act, particularly Section 5 - Gender-Based Streets and Public Spaces Sexual Harassment, Section 13 - Gender-Based Online Sexual Harassment, and Section 17 - Qualified Gender-Based Streets and Public Spaces and Online Sexual Harassment. Result showed that as to the provisions under Section 5, respondents are fully aware on the violative acts of GBSH in streets and public spaces particularly the act of stalking. Similarly with the provisions under Section 13, on GBSH acts committed online, respondents are fully aware, specifically impersonating identities of victims online or posting lies about victims to harm their reputation. While, for Section 17 on qualified GBSH both in streets and public spaces and online in which higher penalty will apply, respondents are only moderately aware, most specifically on the provision if the act takes place in a common carrier or PUV including, but not limited to jeepneys, taxis, tricycles, or app-based transport network vehicle services where the perpetrator is the driver of the vehicle and the offended party is a passenger. Data revealed that although majority among the respondents are already aware on GBSH acts violating their rights, however, many are still victims of violative acts under RA No. 11313 or The Safe Spaces Act.

Table 3. Respondents' Experience on Gender-Based Sexual Harassment

1.1 Personal Experience on Act/s of Gender-Based Sexual Harassment				
Category	Yes		No	
	F	%	F	%
Streets & Public Places	275	51%	259	49%
Online	233	44%	302	56%
1.2 Kinds of Gender-Based Sexual Harassment Experienced				
On Public Places:	Frequency		Rank	

Catcalling, wolf-whistling, unwanted invitations, misogynistic, transphobic, homophobic, and sexist slurs;	231	1
Persistent uninvited comments or gestures on my appearance;	130	4
Relentless requests for my personal details;	112	5
Statement of sexual comments and suggestions;	103	6
Public masturbation or flashing of private parts, going, making offensive body gestures to me, and other similar lewd sexual actions;	39	8
Cursing, leering and intrusive gazing, and taunting.	87	7
Persistent telling of sexual jokes, use of sexual names	148	2
Stalking	144	2
Online:	Frequency	Rank
Physical, psychological, and emotional threats, unwanted sexual misogynistic, transphobic, homophobic and sexist remarks and comments online, publicly or through direct and private messages	163	2
Cyberstalking and incessant messaging	221	1
No consented uploading and sharing in social media my photos, voice, or video with sexual content;	64	5
Unauthorized recording and sharing of my photos, videos or information online	82	3
Impersonating my identity online or posting lies to harm my reputation	69	4
Filing false abuse reports to online platforms to silence me.	51	6

1.3 Place in Streets and Public Spaces Where Acts of Gender-Based Sexual Harassment was Experience

Public Places	Frequency	Rank
Streets	350	1
Restaurant/Café	11	6
Public CR	28	5
Park	36	4
School	156	2
Public Utility Vehicle (i.e. jeep, tricycle)	114	3
Others (home/house, neighbor's house, court, barangay, store)	9	7

1.4 Place in Online Spaces Where Acts of Gender-Based Sexual Harassment was Experienced

Online	Frequency	Rank
Facebook	366	1
Instagram	46	5
Chatrooms (i.e. Messenger)	149	2
E-mail	11	7
Text/SMS	47	4
Dating Apps	41	6
Online Game Apps	54	3
Others: Telegram, Twitter	4	8

1.5 Person Who Committed the Act of Gender-Based Sexual Harassment

Person	Frequency	Percentage
Person known to the respondent	136	25%
Person unknown to the respondent	399	75%

1.6 Status of Reporting of the Victim of Gender-Based Sexual Harassment

Status	Frequency	Percentage
Reported	117	22%
Not Reported	418	78%

1.6 Effect of Gender-Based Sexual Harassment to Victim

Effects	Frequency	Rank
Fear of other gender	95	7.5
Fear in public places	209	1
Emotional and mental stress (anxiety, depression, mood disorder)	186	3
Physical Stress (headache, sleeping disorder, eating disturbances, weight loss/gain)	95	7.5
Low self-esteem or confidence	198	2
Panic reactions or phobia	148	4
Self-harming behavior	69	12

Changed dressing style	65	13
Changed communication habit	79	10
Anger	119	5
Insecurity	114	6
Guilt/Self-blame	72	11
Shame	94	8
Decreased interest in activities and communication	83	9
Distant	95	7.5
Calm	40	14
Others	2	15

Table 3 shows the personal experiences of the respondents on gender-based sexual harassments (GBSH). Result showed that as to the experience on gender-based sexual harassment, respondents said that GBSH related acts are mostly experienced in streets and public places rather than online; commonly GBSH experienced on public places are the act categorized under catcalling, wolf-whistling, unwanted invitations, misogynistic, transphobic, homophobic, and sexist slurs, while in online is cyberstalking and incessant messaging; for common public places where GBSH is experienced, respondents answered streets, while facebook for online; person unknown to the victim are those who usually commit GBSH acts; majority of the committed GBSH are not reported; and the common effect of GBSH acts towards a person is fear in public places. Data revealed that GBSH are thriving more on streets and public places despite that most of the youth now-a-days are spending more time online. Experiences by the respondents, both in streets and public places and online may be considered as simple acts of GBSH but are considered runup to possible heinous crimes such as rape. These acts as commonly experienced in the streets for public places serve as strong indication that streets are becoming unsafe for people, thus calls for awareness and pro-active action from the local government units who are basically in-charge in securing the safety of streets under their jurisdiction. While, facebook being the most unsafe social platform as revealed in the result is probably due to the reason that it is the most commonly used social media platform among the youths.

4. CONCLUSION

From the result of the study the following conclusion were arrived: a) Student-respondents are fully aware on violative acts of GBSH, both in streets and public spaces and online, though moderately aware on qualified GBSH both in streets and public spaces and online in which higher penalty will apply; b) Streets and public places became more unsafe, as most acts of GBSH is happening rather in online, thus calls for awareness and pro-active action from the local government units who are basically in-charge in securing the safety of streets under their jurisdiction; c) Common act of GBSH committed is categorized under catcalling, wolf-whistling, unwanted invitations, misogynistic, transphobic, homophobic, and sexist slurs, while in online is cyberstalking and incessant messaging may seem be simple acts but are considered runup to possible heinous crimes such as rape; d) GBSH act happening online are commonly committed through facebook, probably due to the reason that it is the most commonly used social media platform among the youths.

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Research Article

Evaluation of the PATHFit 1 Program Implementation in Bicol University: Basis for Program Review and Enhancement

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ABSTRACT

The research study thoroughly explored the PATHFit1 program at Bicol University, covering its objectives, policies, instructional methods, assessment techniques, and resource distribution. It aimed to assess the impact of the Path Fit 1 Program on students' physical activity and fitness, identify variations in implementation across university campuses, and evaluate students' perceptions of Path Fit professors' effectiveness. Additionally, the study investigated challenges faced by faculty and students during program implementation. Focused on the Academic Year 2023-2024, the study comprehensively evaluated the program's effects on physical activity, fitness, dietary habits, and lifestyle, along with students' perceptions of professor effectiveness. It also examined differences in program implementation across campuses and identified challenges influencing this variation. Respondents included 2nd-year Path Fit Program students and faculty from the Institute of Physical Education, Sports, and Recreation (IPESR), ensuring a representative sample through random sampling. Data collection utilized survey questionnaires and interview guides, adhering to ethical guidelines to safeguard participant rights and well-being throughout the research process. The study investigated the PATHFit1 program at Bicol University, focusing on faculty training, program objectives, and student perceptions. Results indicated faculty readiness in implementing PATHFit's individualized exercise approach and emphasizing movement-based learning. Students recognized program adherence to safety standards and evidence-based practices. Additionally, PATHFit positively impacted student learning outcomes and necessitated varied teaching approaches and technological integration. Regarding program effects, PATHFit significantly increased physical activity levels and fitness among students, with notable improvements in engagement and awareness of health benefits. There were significant differences in program implementation across campuses, highlighting contextual variations. PATHFit professors demonstrated high effectiveness in instructional delivery, assessment practices, and resource utilization, contributing to student learning experiences. Challenges faced by faculty included limited resources and communication barriers among campuses, while students struggled with time management and motivation amidst fatigue. Addressing these challenges requires ongoing support and resource allocation to enhance program effectiveness and student engagement. The recommendations for enhancing the PATHFit 1 program at Bicol University encompass several key areas. Continuous professional development for faculty members is essential to ensure alignment with evidence-based practices and the program's tailored approach to exercise. Integration of technology is advised to enhance engagement and learning outcomes, alongside the establishment of a systematic evaluation process for continuous improvement. Adequate resources and support are crucial to overcome challenges and empower students to prioritize physical fitness and well-being. Furthermore, investment in resources and ongoing professional development for educators, promotion of collaboration among institutions, and engagement of students in program development and evaluation are recommended. Targeted measures should address differences in program implementation across campuses, with a focus on needs assessment, tailored support, collaboration, and ongoing evaluation. Additionally, optimizing instructional delivery, assessment practices, and resource utilization requires continuous professional development for faculty, innovative assessment methods, equitable access to resources, and support for faculty effectiveness. Increased financial support, comprehensive staff training, improved communication and coordination, and strategies to support student time management and motivation are vital for program success and maximizing its impact on student well-being.

Keywords: physical education, fitness, sports, movement education, exercise

1. INTRODUCTION

Higher education institutions constantly strive to enhance the quality of their academic programs to meet the evolving needs of students and the demands of a dynamic workforce. Bicol University, a prominent educational institution in Bicol Region, has implemented the Path Fit 1 Program to address the academic and professional development of its students. The Path Fit 1

Program represents a paradigm shift in physical education, emphasizing a comprehensive approach to health and fitness. Salient features of the curriculum include a blend of structured instruction classes and participation in physical activity-based clubs, intramural and extramural activities. It aims to equip students with the skills to make informed decisions about their health, safety, and wellness. The program goes beyond traditional PE, aligning with global standards and fostering a sense of identity and adulthood in learners. BU's commitment to student success and holistic development will be highlighted. As one of the key initiatives within the university, the Path Fit 1 Program underscores BU's dedication to providing students with a well-rounded education. Pre-implementation training for the Institute of Physical Education, Sports, and Recreation (IPESR) faculty and orientation activities for students will be mentioned, showcasing BU's proactive approach in preparing stakeholders for the transition. The adoption of the Path Fit 1 Program at Bicol University (BU) is grounded in the adherence to relevant legislation, a commitment to outcome-based quality assurance, and a recognition of the imperative outlined in the Philippine Constitution. This follows Republic Act No. 7722 (Higher Education Act of 1994): The adoption of the Path Fit 1 Program aligns with the provisions of Republic Act No. 7722, also known as the "Higher Education Act of 1994." This legislation emphasizes the need for higher education institutions to set minimum standards and exercise reasonable supervision and regulation of all educational programs. The Path Fit 1 Program serves as BU's response to the call for maintaining educational standards and relevance in the evolving landscape of higher education. In recent years, Bicol University has expanded its reach by establishing external campuses, each contributing to the diversity of its academic landscape. However, the extent to which the Path Fit 1 Program is consistently implemented across these campuses in terms of program objectives, curriculum delivery, and overall structure remains a critical aspect of evaluation. Moreover, the extent to which the Path Fit 1 Program syllabi are consistently implemented across these campuses needs a thorough assessment. Syllabi implementation serves as a foundational element for ensuring program coherence and consistency, directly impacting the learning experiences of students. Understanding the uniformity or variations in syllabi implementation is vital for ensuring that the intended benefits of the program are realized by students across all campuses. The successful implementation of any educational program, including the Path Fit 1 Program, centers upon overcoming challenges and leveraging enablers. Thus, a comprehensive analysis of the key factors influencing syllabi implementation, along with their impact on observed differences across campuses, is crucial. Furthermore, academic performance serves as a tangible indicator of the program's success. A comparative analysis of the academic performance of students enrolled in the Path Fit 1 Program, both at the main and external campuses, will be undertaken. Identifying variations in student performance within the program and exploring the contributing factors, including teaching methods and campus-specific variables, will provide a comprehensive understanding of the dynamics at play. The following parameters/criteria will be employed: 1) Goals and Objectives: Evaluation of the extent to which the goals and objectives of the Path Fit Program are clearly defined, aligned with student needs, and effectively communicated to stakeholders. 2) Policies and Program Standards: Assessment of the documentation and adherence to program policies, standards, and guidelines across all Bicol University campuses. 3) Instructional Delivery: Evaluation of the effectiveness and consistency of instructional methods, materials, and pace in delivering the Path Fit Program curriculum. 4) Assessment: Analysis of the fairness, transparency, and consistency of assessment methods, feedback provision, and utilization of assessment results to inform program improvements. 5) Resources: Examination of the availability, adequacy, and utilization of financial, physical, human, informational, and technological resources for program implementation..

2. MATERIALS AND METHODS

The study aimed to determine the status of the Path Fit 1 Program at Bicol University. By incorporating Tyler's model into the research design, the formative assessment of the Path Fit Program may effectively evaluate the program's implementation status and pinpoint areas that need improvement. The Tyler model, devised by Ralph Tyler, centers around four essential elements: objectives, assessment, instruction, and learning experiences. In this study, random sampling was used to select the respondents from 2nd year students. Random sampling involves selecting participants from the population in a way that every individual has an equal chance of being selected. This was done through obtaining a list of all second-year students enrolled in the Path Fit Program from each campus of Bicol University. Then, allocate a distinct identifying number to every student in their second year on the list. The numbering should be consecutive and encompass all students in the sampling window. Calculate the optimal sample size for the investigation using a margin of error of 5%. The respondents for this research on the status of the Path Fit 1 program at Bicol University involved 374 second year students which were proportionately distributed across 15 academic units. Selected faculty members were also part of this study. Using a combination of survey questionnaire and interview guide, the researcher can gather both quantitative and qualitative data from these respondent groups to address the research questions comprehensively. The data gathered was subjected to different measures such as frequency count, percentage and ranking and mean. For assessment methods, descriptive statistics using frequency was used to show which assessment method has the greatest number of faculty

members adopting. Descriptive statistics were also used to determine the frequency by which these challenges were mentioned by faculty members and students. On the other hand, inferential statistics using ANOVA was used since to determine the significant difference in the effects of Path Fit 1 across the different campuses of Bicol University.

3. RESULTS AND DISCUSSIONS

Implementation of Path Fit 1 in terms of: (a) Goals and Objectives (b) Policies and Program Standards (c) Instructional Delivery (dd) Assessment (e) Resources

Table 1A provides an evaluation of the execution of the PATH FIT 1 program in relation to its aims and objectives. The aims and objectives of the program act as fundamental concepts that govern the design and implementation of the program, with the aim of providing a clear path for student growth and enhancing the overall efficacy of the program.

Table 1A
Implementation of Path Fit 1 in terms of Goals and Objectives

Goals and Objectives	WM	Interpretation
The Path Fit 1 program clearly defines its goals and objectives.	4.71	<i>Strongly Agree</i>
The goals and objectives of Path Fit 1 are aligned with student needs.	4.51	<i>Strongly Agree</i>
Progress towards the goals and objectives of Path Fit 1 is regularly monitored.	4.49	<i>Agree</i>
The goals and objectives of Path Fit 1 are communicated effectively to all stakeholder	4.43	<i>Agree</i>
There is a clear plan for achieving the goals and objectives of Path Fit	4.54	<i>Strongly Agree</i>
Average Weighted Mean	4.54	<i>Strongly Agree</i>

The weighted mean (WM) scores provide insights into stakeholders' perceptions regarding various aspects of goal definition, alignment, monitoring, communication, and planning within the program. Overall, stakeholders strongly agree that the PATH FIT 1 program clearly defines its goals and objectives (WM = 4.71). This indicates a high level of clarity and specificity in articulating the overarching aims and desired outcomes of the program. Clear goal definition is essential for providing direction, guiding decision-making, and ensuring accountability in program implementation.

Table 1B
Implementation of Path Fit 1 in terms of Policies and Program Standard

Policies and Program Standard	WM	Interpretation
The policies governing Path Fit 1 are clearly documented and accessible.	4.43	<i>Agree</i>
Path Fit 1 adheres to established program standards and guidelines	4.66	<i>Strongly Agree</i>
Program policies are consistently implemented across all campuses.	4.57	<i>Strongly Agree</i>
There are mechanisms in place for updating and revising program policies as needed.	4.57	<i>Strongly Agree</i>
Program standards are regularly reviewed to ensure effectiveness and relevance	4.63	<i>Strongly Agree</i>
Average Weighted Mean	4.57	<i>Strongly Agree</i>

Table 1B provides an assessment of the implementation of PATH FIT 1 in terms of policies and program standards. The weighted mean (WM) scores offer insights into stakeholders' perceptions regarding various aspects of policy documentation, adherence to standards, consistency in implementation, mechanisms for updating policies, and the regular review of program standards. Stakeholders generally agree that the policies governing PATH FIT 1 are clearly documented and accessible (WM = 4.43). This indicates that there is clarity and transparency in communicating program policies to stakeholders, enabling them to understand and adhere to established guidelines effectively. Clear documentation of policies is essential for promoting consistency, fairness, and accountability in program implementation. Moreover, stakeholders strongly agree that PATH FIT 1 adheres to

established program standards and guidelines (WM = 4.66). This suggests that the program is committed to maintaining high-quality standards and adhering to best practices in program delivery. Adherence to standards ensures program effectiveness, credibility, and alignment with institutional and industry expectations. Furthermore, stakeholders strongly agree that program policies are consistently implemented across all campuses (WM = 4.57).

Table 1C
Implementation of Path Fit 1 in terms of Instructional Delivery

Instructional Delivery	WM	Interpretation
Instructional materials used in Path Fit 1 are engaging and informative.	4.57	<i>Strongly Agree</i>
Facilitators deliver Path Fit 1 sessions effectively, catering to different learning styles.	4.51	<i>Strongly Agree</i>
The pace of instruction in Path Fit 1 is appropriate for student comprehension.	4.57	<i>Strongly Agree</i>
Facilitators encourage active participation and interaction among students during sessions.	4.43	<i>Agree</i>
Instructional delivery methods in Path Fit 1 are varied and innovative.	4.51	<i>Strongly Agree</i>
Average Weighted Mean	4.52	<i>Strongly Agree</i>

Table 1C provides an assessment of the implementation of PATH FIT 1 in terms of instructional delivery, focusing on the effectiveness of instructional materials, facilitators' delivery, pace of instruction, student participation, and instructional delivery methods. Stakeholders strongly agree that instructional materials used in PATH FIT 1 are engaging and informative (WM = 4.57). This indicates that the materials effectively capture students' interest and provide valuable information to support their learning. Engaging instructional materials are essential for promoting student motivation, attention, and retention of course content, ultimately enhancing the effectiveness of the educational experience (Mayer, 2021). Similarly, stakeholders strongly agree that facilitators deliver PATH FIT 1 session effectively, catering to different learning styles (WM = 4.51). This suggests that facilitators are adept at adapting their instructional approaches to meet the diverse needs and preferences of students. Catering to different learning styles promotes inclusivity, accessibility, and effectiveness in instruction, leading to improved learning outcomes for all students (Silverman & Perini, 2009).

Table 1D
Implementation of Path Fit 1 in terms of Assessment

Assessment	WM	Interpretation
Assessment methods used in Path Fit 1 are fair and transparent.	4.57	<i>Strongly Agree</i>
Feedback on student performance is provided in a timely manner.	4.71	<i>Strongly Agree</i>
Assessments in Path Fit 1 accurately measure student progress towards learning objectives.	4.57	<i>Strongly Agree</i>
Assessment criteria are clearly communicated to students beforehand.	4.43	<i>Agree</i>
Assessment results are used to inform future program improvements.	4.63	<i>Strongly Agree</i>
Average Weighted Mean	4.58	<i>Strongly Agree</i>

Table 1D provides an assessment of the implementation of PATH FIT 1 in terms of assessment, focusing on the fairness and transparency of assessment methods, timeliness of feedback, alignment of assessments with learning objectives, clarity of assessment criteria, and utilization of assessment results for program improvement. Stakeholders strongly agree that assessment methods used in PATH FIT 1 are fair and transparent (WM = 4.57). This indicates that assessments are designed and administered in a manner that ensures equity, impartiality, and clarity, thereby promoting trust and confidence in the assessment process. Fair and transparent assessment methods are essential for promoting student motivation, engagement, and academic integrity (Popham, 2018). Moreover, stakeholders strongly agree that feedback on student performance is provided in a timely manner (WM = 4.71). Timely feedback is essential for supporting student learning, enhancing motivation, and facilitating continuous improvement (Hattie & Timperley, 2007). By providing prompt feedback, educators can help students understand their strengths and areas for

improvement, thereby empowering them to take ownership of their learning and make meaningful progress towards their goals.

Table 1E
Implementation of Path Fit 1 in terms of Resources

<i>Resources</i>	<i>WM</i>	<i>Interpretation</i>
Path Fit 1 has adequate financial resources to support program implementation.	4.66	<i>Strongly Agree</i>
Physical resources (e.g., equipment, facilities) for Path Fit 1 are sufficient and well-maintained.	4.57	<i>Strongly Agree</i>
Human resources (e.g., facilitators, support staff) for Path Fit 1 are adequately trained and qualified.	4.43	<i>Agree</i>
Informational resources (e.g., career materials, counseling resources) for Path Fit 1 are readily available to students.	4.57	<i>Strongly Agree</i>
Path Fit 1 has access to technological resources necessary for program delivery	4.71	<i>Strongly Agree</i>
Average Weighted Mean	4.59	<i>Strongly Agree</i>

Table 1E provides an assessment of the implementation of PATH FIT 1 in terms of resources, focusing on financial, physical, human, informational, and technological resources. The weighted mean (WM) scores indicate stakeholders' perceptions regarding the adequacy, accessibility, and quality of these resources. Stakeholders strongly agree that PATH FIT 1 has adequate financial resources to support program implementation (WM = 4.66). This suggests that the program is well-funded, enabling it to allocate resources effectively to meet programmatic needs. Adequate financial resources are essential for ensuring program sustainability, supporting innovation, and enhancing program effectiveness (Guskey & Pigott, 2018).

The effects of the PATH FIT 1 in terms of: (a) Physical Activity (b) Physical Fitness

Table 2A analyzes the impact of the PATH FIT 1 program on the levels of physical activity among the individuals involved. Comprehending these consequences is essential for evaluating the program's influence on fostering active lives and general well-being among pupils.

Table 2A
Effects of the PATH FIT 1 in terms of Physical Activity

<i>Physical Activity</i>	<i>WM</i>	<i>Interpretation</i>
Participation in Path Fit 1 has encouraged me to engage in regular physical activity.	4.35	<i>Agree</i>
Path Fit 1 has increased my awareness of the importance of physical activity for overall health.	4.18	<i>Agree</i>
I feel more motivated to incorporate physical activity into my daily routine because of Path Fit 1.	4.29	<i>Agree</i>
Path Fit 1 has provided opportunities for me to participate in enjoyable physical activities.	4.32	<i>Agree</i>
I have noticed improvements in my physical health since participating in Path Fit 1.	4.30	<i>Agree</i>
Average Weighted Mean	4.29	<i>Agree</i>

Table 2A presents the effects of PATH FIT 1 in terms of physical activity, focusing on participants' perceptions of engagement in regular physical activity, awareness of its importance, motivation to incorporate it into daily routines, opportunities for enjoyable activities, and improvements in physical health. The weighted mean (WM) scores and interpretation (I) indicate stakeholders' overall agreement with these statements. Overall, participants agree that PATH FIT 1 has positively impacted their engagement in physical activity, with an average weighted mean of 4.29, indicating agreement. This suggests that the program has successfully encouraged participants to adopt regular physical activity habits, which is essential for promoting overall health and well-being (Warburton et al., 2016).

Table 2B1
RESULTS OF OBSERVATION IN TREADMILL ACTIVITY PHYSICAL FITNESS

CAMPUSES	10 MINS	20 MINS	30 MINS	40 MINS	50 MINS	60 MINS
CAL (29 Students)	10	2	4	5	5	3
CE (26 Students)	12	4	4	3	2	1
CN (10 Students)	3	2	2	2	1	0
CS (24 Students)	9	7	7	1	0	0
IPESR (16 Students)	0	0	0	0	0	16
JMRIDG (5 Students)	2	2	1	0	0	0
CENG (37 Students)	14	6	6	5	5	1
CIT (27 Students)	0	2	2	12	9	2
IDEA (16 Students)	0	1	6	5	4	0
CAF (26 Students)	8	7	6	3	2	0
TC (29 Students)	7	8	8	3	2	1
PC (50 Students)	13	12	9	9	5	2
CBEM (38 Students)	11	9	8	7	2	1
CSSP (26 Students)	10	5	5	2	2	2
GC (15 Students)	5	5	5	0	0	0
TOTAL	104	72	73	57	39	29

The table provides a detailed breakdown of observations regarding physical fitness activities on various campuses, focusing on treadmill activity durations ranging from 10 to 60 minutes. Each cell in the table signifies the number of students observed participating in treadmill exercises for the specified duration at each campus. Analyzing the data, several trends emerge across different campuses. For instance, in campuses like CAL and CE, the number of students engaging in treadmill activity gradually decreases with longer durations, indicating potential fatigue or decreasing interest over time. Conversely, campuses such as IPESR and PC exhibit more consistent participation, with all or a majority of students engaging in treadmill activity, particularly at shorter durations. There are also instances of fluctuating participation rates across different time intervals within campuses. For example, in campuses like CIT and CBEM, there are notable spikes in participation at specific durations, suggesting potential preferences or scheduling patterns among students. On the other hand, campuses like CN and GC show consistently low levels of participation across all durations, indicating potential factors such as accessibility or interest in treadmill activity. Overall, the data highlight the diversity in engagement levels and patterns of treadmill activity across different campuses, reflecting the complex interplay of factors such as campus culture, facilities, and individual preferences. Understanding these variations can inform strategies for promoting physical fitness and tailoring interventions to better meet the needs and interests of students across diverse campus environments.

Table 2B.2
Effects of the PATH FIT 1 in terms of Physical Fitness

Physical Fitness	WM	Interpretation
Participation in Path Fit 1 has improved my overall physical fitness.	4.56	Strongly Agree
I feel more confident in my physical abilities as a result of participating in Path Fit 1.	4.58	Strongly Agree
Path Fit 1 has helped me set and achieve fitness goals.	4.54	Strongly Agree
I have noticed positive changes in my strength and endurance since participating in Path Fit 1.	4.34	Agree
I have noticed improvements in my physical health since participating in Path Fit 1.	4.59	Strongly Agree
Average Weighted Mean	4.52	Strongly Agree

The data from Table 2B1 presents the effects of participating in the PATH FIT 1 program in terms of physical fitness. Across various dimensions of physical fitness, the responses indicate overwhelmingly positive outcomes. Participants strongly agree that their overall physical fitness has improved as a result of engaging in the program, with an impressive average weighted mean

score of 4.56 out of 5. This suggests a high level of satisfaction and perceived efficacy among participants regarding the program's impact on their physical well-being. Moreover, participants report feeling more confident in their physical abilities after participating in PATH FIT 1, with a strong agreement rating of 4.58. This increase in confidence underscores not only the tangible improvements in fitness but also the psychological benefits that come with achieving fitness goals and experiencing progress.

Significant difference in the effects of PATH FIT 1 curriculum on student learners in various campuses of Bicol University

Table 3 examines if there are notable variations in the impact of the PATH FIT 1 curriculum on student learners at various campuses of Bicol University. The purpose of this analysis is to identify any differences in the program's influence on student outcomes, such as levels of physical activity, physical fitness, and nutritional habits, across different academic settings within the university. Analyzing notable disparities can provide valuable insights for implementing focused interventions and improvements to ensure fair advantages for all students involved in the program.

Table 3
Significant difference in the effects of PATH FIT 1 curriculum on student learners in various campuses of Bicol University

Source	DF	Sum of Square	Mean Square	F Statistic	P-value
Groups (between groups)	6	67.1429	11.1905	Infinity	0
Error (within groups)	28	0	0		
Total	34	67.1429	1.9748		

Table 3 presents the results of an analysis examining the significant difference in the effects of the PATH FIT 1 curriculum on student learners across various campuses of Bicol University. The analysis divides the data into two main sources of variation: groups (between groups) and error (within groups). The "Groups" category refers to the differences observed between the campuses, while the "Error" category represents the variability within each campus group. The F statistic and associated p-value provide insights into the significance of the differences observed between the groups. In this analysis, the F statistic for the between-groups comparison is reported as "Infinity," indicating that the variation between the campuses is significantly greater than the variation within each campus group. The corresponding p-value is reported as 0, indicating that the observed differences between the campuses are statistically significant. These findings suggest that there are significant differences in the effects of the PATH FIT 1 curriculum on student learners across the various campuses of Bicol University. The curriculum's impact appears to vary significantly depending on the campus where it is implemented. Such differences could be attributed to various factors, including differences in teaching methodologies, student demographics, campus resources, and environmental factors.

Students' rating on the effectiveness of PATH FIT 1 professor in facilitating their learning experiences along: (a) Instructional Delivery (b) Assessment (c) Resource Utilization

Table 4
Students' Rating on the Effectiveness of PATH FIT 1 professor in facilitating their learning experiences along: (a) Instructional Delivery (b) Assessment (c) Resource Utilization

Instructional Delivery	WM	I
Path Fit professors effectively communicate course content and objectives.	4.55	SA
Path Fit professors use instructional strategies that engage and motivate students.	4.34	A
Path Fit professors provide clear explanations and examples during sessions.	4.67	SA
Path Fit professors encourage active participation and discussion among students.	4.43	A
Path Fit professors are accessible and approachable for questions and assistance.	4.55	SA
Average Weighted Mean	4.51	SA
Assessment		

Path Fit professors use assessments that accurately measure student learning outcomes.	4.35	A
Assessment criteria are clearly communicated to students by Path Fit professors.	4.45	A
Path Fit professors provide clear explanations and examples during sessions.	4.28	A
Assessments in Path Fit are fair and unbiased.	4.56	SA
Path Fit professors encourage student reflection on assessment results to promote learning.	4.65	SA
Average Weighted Mean	4.46	A
Resource Utilization		
Path Fit professors effectively utilize available resources to support student learning.	4.78	SA
Path Fit professors incorporate a variety of resources (e.g., multimedia, guest speakers) into their instruction.	4.85	SA
Path Fit professors utilize facilities that improve and effectively teach students.	4.76	SA
Path Fit professors make efficient use of class time and materials.	4.76	SA
Path Fit professors encourage students to explore additional resources beyond the classroom.	4.58	SA
Average Weighted Mean	4.75	SA

Legend: 1-Strongly Disagree 2-Disagree 3-Neutral 4-Agree 5- Strongly Agree

The data from Table 4 provides insights into students' perceptions of the effectiveness of Path Fit 1 professors in facilitating their learning experiences across three key areas: Instructional Delivery, Assessment, and Resource Utilization. In terms of Instructional Delivery, students overwhelmingly rate Path Fit professors positively. They commend professors for effectively communicating course content and objectives (4.55), providing clear explanations and examples (4.67), and fostering active participation and discussion (4.43). These high ratings suggest that Path Fit professors excel in engaging students and facilitating a conducive learning environment. Additionally, the accessibility and approachability of professors for questions and assistance receive high praise (4.55), indicating a supportive and responsive teaching approach. Regarding Assessment, students perceive Path Fit professors as employing fair and effective assessment practices. Professors receive commendable ratings for using assessments that accurately measure student learning outcomes (4.35) and providing clear assessment criteria (4.45). Moreover, students view assessments in Path Fit as fair and unbiased (4.56), and appreciate professors' efforts to encourage student reflection on assessment results (4.65). These findings indicate a commitment to fostering meaningful learning experiences and promoting student growth through reflective assessment practices. In terms of Resource Utilization, students highly value Path Fit professors' effective utilization of available resources. Professors receive exceptionally high ratings for incorporating a variety of resources into their instruction (4.85), utilizing facilities that enhance teaching effectiveness (4.76), and making efficient use of class time and materials (4.76). Furthermore, students appreciate professors' encouragement to explore additional resources beyond the classroom (4.58), highlighting a holistic approach to student learning and development. The overall average weighted mean scores for all three areas – Instructional Delivery (4.51), Assessment (4.46), and Resource Utilization (4.75) – indicate that students strongly agree with the effectiveness of Path Fit 1 professors in facilitating their learning experiences. These positive perceptions underscore the proficiency of Path Fit professors in delivering engaging instruction, implementing fair assessment practices, and maximizing available resources to support student learning effectively.

Challenges faced by faculty members and students in the implementation of Path Fit 1 curriculum.

Table 5 examines the difficulties faced by staff members and students when implementing the Path Fit 1 program. The purpose of this study is to identify and comprehend the barriers and challenges encountered by stakeholders in successfully implementing and engaging in the program. The table offers useful insights into the areas that need attention and prospective areas for improvement in order to strengthen the overall implementation of the Path Fit 1 program.

Table 5
Challenges faced by faculty members and students

Challenges	WM	I
Limited financial resources	4.06	Influential
Limited student engagement and participation	4.00	Influential
Insufficient staff training and support	3.94	Influential
Lack of access to necessary facilities and equipment	4.17	Influential
Communication barriers among campuses	4.23	Influential
Inconsistent program, policies and guidelines	3.97	Influential
Difficulty in coordinating activities across campuses	4.00	Influential
Inadequate technology infrastructure	4.00	Influential
Average Weighted Mean	4.05	Influential

1-Not Influential 2-Somewhat Influential 3- Moderately Influential 4-Influential 5- Highly Influential

The implementation of the Path Fit 1 curriculum appears to be accompanied by several significant challenges, both for faculty members and students. Among the most notable hurdles is the limited availability of financial resources, as indicated by a weighted mean score of 4.06, suggesting its influential impact. This constraint likely affects various aspects of curriculum execution, including staffing, facility maintenance, and resource procurement. Another prominent issue is the limited engagement and participation of students, with a weighted mean score of 4.00. This challenge can impede the effectiveness of teaching and learning activities, hindering the achievement of desired educational outcomes. Insufficient staff training and support, scored at 3.94, further exacerbate the situation, potentially leading to gaps in instructional quality and student support services. Access to necessary facilities and equipment also emerges as a significant concern, with a weighted mean score of 4.17. Inadequate resources can hamper hands-on learning experiences and practical skill development, diminishing the overall educational experience for students. Communication barriers among campuses, rated at 4.23, pose another substantial challenge. Effective communication is essential for cohesive curriculum delivery and coordination across multiple locations, making this issue particularly impactful on the implementation of Path Fit 1. Additionally, inconsistency in program policies and guidelines (3.97), difficulty in coordinating activities across campuses (4.00), and inadequate technology infrastructure (4.00) all contribute to the complexity of implementing the curriculum. These challenges collectively underscore the multifaceted nature of the obstacles faced by both faculty and students.

Based on the testimonies of the faculty

"Upon implementing the Path fit program, the primary challenges that I encounter was the adaptation of students specifically the subjects offers a moderate to high energy. As we all know, students who are enrolled in our class specifically senior high school before that don't have any PE related subjects, that's why as an instructor you need to demonstrate, explain well and exert more effort in teaching. Secondly, though the institute provided equipment to integrate the adaptation of PATHFIT classes the equipment does not at least cover all the students, for example the equipment was already used by some instructors. So some instructors will be no longer has the availability of some equipment. Lastly, continuous seminar integration and training could be more efficient and effective to all the instructors, by this training we can identify factors in some techniques and a tool for refreshment to the lesson they need to discuss to their students. Overall, the implementation of PATHFIT courses in the IPESR is beyond more prepared and has a progress than the other institutions and colleges that is offering it".

The faculty member's testimony sheds light on several key challenges encountered during the implementation of the PATHFit program within the Institute of Physical Education and Sports Rehabilitation (IPESR). One significant challenge highlighted is the adaptation of students, particularly regarding the subjects that require moderate to high energy levels. The faculty member points out that many students enrolled in the program, especially those from senior high school, may not have had prior exposure to physical education-related subjects. This lack of background necessitates instructors to invest additional effort in teaching, including demonstrating exercises, providing thorough explanations, and fostering student engagement. This challenge underscores the importance of tailored instructional approaches to meet the diverse needs of students and ensure their successful adaptation to the curriculum. Another challenge identified is the availability of equipment for integrating Path fit classes. While the institute provided equipment, it appears that the supply may not be sufficient to accommodate all students due to factors such as equipment being utilized by other instructors. This scarcity of resources can hinder the implementation of practical components

of the curriculum and limit students' hands-on learning experiences. Addressing this challenge may require strategic resource allocation, equipment maintenance protocols, and collaborative efforts among faculty members to ensure equitable access to necessary resources for all students.

4. CONCLUSION

The data clearly indicate that the implementation of the Path Fit 1 program at Bicol University is highly regarded in multiple aspects. The strong consensus among participants in all aspects of the Path Fit 1 program highlights its efficacy and resilience in achieving its intended aims and objectives. The results indicate that the program is skillfully planned, executed, and backed, offering pupils a thorough and captivating learning encounter centered on health and fitness. The results indicate that the Path Fit 1 program has had a substantial and beneficial effect on students' involvement in physical activity and their overall physical fitness across multiple aspects. These findings underline the significance and efficacy of the program in fostering a wholesome and vigorous way of life among college students. The analysis undertaken indicates a notable difference in the impact of the Path Fit 1 curriculum throughout the campuses of Bicol University. An F-test was used to compare the mean scores across distinct categories, represented by different campuses. The F-statistic value obtained from this test was infinite. The findings emphasize the significance of acknowledging and resolving the discrepancies in the execution and efficacy of the Path Fit 1 program among various campuses of Bicol University. These insights can be used to develop focused interventions and enhancements that are customized to address the individual needs and challenges faced by each campus which may ultimately increase the overall efficacy and impact of the program throughout the whole university. The favorable ratings given by students highlight the effectiveness of Path Fit 1 professors in enhancing their learning experiences, including their teaching methods, evaluation techniques, and use of resources. The findings demonstrate the successful execution of the program and identify specific areas of excellence that can be utilized to improve student learning outcomes and satisfaction. The findings highlight several obstacles that have a substantial impact on the execution of the Path Fit program at Bicol University. The relevant factors identified by faculty and students include communication hurdles, resource limits, and financial limitations. Addressing these challenges is crucial to overcoming barriers to the successful implementation of the Path Fit program and optimizing its benefits for all stakeholders involved.

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Research Article

Comparative Market Review and Analysis of Different Cloud Computing Providers for Hosting TAKDA WEBCPASMS PROTOTYPE

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ABSTRACT

Cloud computing has become essential for businesses, providing scalable, flexible, and cost-efficient solutions. As organizations increasingly rely on cloud-based infrastructure, selecting the most suitable provider for specific needs is crucial. This research evaluates four leading cloud platforms—SiteGround, Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP)—to determine the optimal platform for hosting the TAKDA WebCPaSMS proto-model. Using a comparative case study design and content analysis, the study examines provider reliability, security, scalability, cost-effectiveness, and technical support. Findings indicate that SiteGround is ideal for managed cloud hosting and small-scale applications due to its ease of use but lacks traditional compute, storage, and networking services. AWS provides the most comprehensive cloud solutions, Azure integrates best with Microsoft enterprise ecosystems, and GCP excels in AI, data analytics, and cloud-native applications. These insights help organizations select the best cloud platform for their needs.

Keywords: Cloud Computing, Analysis, Industry, Cloud Platform

1. INTRODUCTION

Cloud computing has transformed how organizations store, manage, and process data by providing scalable, cost-efficient solutions tailored to both business and academic demands. With the increasing reliance on digital infrastructure, selecting the most suitable cloud service provider is a critical decision that influences performance, security, and cost-efficiency (Kumar, 2017). The objective of this study is to conduct a comprehensive review and analysis of different cloud computing providers, namely SiteGround, Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP), to determine the optimal solution for hosting the TAKDA WebCPaSMS proto-model.

A comparative analysis will be conducted to evaluate each provider's scalability, security, cost-effectiveness, and ease of use. By examining these factors, this research aims to provide a data-driven recommendation for the most appropriate cloud platform for adoption. The study will also consider the advantages of cloud migration, including reduced operational costs, improved data management, and enhanced security measures (Piccoli et al., 2018).

Furthermore, a structured implementation and migration plan will be designed to guide organizations in transitioning to the recommended cloud provider. This plan will outline critical steps such as infrastructure assessment, data migration strategies, security configurations, and system optimization to ensure a seamless and efficient adoption process (Grepon et al., 2022). The findings and recommendations from this research will serve as a valuable resource for institutions and businesses aiming to enhance their cloud computing capabilities.

The study thoroughly reviewed leading cloud computing providers, analyzing their respective advantages and limitations. By evaluating critical factors such as cost, scalability, security, and ease of implementation, the research identified the most suitable platform for hosting the TAKDA WebCPaSMS proto model. Additionally, based on the insights gathered, a detailed recommendation was formulated to aid organizations in selecting the best cloud service provider tailored to their needs.

The rapid expansion of cloud service providers (CSPs) has necessitated the development of efficient strategies for

managing and optimizing cloud resource utilization. Cloud federation and multi-cloud architectures have been proposed as effective solutions to address these challenges, allowing organizations to leverage the strengths of multiple CSPs for enhanced efficiency and flexibility (Tricomi et al., 2020). These architectures provide businesses with the ability to select the most suitable providers based on their unique requirements, ensuring improved performance and cost-effectiveness.

A structured framework for comparing CSPs based on critical factors such as performance, security, cost, and customer support has been developed to facilitate informed decision-making (Deshmukh et al., 2018). This framework is particularly valuable for businesses seeking to host applications such as the TAKDA WebCPaSMS Protomodel, as it ensures a systematic evaluation of potential CSPs. Performance indicators, including uptime, latency, and response time, have been identified as crucial metrics for assessing the effectiveness of cloud services. By leveraging such insights, organizations can identify providers that excel in these areas, ensuring seamless application performance and operational efficiency (Deshmukh et al., 2018).

Security remains a major concern for organizations migrating to the cloud, making it a critical factor in the selection of CSPs. The study by Adamuthe et al. (2015) underscores the importance of solid security measures and compliance protocols to protect sensitive data. Security considerations are essential for hosting applications such as the TAKDA WebCPaSMS Protomodel, as inadequate security measures can lead to data breaches and unauthorized access. Therefore, evaluating CSPs based on their security capabilities and compliance with industry standards is crucial for mitigating risks and ensuring data integrity. The evolution of cloud computing has significantly transformed business operations by offering scalable and cost-efficient solutions. Research by Islam (2013) provides an overview of the leading CSPs, their service offerings, pricing structures, and performance metrics that influence customer choices. Key metrics such as uptime, response time, customer support services, and cost-effectiveness play an integral role in determining the most suitable cloud provider. These insights assist businesses in making data-driven decisions regarding CSP selection and resource allocation, thereby optimizing their cloud investments.

The factors influencing cloud adoption decisions within organizations extend beyond performance and cost. According to Tripathi and Mishra (2019), perceived usefulness, costs, risks, and benefits shape the decision-making process. A key finding from their study highlights that perceived risks negatively impact the behavioral intention to adopt cloud computing. This underscores the need for CSPs to address security and privacy concerns to enhance adoption rates. Furthermore, organizations must conduct thorough risk-benefit analyses to justify their cloud investments and develop sound business strategies. Comparative analyses of CSPs provide valuable insights into their strengths and weaknesses, aiding businesses in selecting the most suitable provider. A study by Deshmukh et al. (2018) examined the capabilities of major CSPs, focusing on service offerings, pricing models, and performance metrics. Their findings reinforce the importance of evaluating security, cost-effectiveness, and service quality as fundamental criteria in cloud provider selection. Such comparative studies are instrumental in navigating the rapidly evolving cloud market and ensuring that businesses align their cloud strategies with their operational needs.

The significance of CSP comparison is further emphasized in research conducted by Choudhary, Verma, and Rai (2022), which provides a comprehensive review of various CSPs, focusing on cost efficiency, security features, and service performance. Their study highlights the role of technological advancements in shaping the future of cloud computing, emphasizing the need for businesses to stay informed about industry trends. By understanding different CSP offerings, organizations can maximize value and optimize their cloud-based operations. Additionally, Chy and Ferdous (n.d.) conducted a comparative analysis of leading CSPs, including Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP). Their study examined crucial parameters such as pricing, performance, scalability, and security features, providing a structured overview of each provider's strengths and weaknesses. The findings highlight the competitive differentiation in service offerings and the impact of these differences on market positioning. Such analyses enable businesses to make strategic decisions regarding cloud adoption, ensuring that they choose a provider that aligns with their specific needs and long-term goals.

Conceptual/Theoretical framework

In figure 1 shows the conceptual framework that provides a structured approach for conducting a comparative analysis of cloud service providers. The process side of the framework is the "Comparative Analysis of Cloud Providers," which serves as the central theme. Key factors such as cloud service providers, market trends, and user requirements and preferences are considered on the input side. These elements are crucial for comprehending the landscape of cloud computing, encompassing the strengths and weaknesses of various providers, emerging trends, and the unique needs of businesses and individuals. On the output side, "Market Analysis" is highlighted, indicating that the study involves evaluating the competitive positioning of cloud service providers, their pricing strategies, service offerings, and overall market performance. This framework proposes a systematic approach to evaluating cloud platforms, incorporating both qualitative and quantitative factors to facilitate informed decision-making. By using this structure, researchers and businesses can compare cloud solutions like SiteGround, AWS, Azure, and Google

Cloud Platform based on relevant market insights and user needs.

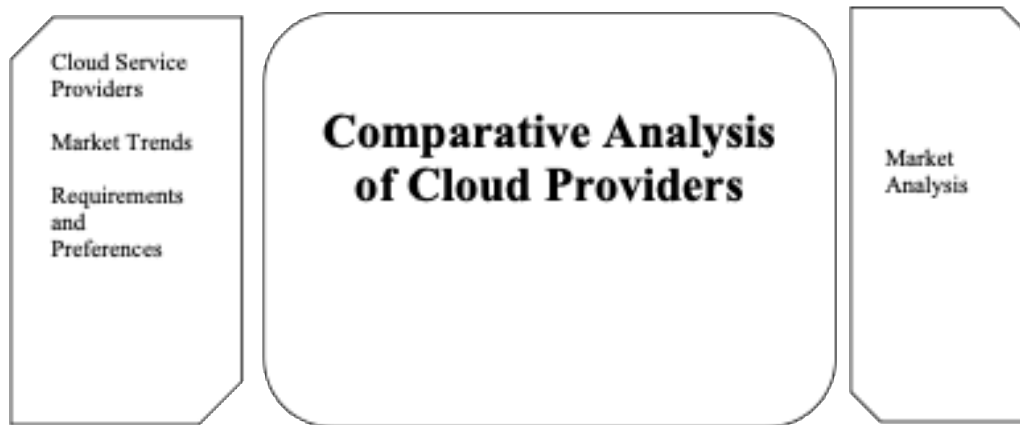


Fig. 1. Conceptual Framework

2. MATERIALS AND METHODS

Research Design

This research employs a comparative case study design to analyze different cloud computing providers, focusing on their offerings, pricing models, features, and performance. This approach facilitates an in-depth examination of each provider's strengths and limitations, ensuring a comprehensive evaluation.

Data Sources

Information was gathered from official provider websites, technical documentation, industry reports, and relevant literature. The primary cloud providers analyzed include SiteGround, a managed cloud hosting provider focused on ease of use and MySQL database services; Amazon Web Services (AWS), a leading cloud computing platform offering extensive compute, storage, and database solutions; Microsoft Azure, known for its integration with Microsoft products and flexible infrastructure; and Google Cloud Platform (GCP), a cloud provider specializing in innovation, scalability, and advanced data solutions.

Comparison Framework

This research assesses cloud service providers by examining essential features such as compute capabilities (e.g., virtual machines, serverless platforms, and container orchestration), storage options (including object and block storage as well as database storage), and database services that cover both relational and NoSQL solutions. Additionally, it examines networking services, including virtual networks, firewalls, and load balancing, as well as pricing models such as pay-as-you-go, reserved instances, and tiered plans. To illustrate the differences in service offerings and their suitability for various use cases, a comparative analysis table was developed.

Implementation Plan

To evaluate the feasibility of cloud migration, a case study involving Bicol University's Information Communications Technology Office (BUICTO) was conducted. The implementation plan focused on:

1. Infrastructure Assessment – Reviewing existing systems hosted on SiteGround and identifying potential limitations.
2. Cloud Assessment – Evaluating compatibility of workloads, including Project TAKDA, with cloud environments.
3. Cloud Strategy – Selecting the appropriate cloud model (public, private, hybrid) and migration approach (lift-and-shift, re-platforming, or refactoring).
4. Security Planning – Implementing encryption, access controls, and compliance with the Data Privacy Act of 2012.
5. Cost Optimization – Comparing *pricing* structures of AWS, Azure, GCP, and SiteGround to determine the most cost-effective solution.
6. Testing and Validation – Conducting functional, security, and performance testing to ensure system reliability post-migration.

Data Analysis

A content analysis approach was used to categorize cloud service providers based on their strengths and limitations. Comparative tables were utilized to summarize key features, enabling data-driven decision-making regarding cloud adoption. By following this methodology, the study ensures a systematic approach to evaluating cloud computing providers, ultimately aiding in the selection of the most suitable platform for Bicol University's cloud migration strategy..

3. RESULTS AND DISCUSSIONS

Provider Websites and Documentation

SiteGround is a web hosting company that offers a variety of hosting plans, including shared hosting, WordPress hosting, and WooCommerce hosting. They are known for their fast and reliable servers, as well as their excellent customer support [SiteGround, n.d.]. They have a variety of features to help businesses succeed online, including website security, marketing tools, and content creation resources.

Table 1 shows, that the provider offers four monthly billing plans: Jump Start, GrowBig, GoGeek, and Super Power (SiteGround, n.d.). While it doesn't provide traditional compute or storage services, it includes pre-configured MySQL databases with its hosting plans. These databases are optimized for the provider's platform, ensuring smooth website operation. Additionally, the provider offers a user-friendly control panel and takes care of server maintenance and database security. However, the lack of traditional networking services might be a limitation for businesses with complex networking requirements. Overall, the provider's offerings seem well-suited for businesses that prioritize pre-configured databases and ease of use, but may not be ideal for those requiring extensive compute, storage, or networking capabilities.

Amazon Web Services (AWS) is a comprehensive cloud computing platform offering a wide range of on-demand services that enable individuals and businesses to build, deploy, and scale applications and services on the cloud. AWS provides a flexible and scalable infrastructure, allowing users to pay only for the resources they use.

Table 1. SiteGround Features

Feature	Services
	offers four Cloud hosting plans, which are billed monthly
<i>Pricing Model</i>	• Jump Start - \$100/month • GrowBig - \$200/month • GoGeek - \$300/month • Super Power - \$400/month
<i>Compute Services</i>	Does not offer traditional cloud compute services
<i>Storage Services</i>	Does not offer traditional storage services
<i>Database Services</i>	• Cloud hosting plans come with built-in MYSQL databases • Pre-configured and optimized for their platform, ensuring smooth operation for your website. • User-friendly control panel • Takes care of server maintenance and database security
<i>Networking Services</i>	Does not offer traditional networking services

Table 2. Amazon Web Services Features

Feature	Services
<i>Pricing Model</i>	- The majority of AWS services follow a pay-as-you-go model. - Only pay for the resources you use. - Amazon Elastic Compute Cloud (EC2) - Amazon Elastic Container Service (ECS)
<i>Compute Services</i>	- AWS Lambda - Amazon Lightsail - AWS Batch - Amazon EC2 Spot Instances - AWS Auto Scaling Does not directly offer cloud storage services. Instead, Amazon Web Services (AWS), a subsidiary of Amazon.com, provides a comprehensive suite of cloud storage solutions.
<i>Storage Services</i>	- Amazon Simple Storage Service (S3) - Amazon Elastic Block Store (EBS) - Amazon Elastic File System (EFS) - Amazon Glacier - AWS Storage Gateway - Choice for users familiar with traditional relational databases like - MySQL, PostgreSQL, or Oracle. - A highly performant, NoSQL database service ideal for high-traffic web applications, mobile backends, and gaming applications.
<i>Database Services</i>	A MySQL and PostgreSQL compatible relational database service offering high performance, scalability, and availability.
<i>Networking Services</i>	Does not offer traditional networking services

Table 2 presents an overview of the core services and features available through Amazon Web Services (AWS). AWS primarily operates on a pay-as-you-go pricing structure, enabling users to pay based on actual resource usage (Amazon Web Services, n.d.-a). Its compute offerings are diverse, featuring solutions like Amazon EC2 for virtual machines, Amazon ECS for managing containers, AWS Lambda for serverless execution, and Amazon Lightsail for more straightforward cloud deployments (Amazon Web Services, n.d.-b; Amazon Web Services, n.d.-c). In terms of storage, AWS delivers a robust range of options, including Amazon S3 for object storage and Amazon EBS for block-level storage. Amazon Elastic File System (EFS), Amazon Glacier, and AWS Storage Gateway (Amazon Web Services, n.d.-b). Finally, for database services, AWS offers options like Amazon Relational

Database Service (RDS) for traditional relational databases and Amazon DynamoDB for NoSQL databases, catering to various application requirements (Amazon Web Services, n.d.-d).

Microsoft Azure is a cloud computing platform that offers a comprehensive set of services to help businesses build, deploy, and manage applications and services. It provides a flexible and scalable infrastructure, enabling organizations to innovate and achieve their goals. [Kavis, M. (2014)]

Table 3. Microsoft Azure Features

Feature	Services
<i>Pricing Model</i>	- Flexible pricing mode - Azure services are billed on an hourly or minute basis, providing granular control over your costs.

	• There are no upfront fees or long-term commitments required. • Prices may vary based on the region • Virtual Machines (VMs) • Azure App Service • Azure Functions • Azure Kubernetes Service (AKS) • Azure HPC Cloud
Compute Services	
	Offers a comprehensive set of storage services to meet various data storage needs
Storage Services	• Blob Storage • File Storage • Table Storage • Disk Storage • Azure SQL Database • Azure SQL Managed Instance • Azure Cosmos DB • Azure Database for PostgreSQL • Azure Database for MySQL • Azure MariaDB
Database Services	
	Offers a comprehensive set of networking services
Networking Services	• Virtual Networks (VNet) • Azure Firewall

Table 3 shows the key features and services offered by Microsoft Azure. In terms of pricing, Azure employs a flexible model where services are billed on an hourly or minute basis, allowing for granular cost control and eliminating the need for upfront fees or long-term commitments (Microsoft, n.d.-a). For compute services, Azure offers a diverse range of options, including Virtual Machines (VMs), Azure App Service, Azure Functions, Azure Kubernetes Service (AKS), and Azure HPC Cloud, catering to various computational needs (Microsoft, n.d.-b). For storage, Azure provides a comprehensive set of services such as Blob Storage, File Storage, Table Storage, and Disk Storage, designed to accommodate different data requirements (Microsoft, n.d.-c). Azure's database services include a variety of options like Azure SQL

Database, Azure SQL Managed Instance, Azure Cosmos DB, Azure Database for PostgreSQL, Azure Database for MySQL, and Azure MariaDB, supporting both relational and NoSQL databases (Microsoft, n.d.-d). Lastly, Azure offers networking services, including Virtual Networks (VNet) and Azure Firewall, to ensure secure and scalable network connectivity within the cloud environment (Microsoft, n.d.-e).

Table 4. Google Cloud Platform Features

Feature	Services
Pricing Model	• Pay for what you use, with no upfront commitments. • Most resources are priced on a per-hour basis, providing flexibility.
Compute Services	• Compute Engine • App Engine • Kubernetes Engine (GKE) • Cloud Functions • Cloud Run • Cloud Storage • Cloud SQL
Storage Services	• Cloud Bigtable • Cloud Filestore • Cloud Spanner

Database Services

- Cloud SQL- A fully managed relational database service that supports MySQL, PostgreSQL, and SQL Server. It offers high availability, automatic backups, and point-in-time recovery.
- Cloud Bigtable- A wide-column NoSQL database
- Cloud Datastore - A schema-less NoSQL database
- Cloud Firestore - A flexible, scalable NoSQL database
- Virtual Private Cloud (VPC)
- Cloud Load Balancing
- Cloud DNS
- Cloud VPN
- Cloud Interconnect
- Cloud Firewall

Networking Services

Table 4 outlines the primary features and services available through Google Cloud Platform (GCP). Regarding its pricing structure, GCP adopts a pay-as-you-go approach, which enables users to pay solely for the resources they utilize, removing the necessity for upfront investments (Google Cloud, n.d.). For computing needs, GCP offers a wide array of services, including Compute Engine for virtual machines, App Engine for serverless applications, Google Kubernetes Engine (GKE) for managing containers, Cloud Functions for event-driven serverless computing, and Cloud Run for serverless container deployments (BlueXP, 2023). When it comes to storage, GCP delivers a robust suite of options: Cloud Storage for object-based storage, Cloud SQL for relational databases, Cloud Bigtable for wide-column NoSQL databases, Cloud Filestore for managed file storage, and Cloud Spanner for globally distributed, strongly consistent relational databases (Google Cloud, n.d.). GCP's database offerings include Cloud SQL, which supports MySQL, PostgreSQL, and SQL Server, along with features such as automated backups, high availability, and point-in-time recovery (Google Cloud, n.d.). In addition, it supports NoSQL solutions like Cloud Bigtable, Cloud Datastore, and Cloud Firestore (BlueXP, 2023). To support networking, GCP includes a comprehensive range of services such as Virtual Private Cloud (VPC), Cloud Load Balancing, Cloud DNS, Cloud VPN, Cloud Interconnect, and Cloud Firewall, all designed to ensure secure and scalable cloud connectivity (BlueXP, 2023).

Industry Reports and Analysis

The cloud computing industry has witnessed remarkable growth in recent years, driven by the increasing demand for scalable, flexible, and cost-effective IT solutions. Among the leading players in this space are SiteGround, Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP). This report provides an analysis of these four major providers, considering factors such as market share, service offerings, pricing, and customer satisfaction.

Market Share and Leadership

AWS, being the pioneer in the cloud computing market, continues to hold a dominant position. According to research firm Gartner, AWS maintained a significant market share in 2023, followed by Microsoft Azure and Google Cloud Platform (Gartner, 2023). However, the competitive landscape has intensified, with Azure and GCP making significant strides in terms of feature parity and customer acquisition.

Service Offerings and Capabilities

Each provider offers a comprehensive suite of cloud services, including compute, storage, networking, databases, analytics, and machine learning. AWS boasts a vast ecosystem of services and tools, making it a popular choice for enterprises of all sizes. Azure, leveraging Microsoft's extensive technology stack, provides strong integration with Windows-based applications and tools. GCP, backed by Google's expertise in data analytics and artificial intelligence, excels in data-intensive workloads and machine learning applications.

Pricing and Cost Considerations

Cloud providers offer different pricing structures, including pay-as-you-go, reserved, and spot instance models. While AWS is known for its competitive rates, both Azure and GCP have implemented diverse pricing tiers and discount strategies to appeal to users. Organizations must thoroughly assess their unique requirements and usage habits to identify the most economical solution.

Customer Satisfaction and Support

Customer satisfaction is a crucial factor when selecting a cloud provider. AWS has a strong reputation for its customer support and community forums. Azure and GCP have also made significant investments in improving their customer experience. Factors such as reliability, performance, and security are also essential considerations for organizations. The cloud computing market is dynamic and competitive, with SiteGround, AWS, Azure, and GCP leading the way. The choice of provider depends on various factors, including specific business requirements, budget constraints, and desired level of support. Organizations should carefully evaluate their needs and conduct thorough research to select the most suitable cloud platform for their long-term success.

Data Analysis

- SiteGround focuses on managed cloud hosting, offering limited compute, storage, and networking options. It supports MySQL databases and has a tiered pricing model that scales based on user needs (SiteGround, n.d.).
- Amazon Web Services (AWS) provides a broad range of services, including extensive compute options such as EC2, ECS, and Lambda, as well as storage solutions like S3, EBS, and Glacier. It offers a variety of databases, including RDS for relational data and DynamoDB for NoSQL, along with comprehensive networking solutions, all under a pay-as-you-go pricing model (Amazon Web Services, n.d.).
- Microsoft Azure emphasizes integration with Microsoft products, offering virtual machines (VMs), App Service, and Azure Kubernetes Service (AKS) for compute, along with Blob Storage and Disk Storage for storage needs. Azure also supports relational databases like Azure SQL and Cosmos DB for NoSQL, with a flexible pricing structure (Microsoft Azure, n.d.).
- Google Cloud Platform (GCP) is recognized for its focus on innovation and scalability, offering services such as Compute Engine, App Engine, and Cloud Functions for compute, as well as Cloud Storage and Bigtable for storage. GCP also supports various database services, including Cloud SQL for relational data and Bigtable for NoSQL, alongside networking services like VPC and Cloud Load Balancing, under a pay-as-you-go model (Google Cloud, n.d.).

Table 5 shows a comprehensive comparison of four major cloud computing platforms: SiteGround, Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP). Each platform is evaluated based on its focus, compute capabilities, storage options, database support, networking features, and pricing model. SiteGround, primarily a managed cloud hosting provider, offers limited compute and storage resources. It specializes in MySQL databases and provides tiered pricing plans (SiteGround, n.d.). AWS, on the other hand, is a versatile platform with a broad range of services, including extensive compute options (EC2, ECS, Lambda), storage solutions (S3, EBS, EFS), and both relational (RDS) and NoSQL (DynamoDB) databases. It adopts a pay-as-you-go pricing model (Amazon Web Services, n.d.). Microsoft Azure, known for its integration with Microsoft products, offers a wide array of compute resources (VMs, App Service, Functions, AKS, HPC Cloud), storage options (Blob Storage, File Storage, Table Storage, Disk Storage), and a diverse range of databases (Azure SQL Database, Cosmos DB, PostgreSQL, MySQL, MariaDB) (Microsoft Azure, n.d.). Azure also provides flexible pricing options. Lastly, Google Cloud Platform (GCP) focuses on innovation and scalability, offering compute resources like Compute Engine, App Engine, GKE, and Cloud Functions, along with storage solutions (Cloud Storage, Cloud SQL, Bigtable, Filestore, Spanner) and databases (Cloud SQL, Bigtable, Datastore, Firestore) (Google Cloud, n.d.). GCP also employs a pay-as-you-go pricing model. In summary, the table highlights the distinct strengths and offerings of each platform, allowing users to make informed decisions based on their specific requirements and preferences.

Choosing the Right Cloud Provider

The best cloud provider for you depends on your specific needs and requirements. Here are some factors to consider:

- **Cost:** AWS, Azure, and GCP all offer pay-as-you-go pricing models, but their pricing structures can vary depending on your usage. SiteGround offers tiered plans, which can be more predictable but may not be as cost-effective for high-usage scenarios.
- **Services:** AWS offers the broadest range of services, while Azure is strongest in integration with Microsoft products and GCP focuses on innovation and scalability. SiteGround offers a more limited set of services but may be sufficient for basic web hosting needs.
- **Scalability:** All four providers offer scalable cloud solutions. However, GCP and AWS may be better suited for highly scalable applications due to their extensive range of compute and storage options.
- **Ease of Use:** SiteGround is known for its user-friendly interface, while AWS, Azure, and GCP can have a steeper learning curve due to the wider range of services and features they offer.

Table 5. Comparative Analysis

Feature	SiteGround	Amazon Web Services (AWS)	Microsoft Azure	Google Cloud Platform (GCP)
Focus	Managed Cloud Hosting	Broad Range of Services	Integration with Microsoft Product	Innovation and Scalability
Compute	Limited	Extensive (EC2, ECS, Lambda, etc.)	VMS, App Service, Functions, AKS, HPC Cloud	Compute Engine, App Engine, GKE, Cloud Functions, Cloud Run
Storage	Limited	S3, EBS, EFS, Glacier, Storage Gateway	Blob Storage, File Storage, Table Storage, Disk Storage	Cloud Storage, Cloud SQL, Bigtable, Filestore, Spanner
Database	MySQL (managed)	RDS (relational), DynamoDB (NoSQL)	Azure SQL Database, Cosmos DB, PostgreSQL, MySQL, MariaDB	Cloud SQL (relational), Bigtable (NoSQL), Datastore (NoSQL), Firestore (NoSQL)
Networking	Limited	Comprehensive	VNet, Azure Firewall	VPC, Cloud Load Balancing, Cloud DNS, VPN, Interconnect, Firewall
Pricing	Tiered Plans	Pay-as-you-go	Flexible (hourly/minute)	Pay-as-you-go

Implementation

To ensure a successful cloud migration, a comprehensive plan must be developed addressing key areas: infrastructure assessment, data migration strategy, security and compliance, and training and support.

1. Assessment and Strategy

This assessment evaluates that Bicol University's Information Communications Technology Office (BUICTO) has current infrastructure, focusing on network components and the use of SiteGround as the cloud provider, where some web applications are being deployed. The analysis also considers the potential risks associated with developing applications that are not PHP-based. Based on these findings, recommendations are made to optimize the infrastructure, evaluate cloud providers, and address the challenges of non-PHP application development.

2. Cloud Assessment

To plan for cloud migration, a crucial step is identifying workloads suitable for transition, such as the hosting of Technology Application and Knowledge Development Approach (Project TAKDA)—a web-centric paper submission and monitoring system developed specifically for the Bicol University Research & Development (BU R&D) Journal. This process begins with evaluating the existing infrastructure and applications to assess their compatibility with cloud environments. Security and compliance requirements are then carefully reviewed, ensuring that Project TAKDA, along with other sensitive systems, will be adequately protected and compliant with regulatory standards in a cloud setup. Additionally, analyzing potential cost savings and performance improvements helps clarify the financial and operational advantages of migrating Project TAKDA and similar workloads, aiding in the prioritization of resources that will most benefit from cloud migration.

3. Cloud Strategy

A robust cloud strategy is fundamental to successfully developing and deploying technology solutions, especially for initiatives like Project TAKDA. This web-centric paper submission and monitoring system for BU R&D Journal necessitates carefully selecting the most suitable cloud provider type—public, private, or hybrid—considering scalability, security, and cost-effectiveness (Zhu, 2010). When formulating the migration strategy, Bicol University must determine whether to employ a lift-and-shift approach, re-platform the system, or refactor existing components to optimize efficiency and performance within the cloud environment (Foxt et al., 2010). Moreover, establishing a rigorous security and compliance framework is essential to safeguard sensitive research data and ensure adherence to regulatory. Lastly, implementing a comprehensive governance model will aid in regulating cloud usage, tracking costs, and maintaining standards for system performance and data management. By adopting a well-defined cloud strategy, Project TAKDA can effectively harness cloud resources to enhance research capabilities and streamline

the paper submission and monitoring processes for BU R&D.

4. Planning and Design

The architecture design for this web applications outlines a robust and scalable cloud infrastructure, encompassing key elements such as network topology, storage solutions, and compute resources. The design ensures seamless integration of these components to deliver high availability, performance, and security, while optimizing resource allocation for future growth (Amazon Web Services, 2023). A key focus is on implementing a resilient disaster recovery and business continuity plan, which guarantees minimal downtime and data loss during unexpected failures (ITPro Today, 2023). This strategic approach ensures that web applications can recover quickly from disruptions, maintaining business operations without significant impact. In addition, the project includes well-defined data migration strategies and the selection of appropriate tools to facilitate a smooth and efficient transition to the cloud. These strategies ensure that data is migrated with minimal risk and disruption, supporting the long-term success and reliability of the cloud infrastructure (Microsoft Azure, 2023). Overall, the architecture and its implementation are designed to meet specific needs, ensuring scalability, security, and continuous availability in a dynamic cloud environment.

5. Security Planning

Security planning will be a core element in the design and implementation of the web system, ensuring it is secure, reliable, and compliant with regulations. To protect sensitive data, robust security measures will be implemented, including advanced encryption for data in transit and at rest, and role-based access controls. Intrusion detection and prevention systems (IDPS) will monitor network traffic for threats, and a comprehensive incident response plan will address security breaches and data loss. The system will also focus on maintaining availability and integrity under various threats. To comply with the Philippine Data Privacy Act of 2012, the system will implement robust security measures, conduct regular audits, and monitor activities, prioritizing data privacy and security to protect user information and maintain regulatory compliance.

6. Cost Optimization

Cost optimization is crucial for efficient cloud resource management, involving strategies like rightsizing instances and utilizing reserved instances to reduce costs (Nodeari, 2015). Implementing cost monitoring tools further enhances efficiency by tracking and preventing overspending (Velinov, 2023). For the “A Web-Centric Paper Submission and Monitoring System for Bicol University Research and Development (BU R&D) Journal,” a comparative analysis of cloud providers is essential. SiteGround offers cost-effective solutions for smaller projects with intuitive management, while Azure and AWS provide robust infrastructure with flexible pricing. Google Cloud enables granular cost control through custom machine types and per-second billing. Ultimately, the project aims to balance performance, scalability, and cost efficiency by strategically leveraging the unique strengths of each provider, particularly SiteGround’s affordability.

7. Implementation and Migration

The planning of migrating for the “Web-Centric Paper Submission and Monitoring System for Bicol University Research and Development (BU R&D) Journal,” it is crucial to develop a thorough migration strategy that encompasses all phases of the process. The plan should outline clear timelines and dependencies, detailing each step necessary for a seamless transition (Chang et. al, 2015). Before executing the migration, rigorous testing procedures should be conducted in a controlled environment to ensure the system’s functionality and compatibility with the chosen cloud infrastructure (Mullen, 2018). In addition, a robust rollback plan must be established to address any unforeseen issues or disruptions, allowing for a swift and safe reversion to the previous system if necessary (Hamadah, 2019). Furthermore, it is essential to evaluate the migration costs across various cloud platforms, including Azure, SiteGround, Google Cloud, and Amazon Web Services (AWS). This includes analyzing pricing models for compute resources, storage, data transfer, and additional services required by the BU R&D Journal. The cost analysis should factor in scalability, performance, and long-term sustainability to select the most cost-effective solution that meets the specific needs of the journal’s operations and growth (Alharthi et al., 2017).

8. Testing and Validation

Testing and validation for the “Web-Centric Paper Submission and Monitoring System for Bicol University Research and Development (BU R&D) Journal” is essential to ensure the application’s functionality, security, and performance across cloud environments. Functional testing focuses on assessing the application’s core features and overall performance in the cloud, verifying that it meets the desired specifications and maintains data integrity and security. Security testing involves conducting vulnerability assessments and penetration testing to uncover potential weaknesses, as well as ensuring the system complies with relevant security standards and regulations (Ramachandran, 2014). Performance testing measures the system’s speed and responsiveness, identifying any bottlenecks that may hinder its performance. Based on the testing outcomes, adjustments like configuration changes or scaling may be required to optimize the application’s performance.

Regarding the costing for the cloud infrastructure, a comparison of services across Azure, SiteGround, Google Cloud, and Amazon Web Services (AWS) needs to be made to determine the most cost-effective option. Each provider offers various pricing models depending on factors like storage, computing power, and bandwidth, which will be crucial in determining the long-term sustainability of hosting the BU R&D Journal platform. Detailed pricing analysis of these providers should be performed to select the right service that balances cost and performance effectively (Chinamanagonda,, 2020).

4. CONCLUSION

This research presents a detailed comparison of four leading cloud service providers—SiteGround, Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP)—highlighting the distinct advantages each brings to meet varying business requirements.

SiteGround is an excellent choice for managed cloud hosting and smaller web projects, thanks to its user-friendly interface, though it does not provide the full range of compute, storage, and networking services. Amazon Web Services (AWS) offers the broadest set of cloud capabilities, including robust computing, storage, and networking options, all available through a flexible pay-as-you-go pricing model. Microsoft Azure is particularly well-suited for organizations that rely on Microsoft products, offering smooth integration with Windows-based tools. Google Cloud Platform (GCP) stands out for its strong focus on innovation, scalability, and advanced solutions in AI, data analytics, and cloud-native development.

Choosing the right provider depends on factors such as cost, scalability, ease of use, and service offerings. Businesses should carefully assess their needs to select the most suitable cloud platform. Additionally, organizations must implement strategic planning, security measures, cost optimization, and testing for successful cloud adoption to ensure seamless migration and operational efficiency.

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Research Article

Faculty Perceptions of Sustainability Initiatives: Insights on Knowledge, Readiness, and Integration of Sustainability Concepts in Teaching

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ABSTRACT

Sustainability has become a critical component of modern education, necessitating its integration into teaching practices. This study explores faculty perceptions of sustainability initiatives, focusing on their knowledge, readiness, and ability to incorporate sustainability concepts into their teaching. Using a mixed-methods approach, data were collected through surveys and interviews with faculty members from various disciplines. The findings highlight the extent of faculty awareness and understanding of sustainability, the challenges they face in integrating these concepts, and the support needed to enhance sustainability education. Results indicate that while faculty members recognize the importance of sustainability, gaps in training, institutional support, and curriculum resources hinder effective integration. Based on these insights, the study provides recommendations for professional development programs, policy enhancements, and curriculum revisions to foster sustainability-oriented teaching. The findings contribute to the broader discourse on sustainable education and offer practical strategies for higher education institutions to advance sustainability initiatives.

Keywords: Sustainability Education, Faculty Perceptions, Teaching Integration, Knowledge Readiness, Higher Education

1. INTRODUCTION

As higher education institutions (HEIs) increasingly commit to sustainability, faculty members serve as key in embedding sustainability principles into academic instruction and research. Their level of knowledge, preparedness, and willingness to incorporate sustainability concepts into curricula directly impacts students' awareness and engagement with environmental, social, and economic sustainability, as well as the United Nations Sustainable Development Goals (SDGs). Given their role in shaping future professionals and decision-makers, faculty members are instrumental in encouraging a culture of sustainability within educational institutions (Price et al., 2021).

The SDGs, introduced by the United Nations in 2015, comprise 17 interconnected goals designed to address critical global challenges such as poverty, inequality, and climate change (Wadhvani & Malpani, 2023). These goals offer a comprehensive framework for collaboration among governments, businesses, and civil society to achieve a more sustainable world by 2030 (Weiland et al., 2021). Expanding on the foundation of the Millennium Development Goals, the SDGs now encompass broader themes, including economic inequality, responsible consumption, and environmental stewardship ((Pizzi et al., 2020). Achieving these targets requires local-level action, inclusive stakeholder participation, and substantial investment in infrastructure and essential services (Wadhvani & Malpani, 2023).

In this context, HEIs are uniquely positioned to contribute by fostering sustainability-focused education, advancing research, and engaging communities in pursuit of these global objectives (Dawson, 2021). At its core, the SDGs represent a shared vision for a more equitable and prosperous world—one that depends on collective commitment, meaningful partnerships, and solidarity across sectors to create lasting, positive change (Blissman, n.d.; Wadhvani & Malpani, 2023).

Sustainability is a critical global concern, and higher education institutions (HEIs) play a significant role in preparing future generations to address environmental, social, and economic challenges. The integration of sustainability concepts in education is

crucial for promoting awareness and action toward sustainable development. However, the extent to which faculty members are knowledgeable, prepared, and willing to incorporate sustainability into their teaching remains a subject of interest. Faculty perceptions of sustainability initiatives in higher education reveal both opportunities and challenges. While arts and design faculty exhibit high confidence in teaching sustainability, they encounter barriers such as time constraints, limited resources, and knowledge gaps (Kang et al., 2024). Similarly, geography and environmental sustainability professors incorporate key sustainability competencies into their teaching, but often in a fragmented manner that does not fully align with best practices (Parry & Metzger, 2023). Faculty across disciplines acknowledge the importance of integrating sustainability into curricula but struggle with interdisciplinary implementation (McCunn et al., 2020). The challenges faculty face in sustainability education varies depending on their knowledge levels. Those with high sustainability knowledge often identify institutional accountability as a major barrier, whereas those with lower knowledge levels focus more on personal responsibility (Edem Holison, 2023). To enhance sustainability education, institutions must address these faculty-identified challenges by providing necessary resources, training, and opportunities for interdisciplinary collaboration. These efforts can provide more effective sustainability teaching and learning in higher education.

Recent studies have also examined the readiness of university faculty and student teachers to implement Education for Sustainable Development (ESD) through various approaches. Professional development programs based on problem-based learning (PBL) have been shown to improve teachers' readiness for ESD implementation, though institutional support remains crucial for large-scale change (Xiangyun Du et al., 2022). Specialized courses, such as the Implementation of Sustainable Development Goals in University Teaching (ImpSDGup), have successfully helped academics incorporate Sustainable Development Goals (SDGs) and Education for Sustainable Development (ESD) methodologies into their teaching. The course utilizes the Training Model in Transformative Action for Sustainability (TMTAS), focusing on sustainability content, theoretical frameworks, and ESD teaching methodologies (Expósito & Sánchez, 2020). Student teachers' readiness for ESD implementation is influenced by factors such as gender, age, field of study, and exposure to ESD-related courses (Vukelić, 2022). Moreover, PBL as a pedagogical approach for ESD has demonstrated promise in transforming pre-service technology teachers' perceptions and behaviors regarding sustainability, critical citizenship, and their future roles as educators (Singh-Pillay, 2020). These findings emphasize the need to integrate ESD into teacher education programs and adopt innovative pedagogical strategies to enhance readiness for sustainable education.

However, despite the growing emphasis on sustainability at the institutional level, faculty engagement remains inconsistent, often due to limited training opportunities, lack of institutional support, and perceived difficulties in integrating sustainability across disciplines (Filho et al., 2020). Many educators recognize the importance of sustainability education but may struggle with incorporating relevant content into their courses due to knowledge gaps or the absence of clear implementation frameworks. Understanding faculty perceptions, including their readiness, challenges, and level of engagement, can provide critical insights into the effectiveness of sustainability initiatives within HEIs. A deeper exploration of these factors will help institutions identify barriers and develop strategies to support faculty in effectively embedding sustainability principles into their teaching practices.

This study explores faculty perceptions of sustainability initiatives in higher education, focusing on their knowledge, readiness to incorporate sustainability into their teaching, and the challenges they encounter. By understanding these factors, institutions can better support faculty in integrating sustainability into curricula. Additionally, this research explores faculty attitudes, experiences, and engagement with sustainability concepts to identify knowledge gaps, key influences on implementation, and practical strategies for strengthening sustainability education. The findings of this study will provide valuable insights for developing targeted faculty development programs, refining curriculum design, and improving institutional policies to promote sustainability literacy and its real-world application in academic settings. Enhancing faculty engagement in sustainability education will not only enrich student learning but also contribute to the broader goal of cultivating environmentally and socially responsible citizens.

2. MATERIALS AND METHODS

The study used a mixed-methods approach, integrating both surveys and interviews to explore faculty perceptions of sustainability initiatives in higher education. A total of 69 faculty members from various disciplines at Quezon City University in the Philippines participated in the study. Participants were drawn from the College of Education, College of Computer Studies, College of Engineering, and the College of Business Administration and Accountancy. The sample size was determined using a standard sample size calculator based on the total full-time faculty population of 92 as of October 2024, with a 95% confidence level, a 50% response distribution, and a 6% margin of error. While a 5% margin of error is commonly used, a 6% margin was considered acceptable given the relatively small population size. This sample represents approximately 75% of the total faculty population, providing a strong basis for data analysis and interpretation.

The study utilized purposive sampling, including faculty members who met the inclusion criterion of belonging to one of the four identified colleges. This approach ensured the participation of individuals with relevant academic backgrounds and potential engagement with sustainability-related themes in teaching. The research aimed to assess faculty understanding of sustainability concepts, their readiness to integrate these concepts into instruction, and the challenges they encountered at both institutional and personal levels. Data collection was conducted through online surveys, followed by in-depth interviews with selected faculty members to obtain a more comprehensive perspective. Quantitative data were analyzed using statistical methods, while qualitative responses were subjected to thematic analysis to identify common patterns and insights. The integration of these methods provided a comprehensive understanding of faculty perspectives and offered valuable findings to support the enhancement of sustainability education in higher education institutions.

3. RESULTS AND DISCUSSIONS

The study's findings will be presented in relation to the key research objectives. Preliminary results suggest variations in faculty knowledge and readiness levels across disciplines. Identified challenges include a lack of institutional support, limited access to resources, and disciplinary constraints. On the other hand, faculty members who actively engage with sustainability initiatives report greater confidence in integrating these concepts into their teaching.

The discussion will explore how HEIs can enhance faculty support systems, provide professional development opportunities, and create interdisciplinary collaborations to promote sustainability education.

Figure 1 shows that majority of the respondents were male faculty members followed by female faculty members, while some prefer not to say.

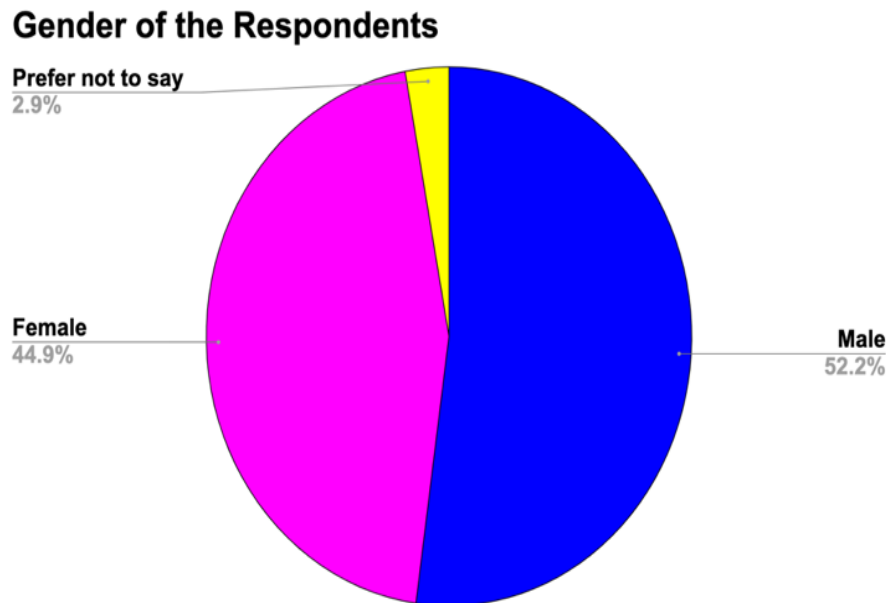


Figure 1. Gender of the Respondents

Figure 2 shows that the majority of respondents came from the College of Business Administration and Accountancy with 25 responses, followed by the College of Computer Studies with 24 responses, the College of Engineering with 12 responses, and the College of Education with 8 responses.

Colleges

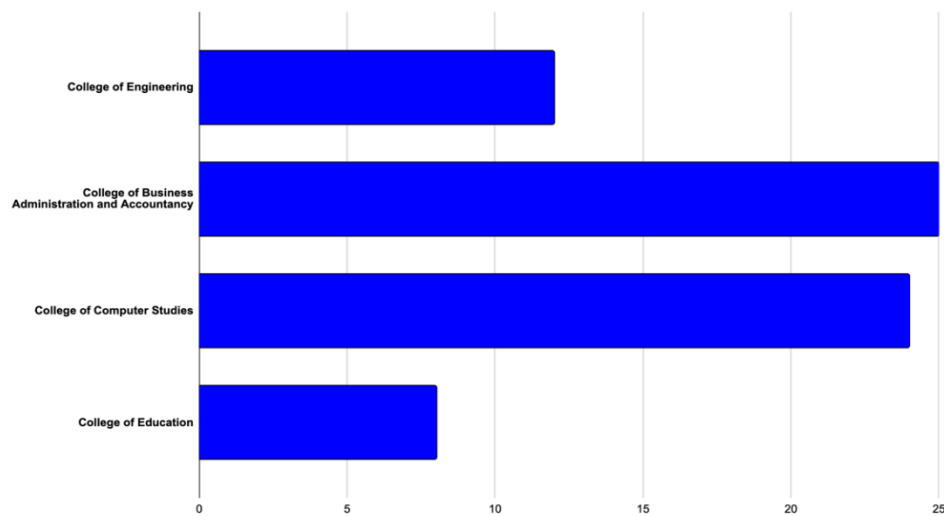


Figure 2. Respondents From Different Colleges

Figure 3 illustrates the respondents' familiarity with environmental sustainability and urban agriculture concepts. The majority across all colleges reported being either 'Somewhat Familiar' or 'Very Familiar' with these topics. However, it is noticeable that approximately 50% of respondents from the College of Computer Studies indicated they are 'Not Familiar At All,' highlighting a significant gap in awareness within that group."

Environmental Sustainability and Urban Agriculture Concepts Familiarity

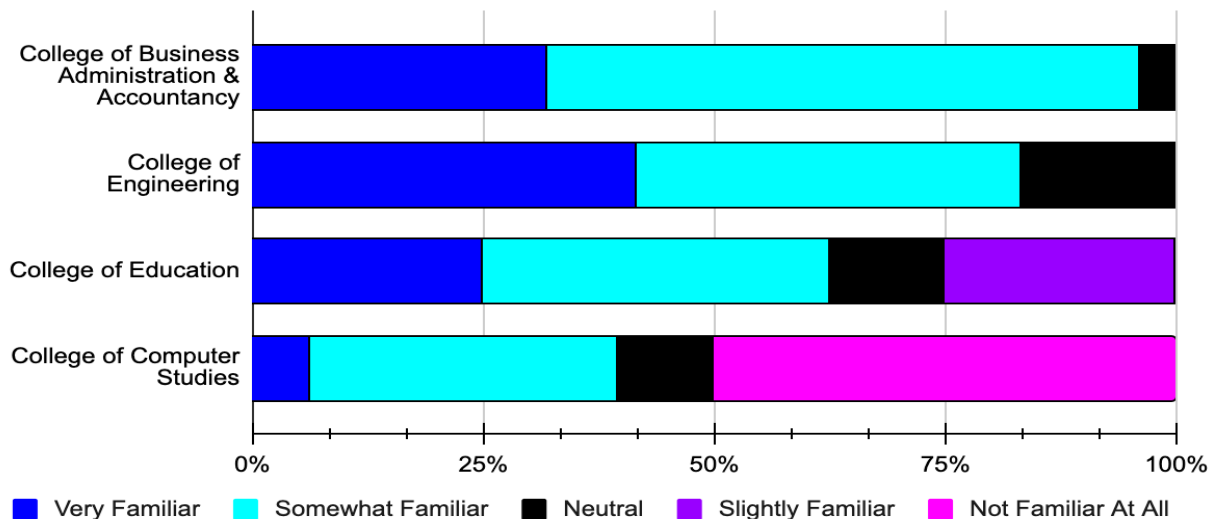


Figure 3. Environmental Sustainability and Urban Concept Familiarity

Figure 4 presents the responses to the question on which sustainability topics students believe are most important to learn within their subject areas. The results indicate that 'Green Technologies & Innovations,' 'Climate Change and its Impact,' and 'Sustainable Development Goals' (SDGs) are consistently recognized as top priorities across all colleges. These topics appear to be the most emphasized concerns in sustainability education among the different disciplines

Most Important Sustainability Topics Students Should Learn

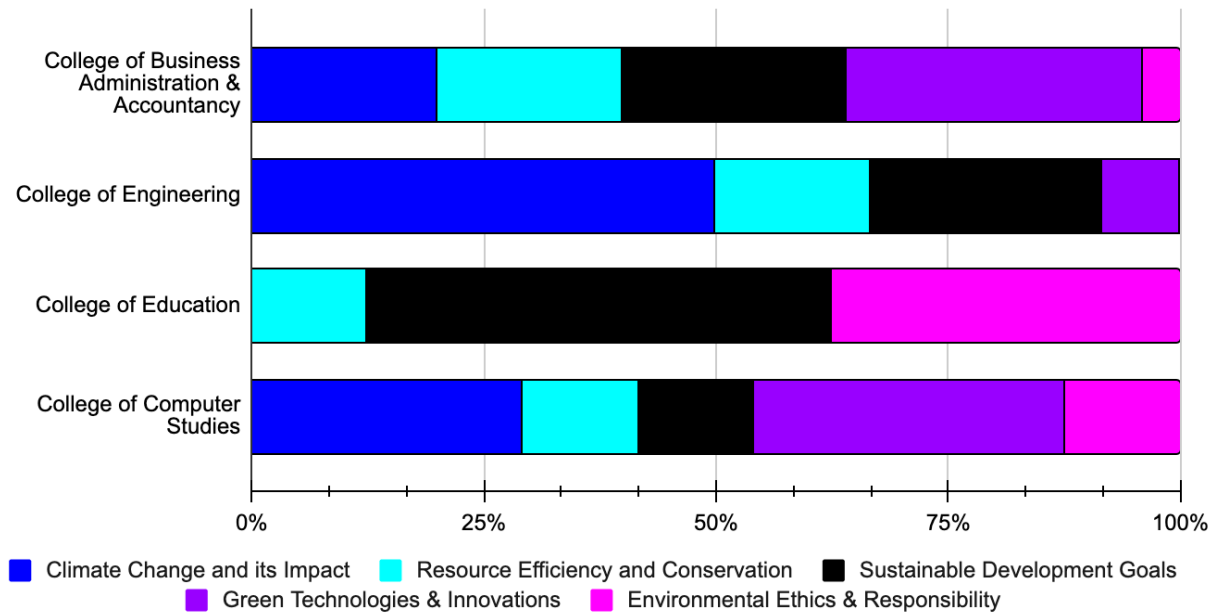


Figure 4. Most Important Sustainability Topics Students Should Learn

Figure 5 illustrates the respondents' level of preparedness in teaching topics related to environmental responsibility or urban agriculture. The results show that across all colleges, the majority of respondents consider themselves 'Somewhat Prepared.' This trend is consistent among all disciplines, indicating a general sense of moderate confidence in addressing these topics in their teaching.

Preparedness in teaching topics related to environmental responsibility or urban agriculture

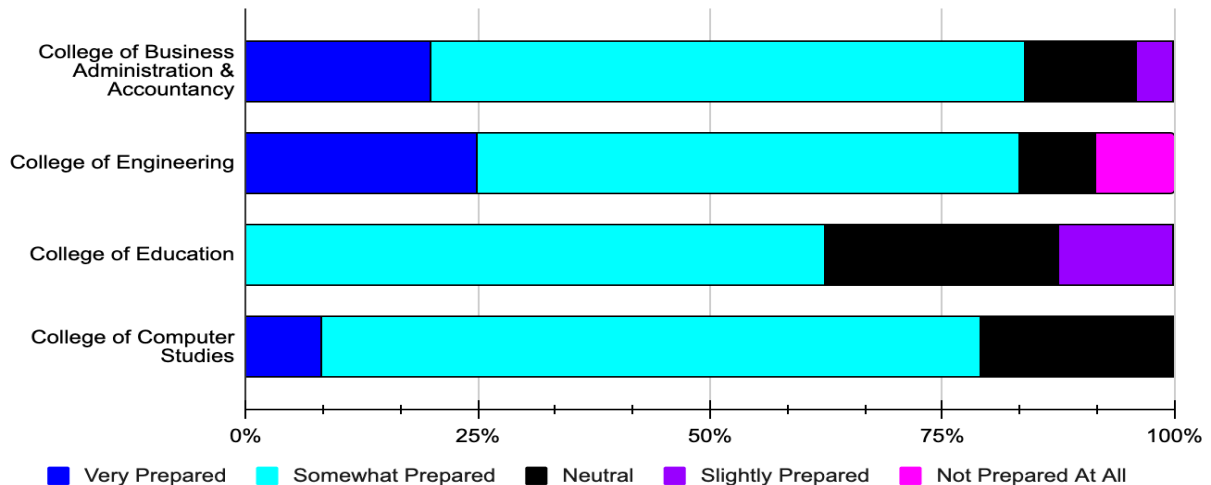


Figure 5. Faculty Preparedness in Teaching Topics Related to Environmental Responsibility or Urban Agriculture

Figure 6 shows that project-based learning—engaging students in hands-on projects addressing real-world sustainability challenges—and fieldwork or community engagement are the teaching methods most respondents believe to be effective for incorporating sustainability into the curriculum. These preferences are consistent across most colleges. However, the College of

Computer Studies stands out by showing a stronger preference for digital tools and resources over fieldwork and community engagement.

Effective teaching methods for incorporating sustainability in the curriculum

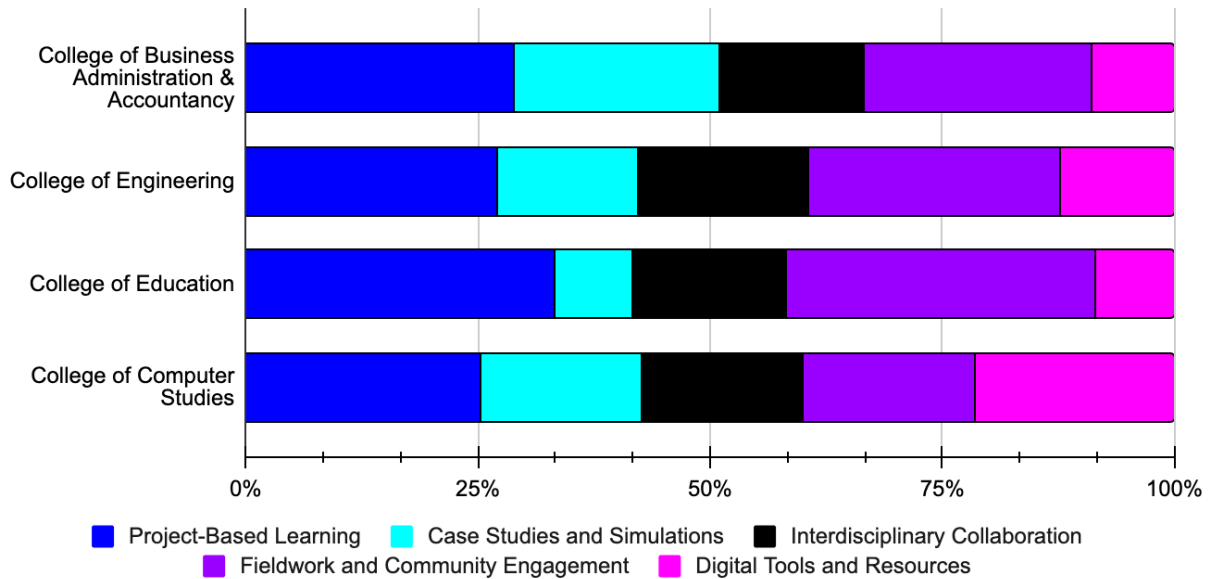


Figure 6. Effective teaching methods for incorporating sustainability in the curriculum

Figure 7 show that the majority of the colleges consider limited resources as the primary challenge in integrating sustainability topics into the curriculum. However, the College of Engineering identifies lack of time as the main hindrance to implementing such initiatives.

Challenges in Integrating Sustainability Topic

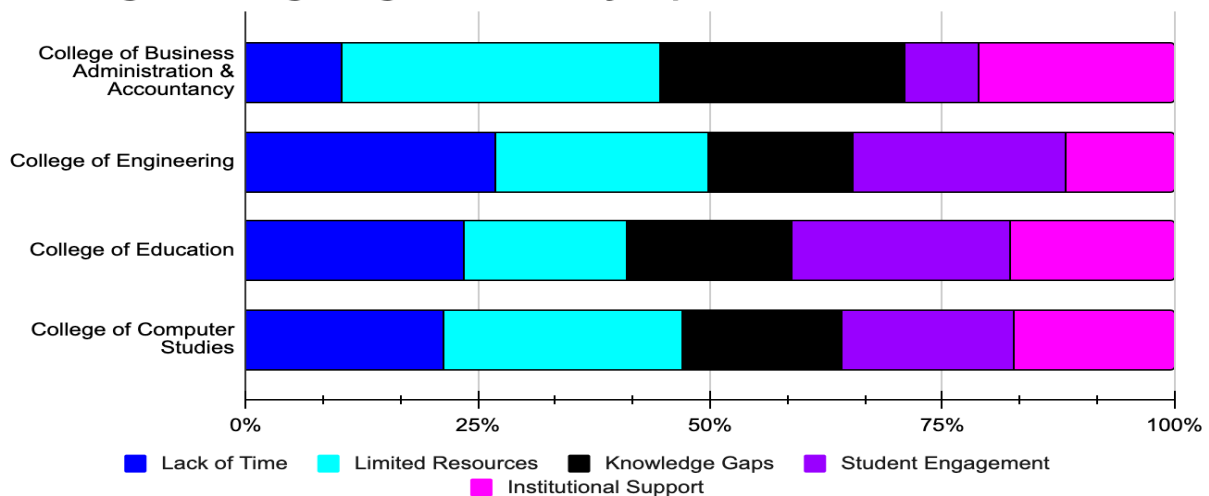


Figure 7. Challenges in Integrating Sustainability Topic

Figure 8 illustrates that waste management is the most commonly identified environmental action that can be integrated into class discussions across most colleges. However, the College of Computer Studies leans more towards incorporating sustainable design

into their curriculum.

Possible Environmental Actions or Practices that can be Linked in Class Discussions

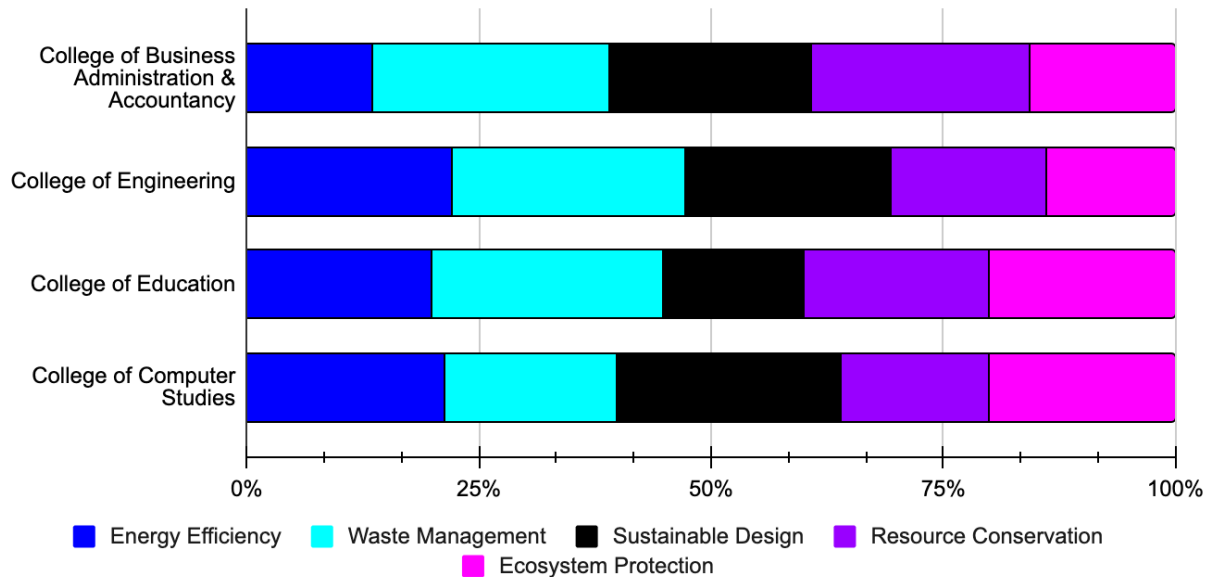


Figure 8. Possible Environmental Actions or Practices that can be Linked in Class Discussions

Figure 9 shows that all respondents from various colleges indicated that workshops and seminars would enhance their confidence in teaching sustainability concepts. Notably, in the College of Computer Studies, an equal percentage of respondents preferred both workshops and seminars, as well as digital tools and online resources, as effective means to improve their teaching confidence.

Trainings or resources that can help faculty members feel more confident in teaching sustainability concepts

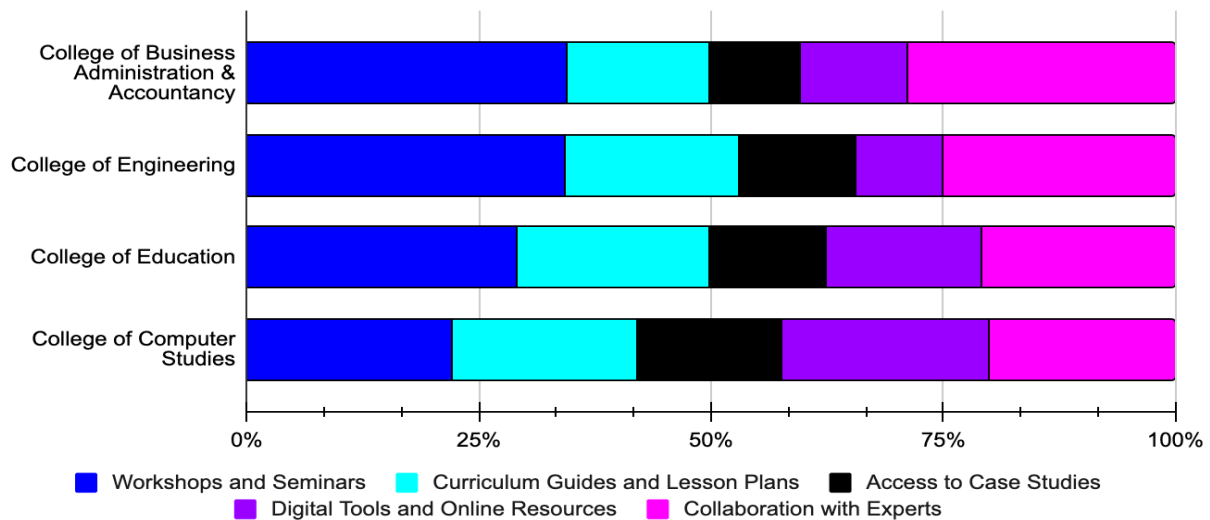


Figure 9. Trainings or resources that can help faculty members feel more confident in teaching sustainability concepts

Figure 10 shows that most colleges believe the best way to align the new curriculum with existing course objectives and learning

outcomes is to integrate sustainability gradually. However, the College of Engineering is more inclined to align it with core competencies.

Respondents' Views on How to Best Align the New Curriculum with Existing Course Objectives and Learning Outcomes

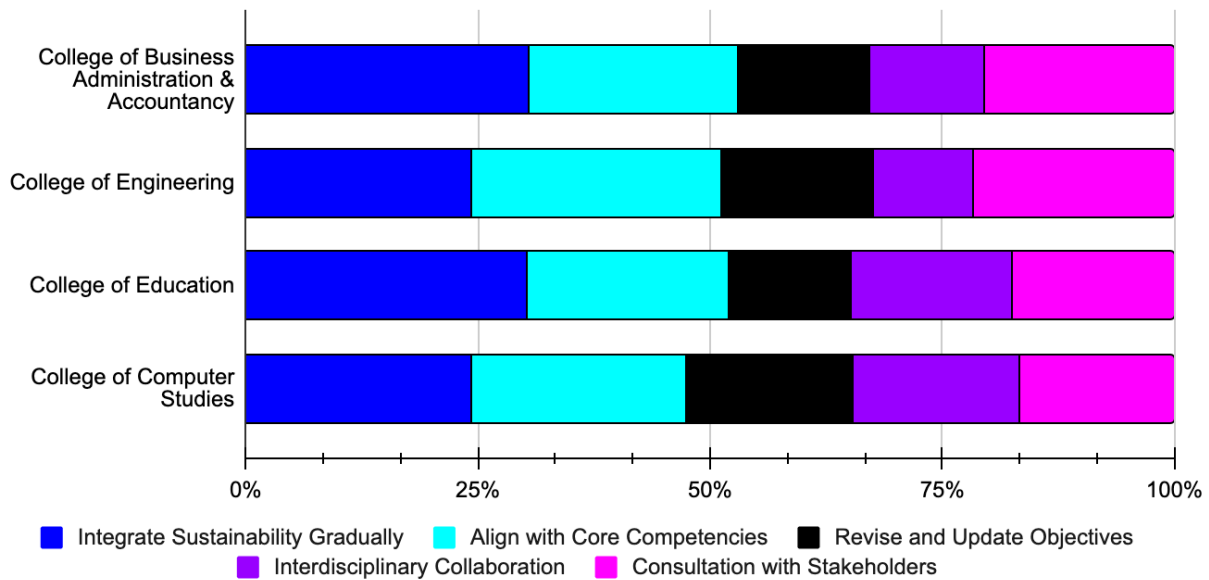


Figure 10. Respondent's view on how to best align the new curriculum with existing course objectives and learning outcomes

Figure 11 shows the results of a survey in which faculty members were asked about the potential student response to sustainability topics in their subjects. The majority of colleges believe students will be somewhat engaged in the discussion. However, the College of Business Administration and Accountancy is more optimistic, expecting students to be highly engaged. No faculty members indicated that students would be resistant to sustainability topics.

Faculty Insights on Student Engagement with Sustainability Topics in their Subjects

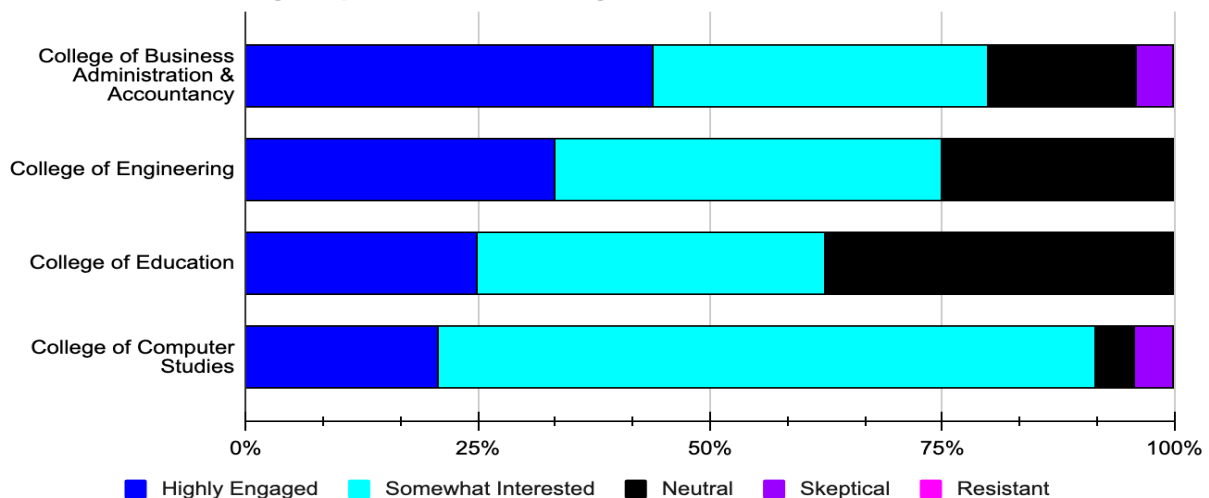


Figure 11. Faculty Insights on Student Engagement with Sustainability Topics in their Subjects

Figure 12 shows that the majority of respondents see themselves primarily as educators, teaching and integrating environmental

responsibility topics into the curriculum. This is followed by their role as mentors, guiding students in applying sustainability principles to their projects and daily lives in fostering environmental stewardship.

Faculty Perspectives on Their Role in Environmental Responsibility Among Students

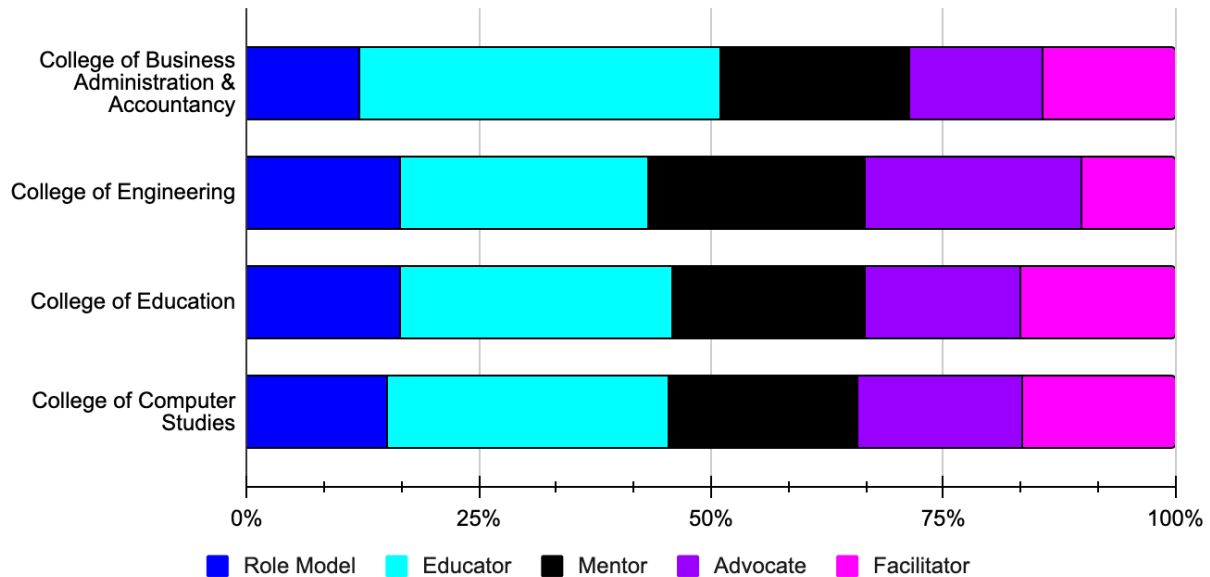


Figure 12. Faculty perspectives on their role in environmental responsibility among students

4. CONCLUSION

The findings of this study provide valuable insights into the current state of sustainability education within higher education institutions (HEIs). Overall, faculty members across various disciplines show a general understanding and engagement with sustainability topics, although there are notable variations in their familiarity, preparedness, and resources available to them. The majority of respondents view themselves as educators, integrating sustainability into their curriculum, with some taking on the role of mentors to guide students in applying sustainability principles to real-world projects.

While most colleges recognize the importance of incorporating sustainability, challenges such as limited resources, lack of institutional support, and time constraints persist. Notably, certain disciplines, such as the College of Computer Studies, exhibit unique preferences and challenges, such as a stronger inclination towards digital tools over fieldwork or community engagement.

Faculty members agree that workshops, seminars, and other professional development opportunities are essential to building confidence in teaching sustainability topics. There is also consensus on the need for gradual integration of sustainability into existing curricula, with some institutions advocating for alignment with core competencies.

Despite these challenges, faculty who are actively engaged with sustainability initiatives report greater confidence and readiness to incorporate these topics into their teaching. The study suggests that HEIs can enhance faculty support systems through targeted professional development, fostering interdisciplinary collaborations, and providing adequate resources, thus strengthening sustainability education across disciplines.

To address these challenges, HEIs should prioritize faculty development by offering structured training programs that equip educators with the skills and knowledge needed to integrate sustainability into their teaching. Providing incentives, such as research funding or professional development opportunities, can further encourage faculty to incorporate sustainability concepts into their courses. Promoting interdisciplinary collaboration can also enhance sustainability education by allowing faculty from different fields to exchange ideas and develop innovative teaching approaches. Additionally, ensuring easy access to high-quality teaching materials and resources can help faculty confidently embed sustainability topics into their curricula.

By strengthening institutional support, investing in faculty training, and fostering a culture of sustainability, HEIs can better equip educators to embed these principles into their teaching. This, in turn, will help shape future professionals who are prepared to tackle global sustainability challenges and contribute to a more environmentally conscious society.

This study highlights the crucial role faculty perceptions play in shaping sustainability initiatives within HEIs. The findings emphasize the need for enhanced institutional support, targeted training programs, and a strong culture of sustainability within academic institutions. Based on these insights, the following recommendations are proposed:

1. Developing faculty training programs focused on sustainability education.
2. Offering institutional incentives to encourage the integration of sustainability into curricula.
3. Promoting interdisciplinary collaboration to strengthen sustainability initiatives.
4. Improving access to sustainability-related teaching resources.

By addressing these factors, HEIs can better support faculty in integrating sustainability concepts into their teaching, ultimately fostering a more sustainable academic environment..

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Research Article

Effectiveness of Self-Management Interventions to Control Blood Pressure and Treatment Adherence among Elderly with Hypertension Living Alone: A Systematic Review

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ABSTRACT

Self-management interventions play an important role in empowering older adults with hypertension to proactively manage their health and improve their overall health. However, it is still unclear to understand self-management intervention effect among older adults living alone with hypertension. To examine the effectiveness of self-management interventions (SMI) to control blood pressure and treatment adherence among elderly with hypertension living alone. The systematic search was performed across databases PubMed, ProQuest, and Google scholar in January 2024. A total of 116 articles were identified, of which 7 were included in the core review (four randomized controlled trials and three quasi-experimental). Inclusion criteria were SMI, older people 60 age and over with hypertension, and English articles. We excluded it and were unable to retrieve it as full text. The process and selection of articles used the Prisma flow chart. The review method used the JBI critical appraisal checklist to evaluate the risk of bias for RCTs and quasi-experimental studies. SMI were significant for blood pressure control in hypertensive patients in two studies. All studies showed that self-management interventions were effective in reducing mean systolic and diastolic blood pressure, and positively on adherence to treatment and caring for themselves. Utilizing technology-driven SMI appears to be both suitable and effective for elderly individuals with hypertension, offering the potential to attain favourable health outcomes. Living alone may contribute to adverse impacts on both physical and mental health, elevating the risk of hypertension. Moreover, there is a need for more interventions focused on bolstering social support and mitigating social isolation, as these efforts may yield positive effects in controlling blood pressure and enhancing treatment adherence, particularly for the elderly living alone.

Keywords: Systematic review; Hypertension; Self-management; Elderly living alone

1. Introduction

Hypertension is one of the health problems of non-communicable diseases due to the increased risk of cardiovascular disease. The rate of hypertension in the world reached 29.2% in men and 24.8% in women. Hypertension is the cause of death for about 8 million people annually, of which 1.5 million died in Southeast Asia, a third of the population has hypertension. The aging process leads to endothelial dysfunction and increased arterial stiffness leading to increased blood pressure (Wijayanti, et al., 2021). In Vietnam, hypertension is more common in older adults, with a prevalence of 62.15% (220/354), of which 61% are women and the majority was in the age group 60-69, accounting for 60% (Bui et al., 2019).

There were a rate 20% and 28% higher risk of hypertension in older adults aged more than 80 and males, respectively. Older adults living alone in rural areas had a 23% higher risk of hypertension. Especially, for older adults who are widowed or divorced had higher risk of hypertension when they had a transition from living with family to living alone. There is a relationship between living arrangements and hypertension among older adults is influenced by age, gender, and residence. It also suggests that interventions focused on increasing social support and reducing social isolation may have a positive impact on blood pressure control in this population (Wang, et al., 2023). A cross-sectional study reported that older adults living alone had a higher prevalence of hypertension than those living with others. Elderly over 80 years of age, men, and rural residents living alone are associated with an increased risk of hypertension (Tan et al., 2023).

If hypertension is uncontrolled, it will lead to complications, such as stroke, myocardial infarction, heart failure, peripheral vascular disease and chronic kidney failure, and is even more harmful in older adults. Previous studies indicate that hypertension and its complications are one of the main factors limiting daily activities of elderly people with hypertension. Age-related factors, such as declining physical and cognitive abilities, limited independence, and the increasing number of older adults living in care facilities or at home alone, are also increases the importance of hypertension management (Kolcu, et al., 2020).

Self-management of hypertension in elderly patients is important to improve health and prevent complications. However, most assessment tools lack theoretical basis and wide applicability, so intervention effectiveness is insignificant (Wu et al., 2023). Self-management includes activities such as medication control, stress management, exercise, and dietary modifications (Barus et al., 2023). Social media can be an effective tool for self-management of hypertension, providing information and support to patients (Rasmawati et al., 2022). Factors such as education level and length of time living with diagnosed hypertension are associated with self-care behavior in elderly patients with hypertension. Medical staff should educate and support patients with hypertension. Family help can effectively reduce blood pressure in the elderly (Putri et al., 2022). Self-management interventions have been shown to reduce blood pressure, increase self-efficacy, and improve medication adherence (Rasmawati et al., 2022). A variety of interventions have been identified, including knowledge about hypertension, physical activity regulation, alcohol and tobacco restriction, rest and stress management, diet and exercise management, body weight management, blood pressure control, family and social support, and compliance with therapeutic regimens (Bumrungsuk, 2022). Additionally, the implementation of a self-management program has been found to improve self-care behaviors, reduce blood pressure, and improve quality of life in older adults with uncontrolled hypertension (Van Truong et al., 2021).

These findings highlight the importance of self-management interventions in empowering older adults with hypertension to proactively manage their health and improve their overall health. However, it is still unclear to understand self-management among older adults living alone and having hypertension. Therefore, this review will evaluate the effectiveness of self-management interventions to control blood pressure and treatment adherence among older adults with hypertension who live alone.

2. Materials and Methods

The methodology used for this systematic review was based on the guidance for conducting systematic reviews in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol.

Search strategy

A systematic search of the literature review in Jan, 2024. The search strategy was run on databases: PubMed, ProQuest, Science Direct, Google scholar to identify eligible studies. The search terms can be found on database was ("Self- management" or "self - care" or "self - monitoring") AND ("elderly" or "older" or "older adult") AND (hypertension or "high blood pressure") AND ("living alone" or "home alone" or "stand alone") and "randomized control trial".

Eligibility criteria

Study inclusion criteria: The inclusion criteria of this study adhered to the "PICOS" principle. The specific inclusion criteria were as follows: (1) Participants: The person were over 60 years with hypertension living alone; (2) Interventions: self-management program; (3) Comparison: usual care or traditional training; (4) Outcomes: self-management behavior; (5) Study type: randomised control trials (RCTs) and quasi experimental, publication in English and Vietnamese, conducted from 2016 to 2024.

Study exclusion criteria: The study for which were unable retrieve as full text.

Data extraction

Two reviewers independently abstracted data in relation to RCTs and quasi experimental for first author names, publication year, origin country, clinical setting, age 60 years and over, type of intervention, intervention duration, delivery, and control group type. Any disagreements were resolved through discussion to reach consensus.

Risk of bias

Quality appraisal was conducted by two independent reviewers using a standardized critical appraisal instrument from the Joanna Briggs Institute (JBI) Quantitative Assessment. The articles were divided into two groups including the RCTs and quasi-experimental group. The JBI critical appraisal checklist was analysed studies using a RCT design with 13 items and 9 items for studies using quasi-experimental design (Tufanaru et al., 2020). Based on these items, the criteria used to rank the risk of bias including: (1) $\leq 49\%$ = high risk of bias, (2) 50% and 69% = moderate risk of bias and (3) above 70% = low risk of bias.

Data synthesis and analysis

Data was extracted to identify the outcomes and examine the effect of self-management intervention on hypertension in older living alone. Each study was analysed independently within its scope by reviewers, then discussed by the research team to synthesize consistent findings in a summary table.

3. Results and Discussions

Study selection

A total of 2545 English publications were identified in the initial search. After excluding duplicates and screening the titles and abstracts for eligibility, 116 full-text articles were retrieved for full-text assessment. In total, 7 studies that met the eligibility criteria were included in the analysis. The flow chart of study selection was illustrated in Figure 1..

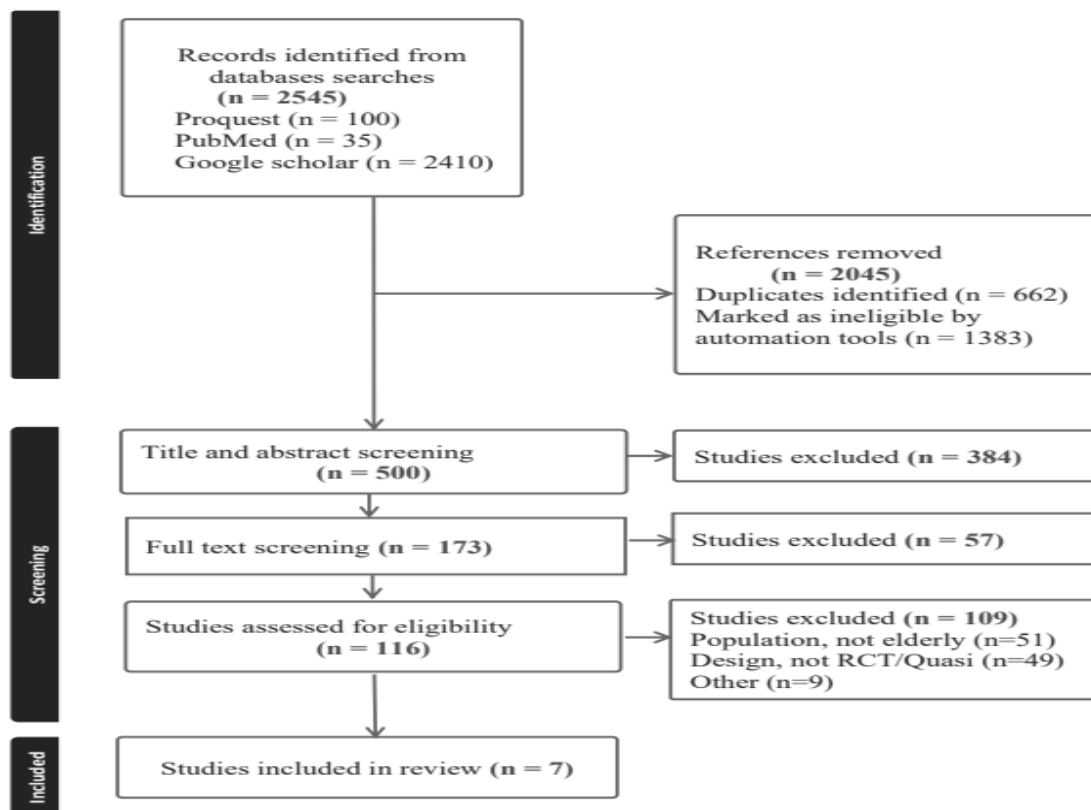


Figure 1. The flow chart of study selection

Characteristics of included studies

We analysed 7 widely published articles from multiple countries that fit the inclusion criteria we had set. Including 4 RCTs and 3 quasi-experimental studies on 985 older adults were published between 2016 and 2022. One study reported the mean age of the participants (Li et al., 2019). Only one study focused on elderly people with hypertension living alone (Jung et al., 2016). The percentage of females ranged from 50.9% to 84.6%. The six studies reported only an average age between 60 and 90 years. Two studies were conducted in Thailand (Audthiya et al., 2021; Bumrungsuk, 2022), and one each in the United States (Muldoon, M. F et al., 2022), Korean (Jung et al., 2016), China (Li et al., 2019), Indonesia (Putri et al., 2021), Iran (Delavar et al., 2019). Study characteristics are shown in Table 1.

Intervention Components

In terms of the type of control group, one study used a standard care control group. Six studies implemented usual community health care service health lectures; basic operating instructions; regular communication care; care services routinely;

interventions from the Health Center; and a large poster information about hypertension management, respectively. In intervention group used WeChat-based self-management intervention, Digital Home blood pressure monitoring intervention (MyBP), Patient-centered Communication Program (PCCP), self-management education (SME), eHealth self-management (eHSM), and self-management. The intervention duration ranged from 2 to 24 weeks. One study used a face-to-face format to deliver the self-management interventions, while others studies were distributed with many methods such as We-chat, oral and mailed instructions educational videos, questionnaires, telephone follow-up, home visits, training and promotion programs, eHealth (Table 1).

Quality of included studies

The quality of the included studies was determined using a standardized critical appraisal instrument from the JBI Qualitative Assessment version 2020 for RCT and quasi-experimental studies. All 7 studies had a low risk of bias, which ranks the risk of bias above 70% (76.9% - 88.8%).

Table 1. Characteristics of the included studies

First author (published year),	Country	Study design	Total number of participants/ sexes	Age range /Mean age	Intervention type	Intervention duration	Delivery	Control group type	Main results outcomes
Swanee Bumrungsuk (2022)	Thailand	Quasi experimental	91 IG:44 CG:47 F=84.6%	>60 years:	self-management	30'/per group/first week 1 hour/ per group/ second week Follow up during the 4 th and 13 th weeks	Training, Promotion Program	standard care	13 weeks after entering the program, experimental group demonstrated a significantly lower systolic and diastolic BP with a baseline statistical significance ($P < 0.005$), and at the 4 th week and the 13 th week, decrease in BP in experimental group. experimental group also had above- baseline self- management behavior scores that were higher than in the control group ($P < 0.01$).
Hyeon, Jung (2016)	Korean	Quasi experimental	64 IG= 31, CG =33) F=82.8% (elderly, living alone)	average age 80.9 years interventio n group 81.2 years control group	eHealth self- management (eSM)	24 weeks one-hour class/weekly follow monthly telephone/24 weeks	one-hour class on hypertension management community based eHealth monitoring and monthly telephone counselling	a large poster informati on about hypertens ion managem ent	1. the systolic BP among intervention group participants was 133.9 mm Hg at baseline and 122.5 mm Hg after 24 weeks of follow- 2. greater improvement in self-efficacy, self- care behaviour, and social support than did participants in the control group 24 weeks post-intervention
									status in the intervention group was significantly better than the control group ($P = 0.002$)
Silvia Elki Putri (2021)	Indonesia	Quasi experimental	134 IG= 67 CG= 67 Female (67.9%)	60-90 years	self-management	four sessions (55-60s/ sessions)/ 2 weeks Meetings twice a week home visit	Home visit	interventi ons from the Health Center	The effects of self- management were positive on adherence to caring for themselves ($p<0.001$) and on health status ($p<0.001$). The most influencing factor on self-care compliance and health status after being controlled by confounding variables was self-management ($p<0.001$)

Effective Self-management interventions to blood pressure

A review of seven articles showed significant results in five studies with effective self-management interventions to blood pressure control, as indicated by statistical test results showing significant differences between groups in two studies. Firstly, a RCT study in China provide 3-months of health education on Web-Chat based self- management intervention once to twice a week (Li et al., 2019); Secondly, other RCT conducted in Iran using self- management education for intervention group in two 30–45-minute face-to-face weekly sessions in the first two weeks of the study. Face-to-face education was followed by four fifteen-minute telephone-based educational sessions held twice weekly (Delavar et al., 2019); Thirdly, a quasi- experimental study in Thailand using Self-Management Training and promotion Program for elderly with hypertension and follow-up during the 4th and 13th week (Bumrungsuk, 2022).

The results in the other two studies did not show statistically significant results but one study reported that using eHealth self- management the systolic blood pressure among intervention group participants was 133.9 mmHg in baseline and 122.5 mmHg after 24 weeks of follow up, participants in the intervention group showed more improvement in systolic BP than did participants in the control group after 24 weeks of follow-up (mean difference 11.4 vs. 0.6, respectively; $p < .001$). This study indicated that community-based eHSM interventions are effective at providing support to control blood pressure and improve lifestyle for elderly persons with hypertension who live alone (Jung et al., 2016), and other article used a digital home blood pressure monitoring (MyBP) delivery by six educational videos follow up to 6 months showed a decline in systolic [12 mm Hg (SD = 17)] and diastolic BP [5 mm Hg (SD = 7)] did not differ between the two treatment groups. However, participants with higher baseline systolic BP assigned to MyBP had a greater decline compared to controls with an interaction effect estimate of -0.56 ($-0.96, -0.17$) (Muldoon et al., 2022).

Effective self-management interventions to treatment adherence

The effects of self-management interventions on medication adherence were evaluated in two studies. One study reported that after the intervention by using self-management education, between-group comparisons adjusted for pre-test scores showed a significant decrease in mean systolic and diastolic blood pressure scores and an increase in medication adherence due to the intervention ($p < .05$) (Delavar et al., 2019). Other RCT study tested the effectiveness of the Patient-centered Communication Program for improving autonomy and self-management behaviors among Thai older adults with hypertension. Result was positive on adherence to caring for themselves ($p < 0.001$) and on health status ($p < .001$) the HBM-based health education influenced the older people's management of their hypertension ($p < 0.05$) and increase of 42.3% in self-care compliance and health status was brought about by self-management. After controlling for ethnicity and smoking history, the effect of self-management on self-care compliance and health status increased to 45.4% (Putri et al., 2021).

In addition, A self-management intervention for community hypertension patients via WeChat which lowered patients' blood pressure and improved their self-management (Li et al., 2019). A MyBP program may improve hypertension care by greater than that of the control group regarding autonomy and self-management behaviors in older adults with hypertension and thus support the benefits of the Patient-Centered Communication Program (Audthiya et al., 2021). An article showed greater improvement in self-efficacy, self-care behavior, increasing patient self-efficacy, and lowering blood pressure readings (Muldoon et al., 2022). Other articles indicated the scores of the experimental group were significantly more than those in the control group 24 weeks post-intervention in self-efficacy, self-care behavior, and social support (Jung et al., 2016).

Discussions

We identified noteworthy impacts of SMI on blood pressure and medication adherence. This aligns with a meta-review emphasizing the benefits of self-management in reducing blood pressure and enhancing medication adherence in elderly (Truong et al., 2021). There is only one study focused on elderly people with hypertension living alone. However, the study results revealed that participants were not randomly assigned to either the intervention or control group, and the sample size was relatively small. Consequently, the findings may not be broadly applicable to all elderly individuals living alone.

4. Conclusion

Utilizing technology-driven SMI appears to be both suitable and effective for elderly individuals with hypertension, offering the potential to attain favorable health outcomes. Living alone may contribute to adverse impacts on both physical and mental health, elevating the risk of hypertension. Moreover, there is a need for more interventions focused on bolstering social support and mitigating social isolation, as these efforts may yield positive effects in controlling blood pressure and enhancing treatment adherence, particularly for the elderly living alone.

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