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THE USE OF MERANAW LOCAL TEXTS IN TEACHING READING AMONG PRIMARY TEACHERS IN MARAWI CITY DIVISION

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ABSTRACT

Literature on teaching reading through local or localized texts has largely focused on secondary and tertiary settings; however, its application in early grade reading instruction remains significantly underrepresented in both research and practice, especially among the Meranaw community. Thus, this study addresses this gap by investigating primary grade teachers' use of local literary texts in teaching reading. A convergent mixed-methods design was employed, involving 61 primary school teachers in the Schools Division of Marawi City. Data were collected through a survey questionnaire and were supplemented with semi-structured interviews, focus group discussions (FGDs), and document analysis. Findings indicate that teachers perceive local texts as effective tools for enhancing reading instruction. They reported that these materials foster student engagement, support lesson planning, and align with curriculum standards. Meanwhile, the themes emerged from the qualitative data on the teachers' perceptions are: effective instruction, contextual learning, holistic learning, and cultural awareness. As to their teaching practices, the themes emerged are utilization of meranaw textbooks, meranaw as medium of instruction, and integrative teaching. Furthermore, the challenges encountered by the teachers reveal the following: mastery on meranaw vocabulary and utilization of second language. This study contributes to the growing discourse on culturally responsive pedagogy and highlights the need for more localized and inclusive approaches to literacy development in early childhood education.

Keywords: local texts, teaching reading, primary teachers, Meranaw local texts, convergent mixed-methods

INTRODUCTION

With the multi-cultural and multilingual characteristics of the people in the Philippines, it can be argued that reading comprehension remains a challenge because a learner may have difficulty in understanding a reading text, wherein he or she may not be able to relate due to cultural or contextual differences. Cultural familiarity, therefore, is very important.

Teaching reading to learners at the primary is quite challenging, thus, the teachers' need to choose materials that are suitable to the learners' needs, relevant to their cultural background, and match their interests. One strategy to promote cultural familiarity is the integration of local literary texts in reading instruction. Researchers such as Hijastro (2023) and Ying (2014, as cited in Hijastro, 2023) emphasized that a literature-based approach to language teaching immerses learners in real communication and enhances their appreciation of both literature and language learning. Jiyoung (2012, as cited in Hijastro, 2023) adds that such approaches often rely on narrative and expository texts as primary instructional materials, which encourage creativity, critical thinking, and the demonstration of cultural values.

Numerous studies support the use of localized texts to improve reading engagement and comprehension. For instance, Bermillo and Jose (2022) stressed the importance of developing reading materials that use local literary genres. Similarly, Mohaideen et al. (2020) found that local texts were perceived by teachers as more relatable and impactful than foreign texts, leading to better classroom engagement. Alzaidi and Althaqafi (2022) confirmed that authentic texts tailored to learners' language proficiency and cultural background enhance reading instruction for both beginning and advanced readers.

In a broader context, Kaur and Mahmood (2014) asserted that the inclusion of literature in English education should not merely aim at improving language proficiency but should also promote cultural identity and global understanding. Supporting this perspective, Pathomchaiwat and Thongrin (2024), through a mixed-method study, advocated for the integration of both local and global texts, emphasizing that aligning localized contexts with international reading materials fosters a more inclusive and balanced learning environment.

Furthermore, several experimental and action research studies have demonstrated the effectiveness of localized reading materials across various educational levels. For instance, research by Rafael and Tamban (2022), Khairiyah et al. (2021), and Angeles et al. (2022) revealed that primary pupils exposed to localized texts consistently achieved higher reading comprehension scores than their counterparts who used conventional, foreign-based texts. In another study, Bermillo and Aperocho-Jose (2022) explored the comparative effectiveness of local and foreign literary genres among Grade 8 learners. Similarly, Hijastro's (2023) action research revealed post-test improvements in the reading skills of Grade 11 students after integrating regional literature, suggesting the positive impact of culturally aligned content on literacy development.

Complementing these quantitative findings, other researchers have focused on the creation and contextualization of localized reading materials. Studies by Afnita et al. (2023), Nurhikmah et al. (2022), Amelia and Hikmawati (2019), and Aminullah et al. (2019) stressed the importance of instructional resources that reflect students' immediate cultural environments. Such materials, they argue, not only support comprehension but also foster cultural pride and identity formation. Meanwhile, Daghigh and Abdul Rahim (2020) criticized the dominance of neoliberal values embedded in many imported educational texts and called for a deliberate shift toward culturally relevant content.

Despite this growing body of literature, a critical gap remains. It is observed that most existing studies have centered on experimental designs and focused largely on older students, with limited qualitative or mixed-method investigations into how teachers actually experience, implement, and navigate the use of culturally grounded texts in early-grade classrooms. More importantly, while various localized texts have been explored in previous research, there is an apparent underrepresentation of literature rooted specifically in Meranaw culture. The underrepresentation of regional and indigenous literatures, including those from Mindanao, reflects a broader challenge in the Philippine educational system, which is the need to decolonize the curriculum and promote culturally sustaining pedagogy.

With these aforementioned circumstances, this study is an attempt to respond to this issue by employing a localized lens, specifically, through the integration of Meranaw literary texts in reading instruction. Therefore, this study was conducted to seek answers to the following research questions:

1. How do teachers perceive the use of local texts in teaching reading?
2. What are the teaching practices used by the teachers in teaching reading?
3. What are the issues and challenges encountered by the teachers in the use of local texts in teaching reading?

METHODS

This study employed a convergent mixed-methods research design. In this design, both quantitative and qualitative data were collected and analyzed separately but simultaneously during a single phase of the research process. The quantitative data provided numerical insights into the frequency and patterns of using local texts through a survey questionnaire, while the qualitative data offered in-depth explanations of teachers and pupils' perspectives and experiences through interview and FGD.

Respondents of the study

The respondents of this study were the public school primary teachers (Grades 1-3 teachers) from 12 primary public schools within the Schools Division of Marawi City. Each school has 3-6 teachers, thus, utilizing, criterion sampling, a total of sixty one (61) teachers served as respondents of this study. For the interview part to triangulate the results of the study, there were 10 primary pupils were interviewed to explore their experiences of reading localized texts.

The respondents' profile shows that in terms of the age, majority (47.5%) of the respondents were 30 to 39 years old followed by 27.9% who were 40 to 49 years old. As to their highest educational attainment, majority (62.3%) of the respondents have earned bachelor's degree. Some (26.2%) earned master's units. Meanwhile, their years in service depicts that majority of the teachers (32 out of 61, or 52.5%) have been in the profession for over a decade.

Instrument

This study used triangulation in order to ensure trustworthiness and non-bias of the findings of the study. This includes the use of a survey questionnaire for quantitative data. Followed by an interview for the qualitative data, and document analysis of the reading material or module used by the teacher in teaching reading. This study adopted the survey questionnaire used by Mohaideen et al (2020). In order to ensure face and content validity of the modified questionnaire, it underwent validation from three experts in ESL (English as a Second Language). Expert evaluation includes reviewing the coverage of the questions in relation to the research questions and commenting on the relevance of the questions. Upon receiving comments from the experts, the items were then revised and reworded. For the qualitative part of the study, the researcher used a tool to collect information from the participants through interview guide questions and guided by the interview protocol. Finally, document analysis was conducted by analyzing the localized texts used by the teachers in teaching reading.

Data Analysis Methods

The data gathered were analyzed separately. The quantitative data were statistically analyzed using frequency, percentage, and mean; while the qualitative data were analyzed using thematic analysis to seek recurring patterns that reflect the experiences and perspectives of the interviewees.

FINDINGS AND DISCUSSIONS

The study examined the use of local texts, particularly Meranaw literary materials, in teaching reading among primary school learners in Marawi City Division. The findings indicate that both teachers and students perceive local texts as highly effective in improving reading comprehension, engagement, and cultural understanding, while also highlighting some challenges.

Part 2. Effectives of Local Texts in Teaching Reading

Table 1. Frequency and Mean of the Local texts' materials used by the primary teachers in teaching reading in terms of its Effectiveness

Effectiveness	Respondents (n=61)					Mode	Qualitative Description
	SD	D	N	A	SA		
¹ Students actively participate in the process of understanding the meaning of materials	0	0	0	13	48	SA	Strongly agree
² Students are stimulated to work with the provided materials	0	3	15	18	25	SA	Strongly agree
³ The materials are able to enhance more than one language skills in the students	6	16	21	6	12	N	Neutral
⁴ Teachers can plan a lesson easily with the provided materials	0	0	1	14	46	SA	Strongly agree
⁵ Literary materials help teachers stimulate the use of the target language	1	12	11	11	26	SA	Strongly agree
⁶ Materials used to support the teaching objectives of the teacher	0	0	1	11	49	SA	Strongly agree
⁷ The content of the literary text provided by the Department of Education can instill further interest towards literature	0	0	0	23	38	SA	Strongly agree
⁸ The content of the literary text provided by the Department of Education can be understood on its own without any help of supplementary materials	1	5	3	14	38	SA	Strongly agree
⁹ The content of the literary texts provided by the Department of Education is culturally acceptable and appropriate	0	1	0	15	45	SA	Strongly agree

Legend: SD=Strongly disagree, D=Disagree, N=Neutral, A= Agree, SA=Strongly agree

Table 1 presents that majority of respondents (48 out of 61) strongly agreed that students actively participate in understanding the meaning of the materials. Similarly, 49 teachers strongly agreed and 11 agreed that the materials support the teaching objectives, indicating their strong alignment with lesson goals. The materials also proved beneficial for lesson planning, with forty-six (46) respondents strongly agreeing and 14 agreeing, further confirming their practicality and ease of use for teachers.

These perceptions are supported by the focus group discussion (FGD) results with Grade 3 pupils. When asked about their experiences with Meranaw local texts during reading instruction, the pupils expressed high levels of comprehension and enjoyment. Many attributed this understanding to the use of their native language and culturally familiar contexts. For instance, one pupil remarked, “Oway, pesaboten ame kasi na meranaw so pagosarenon a katharo [Yes, we understood it because it was written in Meranaw language, (P1)],” while another added, “Mapiya so libro ka so katharoon na lagid ami a Meranaw e katharo si paro [The book is great because the language used by Paro is similar to the language we speak as Meranaw (P10)].” Visual aids were also praised for supporting comprehension, such as “Oway ka adn a malongon ago totob a and a rkami ron [Yes, because there were pictures of a malong and a totob, which we also have at home (P3).”

These findings support the data of Mohaideen et al. (2020) that teachers perceive the local materials as more relatable to learners than the foreign texts and that local texts have greater impacts on the learners.

The study of Angeles et al. (2022), Rafael and Tamban (2022), Khairiyah et al. (2021), and Hijastro (2023), in their quasi experimental studies also show effectiveness of localized texts. On the other hand, Amelia and Hikmawati (2019) claimed that developing English materials through local content integration were considered suitable for the intended students as showed through the results of try-out and evaluation done with the students and an expert in the field.

Part 3. Teachers' Perceptions and Teaching Practices

The use of local text materials and local literary texts in teaching reading are both deemed effective by teachers utilizing and integrating such materials into their teaching processes. The following are discussions of the themes emerged from the interview.

Theme 1: Effective Instruction

Based on the data generated from the respondents' responses, it was shown that local text materials are effective in teaching reading among primary learners, as the materials were considered comprehensible and capable of easily drawing the attention of the learners. The results imply that by using local text materials in teaching reading, teachers find it easier to get the attention of the learners, allowing them to listen attentively to the class discussion. It is because the language used in these particular instructional materials is Meranaw, which is generally known to the students.

These perceptions were strongly supported by the pupils themselves during the FGD. Most students expressed that they understood and enjoyed the Meranaw stories used in class. One student remarked, "*Oway mapiya malbod* [Yes, it was good because the text was easy to understand (P5)]," while another added, "*Mapiya skanyan ka Meranaw a kisosoratnon sana na langon a libro an lagid aya* [It was good because Meranaw language was used. I hope all books are like this (P6)."]"

Theme 2: Contextual Learning

Another theme generated from the findings of the study is contextual learning, which generally entails that the use of local texts in teaching reading fosters both interactive and meaningful learning. Reading activities become interactive due to the fact that these local texts are believed to be relatable and engaging among the learners. Collie and Slater (2001) stated that choosing texts that can actually stimulate a feeling of personal involvement among learners and awaken their interests is another important factor in teaching reading.

Based on the interview with the pupils, they revealed that they prefer and enjoy reading a text more when they can relate their personal and actual life experiences to the subject matter or the main idea of the given text. As pupils also identified, the stories' relevance to their everyday life made reading both enjoyable and meaningful. One student remarked, "*Mapiya so libro ka so katharoon na lagid ami a Meranaw e katharo si paro* [The book is great because the language used by *Paro* is similar to the language we speak as Meranaw (P10)]," while another stated, "*Kiyababayaan ami gera so teacher na pagistorya* [We enjoyed it when our teacher told the story to us (P9)]." As stated by Carrell and Eisterhold (1983) and Koh (1986) on their concept of content schema which they intertwined with the readers' familiarity with the subject matter of the text. They support the notion that one's comprehension of text is dependent on the amount of relevant knowledge the reader has with regard to the subject matter of a particular text.

Hence, it is important to choose books that are relevant to the life experiences, emotions, or dreams of the learner because when the assigned literary text is meaningful and enjoyable, learners will try to overcome the linguistic obstacles enthusiastically.

Theme 3: Holistic Learning

The use of local texts in teaching reading also promotes holistic learning as it actually helps improve the learners' reading comprehension skills and promote moral development among them. For instance, one teacher noted that reading comprehension improves when learners can grasp the meaning of the story more easily because it reflects their own context and language (P10). Another respondent shared that stories such as Ayob or Ayob's Totob, which are included in DepEd-provided materials, help students gain moral

insights, reinforcing values through relatable narratives (P1). Additionally, the frequent use of Meranaw stories was highlighted by another teacher, who explained that such texts are rich in moral lessons. She cited examples such as the story of a child afraid to bathe, which teaches personal responsibility, and The Blanket (Malong) of Mia, which deepens students' appreciation of their cultural heritage (P3). These insights underscore the role of local texts not only in improving literacy but also in shaping character and cultural identity.

These perceptions are validated by the learners themselves. Pupils shared that they not only understood the stories but also enjoyed themselves and learned from them. One pupil stated, “*Kiyababayaan akn* [I liked it (P5)],” pointing to the personal impact of the stories. One pupil also remarked that using Meranaw texts helped them understand more easily, “*Myakaogop rkami ka psabotn ami so katharoon* [It helped us because we could understand the words (P6)].”. Furthermore, one pupil added, “*Mala a miyasowa ami ron* [We learned a lot (P12)],” indicating not only the development of reading skills but also the acquisition of insights and values.

Theme 4: Cultural Awareness

The findings from the interview conducted in this study illustrate that the use of local texts in teaching reading leads to cultural reflection and understanding which further helps strengthen the cultural identity of the learners. For instance, one of the respondents emphasized that local texts are valuable because they allow students to relate the stories to their own experiences, culture, and environment, making learning more meaningful (P1). Another teacher supported this view, noting that such texts deepen learners' understanding of their cultural roots and heritage (P3). Additionally, a respondent highlighted that local texts are instrumental in helping learners recognize aspects of their cultural identity, such as gender roles, as illustrated in the story “*Oto e Ayob or Totob e Ayob*,” where students learned that *totob* is a term associated with males (P11).

These perceptions were validated by the learners who noted that they recognized aspects of their culture in the local texts and even found personal connections to them. For example, P3 said, “*Oway ka adn a malongon ago totob a and a rkami ron*” [Yes, because there were pictures of a malong and a totob, which we also have at home], showing a direct link between the content of the reading material and the learners' own lives. Similarly, P10 affirmed, “*Mapiya so libro ka so katharoon na lagid ami a Meranaw e katharo si paro*” [The book is great because the language used by *Paro* is similar to the language we speak as Meranaw], indicating the importance of language as a medium for cultural transmission.

Visual representations also contributed to cultural awareness. As P8 mentioned, “*So mga toladanon na mapiya ka Muslim*” [The pictures were nice because they showed the culture of Muslim people], and P4 stated, “*Adn a mga toladanon a Meranaw*” [There were pictures that showed Meranaw culture]. These statements highlight that not only the text but also the images in the reading materials played a key role in reinforcing cultural identity and appreciation. As mentioned by Razavi & Gilakjani (2020), contents of culture are necessary due to their role in the information of students' cultural schemata to help them in comprehending reading texts.

Teaching Practices

Theme 4: Utilization of Meranaw Text Books

Teachers shared that they incorporate a combination of both DepEd-provided materials and Meranaw local texts into their discussions for these are all deemed effective in teaching reading. Teaching reading among learners at the primary level could be quite a challenge as it requires teachers to select materials that will cater to the needs of the learners, will be relevant to their cultural background, and will suit their interest. Hence, to develop cultural familiarity which may further develop reading skills among learners, using local literary texts is considered effective. As Hijastro (2023) posits, the use of local literary works enriches students' appreciation for literature and English language learning. It provides an avenue for the learners to develop creativity and critical thinking and demonstrate desired cultural values.

Theme 5: Mother-Tongue as Medium of Instruction

Meranaw language, which is the mother tongue of the respondents and the students, is one effective way to teach reading using localized text according to the teachers. This, indeed, supports the positive impacts of using the native language as the medium of instruction in teaching younger students at the primary level. With the use of the mother tongue, the learners were seen to have been more active and participative in classroom discussions and activities because they understand more the language used in the teaching-learning instructions, may it be in the written or oral form. This can be proven true by the respondents' statements as follows,

The learners' feedback from the FGD reinforce these insights. Pupils expressed that reading Meranaw texts, such as "Malong i Mia," allowed them to better understand the content because it was presented in their native language. P1 affirmed, "*Pesaboten akn ka meranaw so katharoon, oway miyabatiya ami* [I understand it because Meranaw language is used. Yes, we were able to read the text]," and P6 added, "*Mapiya skanyan ka Meranaw a kisoratnon sana na Langon a libro an lagid aya* [It was good because Meranaw language was used. I hope all books are like this]." Such remarks indicate that the use of localized texts enables learners to comprehend stories more deeply due to language familiarity.

As recognized by the DepEd, according to Llaneta (2018), the benefits of teaching children using their mother tongue or first language because local and international research has found that children learn to speak, read, and write more quickly in their first language, and can pick up a second and third language more easily if taught in their first language. In the same way, they acquire other academic competencies more quickly.

Theme 6: Integrative Teaching

Integrative teaching is another teaching practice used by the teachers in the use of local texts in teaching reading. This implies that the teachers agree that using local texts and local literary texts in teaching reading is an effective way to supplement the discussion as these materials incorporate some Filipino values in it, leading to the development of the learners' reading skills.

One respondent shared that she consistently integrates Meranaw stories into her lessons because they are rich in moral content that supports character formation (P3). Another teacher noted that they use locally developed Meranaw books provided by the Department of Education, particularly when teaching lessons related to Filipino values, thus reinforcing the connection between reading and values education (P5). Furthermore, P9 emphasized that Meranaw stories are versatile and can be used as supplementary materials across different subjects.

Part 4. Issues And Challenges Encountered by The Teachers in Teaching Reading

Theme 1: Mastery on Meranaw Vocabulary

One problem experienced by the teachers in using local texts to teach reading is the lack of mastery on Meranaw vocabulary words both on the teacher's and the learner's end. There were words of higher complexities that are unfamiliar to both the teacher and the students, which results in little to no understanding of the texts being read.

The results from FGD among pupils confirmed this issue. Several pupils expressed that, although they appreciated learning to read using their native language, they still struggled with certain unfamiliar words. One pupil said, "*Aden a kisoratnon na meranaw di akn badn katawan e maana niyan* [There were some Meranaw words that I didn't know the meaning of (P7)]", while another shared, "*Diakn sabotn so pd a katharo a meranaw* [I couldn't understand some of the Meranaw words in the text (P8)]". Another remarked, "*Langon akn pkabatiya na diakn badn sabotn so ped a Meranaw* [I could read everything, but I didn't understand some of the Meranaw words (P9)]", emphasizing a gap between reading and actual comprehension. Additionally, pupils described their reading pace as slow, with one saying, "*Malombat so kapkabateya ami ron* [Our reading pace was slow (P1)]", and another stating, "*Marugn so kabatiya sa matas* [It was hard to read long texts (P10)]".

Previous studies on Mother-Tongue Based Multilingual Education showed some difficulties with the use of mother tongue instruction. Paulson (2010) argued that teachers may act as a barrier to effective MTB-

MLE due to their own unfamiliarity with the grammatical and orthographic system of their mother tongue, and lack of confidence in teaching reading and writing in that language. Likewise, Malone and Paraide (2011), Oyzon and Fullmer (2014), and Wa-Mbaleka (2014) all similarly stated that among the drawbacks of the implementation of the use of the mother tongue as the medium of instruction in the teaching-learning process include the unavailability of instructional materials in most local languages, the teachers being untrained on the use of local languages as language of instruction.

Theme 2: Utilization of Second Language

Another issue that arises is the difficulty of understanding the Filipino language and basic English language on the learners' end. The students were found to have been facing problems with regard to the comprehension of other languages used apart from their first language.

This finding implies that along the use of local texts that are written in the mother tongue, even if the teachers supplement their discussions with the use of other languages, for instance Tagalog and English, the students still find it hard comprehending the text they read leading further to the difficulty to catch up with the discussions inside the classroom because they cannot understand the language used by the teachers in speaking or communicating to them. Hence, they become less engaged and less interested in the classroom discussion and activities, making them less involved as well. Hill (1994) suggests that archaic language, slang, foreign words, allusions, or language that imitates the speech of a particular locality, and long complex clauses tend to contain multiple ideas and therefore should be avoided. As students will not understand these sentences and words, they will get bored and not read the work.

The FGD results strongly support the finding that Meranaw, as the mother tongue of the learners, plays a crucial role in enhancing comprehension. Pupils indicated that they find it easier to understand texts written in Meranaw, as evidenced by one of the pupils, "*Oway pmbatiyaan rkami i teacher na psabotn ami* [Yes, we understood our teacher while she was reading to us (P7)]". The pupils' responses suggest that when Meranaw is used as the medium of instruction, the learners feel more engaged and capable of following along with the lesson. This aligns with the earlier observation that students struggle when languages other than their first language (like Tagalog or English) are used for instruction.

CONCLUSIONS

This study examined the perceptions of teachers about the use of local texts in teaching reading which highlighted the effectiveness of local text materials in enhancing reading instruction among the primary teachers in the Marawi City Schools Division.

Given the unique educational context of Marawi City, where language and cultural identity are significant factors in learning, the study underscores the importance of continuously refining local text materials to better address the diverse needs of learners. Policymakers and curriculum developers should consider providing professional development programs to equip both veteran and novice teachers with strategies for maximizing the use of these materials. Ultimately, this study reaffirms the value of localized reading texts in strengthening foundational literacy skills and calls for ongoing improvements to ensure their effectiveness in Grader's classrooms.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are proposed to strengthen the implementation of local text materials in primary reading instruction:

1. **Parents.** Parents are encouraged to support their children's reading development at home by promoting regular reading habits and engaging in shared reading activities using culturally relevant texts. Creating a supportive home literacy environment can reinforce classroom learning and strengthen comprehension skills.

2. **Students.** Students should actively participate in reading activities and practice effective reading strategies such as summarizing, questioning, and discussing texts. Engaging consistently with local literary materials can enhance both literacy skills and cultural understanding.
3. **Teachers.** Teachers should maximize the use of local texts by integrating interactive and skill-based activities that extend beyond reading comprehension. Incorporating listening, speaking, and writing tasks can ensure a more holistic approach to literacy development. Continuous professional growth through relevant training programs is also recommended to strengthen instructional strategies.
4. **School Administrators.** Administrators should provide institutional support by ensuring access to quality local text materials and organizing professional development initiatives focused on culturally responsive literacy instruction. Establishing structured reading programs that highlight the value of localized materials can further reinforce effective implementation.
5. **Curriculum Makers and Material Developers.** Curriculum planners and instructional material developers should collaboratively ensure that local texts are aligned with national standards while remaining culturally authentic. Materials should be developmentally appropriate, inclusive, and designed to support multiple language skills. Regular review and evaluation of these resources are recommended to maintain relevance and instructional effectiveness.
6. **Future Researchers.** Future studies may expand the scope of this research by including larger and more diverse samples or by examining the long-term impact of localized texts on literacy outcomes. Further investigation into interdisciplinary applications of local literature may also provide valuable insights.

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PINILISA RICE PEST DETECTION WITH DECISION SUPPORT SYTEM

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ABSTRACT

Rice (*Oryza sativa* L.) is one of the most important staple crops worldwide, serving as the primary food source for more than half of the global population. This study developed a Pinilisa Rice Pest Detection and Decision Support System (PRPDDSS) to address challenges faced by rice growers in Jones, Isabela. Using descriptive and developmental research design, the system employed YOLOv8 and Convolutional Neural Networks (CNN) for accurate pest detection. The system, implemented as a web-based application for the server and mobile application for the client, achieved high compliance with ISO 25010 Software Quality Standards and offered significant benefits, including timely interventions and improved crop yields. This research demonstrates the potential of machine learning to revolutionize agricultural practices, benefiting farmers and policymakers and contributing to sustainable rice cultivation.

Keywords: *Pinilisa Rice Pest Detection, Decision Support System (PRPDDSS), Supervised Convolutional Neural Network (CNN), YOLOv8, Machine Learning*

INTRODUCTION

Rice (*Oryza sativa* L.) is one of the most important staple crops worldwide, serving as the primary food source for more than half of the global population. In the Philippines, rice production plays a crucial role in ensuring food security and supporting the livelihoods of millions of farmers. One of the diverse variety of rice which is grown in the Philippines is Pinilisa rice, stands out as a unique and organically cultivated heirloom variety from Jones, Isabela. It is famous for its fragrant aroma, distinctive plum color and flavorful grains, making it a local treasure cherished for its exceptional quality and taste.

However, growing Pinilisa rice is significantly threatened by various stresses which leads to substantial yield losses annually. Upland rice systems are generally more vulnerable to insect pest infestations due to rainfed conditions and limited pest control interventions. A production study conducted at the University of the Philippines Los Baños (2018) reported that pest incidence was among the primary constraints affecting the yield and grain quality of Pinilisa rice, although detailed pest profiling was not extensively examined.

Rice farmers in the Philippines continue to face significant production challenges due to insect pests, which contribute to yield reduction and increased production costs. In Bukidnon, farmers reported frequent pest infestations—especially rice stem borers and brown planthoppers—that compromise yield potential when not effectively managed (Colipano & Lacorte, 2025). In Northern Samar, a majority of rice farmers resorted to chemical control against insect pests, while others employed cultural and integrated pest management strategies, reflecting ongoing pest pressure in irrigated rice fields (Tuan, 2019). Similarly, in Calauan, Laguna, pest problems influenced farmers' management decisions and productivity outcomes, with heavy reliance on insecticides observed among many respondents (De Castro, 2024). In Central Mindanao, white stem borer and rice leaf folder were among the most commonly encountered pests, prompting farmers to apply pesticides based on pest presence (North Cotabato study). In addition, institutional reports from PhilRice warned that major pests such as brown planthoppers, rice stem borers,

rodents, and rice bugs threaten rice areas and can lead to significant yield and grain quality losses if left unmanaged (PhilRice, 2025). Collectively, these findings highlight the persistent insect pest problems encountered by rice farmers across diverse agroecological zones in the Philippines. These pests threaten the health and productivity of Pinilisa rice, potentially leading to significant economic losses for farmers and impacting the overall availability of this treasured grain.

The early and accurate detection of pests is crucial for implementing effective control measures and minimizing crop damage. In the Philippine context, studies have shown that many rice farmers rely on personal experience and visual observation when identifying pests, which may result in misidentification and improper control measures (Tuan, 2019). Currently, visual inspection remains the primary method employed by Filipino farmers for detecting Pinilisa rice pests. These limitations underscore the urgent need for more objective, efficient, and reliable methods for detecting plant pests in Pinilisa rice cultivation.

Recent studies emphasize that early detection and accurate identification of rice insect pests are critical in reducing yield losses and preventing severe infestations. Xiong et al. (2024) developed a deep learning-based rice pest detection model and reported that artificial intelligence significantly improves the accuracy and speed of pest identification in rice fields. Similarly, Li et al. (2023) highlighted that image-based pest identification systems enhance monitoring efficiency and reduce dependence on manual field scouting. The study demonstrated that machine learning models can classify multiple rice pest species with high precision, supporting real-time pest surveillance. PhilRice (2022) also promoted the use of digital agriculture technologies to strengthen integrated pest management (IPM) strategies in the Philippines. The institution stressed that technology-assisted monitoring helps farmers apply pesticides only when economic threshold levels are reached, reducing unnecessary chemical use. Their findings suggest that automated pest recognition systems can assist farmers in making timely management decisions.

Technological advancements in image processing and machine learning offer promising solutions to address the challenges of traditional pest detection methods. Image processing techniques can analyze digital images of rice plants, extracting relevant features that indicate the presence of a pest. Machine learning algorithms can then be trained on large datasets of labeled images containing both healthy and infested rice plants. Through this training process, these algorithms learn to recognize features and patterns indicative of specific pests. Once trained, the algorithms can analyze new images of rice plants and automatically detect the presence of pests with a high degree of accuracy and consistency. Furthermore, these technologies reduce farmers' reliance on specialized knowledge or training, providing an easy-to-use tool for pest detection that is accessible even to those with limited expertise.

This study proposes the development of "Pinilisa Rice Pest Detection with Decision Support System" (PRPDDSS) to revolutionize pest detection in Pinilisa rice cultivation. The PRPDDSS will leverage the power of image processing and machine learning through the following key components:

The proposed system will use image processing and machine learning technologies to improve pest detection in Pinilisa rice cultivation. It begins with image acquisition, where farmers can take clear photos of their rice plants using a mobile phone or digital camera. This feature is designed to be simple and user-friendly so that even farmers with limited technical knowledge can easily use it. After the images are captured, they go through a pre-processing stage to enhance their quality and ensure consistency. This may involve resizing the images, adjusting brightness or color, and removing unnecessary noise to prepare them for accurate analysis. At the center of the system is the detection engine, which uses a machine learning model trained based from images of healthy and pest-affected Pinilisa rice plants. Through Convolutional Neural Networks (CNNs), the system can recognize patterns and visual characteristics that indicate specific pest problems. Once a pest is detected and classified, the decision support component interprets the results and provides practical recommendations, such as identifying the type of pest and suggesting appropriate organic or environmentally friendly control measures suitable for Pinilisa rice. The Pinilisa Rice Pest Detection and Decision Support System (PRPDDSS) will be accessible through a desktop or mobile application with a user-friendly interface, allowing farmers to upload images conveniently and receive timely results and management advice.

Statement of the Problem

This study aimed to develop Pinilisa Rice Pest Detection with Decision Support System. Specifically, this study sought answers to the following questions:

1. What are the problems and challenges encountered by the rice growers in identifying and classifying Pinilisa rice pest?
2. What machine learning algorithm can be used to analyze images and accurately classify different pests affecting Pinilisa rice?
3. What system can be designed and developed to identify pests in Pinilisa rice and suggest appropriate counter measures to improve production?
4. What is the extent of compliance of the developed system with ISO 25010 Software Quality Standards in terms of the following:
 - 4.1 functional suitability;
 - 4.2 performance efficiency;
 - 4.3 compatibility;
 - 4.4 usability;
 - 4.5 reliability;
 - 4.6 security;
 - 4.7 maintainability;
 - 4.8 portability?
5. What enhancements can be made to improve the developed system?

METHODOLOGY

This chapter presents the methods and procedures used in the study. It includes the research design, participants of the study, instrumentation, data-gathering procedure, and data-analysis tools.

Research Design

This study employed a descriptive and developmental research design.

In the descriptive design phase, the study used the qualitative method to analyze the problems and challenges encountered by the participants. Meanwhile, the quantitative method assessed the developed system's compliance with the ISO 25010 Software Quality Standards.

The developed system used Supervised-Convolutional Neural Network (S-CNN) algorithm to perform mathematical computations to identify and classify Pinilisa rice pests. An intervention was provided by the system based on the identified pest.

Participants of the Study

The study involved a total of 50 participants, which includes the Municipal Agriculture Officer, Staff, Rice Growers and IT experts to ensure comprehensive system evaluation and implementation.

Among the participants, 10 or 20% were IT experts responsible for assessing the system's compliance with the ISO/IEC 25010 Software Quality Standards. The Municipal Agriculture Officer, comprising 1 or 2% of the participants, contributes to a more comprehensive understanding of Pinilisa rice. Additionally, 9 or 18% of the participants were MAO Staff which enrich the quality of data like classifications of pests residing on Pinilisa rice, insights and perspectives available to researcher. The remaining 30 or 60% of participants were the rice growers who gave the researcher's deeper understanding on the pests that are residing on pinilisa rice.

Instrumentation

To ensure the correctness, adequacy, and appropriateness of the data required during the development process, researcher used the following tools.

Interview Guide. An interview guide with structured questions was used to gather firsthand operational feedback on the Municipal Agriculture Office’s (MAO) existing processes for identifying and controlling rice pests. The same interview guide was provided to the rice farmers and staff of the MAO.

ISO 25010 Standardized Questionnaire. A standardized survey questionnaire was used to evaluate the extent to which the developed system application adhered to the ISO 25010 Software Quality Standards.

These tools facilitated thorough data collection, ensuring that the findings adhered to international standards and effectively addressed the real-world challenges encountered by the participants.

Data Gathering Procedure

To obtain the data needed for the investigation, the researcher undertook the following procedure:

1. The researcher obtained clearance from the Research Ethics Committee (REC) of Isabela State University to ensure the ethical soundness of the study.
2. After obtaining clearance from the REC, the researcher sought permission from the Municipal Agriculture Officer for the conduct of the study.
3. Before the data collection, the validity of the research tools was established, and the identification of the participants of the study was undertaken.
4. Informed consent from the participants was likewise sought to ensure that the study conforms to the ethical norms of research.
5. Upon approval of the Municipal Agriculture Officer, the researcher conferred with those involved in gathering the data.

The following are the details of the processes involved in obtaining the specific data:

6. Administration of the Questionnaire. The questionnaire was administered to the participants.
7. The obtained quantitative data was organized through the Excel spreadsheet. Meanwhile, the qualitative data was analyzed through thematic analysis.
8. Moreover, the research ensured data privacy by safeguarding the anonymity and confidentiality of the data, and regulating the data access, data security, and data disposal.

Data Analysis

An in-depth analysis of the collected data was conducted to understand user experiences and refine the system effectively.

Thematic Analysis. This is used to present the problems and challenges encountered by participants in the existing process.

Mean. This was used to determine the developed system’s extent of compliance with the ISO 25010 Software Quality Standards as assessed by the IT experts.

Table 1. Likert Scale for Determining the Developed System’s Compliance with ISO/IEC 25010 Software Quality Standards

Score	Scale Range	Descriptive Interpretation
5	4.20 – 5.00	Very Great Extent
4	3.40 – 4.19	Great Extent
3	2.60 – 3.39	Moderate Extent
2	1.80 – 2.59	Little Extent
1	1.00 – 1.79	Very Little Extent

Also, different graphical/pictorial models were used for the presentation of the different results.

RESULTS AND DISCUSSION

This chapter presents the results and corresponding interpretation of data, including the development of the “Pinilisa Rice Pest Detection with Decision Support System”.

1. Problems and Challenges Encountered by the Rice Growers in Identifying and Classifying Pinilisa Rice Pests

The thematic analysis of the results of the interview with the participants on the problems and challenges encountered by rice growers in identifying and classifying Pinilisa rice pests generated the following themes.

1.1. Lack on Knowledge and Awareness on the Different Pinilisa Rice Pests

The interviews revealed a significant gap of knowledge among Pinilisa rice growers regarding different pests, specifically broken down into the following key areas:

1.1.1 Limited Knowledge on the Identification of Viral and Common pests

Majority of the rice growers were unable to identify viral and common pests.

1.1.2. Limited knowledge on the characteristics of different pests, Particularly Symptoms and Causes

Rice growers displayed poor understanding of the symptoms and underlying causes of Pinilisa rice pests. This lack of knowledge prevented them from recognizing early signs of infections, which are critical for early intervention.

1.1.3. Misdiagnosis and Ineffective Treatment Because of the limited knowledge, rice growers often misdiagnosed pests leading to inappropriate treatment which resulted to crop losses and wasted resources.

1.2. Limited Access to Experts

The interviews revealed that sixteen (16) out of the twenty (20) rice growers have limited access to agricultural experts. There is only one (1) agricultural personnel in-charge in the whole town of Jones, Isabela and cannot accommodate the rice growers from the forty two (42) barangays. This affects the services and technical support that they may have extended to the rice growers. This supports the statement of Laborde et al. (2020) that smallholder farmers often lack adequate technical support, which directly affects their ability to improve agricultural practices, including pest control.

2. Machine Learning Algorithms Used in the Development of the Pinilisa Rice Pest Detection with Decision Support System

Comparative evaluations of YOLOv8 and YOLOv11 using consistent training and validation methods have shown that YOLOv8 can achieve higher mAP50-95 scores than YOLOv11 on certain datasets, with the YOLOv8x model achieving a mAP50-95 of 0.821 compared to lower scores for YOLOv11 configurations, indicating YOLOv8's competitive or superior performance in object detection tasks

The YOLOv8 model was trained using a diverse dataset of Pinilisa rice pest images sourced from both online and field observations. The images were pre-processed to ensure consistency and enhance model performance. The model's architecture, including convolutional layers, pooling layers, and fully connected layers, was carefully designed and trained using a suitable optimization algorithm. A confusion matrix was utilized to evaluate the model's accuracy and identify areas for improvement in classifying different rice pests.

The YOLOv8 model, as demonstrated in the confusion matrix, exhibited promising performance in identifying and classifying Pinilisa rice pests. Notably, the model excelled in accurately detecting Rice Bugs, Rice Stem Borers and Rice Black Bug, showcasing its ability to distinguish these pests from others. However, the model's performance on Green Leaf Hopper and Brown Leaf Hopper was less robust, indicating a need for further refinement in its ability to differentiate this pest from similar conditions.

A closer examination of the confusion matrix reveals that the model's strengths lie in its precision and recall for Rice Stem Borer and Rice Bug.

RICE STEM BORER	240	0	5	5	10
RICE BUGS	1	241	4	8	6
RICE BLACK BUG	5	3	234	12	6
GREEN LEAF HOPPER	2	0	0	256	2
BROWN LEAF HOPPER	0	0	0	3	257

Figure 1. Confusion Matrix of the developed CNN using YOLO v8 Model

The result implies that the model effectively minimizes false positives while capturing a significant portion of the actual positive instances. However, improvements in performance for Green Leaf Hopper and Brown Leaf Hopper could be achieved by addressing potential issues such as data imbalance or the complexity of the pest's visual features.

Performance Measurement of Recognition Model

The YOLOv8 model demonstrated exceptional performance in detecting Rice Bugs. Its precision of 0.9877 means that 98.77% of the samples it predicted as Rice Bugs were indeed correct, while its recall of 0.9269 indicates that it accurately identified 92.69% of all actual Rice Bugs cases.

For Rice Black Bug, the model performed well, achieving a precision and recall of approximately 0.90–0.96. While these scores suggest decent performance, there is still room for improvement, particularly in reducing false negatives. Green Leaf Hopper presented a different challenge. The model's recall of 0.9014 indicates that it accurately identified most cases of Green Leaf Hopper.

The recognition model achieved an overall accuracy of 94.46% during the final phase, attributed to fine-tuning the presented data.

The YOLOv8 model showcases its potential as a valuable tool for Pinilisa rice pest detection. By addressing identified areas for improvement, particularly in relation to Green Leaf Hopper and Brown Leaf Hopper, the model's performance can be further refined to achieve an even more harmonious balance between accuracy and precision, making it a more effective and reliable aid for farmers and agricultural researchers.

Table 2. Performance Measurement of the developed CNN using YOLO v8 Model

CLASSES	PRECISION	RECALL	F1 SCORE
RICE STEM BORER	96.77	92.30	94.48
RICE BUGS	98.77	92.69	95.63
RICE BLACK BUG	96.29	90	93.04
GREEN LEAF HOPPER	90.14	98.46	94.11
BROWN LEAF HOPPER	91.45	98.88	95
MEAN	94.68	94.46	94.45

Precision to Accuracy of Convolutional Neural Network Model

The YOLOv8 model demonstrated a commendable balance between accuracy and precision in detecting Pinilisa rice pests. This indicates that the model not only correctly classified a significant number of images (high accuracy) but also minimized false positives (high precision).

This dual strength is crucial in real-world applications, as it ensures that the model provides reliable and relevant results. A closer examination of the confusion matrix reveals that the model's performance was relatively balanced across all four pest categories. While the model excelled in accurately identifying Rice Stem Borer and Rice Bug, there is still room for improvement in its ability to distinguish Green Leaf Hopper and Brown Leaf Hopper from other pests.

The high precision achieved by the YOLOv8 model is particularly noteworthy. This suggests that the model is effective at minimizing false alarms, which is essential in agricultural applications where misdiagnosis can lead to unnecessary treatments and resource wastage.

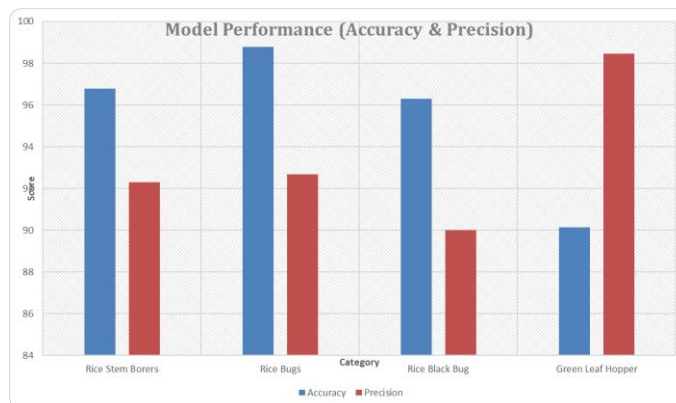


Figure 2. Precision, Accuracy of YOLO V8 Model

The Developed Pinilisa Rice Pest Detection with Decision Support System

The system was developed in response to the challenges and issues identified in the current process of detecting and classifying pests in Pinilisa rice.

The system was created using the Python programming language for the model, PHP for the web application and Android Studio for the mobile application. These applications were designed to accommodate rice growers located in areas with poor internet access. As such, the system can be used offline to identify and classify different Pinilisa rice pests.

The system includes two (2) sub-modules: the "Pest Library" module, which contains information about Pinilisa rice pests, and the "Upload Image" module, which identifies and classifies the type of pest based on the uploaded image. Once the image is processed, the results are displayed, and users can view different interventions by clicking the "Open Treatments" button. The results of the processed images are saved in the "Results" folder, with the file name based on the current date and time.

4. Extent of Compliance of the Developed System to ISO 25010 Criteria

In general, the developed system is compliant with the ISO/IEC 25010 Standard to a "Very Great Extent" in terms of the following criteria including functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability and portability.

5. Suggested Enhancement that can be made for the developed system.

IT experts suggested several enhancements to further improve the system. One key recommendation was to include video tutorials and IEC materials which would provide step-by-step guidance to help users properly manage rice pests. Another proposed improvement is the addition of severity level detection for each identified pest. By incorporating this, the system can provide more accurate assessments and help users determine how urgent the intervention should be.

Implementation of user-friendly dashboard was also suggested which would display detection accuracy for each rice pest and maintain history records of previously identified pests, enabling better monitoring, tracking of frequently occurred pests. The last one is adding multilingual support such as tagalog, iloco and other local dialects which would make the system more accessible for rice growers situated in Jones, Isabela.

CONCLUSIONS

The study successfully addressed the challenges faced by rice growers in identifying and classifying Pinilisa rice pests by developing a Pinilisa Rice Pest Detection with Decision Support System. Through a detailed thematic analysis, the study identified significant knowledge gaps among growers, including limited awareness of viral and bacterial pests, insufficient understanding of pest characteristics, and frequent misdiagnosis. Additionally, limited access to experts further compounded these challenges.

By employing advanced machine learning algorithms, specifically the YOLOv8 model and Convolutional Neural Networks (CNN), the study demonstrated the potential of integrating technology to revolutionize agricultural practices. The developed system proved to be a reliable and efficient tool, offering early and accurate detection of rice pests, thus empowering farmers to mitigate crop losses and improve yields. Furthermore, its compliance with ISO 25010 Software Quality Standards underscored its robustness and usability in various domains.

Feedback from participants also provided actionable insights for enhancing the system, including the addition of video tutorials, severity level detection, real-time image capture, a comprehensive dashboard, and multilingual support. These recommendations highlight the potential for further refinement to ensure broader applicability and accessibility.

Overall, the study contributes to addressing long-standing agricultural challenges through innovative technological solutions, offering both immediate and long-term benefits for farmers and agricultural policymakers.

RECOMMENDATIONS

Based on the findings and conclusions drawn, the following recommendations are forwarded.

1. The Municipal Agriculture Office (MAO) may utilize the developed system in identifying and classifying Pinilisa rice pests.
2. The researcher, together with the Municipal Agriculture Office (MAO), could conduct a training for all rice growers in the use of the developed system.
3. For future researchers, the regular evaluation of the system's performance in real-world conditions may be done to ensure its effectiveness. As pest patterns or environmental factors change, the training data and model architecture may need to be updated to maintain optimal performance.
4. For future studies, more images of the different rice pests could be provided to increase the prediction accuracy of the system. Aside from pests, adding of pests images as dataset may also be included as long as images are available to expand the ability to identify and classify not only pests but also the pests residing in Pinilisa rice plant.

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DEVELOPMENT AND VALIDATION OF MONITORING AND EVALUATION TOOL (M & E) FOR ISLAMIC STUDIES AND ARABIC LANGUAGE (ISAL) TEACHERS IN MARAWI CITY, LANA O DEL SUR I AND II DIVISIONS

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ABSTRACT

Islamic Studies and Arabic Language (ISAL) programs in the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM), particularly in Marawi City and Lanao del Sur Divisions I and II, face challenges related to inadequate monitoring systems, cultural misalignment, and limited instructional support. Existing generic Monitoring and Evaluation (M&E) frameworks fail to adequately reflect the religious, cultural, and pedagogical dimensions of ISAL instruction. This study developed and validated a culturally responsive M&E tool specifically designed for ISAL teachers. The instrument was grounded in Cultural-Historical Activity Theory, Sociocultural Theory, Constructivist Learning Theory, the Logic Model, and the Theory of Change. A convergent mixed-methods design was employed. Qualitative data from focus group discussions, Delphi consultations, and interviews informed tool development and refinement. Quantitative validation involved 430 ISAL teachers and 30 school administrators or supervisors. Data were analyzed using the Content Validity Index (CVI), Exploratory Factor Analysis (EFA), and Cronbach's alpha reliability testing. Results demonstrated strong psychometric properties, including high content validity (CVI ≥ 0.80 across domains), excellent internal consistency ($\alpha \geq 0.90$), and a stable multidimensional factorial structure. Pilot testing further confirmed the tool's practicality, usability, and cultural alignment. The validated M&E tool provides educators and policymakers in BARMM with a statistically robust and culturally grounded framework to enhance ISAL instructional quality, strengthen teacher development, and support evidence-based program monitoring and sustainability.

Keywords: *Islamic Studies and Arabic Language (ISAL), Monitoring and Evaluation (M&E) tool, Marawi City, Lanao del Sur I and II Divisions, (BARMM)*

INTRODUCTION

Monitoring and Evaluation (M&E) systems are essential to ensuring instructional quality, accountability, and program sustainability in culturally diverse educational settings. In Islamic Studies and Arabic Language (ISAL) education, however, conventional monitoring frameworks often fail to capture the religious, cultural, and pedagogical dimensions that define meaningful instruction (Alsyabani et al., 2023; Bonnet et al., 2020). This limitation is particularly evident in the Bangsamoro Autonomous Region

in Muslim Mindanao (BARMM), where ISAL programs operate within a distinct sociocultural and faith-based context that generic evaluation tools inadequately address (Yanah & Nurlatifah, 2024).

ISAL, administered by the Ministry of Basic, Higher, and Technical Education (MBHTE), evolved from the ALIVE program to strengthen Arabic proficiency, reinforce Islamic identity, and align with national educational standards. Although reforms such as teacher qualification requirements and curriculum standardization have improved instructional consistency (Latiph, 2021), evaluation mechanisms remain largely borrowed from mainstream frameworks. Existing tools, including DepEd's Basic Education Monitoring and Evaluation Framework, provide structural guidance but lack sensitivity to Islamic pedagogy, Qur'anic instruction, and community-based values formation (DepEd, 2017; DepEd, 2022).

While scholarship increasingly emphasizes the importance of culturally responsive evaluation systems in enhancing instructional relevance and stakeholder engagement (Bonda, 2022; Salangani & Adil, 2024), no empirically validated M&E instrument has been specifically developed for ISAL teachers in BARMM. This absence constitutes a clear research and practice gap. Without a context-specific and psychometrically sound tool, educational leaders lack reliable mechanisms for accurately assessing ISAL teacher performance, guiding professional development, and informing policy decisions tailored to Islamic education.

Anchored in Cultural-Historical Activity Theory, Sociocultural Theory, Constructivist Learning Theory, the Logic Model, and the Theory of Change, this study addresses this gap by developing and validating a culturally responsive M&E tool for ISAL teachers in Marawi City and the Divisions of Lanao del Sur I and II. Through a mixed-methods design integrating stakeholder consultation, expert validation, and rigorous psychometric testing, the study offers a statistically robust and contextually grounded framework to strengthen ISAL instructional quality and support evidence-based educational policy in BARMM. By addressing these objectives, the study contributes a practical, evidence-based framework for improving ISAL instruction, supporting teacher development, and guiding culturally aligned educational policy in BARMM.

METHODOLOGY

This study employed a convergent parallel mixed-methods design grounded in a pragmatic paradigm. Quantitative and qualitative data were collected simultaneously, analyzed independently, and integrated during interpretation. The design enabled rigorous psychometric validation while ensuring contextual and cultural grounding in the development of a Monitoring and Evaluation (M&E) tool for Islamic Studies and Arabic Language (ISAL) teachers in Marawi City and the Divisions of Lanao del Sur I and II.

Sampling Strategy

Quantitative Phase

A stratified random sampling technique ensured proportional representation across the three divisions. The population of ISAL teachers was obtained from official Schools Division Office records and stratified by division and school level to account for contextual variation. Within each stratum, participants were randomly selected using official rosters to minimize sampling bias.

A total of 430 ISAL teachers participated. The sample size met recommended criteria for factor analysis (at least 5–10 respondents per item), ensuring statistical power and stability of factor solutions. Sampling adequacy was confirmed using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity prior to factor extraction.

Qualitative Phase

Purposive sampling was used to select information-rich participants directly involved in ISAL implementation and monitoring. Participants included ISAL teachers, school principals, Education Program

Supervisors, and Madaris Division Heads. Selection criteria included years of service and leadership or supervisory roles to ensure contextual expertise.

Instrument Development

Instrument development followed three stages:

1. Indicator Generation

Focus Group Discussions (FGDs), classroom observations, and expert consultations identified culturally relevant domains aligned with Islamic pedagogy and Arabic instruction.

2. Delphi Validation

A panel of ISAL experts participated in iterative Delphi rounds. Consensus was set at $\geq 80\%$ agreement. Items failing to meet this threshold were revised or removed.

3. Pilot Testing

The preliminary instrument was pilot-tested with 155 ISAL teachers to assess clarity and reliability. Item-total correlations and internal consistency coefficients informed refinement before full-scale administration.

Data Collection

Quantitative data were collected through structured questionnaires administered face-to-face to address connectivity limitations and reduce nonresponse bias. Standardized instructions ensured consistency.

Qualitative data were gathered concurrently through FGDs, semi-structured interviews, classroom observations, and Delphi consultations. Interviews were audio-recorded and transcribed verbatim.

Validity and Reliability

Content Validity

Content validity was assessed using the Item-Level Content Validity Index (I-CVI) and Scale-Level Content Validity Index (S-CVI). Experts rated items for relevance and clarity using a four-point scale. Items with I-CVI below .80 were revised or removed. The final S-CVI exceeded .90, indicating strong agreement.

Construct Validity

Construct validity was established through sequential Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA).

EFA used principal axis factoring with oblique rotation. Retention criteria included factor loadings $\geq .50$ and cross-loadings $< .30$. KMO values above .80 and significant Bartlett's Test ($p < .001$) confirmed sampling adequacy.

CFA was conducted using AMOS. Model fit was evaluated using multiple indices: CMIN/DF < 3.00 , CFI $\geq .90$, TLI $\geq .90$, RMSEA $\leq .08$, and SRMR $\leq .08$. Modifications were applied only when theoretically justified.

Reliability

Internal consistency was assessed using Cronbach's Alpha ($\alpha \geq .70$ acceptable). All domains exceeded $\alpha \geq .90$. Composite Reliability (CR $\geq .70$) and Average Variance Extracted (AVE $\geq .50$) supported convergent validity.

Qualitative Analysis and Integration

Qualitative data were analyzed using Braun and Clarke's six-phase thematic analysis. Trustworthiness was ensured through triangulation, member checking, and audit trail documentation. Integration occurred through joint display matrices comparing factor structures with qualitative themes to confirm domain coherence and refine indicators.

Ethical Considerations

Ethical clearance was obtained from the Mindanao State University Ethics Committee. Authorization was secured from the Ministry of Basic, Higher, and Technical Education and relevant Schools Division Offices. Written informed consent was obtained from all participants. Participation was voluntary, confidentiality was ensured through coded identifiers, and data were securely stored. Cultural sensitivity protocols were observed during all interactions.

Replicability

Sampling procedures, validation thresholds, analytic decisions, and model fit criteria were documented to ensure transparency and replicability in similar culturally grounded educational contexts.

RESULTS AND DISCUSSION

The final version of the Monitoring and Evaluation (M&E) Tool for Islamic Studies and Arabic Language (ISAL) teachers reflects the integration of quantitative validation and qualitative stakeholder feedback. Results demonstrate that the instrument is both psychometrically sound and culturally responsive, aligning with the instructional realities of ISAL teaching in BARMM.

Descriptive Profile of ISAL Teachers

Prior to instrument validation, descriptive statistics were computed to profile the participating ISAL teachers. The majority of respondents were full-time teachers assigned to elementary-level ISAL instruction, with teaching experience ranging from 1 to over 15 years. A substantial proportion had formal training in Arabic language and Islamic studies, while others entered the profession through community-based certification pathways.

These demographic characteristics provide important contextual grounding for the validation process. The diversity in teaching experience and qualification pathways suggests that the sample adequately represents the instructional realities of ISAL classrooms in the participating divisions. Establishing this profile strengthens the interpretive validity of the subsequent psychometric findings.

Psychometric Strength and Construct Validation

Content validity indices ($CVI \geq 0.80$) indicate strong expert agreement regarding the relevance and clarity of the indicators, exceeding the acceptable threshold proposed by Lynn (1986). This suggests that the domains adequately capture essential dimensions of ISAL instruction. High internal consistency coefficients ($\alpha > 0.90$ across domains) further demonstrate scale stability and coherence, surpassing the reliability benchmark of Nunnally and Bernstein (1994). Such values indicate that items within each domain consistently measure unified constructs while maintaining conceptual clarity.

Factor analysis supported an eight-domain multidimensional structure: (1) Instructional Delivery and Pedagogical Skills, (2) Arabic Teaching Quality, (3) Assessment Practices, (4) Curriculum Relevance, (5) Cultural Relevance, (6) Content Mastery, (7) Student Engagement and Satisfaction, and (8) Impact on Student Learning Outcomes. The stability of this structure reinforces construct validity and supports Kim and Mueller's (1978) assertion that theoretically coherent factor solutions strengthen measurement integrity.

The multidimensional configuration parallels established teacher evaluation models such as Marzano's (2012) domain-based framework linking instructional practice to student outcomes. However, the ISAL M&E tool extends conventional models by incorporating culturally embedded indicators, including Qur'anic pedagogy, Arabic language proficiency, and values-based formation. This contextual specificity responds directly to scholarship emphasizing culturally grounded evaluation in Islamic education (Yanah & Nurlatifah, 2024). These findings further support the Cultural-Historical Activity Theory lens adopted in this study, demonstrating how instructional practices, cultural norms, and

institutional structures function as interconnected elements shaping teacher performance within the ISAL context.

Interpretation of Quantitative Findings

The strength of factor loadings and domain cohesion indicates that ISAL teacher effectiveness is multidimensional rather than reducible to generic pedagogical competence. Instructional delivery, cultural alignment, and religious content mastery function as interdependent constructs. The high reliability coefficients also suggest clarity in item formulation and consistent interpretation among respondents, supporting the operational precision of the instrument.

The five-point rating scale (Highly Evident to Not Evident) enhanced usability and inter-rater consistency. Observer feedback indicated improved clarity during classroom assessments, consistent with Kimball et al. (2004), who note that simplified rating systems reduce evaluator burden and enhance reliability. The integration of behavior-based indicators and structured remarks aligns with the Classroom Assessment Scoring System (CLASS) framework (Pianta et al., 2008), emphasizing observable teaching behaviors over abstract performance criteria.

Integration with Literature and Practical Implications

Findings reinforce research asserting that evaluation tools grounded in cultural and religious contexts produce more meaningful instructional assessments. By embedding Arabic instruction, Islamic identity formation, and community values into measurable indicators, the tool operationalizes principles of culturally responsive evaluation (Bonda, 2022; Salangani & Adil, 2024). This integration enhances legitimacy and stakeholder acceptance.

Qualitative feedback further supports the instrument's practicality. Teachers and administrators highlighted clarity, contextual relevance, and accessibility, particularly through the inclusion of Meranaw translations. Recommendations for mobile adaptation and periodic implementation align with Ovando's (2005) advocacy for formative supervision and Afshari et al.'s (2009) findings on technology-supported instructional monitoring. These insights suggest that the tool functions not merely as an evaluative instrument but as a developmental framework promoting reflective practice and continuous professional growth.

Overall, the ISAL M&E tool bridges empirical validation and contextual responsiveness. By combining statistically robust constructs with culturally embedded indicators, it strengthens accountability mechanisms while supporting instructional improvement in faith-based educational contexts.

Limitations

Several limitations warrant consideration. First, the study was geographically confined to Marawi City and the Divisions of Lanao del Sur I and II, which may limit generalizability to other BARMM regions or Islamic education systems. Second, the cross-sectional design precludes assessment of longitudinal effects on teacher performance or student achievement. Third, while reliability coefficients were high, extremely elevated alpha values may suggest potential item redundancy requiring future refinement. Finally, classroom observations were conducted in selected schools, which may not fully represent instructional diversity across all ISAL settings.

Future research should validate the instrument across additional regions, examine predictive validity relative to student outcomes, and explore longitudinal impacts on instructional quality.

CONCLUSIONS AND RECOMMENDATIONS

This study developed and validated a culturally responsive Monitoring and Evaluation (M&E) tool for Islamic Studies and Arabic Language (ISAL) teachers in Marawi City and the Divisions of Lanao del Sur I and II. The findings confirm that the instrument demonstrates strong content validity, construct validity, and internal consistency, establishing it as a psychometrically sound and context-sensitive

framework for teacher evaluation. The validated eight-domain structure affirms that ISAL teacher effectiveness is multidimensional, integrating instructional competence, Arabic proficiency, assessment practices, cultural responsiveness, content mastery, student engagement, and learning outcomes. By incorporating culturally grounded indicators alongside pedagogical standards, the tool extends conventional evaluation models to better reflect the instructional and sociocultural realities of ISAL classrooms.

While the instrument is empirically robust and positively received by stakeholders, its effectiveness depends on systematic and sustained implementation. In the short term, orientation and capacity-building initiatives should be conducted to ensure shared understanding of the tool's domains and formative intent. A pilot implementation in selected schools is recommended to refine procedures and integrate evaluation results into school improvement planning. In the medium term, formal adoption through policy issuance will help standardize use across divisions, while evaluation data should inform targeted professional development, mentoring, and peer-support programs. Establishing a structured data management system will further enhance monitoring efficiency and feedback delivery. In the long term, ISAL M&E findings should inform regional planning, curriculum refinement, and strategic teacher deployment. Developing specialized training pathways and establishing a dedicated research and evaluation unit will support continuous improvement. Aligning ISAL indicators with national quality assurance frameworks while preserving contextual distinctiveness will promote equity, inclusivity, and sustained instructional quality within Islamic education settings.

Overall, this study provides a validated and culturally aligned evaluation framework that bridges empirical rigor and contextual relevance, offering a sustainable model for strengthening instructional quality in faith-based and culturally distinct educational systems.

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ORGANIZATIONAL CULTURE THAT INFLUENCES THE EFFICIENCY OF PERSONNEL IN THE MUNICIPALITIES OF ECHAGUE AND JONES DIVISION OF ISABELA

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ABSTRACT

This research work looks over the organizational culture of personnel that boosts the efficiency in workplace. This embodies and comprises optimized skills and process to achieve organizational goals by focusing on the quality and resource-cost of the output. On the other hand, the focal point of this research reveals the respondents' efficiency at work. In a manner, highly engaged personnel are more motivated and focused on the organization. Centered personnel are the key ingredient of achieving success in organization. In short, engaged employees are the fuel of the organization. It fosters a positive culture, improving satisfaction and reducing turnover. Furthermore, a strong cohesive culture directly impacts performance, driving employees toward shared goals and increasing overall productivity. Moreover, flexible culture fosters resilience, allowing teams to recover faster from challenges and allowing teams to recover from challenges and adapt to change. It also helps promote smooth plan collaboration and, in decision making. Indeed, organizational culture caters to a win-win scenario. This keeps the organization agile and future adaptability to transform.

INTRODUCTION

Background of the Study

Organizational culture plays a critical role in the success of any organization. Positive culture boosts personnel engagement, retention and performance, creating a workplace where people thrive. It influences how teams collaborate, how decisions are made and how personnel connect to the organization goals. On the other hand, a strong culture feels innovations builds thrust and drives results – making it one of the most powerful tools for long-term growth and competitive advantage. It also described behaviors, values and attitudes that shapes the personnels experiences.

Moreover, positive cultures are often described as collaborative, appreciative and purpose driven. Observing communication styles, decision making process and how the personnel are recognized and developed can quickly understand the true culture of an organization. Building a thriving organizational culture isn't a one-time project – it's a continuous commitment recognized, listens and support the personnel. When culture is intentional, personnels feels valued, connected and motivated to do their best work. And that's where achievers come in.

In like manner, organizational culture of personnel consists of shared values, belief, behaviors and dictates how employees work, interact and make decision. It is also a culture how an organization turns its purpose into action. It shows how a company keeps and attracts talented personnel and guides everyday behavior and decisions. Organizations that successfully incorporate a strong purpose into their culture go beyond mission statements and internal messaging.

Likewise, good organizational culture doesn't happen by accident. Leaders design it on purpose and learn how to enhance organizational culture through consistent actions. Culture sets the tone for the

workforce and often determines whether perspective personnel drawn or decide to look elsewhere. Organizations also gain momentum when personnel moving in the same direction toward the same goal. When alignment is strong, people inside and outside the organization from current and perspective employees and stakeholders think and talk about the organization in the same way. The organizational culture provide direction for leaders, managers and individuals by clarifying how they should prioritize time, energy and resources.

Organizations can build and sustain a strong organizational culture that supports high performance when use a structured approach to measure and managing culture. Leaders need a unified view of what ideal organizational culture truly is. Indeed, supportive atmosphere motivates personnel to put forth their best efforts, leading to higher efficiency, better performance and creates creativity.

Further, organizational culture offers the members a shared sense of purpose and identity, sets boundaries that distinguish the organization from other. It serves as an invisible guide for daily recruiting high-value talent and reduces workforce turnover and staff resignation. Furthermore, fostering a healthy work culture improves workplace productivity, employee satisfaction and other positive outcomes that benefit both the organization and its personnel. As such, it describes how an organization functions on a social level.

Undoubtedly, realistic works thrive in interactive workplaces with a focus of hand skills. the personnel are typically practical, task-oriented and hands on with clear expectations and the necessary tools to do their jobs. Workers need an open, flexible environment that allows them to work cooperatively or individually at their own pace. Providing structure only when necessary. In the end, positive organizational culture, personnel find a social atmosphere invigorating, while others might find a quiet, zen-like atmosphere more effective.

Whereas, the researcher prompted to look into the organizational culture of personnel in the Municipalities of Echague and Jones that could motivate and influence the personnel to work efficiently and productively in the organization.

STATEMENT OF THE PROBLEMS

This research work aims to determine the organizational culture that influences the efficiency of personnel in the Municipalities of Echague and Jones, Isabela Division.

The following are the specific research questions:

1. What is the profile of the respondents as to: gender, highest educational attainment and number of years in the service and seminars attended.
2. To what extent are the following parameters effective in the organizational culture that influence the efficiency of the personnel towards:
 - 2.1. Performance and Engagement;
 - 2.2. Collaboration and Innovation;
 - 2.3. Decision Making and Behavior;
 - 2.4. Motivation; and,
 - 2.5. Workplace Culture?
3. What are the challenges encountered by the respondents that affect their efficiency of the respondents in the workplace?

METHODOLOGY

Research Design

The research study aimed to figure out the organizational culture that influences the efficiency of the personnel in the municipalities of Echague and Jones Isabela. As such, the most appropriate method is the descriptive method. John Best (1970), an authority in educational research asserts that:

“The descriptive method best brings out the nature, status, and characteristics of an individual, a group or a phenomenon through an accurate recording and analysis of data gathered from a large scale. It is the descriptive method, which best presents what is as is.”

This method described the specific variables in the organizational culture that influence the personnel's efficiency. On the other hand, this study utilizes informal interview with the respondent personnel to strengthen the data gathered, in order to arrive at the significant findings and result of the study, the analytical instrument was used to collect, analyze and interpret the gathered data. The data was analyzed and interpreted through the following statistical tools: In the respondent's profile using the frequency was counted to determine the percentage occurrence. On the other hand, simple percentage is the number of responses of the respondents in the personal data.

Findings

In order to collect the primary data, a well-structured questionnaire was used. Informal interviews are also carried out for missing data and also for checking the data already filled in by the respondents. Based on the context, the presentation of the data was tabulated, analyzed and interpreted to find its significance in this research.

Table 1. Profile of the Respondents

Gender	Frequency	Percentage
Male	18	60
Female	12	40
Total	30	100
Highest Educational Attainment	Frequency	Percentage
Bachelor's Degree	23	76.67
Master's Degree	5	16.67
Doctoral Degree	2	6.67
Total	30	100
Number of years in the Service	Frequency	Percentage
1-1 Year	6	20
2-5 Years	12	40
5-10 Years	8	26.67
11 Years and above	4	13.33
Total	30	100

Based on the data gathered data from the personnel reveals that majority of the respondents were male as supported by the computed percentage. There were 12 or 40 percent of the total population were female. Data shows that male personnel outnumbered the female group during the conduct of this study.

On the highest educational attainment of the respondents described that Bachelor's degree remained dominant among the presented variables. While there were 2 or 6.67 percent finished Doctoral degree. Data implies that few of the personnel upgraded themselves professionally.

According to the data forwarded from the respondent personnel, it could be observed that among the 30 respondents, there were 12 or 40 percent were in the service for 2-5 years. In like manner, there were 8 personnel who confirmed in the profession for 5-10 years. And lastly, there were 4 or 13.33 percent were

in the service for 11 years and above. Among others, it is believed that more years spent in the profession, the more knowledge and skills acquired. Individuals with higher degrees typically earn more and greater job stability.

The researcher utilized the Likert Five-Point Scale in all the variables presented except in the respondent's profile.

<u>Point</u>	<u>Range</u>	<u>Qualitative Description</u>
5	4.21 – 5.00	Very Effective
4	3.41 – 4.20	Effective
3	2.61 – 3.40	Moderately Effective
2	1.81 – 2.60	Slightly Effective
1	1.00 – 1.80	Least Effective

Table 2. Effect of the Parameters that Influence the Efficiency of Personnel

Parameters	Weighted Mean	Qualitative Description
A. Performance and Engagement		
1. Emotional Commitment	4.23	VE
2. Drives higher performance	4.20	E
3. Highly engaged personnel	4.21	VE
4. Boost productivity	4.18	E
5. Clear communication and effective leadership	4.24	VE
Average Weighted Mean	4.21	Very effective
B. Collaboration and Innovation		
1. Increases collaborative approach into complex challenges and innovative solutions	4.24	VE
2. Enhances problem solving	4.22	VE
3. Leveraging collective expertise	4.18	E
4. Brings together individuals with different skills	4.13	E
5. Leads to unique creative and comprehensive solutions	4.20	E
Average Weighted Mean	4.19	Effective
C. Decision Making and Behavior		
1. Shapes organizational culture	4.15	E
2. Effective decision making	4.20	E
3. Ensures sustainability	4.12	E
4. Shapes employee attitude	4.00	E
5. Influence group for effective teamwork	4.17	E
Average Weighted Mean	4.13	Effective
D. Motivation		
1. Drives higher productivity	4.08	E
2. Highly motivated personnel are more engage	3.57	E
3. Creates a positive, efficient organizational culture	4.05	E
4. Works harder, faster and are more focused	4.03	E
5. Increases overall output and goals are met	4.10	E
Average Weighted Mean	3.97	Effective
E. Workplace Culture		
1. Provides personnel engagement	4.07	E

2. Fosters positive culture	4.23	VE
3. Encourages innovation	4.12	E
4. Strengthen brand reputation	4.03	E
5. Promotes psychological safety	4.21	VE
Average Weighted Mean	4.13	Effective
Grand Weighted Mean	4.13	Effective

Performance and engagement of personnel is deemed important in any organization where high engagement of employees significantly improve productivity and profitability. Organizations with higher profitability the faster recovery from economic downturns. Employee engagement drives performance and productivity. When employees are genuinely engaged, their focus intensifies and efficiency naturally improve.

Personnel in collaborative environments that feels valued, improved morale and reduces turnover, in like manner, collaborative work directly ignited innovation. This cultivates a safe environment for sharing ideas and leveraging technology for communication to sustain engagement and drive better performance. Collaborative environments improve employee satisfaction, morale and productivity. Embracing a culture of collaborations, includes internal teams, partners and even competitors is essential for sustain innovation and competitive advantage.

In workplace decision making involves selecting the best alternative to achieve goals, ranging from rational to behavioral approaches influenced by cognitive biases, emotions and group dynamics. This includes identifying problems, generating options and evaluating outcomes. Effective decisions, based on analysis, minimize negative impacts and maximize positive results. Indeed, the quality of life is determined by the quality of decisions made.

Personnel's motivation in the organization is a driving force, energy and enthusiasm that bring to their roles, directly impacting productivity, innovation and overall satisfaction at work. Further, fostering a positive, engaged culture the organizational goals will be achieved. Work motivation is considered an essential catalyst for the success of organization, as it promotes effective performance. Employee generally work harder, arrive on time and focus on their daily routine.

Shared values, belief, attitude and behavior shape the work environment. It influences how personnel interact, makes decision and feel connected to the organizations mission. Positive culture fosters thrust, collaboration and performance. Workplace culture is important because it shapes employee's engagement, satisfaction and performance, and attitudes that define the environment and guide how employees interact.

The parameters presented garnered the grand weighted mean of 4.13 as supported by the computed mean.

Table 3. Challenges Encountered that Affect the Efficiency of the Respondents in the Workplace

Items	Weighted Mean	Qualitative Description
Interpersonal Relation	1.78	LS
Lack of clear communication	2.60	SS
Lack of recognition and reward	2.54	SS
Inadequate training	1.72	LS
High pressure environments	2.60	SS
Average Weighted Mean	2.25	Slightly Serious

On the challenges encountered by the respondent personnel, it could be seen that lack of clear communication and high-pressure environment were rank accordingly and interpreted as slightly serious. Likewise, lack of clear communication was rank 3 among the challenges presented. On the other hand,

interpersonal relations and inadequate training reveal least serious problems. Among others, this research study comes up the average weighted mean of 2.25 and described slightly seriously. Data shows that clear communication is deemed important, as it ensures the accurate exchange of ideas, prevents misunderstanding and faster trust in both personal and professional relationships. Moreover, environment requires strong resilience, proactive self-care and effective communication to maintain high performance.

CONCLUSIONS

Based on the summary of the findings, the following are presented herein:

1. Performance and engagement of the personnel influence efficiency at work aligning to organizational goals and objectives.
2. The collaborative work among the personnel spark's innovation, improve efficiency and generates new ideas that boost the performance of the personnel.
3. In any organization, decision making is considered as essential task of management directly and controlling.
4. The organization that fosters a healthy workplace boosts the employee's satisfaction and morale.
5. Personnel are well motivated and fulfilled that redound to productive engagement and work satisfaction of employees.

RECOMMENDATIONS

In the light of the findings and conclusions, the following recommendations are hereby formulated;

1. Heads of offices should ensure that instructions are understood, expectations are clear and feedback is provided, reducing errors and prevent conflicts among the group.
2. Personnel should focus on urgent and important tasks to accomplish and communicate with the superiors for assistance.
3. Heads of office should offer recognition and awards which is important in driving the personnel's engagement and morale.
4. Heads and employees should maintain positive work culture to embrace trust, mutual respect, open communication and reciprocity.
5. Head of office and staff should be well-trained, to perform tasks faster with fewer mistakes and higher quality.
6. There should be a similar study conducted in the higher level for further enhancement.

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BULLYING EXPERIENCES OF SENIOR HIGH SCHOOL STUDENTS IN MALASIQUI II: BASIS FOR DEVELOPMENT OF INTERVENTION PROGRAM AND ACTION

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ABSTRACT

Learners' experiences within the school environment play a crucial role in their developmental trajectory and transition into adulthood. Exposure to bullying may reduce student engagement and participation in academic and co-curricular activities, thereby affecting psychosocial functioning and academic outcomes. This study examined the bullying experiences of Senior High School students in Malasiqui II and determined their effects on psychosocial behavior and academic performance using a descriptive–correlational research design. The respondents consisted of 252 Senior High School students enrolled during School Year 2020–2021. Data were collected using a structured questionnaire checklist assessing six dimensions of bullying: physical, verbal, cyber, social, sexual, and gender-based. Descriptive statistics were employed to summarize respondent characteristics and bullying experiences, while Spearman's rho and chi-square tests were used to examine relationships among variables. Results revealed that the majority of bullied respondents were female Grade 12 students from low-income households whose parents' highest educational attainment was secondary level. Verbal bullying emerged as the most prevalent form, primarily occurring within classroom settings. Incidents were frequently unreported due to shame and embarrassment. Findings further indicated that bullying experiences were associated with negative psychological and social outcomes and substantial adverse effects on academic performance. The study concludes that underreporting remains a significant barrier to addressing bullying-related impacts on student well-being and achievement. It is recommended that schools strengthen comprehensive anti-bullying programs and establish confidential reporting and support mechanisms to encourage disclosure and provide timely intervention.

Keywords: *bullying, psychosocial behavior, academic performance, senior high school students, descriptive–correlational design*

INTRODUCTION

The fundamental responsibility of every school is to ensure that every Filipino learner is educated in a child-friendly, gender-responsive, safe, and motivating environment, which is articulated in the Mission, Vision, Goals, and Objectives of the Department of Education. Schools are not merely institutions for academic instruction. They function as secondary homes where learners' abilities are nurtured and their character and values are shaped. Ideally, schools should provide an atmosphere in which students can pursue learning free from fear of harm, exclusion, or neglect from peers, school personnel, or teachers. They should compensate for possible deficiencies in home environments by fostering care, protection, and emotional support.

Children's experiences in schools are fundamental to their successful transition into adulthood. In school, learners negotiate and re-negotiate their relationships, self-image and independence. They cultivate

interpersonal skills, discover and refine strengths and struggle with vulnerabilities. As such, schools must provide a safe environment for children to develop academically, relationally, emotionally and behaviorally (Virtual Lab School, n.d.). Unfortunately, learning environments could sometimes be a place where students end up with fear and wait to be consumed by bullies. This may result for to learners to withdraw from school and in worst cases getting hurt or could even lead to early death [(United Nations Educational, Scientific and Cultural Organization (UNESCO), 2026)].

In the Philippine context, one in three young people said that they are victims of bullying, cyber bullying being the most common form. One out of five victims said that they skipped school due to bullying and violence (Education Command 2, 2024). This clearly states that bullying cases are related to dropout rate that affect the performance of schools.

Learners' experiences in school are integral to their successful transition into adulthood. Within this setting, they construct and negotiate relationships, develop self-concept and independence, cultivate interpersonal competencies, and refine their strengths while confronting vulnerabilities. Consequently, schools must ensure environments conducive to academic, social, emotional, and behavioral development (Romorosa, 2024). However, when safety is compromised, the school environment may instead become a source of fear and distress, leading to withdrawal from participation and, in extreme cases, physical harm or fatal consequences.

Bullying remains a significant concern in the country. Approximately one in three young people report experiencing bullying, with cyberbullying identified as the most prevalent form. Moreover, one in five victims report absenteeism due to bullying and violence [United Nations Children's Fund (UNICEF), 2019], highlighting its implications for school participation and institutional performance indicators. Globally, an estimated 130 million children experience bullying, with factors such as physical appearance or nonconforming gender expression identified as key triggers. Such victimization has lasting consequences for health, academic achievement, and overall well-being.

Bullying incidents represent only two of the 19,672 cases recorded by the Department of Education (DepEd) during School Year 2016–2017. According to Senator Angara, approximately 97% of the reported incidents occurred within a cycle of 202 school days (Department of Education, 2018).

Recognizing the vulnerability of children and their vital role in national development, the 1987 Philippine Constitution provides several safeguards. Article II, Section 13 states that “the State recognizes the vital role of the youth in nation-building and shall promote and protect their physical, moral, spiritual, intellectual, and social well-being.” Likewise, Article XV, Section 3 mandates that the government ensure children's right to assistance, including proper care and nutrition, and provide special protection from all forms of neglect, abuse, cruelty, exploitation, and other conditions detrimental to their development. Furthermore, Article XIV, Section 3 emphasizes that educational institutions must inculcate patriotism and nationalism, foster love of humanity, and promote respect for human rights.

In support of these constitutional provisions, Republic Act No. 10627, also known as the Anti-Bullying Act, requires all elementary and secondary schools to implement policies addressing bullying incidents. Similarly, DepEd Order No. 40, s. 2012, or the Child Protection Policy, was enacted to safeguard learners' rights and welfare. As emphasized by then DepEd Secretary Armin Luistro, reporting school violence is essential to addressing the problem, and schools, students, and parents are encouraged to report incidents of bullying (Department of Education, 2025). Consequently, schools are mandated to document and report such cases.

In Malasiqui District II, seventeen bullying incidents were reported across fourteen secondary schools to the Schools Division Office. These cases involved physical, social, gender-based, cyber, and retaliatory bullying. Despite this, underreporting remains a persistent issue, as some students and parents refrain from disclosing incidents of violence. This aligns with the findings of Lai and Kao (2018) who reported that some bullying victims did not report their experiences.

Moreover, during the public health crisis when students were largely confined to their homes and increasingly reliant on digital platforms, the likelihood of online bullying intensified. Reports indicated a rise in online child exploitation during the COVID-19 pandemic, attributed to increased digital engagement and economic disruptions affecting families (Irwin et al., 2022).

In response to these circumstances, this study was conceptualized to identify and evaluate the severity of bullying incidents in the fourteen public secondary schools within the Schools Division Office of Pangasinan I. Additionally, it seeks to examine factors contributing to underreporting and to generate evidence that may inform intervention strategies.

LITERATURE REVIEW

Bullying

Bullying refers to an incident when people repeatedly and intentionally use words or actions against someone or group of individuals and cause distress and risk to their wellbeing. Also, it is a willful and deliberate act of hostility with the sole intention is to harm, create fear through the threat of further aggression, and terrorize others. The person who bullies is usually more powerful than the bullied or victim. This act of obtaining authority over victims through intimidation is identified as “coercive power”, and its effectiveness can be determined based on whether the receiver can manage the threat (American Psychological Association, 2026).

Republic Act 10267, also known as the Anti-Bullying Act of 2013, defines bullying as any severe or repeated use by one or more students of a written, verbal or electronic expression, or a physical act or gesture, or any combination thereof, directed at another student that has the effect of actually causing or placing the latter in reasonable fear of physical or emotional harm or damage to his property; creating a hostile environment at school for the other student; infringing on the rights of the other student at school; or materially and substantially disrupting the education process or the orderly operation of a school; such as, but not limited to, the following: (a) Any unwanted physical contact between the bully and the victim like punching, pushing, shoving, kicking, slapping, tickling, headlocks, inflicting school pranks, teasing, fighting and the use of available objects as weapons;(b) Any act that causes damage to a victim’s psyche and/or emotional well-being; (c) Any slanderous statement or accusation that causes the victim undue emotional distress like directing foul language or profanity at the target, name-calling, tormenting and commenting negatively on victim’s looks, clothes and body; and (d) Cyber-bullying or any bullying done through the use of technology or any electronic means (Disni &Disni Law Office, 2015).

Profile the Victims and Bullies

In a study conducted in different part of the world, it showed that around 50 % of the boys are exposed to bullying while 36% of girls are likely to be exposed in bullying (StopBullying.gov.,n.d.). This result conforms with the study of Marinoni et al.(2023) where females are more like to victims of cyber bullying than males during adolescence. As to the reporting of bullying cases, females were more likely to report bullying than males. Specifically, females reporting bullying incidents are higher than in males during early to mid-adolescence. Moreover, students with low parental education were associated with high risk of social bullying victimization as compared to those students with high parental education (Kavanagh et.al, 2018)

Types of Bullying

School bullying is a multifaceted behavior with significant mental health consequences, manifesting as physical, verbal, relational, cyber, sexual, and prejudicial gender-based forms. Despite existing preventive measures, the prevalence of school bullying remains high, highlighting the need for more effective interventions. Addressing bullying requires a comprehensive approach at the individual, family, school, and societal levels, and further research is needed to identify innovative strategies to reduce both its occurrence and its adverse impact on adolescent mental health. (Han et al.,2025).

Physical bullying as the most common form of bullying. Usually, it occurs when bullies use their physical actions to gain power and control over their target victims. Furthermore, she stated that physical bullying is the easiest to identify. Hence, it is most likely what people think of when they think of bullying (Amoke & Amaeze, 2025). Physical bullying includes biting, kicking, pushing, pinching, hitting, tripping,

pulling hair, any form of violence or intimidation. Physical bullying also involves the interference with another person's property. Examples include damaging or stealing;

On the other hand, verbal bullying involves the use of words, statements and [name-calling](#) to gain power and control over a target. But unlike physical bullying, this kind is often very difficult to identify because attacks almost always occur when adults are not around. The bullies base their bullying act on the physical attributes and gestures of their targets. Verbal abuse include sarcasm, teasing, put-downs, name calling, phone calls, spreading rumors or hurtful gossip. Additionally, many adults feel that things children say do not have a significant impact. As a result, they usually tell the [victim of bullying](#) to "ignore it." But research has shown that verbal bullying and name-calling has serious consequences. In fact, it can leave deep emotional scars (Vinney, 2025).

The third type of bullying or also known as emotional or social bullying, is a type of social manipulation where students try to hurt their peers or sabotage their social standing. The same with verbal bullying, this type often goes unnoticed by parents and teachers as it is sneaky and insidious. In general, females tend to use relational aggression more than males. The bullies control another person by means of spreading rumors, manipulating situations and breaking confidence to increase their social standing (Marshall-Seslar, 2022).

The fourth type is Cyber bullying. It is a growing issue among young people. It is also becoming more widespread because bullies can harass their targets with much less risk of being caught. When a student uses the Internet, a cell phone or other technology to harass, threaten, embarrass or target another person, this is called [cyber bullying](#). If an adult is involved in the harassment this is called cyber-harassment or [cyber stalking](#) (UNICEF, n.d.). Examples of cyber bullying include posting hurtful images, making online threats, and sending hurtful emails or texts.

The fifth type of bullying is [sexual bullying](#) which consists of repeated, harmful and humiliating actions that target a person sexually. Examples include sexual name-calling, crude comments, vulgar gestures, uninvited touching, sexual propositioning and pornographic materials. Females are often the targets of sexual bullying both by males and by other females (The Mahoney Law Firm, n.d.).

Another form of bullying is prejudicial gender bullying which is based on prejudices students have toward people on their sexual orientation. This type of bullying can encompass all the other types of bullying as well [including cyber bullying](#), verbal bullying, relational bullying, physical bullying and sometimes even sexual bullying (Derbyshire County Council, n.d.). When prejudicial bullying occurs, students are targeting others who are different from them and singling them out. An often time, this type of bullying is severe and can open the door to hate crimes.

Effects of Bullying

Undoubtedly, the effects of bullying to a person covers a wide range from his/her physical, emotional, academic and social wellbeing. Most people perceive that the only one affected by this is the victim. But going deeper into the problem, bullying can affect everyone. This includes those who are bullied, those who bully, and those who witness bullying. Students who are bullied can experience negative physical, school, and mental health issues. They are more likely to experience depression and anxiety, increased feelings of sadness and loneliness, changes in sleep and eating patterns, and loss of interest in activities they used to enjoy. These issues may persist into adulthood. Health complaints are also persistent. It may also lead to a decrease in academic achievement and school participation of the students since they are more likely to miss, skip, or drop out of school. A very small number of bullied children might retaliate through extremely violent measures. In 12 of 15 school shooting cases in the 1990s, the shooters had a history of being bullied.

Students who bully others can also engage in violent and other risky behaviors into adulthood. They are more likely to use and abuse alcohol and other drugs in adolescence and as adults. They engage themselves into fights, vandalism and drop out of school. They will most likely engage in early sexual activity. They will have criminal convictions and traffic citations as adults and found out to be abusive toward their romantic partners, spouses, or children as adults.

On the other hand, students who witness bullying are more likely to have increased use of tobacco, alcohol and other drugs. Developing mental health problems, including depression and anxiety is at high risk and they tend to miss or skip school.

The study of Al Ali (2025) examined the impact of a school-based bullying education program on student knowledge of bullying, bullying behavior, and self-esteem among Jordanian school students. Results showed significant improvements in students' knowledge about bullying and self-esteem and decreased victimization rates. The program's effectiveness varied based on factors like general average and grade level. While overall bullying behaviors did not significantly change, there was a notable interaction effect with students' medical status. These findings highlight the potential of such interventions in Jordanian schools and emphasize the need for tailored approaches considering various student characteristics.

In addition, Esquivel et al. (2023) stated that bullying and cyberbullying are phenomena that have a significant emotional impact on students, generating negative perceptions and affecting their general well-being. This include a wide range of negative emotions, including anxiety, fear, sadness, anger, and shame. Constant exposure to these experiences can lead to depression, low self-esteem, and mental health problems. Bullied students often have difficulty concentrating on their studies, which can affect their academic performance and personal development. Students may perceive themselves as helpless victims, which contributes to a sense of helplessness and hopelessness. In addition, they may develop distorted beliefs about their personal worth and their ability to relate to others. This can lead to a decrease in social participation, isolation, and a lack of self-confidence. Bullied students may experience a deterioration in their interpersonal relationships, since they have difficulties establishing solid bonds with their peers. Additionally, they may avoid school situations, such as transportation, recess, or extracurricular activities, for fear of being victimized. These avoidance behaviors can have a negative impact on their social development and their ability to adjust to the school environment.

Man et al. (2022) explored the relationship between forms of bullying and adolescent mental health and the role of parental support as a protective factor. Data were drawn from adolescents aged 12–17 years in 65 countries from the Global School-based Student Health Survey between 2003 and 2015. Results found that the prevalence of bullying in the sample of 167,286 adolescents was 32.03%, with the highest prevalence of bullying in the sample countries in Africa. Verbal bullying had the highest prevalence and the most significant negative effect on adolescent mental health. The study also discussed the differences in bullying among adolescents by gender, age, and region. “Parental supervision”, “parental connectedness” and “parental bonding” played a positive and protective role in the mental health of adolescents who experienced bullying.

Hendricks and Tanga (2019) analyzed the effects of bullying in schools on the psychological functioning of victims. The study was conducted in the Sarah Baartman District Municipality in the Eastern Cape, South Africa. Findings revealed that bullying within the school environment negatively affects the psychological functioning and academic progress of learners. Exposure to bullying impairs learners' emotions and cognition and it ultimately leads to increased levels of anxiety and depression. It was revealed that low self-esteem, thoughts of self-destruction and severe behavioral conditions are long-term effects that victims face. The study concluded that victims of bullying often opt to stay absent from school because of fear. The study recommended the need to establish support groups for victims that will equip them with skills of empowerment.

Role of the School in Addressing Bullying

Schools have a crucial role to play in both prevention and management of bullying. The school's role include prevention and awareness, detection and intervention, support and counseling, creating a positive learning environment, and collaboration with families and community to address bullying holistically.

The study of O'brien et al. (2024) reported that bullying is widely accepted as a significant issue confronting schools across the globe. The potential short and long-term consequences of bullying for involved students include negative academic and mental health impacts. A whole-school approach is required to effectively manage bullying. As such, school psychologists and counsellors are well-placed to

play an important role in the prevention of and response to bullying in their workplace schools. By virtue of their training and skill-set, school psychologists and counsellors could be involved in the training of other staff, educating and collaborating with stakeholders, and counselling the involved students utilizing methods such as motivational interviewing. In order for these staff members to play an effective role in bullying prevention and intervention, they require professional development on bullying, a supportive leadership team and a workplace that provides a clear delineation of their role.

Waasdorp et al. (2022) examined school staff reported behavioral responses to bullying, general likelihood of intervening and perceived self-efficacy for intervening with student bullying and explored if the existence of school bullying-related policies and/or policy trainings was associated with the ways in which school staff responded to bullying. Results suggested that while the existence of anti-bullying policies was an important contributor to increased staff self-efficacy for intervening with bullying, it was not associated with self-reports of increased responses to bullying. However, being trained on their schools' anti-bullying policy was associated with higher odds of intervening with the involved students, discussing the incident with other school staff (e.g., administrators, counselors), and referring the students involved to the school counselor/psychologist. Moreover, there were clear role and grade level differences in staff responses, such as being less likely to respond to bullying in high school, as compared to middle and elementary school. The results suggested that the existence of a school policy is not likely sufficient to shift behavior. Additional training and professional development are necessary across all school staff, especially in upper grades.

Hall and Chapman (2018) investigated the influence of school context on educators' capacity to implement a statewide bullying law and protect students from bullying following the enactment of the policy. Findings showed that school administrators tended to rate fidelity of policy implementation and teacher protection of students higher than teachers, education support professionals, and student service professionals. Policy implementation fidelity scores were higher in high schools than in elementary schools. School size and the prevalence of student suspensions were inversely related to implementation fidelity. Higher levels of teacher protection were reported in elementary schools.

The cited studies are directly relevant to the present study, which examined the types and intensity of bullying among high school students, including physical, verbal, relational, cyber, sexual, and prejudicial gender-based forms. The high prevalence and varied intensity of these bullying types underscore the unique challenges in high school settings, including lower staff intervention and inconsistent policy application. Addressing bullying effectively in this context requires targeted professional development, comprehensive policies, and active engagement of all school stakeholders to create a safer and more supportive environment for adolescents.

RESEARCH QUESTIONS

1. What is the profile of the respondents in terms of
 - 1.1. sex;
 - 1.2. grade level;
 - 1.3. family income;
 - 1.4. parents' educational attainment; and
 - 1.5. presence of parents in the household ?
2. What are the bullying experiences of the senior high school students?
3. What are the reasons of the senior high school students not reporting/telling the bullying incidents?
4. What are the effects of bullying experiences on the behavior of the respondents along:
 - 4.1. psychological;
 - 4.2. social; and
 - 4.3. academics?
5. What places do bullying incidents happen mostly?

6. Is there a significant relation between the bullying experiences of the senior high school and their profile variables?
7. Is there a significant relationship between the effects of bullying on the behavior and the respondents' profile variables?
8. What programs/policies/advocacy plan could be proposed to address the bullying instances in Malasiqui district II

METHODOLOGY

This descriptive-correlational study determined the bullying experiences of 252 high school students from fourteen public secondary schools in Malasiqui District II. The bullying experiences of the respondents had related them with their profile. Random Sampling was used to obtain the sample population.

Table 1 shows the distribution of respondents of the study by school.

Table 1. Sample Population of the Study

Schools	Sample Population
1.Nalsian-Tomling National High School	33
2.Domingo P. Boquiren Memorial National High School	27
3.Olea National High School	36
4.San Julian National High School	6
5. Clemente Cristobal National High School	6
6. Aliaga National High School	28
7. Talospatang National High School	56
8. Lareg-lareg National High School	23
9. Canan National High School	24
10. Palapar National High School	41
11. Nancapian National High School	20
12. Tobor National High School	16
13. Catalino Cerezo National High School	23
Total	252

The data were gathered using a validated questionnaire consisting of three parts. Part I collected information on the respondents' profiles. Part II elicited data on the respondents' experiences with bullying, while Part III gathered information on the effects of bullying on the psychological, social, and academic behavior of senior high school students. The instrument was subjected to content validation by five selected guidance counselors or guidance designates.

Data was obtained through the use of Google form that was sent to the Senior High School Focal Persons who were responsible for sending them to the senior high school students. Data were analyzed Frequency and percentage to describe the profile of the respondents and the bullying instances and their reasons of not reporting the bullying issues. Weighted Mean was used to analyze the intensity of the bullying experience of the respondents. Cross tabulation and Chi square was used to determine the possible relationship between the students' profile and their experiences of the bullying. Chi square was used determine the possible relationship between effects bullying on the behavior of the respondents along psychological, social and academics, and their profile variables.

DISCUSSION OF RESULTS AND RECOMMENDATION

Profile of the Respondents

The study aimed to find out bullying experienced by senior high school students of Malasiqui District II and how these affected them. The researcher randomly invited 339 students who were enrolled in senior high schools for the School Year 2020-2021 to take part in the study. Out of 339 invited respondents, only 252 or 74.34% were obtained to experience bullying so they were considered the final respondents of the study.

The respondents answered survey questions administered by the researcher via google forms. Profile in terms of sex, grade level, family income, parents' educational attainment and presence of parents at home were gathered and subjected to analysis. All data went through profile analyses to determine those who really experienced bullying and be the final respondents for further analyses throughout the study. The profile of the respondents are presented and discussed in this section.

Distribution of Respondents in terms of Sex

Table 2. Sex Distribution of the Respondents

Sex	Frequency	Percent
Male	104	41.3
Female	148	58.7
Total	252	100

Data shown in Table 2 indicates that of the 252 respondents who experienced bullying, 41.3% were male (n = 104) and 58.7% were female (n = 148), indicating a higher participation of female students in the study. This distribution aligns with findings from Smith et al. (2019), who examined gender differences in bullying across five large cross-national datasets. Their study reported a consistent preponderance of male perpetrators, with males also tending to be more frequent victims, particularly in early adolescence. However, variations exist by survey, age, and bullying type, with females more likely to be victims of online bullying. The findings from the present study, showing a higher number of female respondents reporting bullying experiences, may reflect similar trends in victimization patterns, particularly in contexts where relational and cyber forms of bullying are prevalent. These results underscore the importance of considering gender differences in both the prevalence and type of bullying when designing school-based interventions.

Distribution of Respondents as to Grade level

Table 3. Grade Level of the Respondents

Grade Level	Frequency	Percent
11	108	42.9
12	144	57.1
Total	252	100

An actual frequency count of 144 grade 12 students and 108 grade 11 students participated in the study. Almost a ratio of 4:6 was obtained for grade 11 against grade 12. Hence between the two grade levels of senior high school in Malasiqui District II, grade 12 participants are greater than in grade 11 by difference of 36.

Distribution of Respondents as to Family Income

Table 4. Family Income of the Respondents

Income Level	Frequency	Percent
Low	140	55.6
Average	108	42.9
High	4	1.6
Very High	0	0.0
Total	252	100

Table 4 shows that 140 out of 252 or 55.6% of the total respondents have the family income of Php 20,000 and below or having the income level descriptor of “Low.” This order is followed by the average earner families which has the frequency count of 108 or 42.9% of the 252 targeted respondents. Families with average income earn about Php 20,001 to Php 30,000. Cumulatively, about 98.4% of all the respondents belong to Php 30,000 and below wage earner families. On the other hand, a very minimal count of 4 students or 1.6% of the respondents who belong to families with high income range of Php 30,000 to Php40,000.

Educational Attainment of the Respondents’ Parents

Table 5. Educational Attainment of the Respondents

Income Level	Frequency	Percent
Education	Frequency	Percent
Elementary	57	22.6
High School	167	66.3
College	28	11.1
Total	252	100

Educational attainment of parents was categorized into four: elementary, high school, college and postgraduate. It can be seen in the above table that majority of the respondents’ parents only attained high school as their highest education - that this 167 or 66.3% of the 252 respondents. This is ordered by elementary and college. Minimum number of parents attained college education and unfortunately, no parents even reach postgraduate.

Presence of Parents in the Household

Table 6. Presence of Parents in the Household

Household Guardian	Frequency	Percent
Both parents	164	65.1
Father only	50	19.8
Mother only	21	8.3
Without parents	17	6.7
Total	252	100

In this study, parental presence in the household is classified into four: (1) both parents are co-parenting the student, (2) father only of which the student belongs to single-father family, (3) mother only of which the student belongs to single-mother family and, (4) without parents of which the student are living with other relatives. It is reflected in the table above that a frequency count of 164 or 65.1% of the total

student-respondents are staying with both parents and the other almost 35% of the respondents belong to at most one parent. There was a total of 71 students or 28.1% of the respondents who belong to a single-parent run families. In fact, there were 50 students or 19.8% of the respondents stayed with their fathers only and 21 students or 8.3% of the respondents stayed with their mothers only. There were also a very minimal number of 17 students who stayed with their other relatives and that is 6.7% of the total respondents.

Bullying Experiences of the Senior High School Students

Table 7. Types of Bullying Experience

Types	Frequency	Percent
Verbal	163	64.7
Social	46	18.3
Physical	20	7.9
Cyber	11	4.4
Sexual	1	.4
Gender-Based	11	4.4
Total	252	100

Respondents of this study experienced different types of bullying. About 163 senior high school students claimed that they were bullied verbally. They experienced being called hurtful names by their classmates and even threatened with violence. This is 64.7% of all bullying incidents, reported or not reported, in Malasiqui District II. This is followed by social bullying of about 46 over the 252 bullying incidents in the district. This is characterized by excluding the victim from their group of friends. Third in rank is physical bullying which related to being attacked, kicked by the bully. This comprised 7.9% of the bullying incidents. There were 11 reflected cyber bullying or bullying in the social media and another 11 gender-based bullying. Both of which are 4.4% of the bullying incidents, reported or not told by the victims. There was 1 sexual bullying reflected in the above table which is characterized as the victim is touched or experienced sexually insulting language. This conforms with the results of the survey conducted by Child Safety, 2016 where in verbal bullying was the most common type of bullying that uses harsh words, cruel words, name-calling, threatening remarks and insulting behavior to tease the victim, and also with the data of the United States of America No Bully Help Hotline 2020 with Verbal Bullying as the most reported type of bullying followed by social, physical, sexual and cyber as the last.

Bullying Incident Report

Table 8. Bullying Incident Report

Reported	Frequency	Percent
Teacher	12	4.76
Friend	15	5.95
Brother or sister	3	1.19
Parents	8	3.17
Someone else	1	0.40
Sub-Total	39	15.48
Not-Reported and Reason		
I felt embarrassed or ashamed	104	41.27
I was frightened of the person	2	0.79
It wouldn't be taken seriously	20	7.94
No one cares	8	3.17
I couldn't prove it	6	2.38

No one would do anything	3	1.19
I don't want to be seen as a coward	7	2.78
It wasn't serious enough to report	43	17.06
I feel pressured to keep quiet	9	3.57
I will be restricted to use gadgets	3	1.19
It is my fault why I was bullied	8	3.17
Subtotal	213	84.52
Grand Total	252	100

Based on the data presented in the table above, only 39 bullying cases were reported by the victims and bulk of these reports were told to their teachers or friends. It is very alarming that only 8 (3.17%) students had the courage to report the bullying they experienced to their parents. They preferred to report it to their teachers, friends, or siblings. On the other hand, majority of bullying incidence were not reported because most of the victims felt embarrassed or ashamed to what happened to them. Others of around a count of 43 experienced bullying but not that serious enough to report it. This is followed by the reasons of the case which will not be taken seriously by the authority; no one cares for the incidence and even their fault that's why they were bullied.

Effects of Bullying on the Behavior of the Respondents

In this study, the bullying experiences of senior high schools students were found to have effects to their behavior along psychological, social and academics. The intensity of the effects was characterized by the set range of intervals with their corresponding descriptors.

Table 9. Intensity of the Effects of Bullying

Areas	Weighted Mean	Verbal Description
Psychological	2.33	Mild effect
Social	3.16	Moderate effect
Academics	3.55	Serious effect

Legend: 3.26 to 4.0= Serious; 2.52 to 3.25=moderate effect; 1.76 to 2.50=mild effect; 1.0 to 1.75= Very mild effect.

After the bullying incidents happened, most of the students encountered mild effect in their psychological aspect. They sometimes felt anxious and depressed. There is a tendency to lost confidence among them and others preferred to be alone. Along with the social aspects, most students who were bullied encountered moderate to serious effects. They experienced trust issues to their classmates, frequently involved in commotions and sometimes turned into bullies. With it comes to bullying, academics is the one which is seriously affected. At least 50% of the victims had a serious effect on their academics. They are low performers because they lost their interest in schooling; they come to think of skipping classes or even dropping out. The results relate to the study of Mona O'More, (2010) who found out that sstress and anxiety caused by bullying can make it more difficult or young people to learn. It can affect concentration levels and decrease ability to focus.

Places Where Bullying Happens

Table 10. Place where Bullying Happened

Places	Frequency	Percent
Toilet	16	6.35
Corridor	29	11.51
Canteen	27	10.71
Outside the school ground	62	24.60

Classroom	95	37.70
Social media/Online	23	9.13
Total	252	100

Bullying can happen anywhere inside the school premises and even outside the school grounds. In the table above, data shown that bullying mostly happened inside the classroom that is 95 out of 252 bullying incidents, which is about 37.7% of all the incidents. So, more vigilance among concern stakeholders like teachers and other students are needed inside the classroom where bullying is frequently happening. It is followed by outside the school ground (62 counts or 24.6% incidents), corridor, canteen and online. Even though it is just meager in count, cyber bullying can still be considered also one of the areas of concern.

Relationship between the bullying experiences of the senior high school and their profile variables

The types of bullying experiences of students were cross tabulated against their profile in terms of sex, grade level, family income, parents' education and parental presence in their household. Furthermore, Chi-square test for independence is a nonparametric test used to find out those profile variables which are associated or related with bullying experiences and those which are independent and has no relation to the aforementioned types of bullying cases.

Table 11. Relationship between the bullying experiences and profile variables

Profile variables	Pearson chi square statistic	df
Sex	3.078	5
Grade level	1.557	5
Family Income	4.761	10
Parents' Education	6.220	10
Parental Presence	26.84	15

The key results appeared in the above table suggest that profile variables: sex ($\chi^2(5) = 3.078$, $p = 0.688$), grade level ($\chi^2(5) = 1.557$, $p = 0.906$), family income ($\chi^2(10) = 4.761$, $p = 0.907$) and parents' education ($\chi^2(10) = 6.220$, $p = 0.796$) has no association with bullying experiences of senior high school students. This is indicated by their corresponding p-values all greater than the chosen significance level of $\alpha = 0.05$. However, the profile variable on parental presence ($\chi^2(15) = 26.84$) in the household' p-value of 0.030 is less than our chosen significance level ($\alpha = 0.05$) so the researcher rejected the null hypothesis of no association. This suggest that there is found evidence that bullying experiences of students is associated with the presence of their parents at home. Hence, parental presence can help ease effects of bullying among students. This also conforms to the study of Shetgiri and Flores, (2012) children with parents in the household had lower bullying odds.

Relationship between the effects of bullying on the behavior and the respondents' profile variables

Association or significant relationship between the effects of bullying on the behavior and the respondents' profile variables was determined using Chi-square test for independence. Separate cross tabulations were made across students' profile to further understand the dependence of behavioral aspects on the profile being set in this study.

Table 12. Relationship between Sex and Behavioral Aspects

Aspects	Pearson chi square statistic	df
Psychological	7.679	4
Social	3.438	3
Academics	7.766	2

Since the p-values along psychological and social aspects are greater than our chosen significance level ($\alpha = 0.05$), we do not reject the null hypothesis of independence. This proposes a conclusion that there is not enough evidence to suggest an association between sex and behavioral aspects on psychological and social. On the other hand, it can be seen from the results that along academics the p-value of 0.021 is less than 0.05. Hence, academics or students' class standing is somehow affected by bullying across sex. This result conforms with the study of Barlett and Coyne, 2014 where females are more likely to victims of cyber bullying than males during adolescence. As to the reporting of bullying cases, females were more likely to report bullying than males. This is due to the fact that females are more outspoken.

Table 13. Relationship between Grade Level and Behavioral Aspects

Aspects	Pearson chi square statistic	df
Psychological	4.797	4
Social	0.572	3
Academics	7.095	2

Based from the results presented above, academics is dependent on bullying incidents experienced by students in both Grade 11 and Grade 12. This suggests that students who experienced bullying tend to have poor academic standing, low scholastic performance, greater dislike of school and have less academic improvement among others. Hence, bullying has a negative impact to academics.

Table 14. Relationship between Family Income and Behavioral Aspects

Aspects	Pearson chi square statistic	df
Psychological	12.206	8
Social	4.744	6
Academics	1.012	4

From the results above, there is no found association on family income to behavioral aspects on psychological, social and academics. This is evident since p-values reflected above are greater than the chosen level of significance of 0.05. Hence, family income is a poor indicating factor on the negative effects of bullying in students' behavior.

Table 15. Relationship between Parents' Education and Behavioral Aspects

Aspects	Pearson chi square statistic	df
Psychological	10.756	8
Social	6.474	6
Academics	12.264	4

It can be gleaned in the above table that only in the behavioral aspect of academics, parents' education is associated with. With the p-value of 0.015 less than the level of significance of 0.05, the Pearson chi square statistic of academics ($\chi^2(4) = 1.557$) suggests that bullying effects on students' academics is associated with parents' educational attainment. Higher educational attainment among parents proposes sufficient knowledge on the causes of bullying, the early signs of bullying and the students' rights against bullying. Hence, oftentimes the negative effects of bullying can be diminished when parents are equipped with education and continue to take part of the intervention programs.

Table 16. Relationship between Parental Presence in Schools and Behavioral Aspects

Aspects	Pearson chi square statistic	df
Psychological	15.519	3
Social	14.545	12
Academics	4.578	4

There is no established association between parental presence in the household and behavioral aspects on social aspect p-value indicated in the above table is greater than the chosen level of significance of 0.05. However, their psychological aspect and academics of behavior are associated to the presence of parents in the household with p values 0.033 and 0.042 respectively. Hence, the presence of parents in the household is very important on the psychological well-being and academics of the bully victims. This result is almost similar to the results of the study conducted by Shetgiri and Flores, (2012), wherein children with parents in the household had lower bullying odds.

PROPOSED PROGRAM FOR DISSEMINATION AND ADVOCACY PLANS

The results obtained from this study were the basis for the conceptualization of an Action Plan on Bullying that could be utilized by all schools covered in this study. The said output could be used to improve the approaches of each school in handling bullying incidents. Each school will be given a copy of results of the research.

Proposed Program Plan To Address Bullying in Schools						
Programs/ Objectives	Activities/ Strategies	People Involved	Time Frame	Success Indicators/ Output	Budgetary Allocation	Source funding
1. Sumbungan sa Paaralan: Bullying Help and Save Desk (BHSD)	<ul style="list-style-type: none"> • Creation of TWG in charge of Bullying Reporting • Creation of various modes for reporting bullying cases (Text, Chat, Letter,) • Launching of Sumbungan sa Paaralan: Bullying Help and Save Desk (BHSD) • Monitoring • Assessment/Evaluation 	School Head, Teaching Personnel (Guidance Designate, advisers, subjects teacher)and Non-Teaching Personnel ()	May 2021	Established modes for reporting bullying cases	1,000.00	School Funds/ MOOE
2. Mas Magaling ang May Alam: Strengthening the Bullying Information Dissemination Program	Conduct one-day symposium on bullying	Guidance Designate	June 2021	Informed School Community	1,000.00	School Funds/ MOOE
3. Providing Social Support to the bullying Victims and aggressors	<ul style="list-style-type: none"> • Assessing the effect and determining the needs of the victims/bullies • Conducting fact finding • Having dialogue with the target, alleged aggressor and parents • Counseling • Referring the case to the proper authorities 	School Head, Teaching Personnel (Guidance Designate, advisers, subjects teacher)and Non-Teaching Personnel ()	Year round	Mechanism for providing social support to both bullying victims and aggressors	1,000.00	School Funds/ MOOE

Bullying Action Plan

Project Title: Sumbungan sa Paaralan: Bullying Help and Save Desk (BHSD)

Problem Statement: There are 84.32% of unreported cases of bullying in Malasiqui District II

Problem Objective: To decrease the cases of unreported bullying instances/cases in Malasiqui District II

Root Cause: Shame, embarrassment, thought of not being taken seriously

Project Workplan and Budget Matrix

Activity	Output	Date	Person Needed	Budget	Budget Source
Creation of Technical Working Group on Bullying Reporting	Organized Technical working group for bullying reporting	May, 2021	SH, Guidance Designates, Advisers, Child Protection Committee	0	None
Creation of various modes of reporting bullying cases (Text, Chat, Letter,)	Established modes of reporting bullying cases	June , 2021	SH, Guidance Designates	500.00	School Funds/ MOOE
Launching of Sumbungan sa Paaralan: Bullying Help and Save Desk (BHSD)	Informed school community	June	All Teaching and Non-Teaching Personnel	500.00	School Funds/ MOOE
Monitoring	Data on the status of implementation of the project/program	Every Quarter	Guidance Designate	0	None
Assessment/Evaluation	Data on the effectiveness of the project/program	End of the School Year	School Head, Guidance Designate	0	None

CONCLUSIONS

Based on the findings of this study on bullying experiences among senior high school students in Malasiqui District II, the following conclusions can be drawn:

1. Profile of Respondents and Bullying Experiences

The study involved 252 senior high school students who reported experiencing bullying, with a higher proportion of female respondents (58.7%) than male (41.3%). Most respondents were Grade 12 students (57.1%) and came from low-income families (55.6%). Majority of parents had completed high school (66.3%), and 65.1% of students lived with both parents. The findings suggest that parental presence in the household plays a role in the likelihood of experiencing bullying.

2. Prevalence and Types of Bullying

Verbal bullying was the most common type experienced by students (64.7%), followed by social (18.3%), physical (7.9%), cyber (4.4%), gender-based (4.4%), and sexual (0.4%) bullying. Most bullying incidents occurred inside classrooms (37.7%) and outside school grounds (24.6%), indicating the need for supervision both within and outside the school.

3. Reporting Bullying

Only 15.48% of bullying incidents were reported, primarily to teachers and friends. The majority of incidents were not reported due to embarrassment, fear, perception of insignificance, or belief that no one would take action. Parental involvement in reporting bullying was very low (3.17%), highlighting a gap in parent-student communication and support.

4. Effects of Bullying on Behavior

and serious effects on academics, with nearly half of the students showing a significant decline in academic performance. Behavioral effects were influenced by parental presence and parental education, especially concerning academic outcomes.

5. Relationship between Bullying and Profile Variables

Bullying experiences were not significantly associated with sex, grade level, family income, or parents' educational attainment. Bullying was significantly associated with parental presence in the household ($p = 0.030$), indicating that students living with both parents were less likely to experience bullying. Similarly, parental presence and education were associated with better psychological well-being and academic outcomes among bullied students.

RECOMMENDATIONS

Based on the findings, the following recommendations are proposed:

1. School-Based Interventions

Establish anti-bullying programs that address verbal, social, and cyberbullying, with special attention to classroom and outdoor supervision.

2. Conduct regular workshops and seminars for students to develop empathy, conflict resolution skills, and awareness of bullying consequences.

3. Implement a clear reporting system in schools that encourages victims to safely report bullying incidents to teachers or school counselors.

4. Parental Involvement

Schools should actively engage parents through meetings, seminars, and home-based awareness programs to educate them about bullying and its effects. Encourage parents to monitor their children's social interactions and online activities to prevent cyberbullying and relational bullying.

5. Policy and Monitoring

Schools should adopt strict anti-bullying policies that include preventive, supportive, and corrective measures for students involved in bullying, both as victims and perpetrators. Conduct periodic surveys and assessments to monitor the prevalence and types of bullying, as well as the effectiveness of implemented programs.

6. Psychological Support

Provide access to counseling services for victims to mitigate psychological effects such as anxiety, depression, and social withdrawal. Train teachers and school personnel to identify early signs of bullying and intervene promptly.

7. Academic Support Programs

Design academic recovery programs for students affected by bullying to prevent decline in performance. Encourage mentorship and peer support systems that foster a safe and supportive learning environment.

8. Community and Stakeholder Collaboration

Promote collaboration between schools, parents, local government units, and NGOs to raise awareness and provide support mechanisms for bullied students. Develop a district-wide advocacy program for anti-bullying awareness that can be disseminated to all schools in Malasiqui District II

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DEVELOPMENT OF A CONTEXT-BASED INSTRUCTIONAL LEADERSHIP FRAMEWORK: PRACTICES AND CHALLENGES OF SCHOOL ADMINISTRATORS IN THE BANGSAMORO AUTONOMOUS REGION IN MUSLIM MINDANAO (BARMM)

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ABSTRACT

Education leaders in the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) face persistent backlogs, administrative requirements, and socio-cultural conditions that complicate instructional leadership. Anchored on Sustainable Development Goal 4 and Bangsamoro Education Reform and Development Plan (BERDP) 2035, this study examined: (a) school administrators' instructional leadership practices across PIMRS functions, (b) challenges encountered by administrators, teachers, and stakeholders, (c) suggestions and feedback from teachers and stakeholders, and (d) the development of a context-based instructional leadership framework. Using a mixed methods design, 101 randomly selected school administrators completed the PIMRS survey, and 27 participants were subjected to semi-structured interviews. Thematic analysis revealed that the functions of framing the school goals, coordinating the curriculum, supervising and evaluating instruction, monitoring student progress, promoting professional development, and providing incentives were frequently enacted. However, protecting instructional time and maintaining visibility were less routinely enacted due to absenteeism, socio-cultural obligations, workload, and limited resources. Findings suggest that BARMM's instructional leadership is more often adaptive than procedural. As the major implication, the BARMMAZE Instructional Leadership Framework was developed to complement the PIMRS with its focus on community engagement, resource navigation, socio-cultural sensitivity, and faith-responsive leadership, along with a proposed assessment tool to transform these into actionable indicators for supervisions. Recommendations for improvement in BARMM schools include strengthening systemic resource support and student services, institutionalizing context-based leadership development, and improving instructional visibility, needs-based professional development, and sustained community partnerships.

Keywords: *instructional leadership, PIMRS, BARMMAZE framework, school administrators, BARMM*

INTRODUCTION

Instructional leadership is widely recognized as a critical factor in improving teaching quality and student learning outcomes. It refers to leadership practices that directly influence instruction through goal setting, curriculum supervision, teacher development, and the creation of a supportive learning environment (Hallinger & Murphy, 1985). While these functions are well established in the literature, their enactment is

shaped by context. In the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM), distinctive structural and socio-cultural conditions complicate the practice of instructional leadership.

One major challenge faced by school administrators in BARMM is the heavy administrative workload that limits their capacity to perform instructional leadership functions. Although Republic Act 9155 mandates school heads to serve as instructional leaders, studies have shown that compliance requirements and resource management tasks frequently reduce time for classroom observation, mentoring and sustained instructional dialogue (Lincuna & Caingcoy, 2020).

Another challenge is the limited access to context-responsive leadership training. Insufficient instructional innovations and lack of leadership competence negatively impact educational quality (Bercero, 2019)

The post-conflict and socio-cultural conditions of BARMM further complicate instructional leadership. Decades of armed conflict, displacement, and systemic marginalization have disrupted educational systems, weakened institutional capacity, and affected learner participation and achievement (Gatchalian, 2023; Paunan, 2024). School administrators must address not only instructional concerns but also issues related to student absenteeism, trauma, poverty, and community instability.

Resource limitations also pose significant barriers to effective leadership. Inadequate facilities, shortages of instructional materials, limited technological access, and insufficient teaching personnel restrict administrators' ability to implement instructional innovations and support teacher development. The World Bank in 2019 reported persistent disparities in school access and readiness in BARMM, placing additional pressure on school leaders to improve learning outcomes despite constrained resources (Chi, 2023).

Moreover, challenges related to teacher motivation and professional support further complicate efforts to improve instructional quality (Day et al., 2016; Gunawan et al., 2021). Without strong instructional guidance coupled with motivational leadership, sustaining instructional quality becomes difficult.

These challenges underscore that instructional leadership in BARMM is highly context-dependent and cannot be effectively addressed using uniform leadership frameworks. As emphasized by Noman (2017), leadership practices must be responsive to the specific conditions of the environment in which they are enacted. Since the existing leadership models are largely derived from more stable and resource-adequate contexts, there remains limited empirical evidence that systematically examines instructional leadership practices in BARMM and translates contextual challenges into a locally grounded framework. Thus, addressing this gap is essential to developing a context-based instructional leadership framework responsive to the region's unique setting.

STATEMENT OF THE PROBLEM

In light of the challenges mentioned, this study explores the instructional leadership practices adopted by the school administrators in the BARMM region. More specifically, the following questions were addressed:

1. What are the prevailing instructional leadership practices of school administrators in BARMM based on the dimensions of Hallinger and Murphy's (1985) framework?
2. What challenges do school administrators face in implementing effective instructional leadership practices in BARMM schools?
3. What are the suggestions and feedback from the teachers and stakeholders to improve the instructional leadership practices of school administrators?
4. Based on the identified practices, challenges, and stakeholder input, what context-based instructional leadership framework can be developed for BARMM schools?

METHODOLOGY

This study employed a mixed-methods approach using a convergent parallel design, wherein quantitative and qualitative data were collected simultaneously, analyzed independently, and integrated during interpretation to provide a comprehensive understanding of instructional leadership practices in the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) (Creswell & Creswell, 2018). The quantitative component measured prevailing practices, while the qualitative component explored the experiences and challenges. The integration of both data strands enabled triangulation and informed the development of a context-based instructional leadership framework.

The study was conducted in selected public secondary schools in Lanao del Sur Province, across the three divisions, namely: Divisions of Lanao del Sur I, Lanao del Sur II, and the City Schools Division of Marawi. The quantitative phase consisted of 101 school administrators, selected through stratified random sampling using Raosoft sample size calculator. The qualitative phase included 27 purposively selected participants: nine administrators, nine teachers, and nine stakeholders with direct experience in instructional leadership.

Quantitative data were collected using the Principal Instructional Management Rating Scale (PIMRS) 2.0 developed by Hallinger and Murphy (1985), a 50-item covering 10 instructional leadership functions rated on a five-point Likert scale. Pilot testing showed strong reliability ($\alpha=.980$ overall). Qualitative data were gathered through expert-validated semi-structured interviews guided by questions aligned with the three PIMRS dimensions.

Quantitative data were analyzed using SPSS, employing descriptive statistics such as frequency, percentage, and mode. Qualitative data were analyzed through thematic analysis following Braun and Clarke's (2006) framework, with MAXQDA 24 used for systematic coding and theme development. Integration occurred at the interpretation stage through triangulation, wherein quantitative patterns from the PIMRS were examined alongside qualitative themes to explain convergence, divergence, and contextual nuances. The integrated findings informed the development of a context-based instructional leadership framework grounded in the realities of BARMM.

The study adhered to established ethical standards and received approval from the institutional ethics review committee. Informed consent was obtained from all participants. Confidentiality and anonymity were ensured through pseudonymization, secure data storage, and restricted access to records. Participation was voluntary, with the right to withdraw at any stage without consequence.

FINDINGS

1. Prevailing Instructional Leadership Practices of School Administrators

Table 1. Summary of Mode Ratings Across PIMRS Instructional Leadership Functions

Instructional Leadership Function	Mode
1. Framing the School Goals	Frequently (FR)
2. Communicating the School Goals	Sometimes (SO)
3. Supervising and Evaluating Instruction	Frequently (FR)
4. Coordinating the Curriculum	Frequently (FR)
5. Monitoring Student Progress	Frequently (FR)
6. Protecting Instructional Time	Sometimes (SO)
7. Maintaining High Visibility	Sometimes (SO)
8. Providing Incentives for Teachers	Frequently (FR)
9. Promoting Professional Development	Frequently (FR)
10. Providing Incentives for Learning	Frequently (FR) / Almost Always (AA)

Note. AN=Almost Never, SE=Seldom, SO=Sometimes, FR=Frequently, AA=Almost Always, QD=Qualitative Description

Quantitative results show that school administrators in BARMM frequently practice most instructional leadership functions, particularly: framing school goals, supervising and evaluating instruction, coordinating the curriculum, monitoring student progress, promoting professional development, and providing incentives for teachers and learners.

Three functions were rated only sometimes practiced, namely: communicating school goals, protecting instructional time, and maintaining high visibility.

The qualitative data support the findings that administrators do involve teachers in goal-setting, conduct classroom observations (formal and informal), offer feedback, and support professional growth through training opportunities and recognition systems. However, qualitative data further elaborates that these inconsistencies are mainly due to contextual realities, including long travel distances, cultural practices (e.g., *kanggawii*), economic responsibilities of learners, and security concerns which limits the consistent implementation of some leadership functions. Although school administrators are very prominent in school-wide and community activities, they are less involved in direct instructional roles such as tutoring or substituting classes.

The result of this study suggest that although school administrators actively carry out their instructional leadership roles, the specific realities of BARMM influence how these practices are applied in daily school operations. Some PIMRS functions are sustained through standardized practices, yet functions requiring consistent time protection and classroom presence are vulnerable to socio-cultural and structural interruptions.

The pattern reflects adaptive rather than weak leadership. School administrators put relational presence and community engagement as their top priority, considering the post-conflict and culturally unique setting. Hence, leadership practice in BARMM is shaped less by policy intent and more by contextual realities.

2. Challenges in Practicing Instructional Leadership

2.1 Challenges Encountered by School Administrators

Five major challenge themes emerged: (1) resource and budget limitations; (2) teacher management and professional resistance; (3) student access and participation issues; (4) community engagement and misconceptions; and (5) systemic and administrative pressures.

Among the five major themes of challenges, the most frequently cited challenge is related to teacher management and professional resistance. This includes resistance to change, technology integration, and compliance. These challenges may be a result of structural issues and not necessarily the teachers' shortcomings.

These challenges confirm that instructional leadership in BARMM is operating within the constraints of structural, cultural, and governance factors. Many issues attributed to teacher resistance appear systemic (e.g., staffing mismatches, insufficient preparation). In addition, resource scarcity and administrative pressures create a policy-practice gap that limits sustained instructional focus.

2.2 Challenges Encountered by Teachers

Five major challenge themes emerged: (1) resource and budget constraints; (2) teacher capacity, professional fit and deployment; (3) student foundations and participation; (4) technology and implementation constraints; and (5) contextual and socio-cultural barriers.

The teachers' narratives show that instructional delivery in BARMM schools is influenced by a combination of learner-related and context-related factors. Through interviews, teachers consistently pointed out challenges they encounter related to student foundations and participation, specifically low literacy skills, limited grade-level readiness, poverty and '*kanggawii*' were repeatedly linked to absenteeism and slowed curriculum pacing. Teachers also highlighted on subject-specialization mismatches and unreliable electricity and internet connections.

Taken together, teachers' perspectives illustrate that the concept of instructional leadership in BARMM is a complex one, replete with challenges of learner readiness, material scarcity, staffing

constraints, infrastructural fragility, and socio-cultural demands. These results confirm the argument that instructional leadership influences classroom outcomes indirectly and is mediated by contextual conditions (Hallinger & Heck, 1996). Through this emphasis on the realities of classroom, this study explains why instructional leadership practices, while present in policy and intent, are unevenly enacted in practice within marginalized and post-conflict educational settings.

2.3 Challenges Encountered by Stakeholders

Based on analysis, five major themes emerged from stakeholders' perspectives: (1) resource and infrastructure limitations; (2) human resource and financial constraints; (3) access and attendance challenges; (4) cultural congruence and scheduling; and (5) community participation and governance coordination.

The accounts of stakeholders show that the practice of instructional leadership in BARMM schools is influenced by a set of complex factors that are structural, socio-economic, cultural, and governance-related constraints. These challenges underscore the fact that instructional leadership goes beyond school boundaries and is closely tied to community realities.

The need for resources and infrastructure, especially the lack of classrooms, textbooks, and basic sanitation facilities such as comfort rooms, was repeatedly cited by stakeholders. The problem of overcrowded classrooms and insufficient learning materials was also cited as persistent barriers that hinder effective curriculum delivery, class size management, and student well-being. The lack of sufficient sanitation facilities was also reported to disrupt attendance and learning continuity, as students often leave school when basic needs cannot be met. These results support the findings of previous studies that resource scarcity is a visible problem in BARMM schools. In line with studies in developing and conflict-affected contexts, infrastructural scarcity were shown to constrain what instructional leadership can realistically accomplish.

Aside from the physical resources, the human resource and financial constraints were also cited as challenges by the stakeholders. The lack of teachers and limited operational funds were viewed as hindrance to sustaining instructional programs and supporting co-curricular and enrichment activities. The stakeholders mentioned that even though the schools receive Maintenance and Other Operating Expenses (MOOE), these amounts are not enough to meet expanding school needs, particularly when supporting student participation in activities outside the school. These statements support the views of the administrators and teachers that there is a policy-practice gap in the fiscal management mandated by R.A. 9155.

Issues of access and attendance were also common in the narratives of stakeholders. Students' absenteeism was attributed to the needs of parents to earn a living, poverty, and security issues in the past, including experiences of armed conflict that previously disrupted schooling and prompted student transfers. These findings contextualize attendance issues as rational responses to economic survival and safety considerations rather than individual motivation alone. The narratives of stakeholders offer community-level explanations that confirm teachers' and administrators' reports and support the mediated-effects model of instructional leadership.

The stakeholders also emphasized the cultural congruence and scheduling as a unique characteristic of instructional leadership in BARMM. Adjustments to school calendars, shortened class hours during Ramadan, integration of madrasah education, and religious activities such as sermons (wasiyat) were considered strengths rather than limitations. These were seen to minimize conflicts between schooling and religious commitments, thereby supporting participation and attendance when well-coordinated. This finding supports the culturally responsive leadership views, emphasizing that effective instructional leadership in faith-based communities must be congruent with local values rather than adherence to culturally neutral or standardized models.

Finally, community participation and governance coordination was identified as both a challenge and a necessity. Stakeholders described active involvement of local government units and community members in school activities, although there were also instances of miscommunication and misunderstanding among parents, schools, and partner institutions. The school administrator's role as

mediator and coordinator was identified as very important in resolving conflicts and sustaining collaboration. While formal programs such as Brigada Eskwela institutionalize school–community partnerships, community support is still situational.

Taken together, the perspectives of stakeholders illustrate that instructional leadership in BARMM is deeply embedded within community structures and governance dynamics. Resource limitations, staffing constraints, attendance issues, cultural practices, and coordination challenges do not exist independently but form an interconnected chain that shapes leadership enactment. Comparative analysis across administrators, teachers, and stakeholders shows that there is convergence on systemic issues such as resource scarcity and absenteeism, and also points to the existence of different perspectives, such as administrators focusing on policy and resources, teachers on classroom implementation, and stakeholders on community realities.

From the lens of instructional leadership theory, these results support the mediated-effects model (Hallinger & Heck, 1996) and context-based views of leadership (Hallinger, 2011; Hallinger & Kantamara, 2001). The instructional leadership in BARMM is constrained not by the absence of leadership will, but by weak mediating structures such as limited resources, uneven teacher deployment, fragile infrastructure, and socio-cultural obligations. It is, however, important to note that these challenges should not be treated as mere constraints but as leverage points for adaptive and culturally responsive leadership. Addressing these issues requires differentiated funding, staffing and professional development reforms, and community engagement efforts that would form the basis for building context-based instructional leadership in BARMM.

3. Suggestions and Feedback from Teachers and Stakeholders

3.1 Suggestions and Feedback from Teachers

Suggestions and feedback for teachers are important for gaining insights into how instructional leadership in BARMM schools can be strengthened by adopting a relational, culturally responsive, and context-sensitive approach. As has been synthesized, six major themes emerged from teachers' narratives: (1) teacher motivation and professional commitment; (2) faith-integrated leadership; (3) positive school climate and relational leadership; (4) instructional support and capacity development; (5) supportive leadership and resource provision; and (6) community engagement and collaboration. These themes, taken together, represent the teachers' lived experiences and present a holistic vision of instructional leadership.

Teachers have always emphasized the importance of motivation and professional commitment as basis for effective teaching. Despite contextual challenges, teachers described intrinsic motivation, passion for teaching, and a strong sense of professional commitment as the driving forces behind their teaching practices. Teachers have always expressed that genuine commitment enables them to do their job even in the absence of constant supervision. This finding supports the mediated-effects model of instructional leadership (Hallinger & Heck, 1996), where leadership affects student learning indirectly through teacher motivation and commitment. In the BARMM context, the intrinsic motivation of teachers which is constructed from their personal values and service identity, serves as a stabilizing force amid limited resources and instructional supervision. These insights suggest that strengthening instructional leadership requires not only technical oversight but also leadership approaches that nurture teachers' sense of purpose, autonomy, and moral responsibility.

Closely intertwined with motivation is faith-integrated leadership, which was seen as a culturally significant and sustaining form of leadership practice. Teachers pointed to the importance of Islamic reminders (*wasiyat*), and faith-based advice that frame teaching as a form of worship and service. Instead of viewing religious integration as something that is not central, teachers perceived it as reinforcing ethical conduct, sincerity, and commitment to teaching. This is consistent with culturally responsive leadership theories (Hallinger & Kantamara, 2001; Hayes & Irby, 2020), which show that faith integration supports leadership authority and engagement in contexts where religion and education are inseparable. In BARMM schools, faith-based leadership is not something that is supplemental but as a core mechanism through which instructional commitment and school culture are strengthened.

Teachers also strongly highlighted the value of a positive school climate and relational leadership. Effective instructional leaders were characterized as being approachable, empathetic, humble, and supportive, as opposed to authoritarian or “boss-type” leadership. Teachers appreciate school administrators who foster trust, harmonious relationships, and emotional support among staff. These results are consistent with current leadership studies that argue relational and trust-based leadership practices have more impact on teaching and learning than more directive or compliance-oriented approaches (Robinson & Timperley, 2007). In the BARMM context, where teachers face resource scarcity and multiple contextual pressures, relational leadership clearly serve as a buffer against stress, burnout, and disengagement, thereby sustaining instructional focus and collaboration.

Another major theme revolves around instructional support and capacity development. The teachers highlighted the importance of school administrators in terms of mentoring, consulting, contextualizing the curriculum, and recognizing teachers’ potential. They emphasized the need for consistent, needs-based professional development opportunities, equal access to training, and leadership visibility within the school. The teachers’ narratives validate the instructional leadership functions identified in the PIMRS framework, specifically supervision of instruction and development of professional growth. However, they also identified the shortcomings in the equitable distribution and relevance of training opportunities. These results are consistent with previous studies, indicating that instructional leadership is compromised when professional development is fragmented, irregular, or irrelevant from actual classroom needs (Lingam et al., 2021; Al-Mahdy & Al-Kiyumi, 2015). Teachers’ emphasis on visible and mentoring-oriented leadership further validates evidence linking principal presence to enhanced teacher motivation and instructional focus (Waters et al., 2003).

Teachers also emphasized the importance of supportive leadership and resource provision in enhancing instructional quality. Although teachers acknowledged principals’ efforts to provide available materials and support, they pointed out the shortages in ICT tools, facilities, staffing, and MOOE. The teachers made specific recommendations such as increased ICT investments, improved infrastructure, expanded feeding programs, and increased operational funds. The results above support the leadership view of Hallinger (2011) that even with committed leaders and motivated teachers, structural constraints exist that impede efforts to improve teaching. The results indicate that for BARMM, there is a need to integrate leadership practices and resource support at the policy level to improve instructional leadership.

Finally, community engagement and collaboration was identified as an important approach in strengthening instructional leadership. Teachers highlighted the significance of collaboration with the LGUs, parents, ulama, and other stakeholders in supporting school programs and addressing resource gaps. Activities like Brigada Eskwela and coordinated community activities were viewed as instrumental in sustaining school operations beyond what school budgets can provide. This finding is consistent with Epstein’s (2010) framework on school–community partnerships and supports the view of instructional leadership as a boundary-spanning and shared process (Rahimah & Ghavifekr, 2014). In BARMM, community collaboration serves as a compensatory mechanism that improves leadership legitimacy, mobilizes resources, and reinforces collective responsibility for student learning.

In general, the suggestions and feedback of teachers reveal that effective instructional leadership in BARMM is inherently holistic, relational, and culture-based. Teachers envision instructional leaders not only as managers or supervisors, but as moral leaders, mentors, and partners who can help in instruction through trust-building, faith integration, professional development, and community engagement. These findings form that basis of an empirical approach to reconceptualizing instructional leadership in BARMM as an adaptive process that balances instructional rigor with cultural responsiveness and structural realities.

3.2 Suggestions and Feedback from Stakeholders

The suggestions and feedback of the stakeholders offer a community-level view of how instructional leadership in BARMM schools can be improved. The narratives of the stakeholders embody the expectations of visible, collaborative, inclusive, and responsive instructional leadership that is sensitive to both instructional and socio-cultural realities. As synthesized, six interrelated themes emerged: (1) strong instructional visibility and presence; (2) teacher collaboration and professional development; (3) resource

mobilization and supportive leadership; (4) inclusive and child-centered practices; (5) community and stakeholder engagement; and (6) holistic development. Together, these themes articulate a broadened conception of instructional leadership that extends beyond classroom supervision to encompass governance, advocacy, and moral stewardship.

One of the major themes that emerged in the stakeholders' feedback is the need for strong instructional visibility and leadership presence. The stakeholders highly valued principals who were physically present, hands-on, and actively involved in daily school activities. Visibility during routine practices and school events was seen as a sign of accountability, commitment, and responsiveness. This is consistent with Hallinger and Murphy's (1985) instructional leadership framework, specifically the role of monitoring school activities and maintaining a visible leadership role. In the BARMM context, leadership effectiveness is deeply rooted in public presence and accessibility, which strengthens trust among teachers, parents, and learners. In contrast to leadership theories that emphasize delegation and distance, the stakeholders in this study emphasize presence as a core leadership practice that strengthens instructional credibility and community confidence.

The stakeholders also emphasized the importance of teacher collaboration and professional development as essential in maintaining the quality of instruction and school reputation. The schools were viewed favorably when teachers exhibited teamwork, organization, and pursuit of higher education. The stakeholders linked these characteristics with school administrators who value collaboration and support teachers' professional development. This finding validated the claim of Robinson and Timperley's (2007) that leadership practices promoting professional learning and collective efficacy indirectly enhance classroom instruction and student outcomes. In contexts like BARMM, where there is lack of external mechanisms for evaluating instruction, the perceptions of the stakeholders regarding teacher competence and professionalism become key indicators of instructional quality, emphasizing the importance of leadership practices that foster a collaborative professional culture.

Another major theme is resource mobilization and supportive leadership. The stakeholders viewed school administrators as bridges connecting schools to resources, scholarships, ICT tools, infrastructure support, and external partnerships. Instead of separating instructional and managerial roles, the stakeholders perceived effective instructional leadership as integral part of advocacy and resource mobilization. This aligns with Hallinger's (2011) context-sensitive leadership perspective, which acknowledges that instructional leadership must be responsive to environmental constraints. By mobilizing resources and reducing the financial burden on families, school administrators can improve instructional access, equity, and student participation. These results imply that instructional leadership in BARMM inherently includes resource-oriented functions that directly support teaching and learning.

Inclusive and child-centered approaches were also underscored by stakeholders, highlighting care-driven discipline, parental consultation, and targeted support for struggling learners. Practices such as differentiated instruction and focused remediation were viewed as indicators of a leadership culture that values inclusion rather than exclusion. These accounts align with principles of inclusive education and culturally responsive leadership (Hayes & Irby, 2020), reinforcing the Bangsamoro education mandate that no learner should be left behind. Stakeholders' narratives suggest that instructional leadership is strengthened when administrators and teachers prioritize learners' diverse needs and foster environments where students feel valued, supported, and protected.

Closely aligned with the above is the concern for community and stakeholder engagement, which stakeholders viewed as a shared responsibility for maintaining instructional quality and school safety. Parents, PTCA officers, LGUs, religious leaders, and security personnel were seen as active partners in ensuring student welfare, discipline, and safe learning environments. This is consistent with Epstein's (2010) school-family-community partnership framework and reflects an expanded view of instructional leadership as boundary-spanning and collaborative. In BARMM schools, community engagement compensates for limited school resources and reinforces collective ownership of educational outcomes, thereby extending leadership influence beyond the school perimeter.

Finally, stakeholders stressed the importance of holistic development, particularly the integration of academic learning with Qur'an studies and moral guidance. This dual focus reflects sensitivity to

learners' cultural, spiritual, and emotional needs while maintaining engagement with formal academic curricula. Stakeholders also stressed the significance of guidance services to support students' personal and emotional well-being. These findings support culturally responsive leadership literature (Hayes & Irby, 2020) and Hallinger's (2011) statement that the whole learner should be considered in instructional leadership in complex settings. In BARMM, holistic development is not viewed as peripheral but as central to sustaining student identity and engagement in education.

Taken collectively, stakeholders' suggestions reveal that effective instructional leadership in BARMM is visible, relational, inclusive, and community-embedded. While teachers emphasize motivation, instructional support, and professional growth, stakeholders are more concerned with leadership presence, resource mobilization, inclusivity, and shared governance. These perspectives converge in highlighting that instructional leadership is not possible without structural support, cultural relevance, and community partnership. Persistent resource inequities, such as the lack of ICT tools, infrastructure, personnel, and MOOE, remain as barriers that school administrators alone cannot resolve, thus requiring policy-supported instructional leadership aligned with the Ministry of Basic Education, Technical and Higher Education (MBHTE) and the Bangsamoro Education Reform Development Plan (BERDP) 2035.

Through the lens of instructional leadership theory (Hallinger & Murphy, 1985) and complemented by transformational leadership theories (Burns, 1978; Bass & Riggio, 2005), the results indicate that school administrators in BARMM are expected to provide both instructional and moral leadership. In the end, stakeholders' feedback confirms the need for a context-based instructional leadership framework that integrates systemic policy support, faith-informed practices, and collaborative community engagement to strengthen teaching and learning in Bangsamoro schools.

4. Integration of Findings and Framework Development

The integration of quantitative and qualitative findings demonstrates that while Hallinger's instructional leadership model remains largely applicable, its enactment in BARMM is adaptive rather than prescriptive. Strong practices are sustained through routinized leadership functions, while inconsistencies emerge in areas most vulnerable to contextual disruption.

These patterns informed the development of a context-based instructional leadership framework that embeds cultural responsiveness, community engagement, and systemic flexibility as core leadership dimensions rather than peripheral considerations.

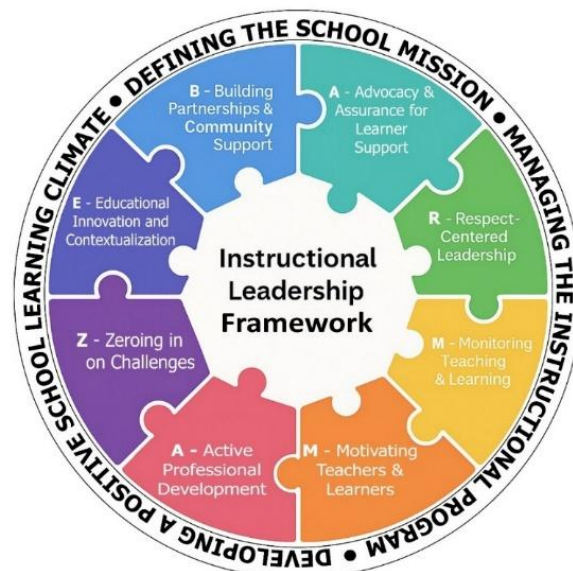


Figure 1 - Context-Based Instructional Leadership Framework

Figure 1 depicts the BARMMAZE framework showing the eight (8) main themes that reflect the kind of instructional leadership framework that addresses the unique needs of BARMM. As can be seen in the figure above, BARMMAZE stands for: Building Partnerships and community support, Advocacy and assurance for learner support, Respect-centered leadership, Monitoring teaching and learning, Motivating teachers and learners, Active professional development, Zeroing in on challenges, and Educational innovation and contextualization. The creation of the proposed BARMMAZE Instructional Leadership Framework was derived from an integrative analysis of the quantitative data on the dominant practices of instructional leadership and qualitative data from school administrators, teachers, and stakeholders in the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM). In contrast to imposing a prescriptive framework, the proposed framework is an empirically driven synthesis of leadership practices, constraints, and improvement strategies articulated within the local context. In this respect, the proposed framework reflects the actual practice of instructional leadership in a post-conflict, resource-constrained, and culturally different education system.

This framework is grounded in Instructional Leadership Theory, particularly by Hallinger and Murphy's (1985) Principal Instructional Management Rating Scale (PIMRS), while deliberately extending it to address the cultural, structural, and systemic realities in BARMM schools. BARMMAZE Instructional Leadership Framework represents a contextual expansion rather than departing from established and known models. This framework integrates instructional leadership with relational, moral, and advocacy-oriented dimensions necessitated by complex and resource-constrained environments.

At the core of the Figure 1 is the Instructional Leadership Framework in BARMM, operationalized through defining the school mission, managing instructional programs, and promoting a positive learning climate (Hallinger & Murphy, 1985). The core serves as the guiding principle for improving teaching and learning in the region. Surrounding the core are eight interlocking puzzle pieces, each represents a key dimension of leadership practice. The puzzle design symbolizes the interconnectedness of these elements, showing that each component is essential and must work together to complete the whole framework. Each dimension is provided with a brief description below:

Theme 1: Building Community Partnerships

One of the notable strengths of the framework is its emphasis on the positioning of community partnership and advocacy as functions of instructional leadership, rather than as secondary administrative duties. In the BARMM context, schools are situated in a governance structure where Local Government Units (LGUs), parents, religious leaders, and community groups have a direct impact on the presence of learners, their safety, and the availability of resources. The results show that the effectiveness of instructional leadership is enhanced when school administrators leverage these groups to compensate for the lack of financial and infrastructure resources. This is an extension of traditional theory on instructional leadership, incorporating concepts from distributed leadership (Spillane, 2005) and school-community partnership frameworks (Epstein, 2010).

Theme 2: Advocacy and Assurance for Learner Support

Advocacy and assurance for learner support encourages school administrators to actively advocate for an increased MOOE flexibility and discretion for them to reallocate funds that are essential in contexts where rigid fiscal rules can hamper instructional improvements.

This theme extends Hallinger's (2011) context-sensitive instructional leadership and Leithwood's transformational leadership focus on advocacy and resource alignment. In this framework, advocacy is reframed as an instructional leadership responsibility, where school administrators actively negotiate with the MBHTE-BARMM, LGUs, and partners to secure resources, scholarships, and learner support mechanisms – functions largely absent in PIMRS.

Theme 3: Respect-Centered Leadership

School administrators practice ethical and relational approach of leadership that is anchored with respect. Thus, instructional leadership framework in BARMM promotes respect-centered relationship. This involves visibility around school premises, promoting collegial and consultative decision-making, practicing ethical reflection, and creating a safe and conducive school environment. This aligns with the PIMRS' Developing the Learning Climate.

Respect-centered leadership also draws from relational leadership theory and ethical leadership models emphasizing trust, empathy, and moral influence (Robinson & Timperley, 2007), which incorporates cultural humility and faith-based ethics, reflecting BARMM's socio-cultural norms. Teachers' preference for "motherly" and empathetic leaders highlights leadership legitimacy rooted in moral authority rather than positional power.

Theme 4: Monitoring Teaching and Learning

Monitoring teaching and learning entails the need for school administrators to focus on the practices involved in supervising classroom instruction. This includes managing instructional time, monitoring teaching accountability, giving interventions, and offering professional and resource support to improve instructional outcomes. This mirrors the PIMRS' Managing the Program under the function Supervising and Evaluating Instruction and Monitoring Student Progress

In this framework, monitoring is reframed as adaptive supervision, recognizing constraints such as large class sizes, teacher shortages, and limited instructional materials. The focus shifts from ideal compliance to realistic instructional support. This theme preserves instructional leadership core while contextualizing its enactment.

Theme 5: Motivating Teachers and Learners

Motivating teachers and learners pertain to school administrators who foster motivation among their teachers and learners, refined through faith-integrated leadership and capacity building initiatives. These initiatives include spiritual and moral guidance, inculcating passion among teachers, improving teacher skills and promoting learner engagement. This is consistent with PIMRS' Developing the Learning Climate under the functions of Providing Incentives for Teachers and Learners.

This theme also integrates motivational leadership and transformational leadership theories that emphasize vision, inspiration, and commitment (Leithwood et al., 1999). In this framework, motivation is grounded in faith, moral purpose, and intrinsic commitment, as evidenced by *wasiyat* (sermons) and Islamic values such as *al-Ihsan*. These sources of motivation are culturally embedded and distinct from performance-based incentives.

Theme 6: Active Professional Development

School administrators should give emphasis to continuous professional development through higher studies, trainings and Learning Action Cell (LAC) sessions. This kind of act or practice reflects school leaders' role in promoting lifelong learning and improving teacher competence to enhance instructional practices. This aligns with PIMRS' Developing the Learning Climate under the functions, Promoting Professional Development and Providing Incentives for Teachers.

In this framework, professional development is framed as equitable, needs-based, and school-relevant, responding to teachers' concerns about mismatched training and specialization gaps. The framework emphasizes fairness and relevance over volume of training. In short, this theme operationalizes professional growth as instructional quality.

Theme 7: Zeroing in on Challenges

One of the unique strengths of the BARMMAZE framework is the recognition of ongoing contextual issues such as infrastructure challenges, learner absenteeism due to livelihood and cultural patterns, and post-conflict environments as valid concerns for leaders, as opposed to being interruptions. By incorporating these factors into the framework, instructional leadership is positioned not just as a process

of problem-solving and resilience but also as a process of strategic prioritization, which aligns with the principles of adaptive leadership (Heifetz et al., 2009).

Theme 8: Educational Innovation and Contextualization

Finally, the framework stresses instructional innovation through contextualization, which redefines innovation from a strictly technological perspective to curriculum localization, flexible scheduling, faith integration, and learner adaptation. This finding supports culturally responsive and adaptive leadership views, which show that innovation in a marginalized context is often a process of contextual alignment rather than modernization.

These eight components form the BARMMAZE Instructional Leadership Framework, which conveys that instructional leadership in BARMM is not a single pathway, but a carefully woven set of practices responding to the region's unique realities. The framework demonstrates how effective leadership integrates community engagement, advocacy, respect, monitoring, motivation, professional growth, problem-solving, and innovation to ensure quality and equitable education.

Furthermore, the BARMMAZE Instructional Leadership framework extends PIMRS' instructional core such as curriculum, supervision and professional development. It does not deviate from existing models, but rather expands leadership functions to include advocacy, cultural responsiveness, moral leadership, and contextual adaptation. Beyond this, BARMMAZE addresses realities PIMRS does not explicitly capture, such as faith integration, chronic resource scarcity, and community-dependent schooling.

The BARMMAZE Instructional Leadership Framework emerged by synthesizing instructional leadership practices within BARMM, challenges confronting administrators, and stakeholder recommendations, with the objective of capturing how BARMM school leaders address instructional leadership roles amid diverse and complex socio-cultural and systemic contexts. While the framework provides a conceptual map of context-based instructional leadership, its practical value depends on how it can effectively be translated into observable and assessable leadership behaviors. To ensure that the framework moves beyond theory and becomes usable for school improvement, leadership development, and policy application, the study proceeded to the development of a context-based Instructional Leadership Assessment Tool (*see Appendix A*) grounded in the BARMMAZE domains.

CONCLUSIONS

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

1. On the prevailing instructional leadership practices, this study demonstrates that school administrators in BARMM actively practice core instructional leadership functions despite operating within complex and resource-constrained contexts. Quantitative and qualitative findings converge to show consistent engagement in framing and communicating school goals, coordinating the curriculum, supervising and evaluating instruction, monitoring student progress, and supporting teacher and learner development. These practices confirm that instructional leadership in BARMM is embedded in daily school operations rather than being merely procedural.
2. At the same time, uneven enactment of functions related to protecting instructional time and maintaining high visibility reflects contextual constraints rather than leadership neglect. Factors such as student absenteeism, socio-cultural obligations, administrative workload, and limited resources require school leaders to continuously negotiate instructional priorities. These findings advance the understanding of instructional leadership as an **adaptive and context-responsive practice**, particularly in marginalized and post-conflict settings.
3. The study's primary contribution is the development of the **BARMMAZE Instructional Leadership Framework**, which extends the PIMRS model by foregrounding faith-responsive leadership, community engagement, resource navigation, and socio-cultural sensitivity. By conceptualizing leadership as a process of navigation and resilience, BARMMAZE offers a contextually grounded

alternative to a universal instructional leadership models. The proposed **BARMMAZE Instructional Leadership Assessment Tool** (see Appendix A) further translates this framework into practical, developmental indicators aligned with the realities of BARMM schools.

4. Overall, this research contributes to instructional leadership scholarship by demonstrating that leadership effectiveness cannot be fully understood apart from cultural values, community livelihoods, and systemic constraints. The framework and assessment tool provide policymakers, school leaders, and researchers with a realistic and socially just model for strengthening instructional leadership in BARMM and similar contexts.

RECOMMENDATIONS

Based on the findings and conclusions drawn from this study, the following recommendations are proposed to further enhance the instructional leadership practices of school administrators in BARMM. These recommendations aimed to address the inconsistencies and challenges and sustain the frequently practiced instructional leadership.

1. At the policy level, MBHTE–BARMM is encouraged to strengthen systemic support through equitable resource allocation, context-based leadership development programs, and expanded learner support services.
2. At the school level, administrators should sustain visible, relational leadership and ensure that professional development opportunities are needs-based and equitably distributed, while deepening partnerships with communities and local stakeholders.
3. Teachers are encouraged to continue collaborative practices that enhance instructional quality and resilience.
4. Future research may examine the longitudinal effects of context-based instructional leadership on student outcomes, conduct comparative studies across regions, and validate the BARMMAZE instructional leadership framework and assessment tool using confirmatory factor analysis across diverse school contexts. Such inquiries will further refine and strengthen context-responsive models of instructional leadership.

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Appendix A

BARMMAZE Instructional Leadership Assessment Tool

Purpose of the Instrument

This assessment tool operationalizes the framework into measurable indicators that reflect both instructional leadership functions and the realities of BARMM schools, thereby enabling systematic reflection, formative evaluation, and evidence-based leadership support.

The instrument is intended for use by teachers and school administrators (self-assessment) with minor adjustments of wording depending on the respondent group.

Response Scale

- 1 - Strongly Disagree (SD)
- 2 - Disagree (D)
- 3 - Moderately Agree (MA)
- 4 - Agree (A)
- 5 - Strongly Agree (SA)

<i>The school administrator....</i>	SD	D	MA	A	SA
Domain 1: Building Partnership and Community Support					
1. Actively collaborates with parents, LGUs, and community leaders to support student learning and school needs.	1	2	3	4	5
2. Coordinate well on community activities and school programs to avoid disruption of instructional time.	1	2	3	4	5
3. Consult stakeholders in decisions that affect learners and school programs.	1	2	3	4	5
Domain 2: Advocacy and Assurance for Learner Support					
4. Makes inclusive practices for slow learners and vulnerable students evident.	1	2	3	4	5
5. Strategically manages instructional resources and facilities to support learning.	1	2	3	4	5
6. Actively mobilizes internal and external resources (MOOE, stakeholders, partners).	1	2	3	4	5
Domain 3: Respect-Centered Leadership					
7. Approachable, empathetic, and respectful toward teachers.	1	2	3	4	5
8. Decisions are guided by fairness and consideration of others.	1	2	3	4	5
9. And the environment promotes harmony, trust, and collaboration.	1	2	3	4	5
Domain 4: Monitoring Teaching and Learning					
10. Conducts instructional supervision focused on improving teaching quality.	1	2	3	4	5
11. Feedback from classroom observation is constructive and supportive.	1	2	3	4	5
12. Instructional supervision considers teachers' actual classroom constraints.	1	2	3	4	5
Domain 5: Motivating Teachers and Learners					
13. Clearly communicates the school's mission and integrates it with moral values and faith-based principles.	1	2	3	4	5
14. Recognizes and appreciates teacher's efforts.	1	2	3	4	5
15. Motivate learners through positive reinforcement, faith-based, and moral development initiatives.	1	2	3	4	5

Domain 6: Active Professional Development					
16.Encourages teachers to pursue further studies or professional growth.	1	2	3	4	5
17.Fairly and transparently selects teachers for professional development opportunities.	1	2	3	4	5
18.Sends teachers to trainings that are relevant to their actual instructional needs and classroom realities.	1	2	3	4	5
Domain 7: Zeroing in on Challenges					
19.Demonstrates flexibility and problem solving in response to contextual challenges.	1	2	3	4	5
20.Decisions show resilience and sustained focus on instructional improvement.	1	2	3	4	5
21.Addresses attendance issues related to culture or livelihood through dialogue and outreach.	1	2	3	4	5
Domain 8: Instructional Innovation and Contextualization					
22.Monitors curriculum implementation to ensure alignment with learners' readiness levels.	1	2	3	4	5
23.Encourages contextualization of curriculum to suit learners' academic readiness.	1	2	3	4	5
24.Encourages teachers to use strategies adapted to local culture and realities.	1	2	3	4	5

SCIENCE AND MATHEMATICS TEACHING PRACTICES AND INSTRUCTIONAL SUPERVISION IN MBHTE-BARMM: BASIS FOR AN INQUIRY-BASED TEACHING MODEL

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ABSTRACT

Inquiry-based teaching (IBT) is widely promoted as an effective pedagogical approach for improving Science and Mathematics learning; however, its adoption remains uneven in marginalized and post-conflict educational contexts. This study examined the perceptions, practices, challenges, and supervisory conditions influencing the adoption of inquiry-based teaching among Science and Mathematics teachers in the Ministry of Basic, Higher, and Technical Education–Bangsamoro Autonomous Region in Muslim Mindanao (MBHTE–BARMM), Philippines. Anchored in Constructivism, Experiential Learning Theory, and Clinical Supervision, the study employed a convergent mixed-methods design. Quantitative data were collected from 164 teachers and 360 Grade 9 students through validated survey instruments, while qualitative data were gathered from interviews with 28 teachers and 14 school principals. Findings revealed that teachers strongly valued inquiry-based pedagogy; however, classroom practices remained largely teacher-centered due to time constraints, limited resources, and insufficient professional development. Students reported higher engagement during inquiry-oriented lessons, although such experiences were inconsistent. Principals conducted instructional supervision but tended to emphasize compliance rather than reflective, developmental support. In response, the study developed the CREATE Model of Inquiry-Based Teaching (Connect, Research, Engage, Analyze, Test, Evaluate), a context-sensitive framework that integrates instructional supervision as a structural support for inquiry implementation. The study concludes that sustainable inquiry-based teaching in BARMM requires aligned teacher preparation, reflective supervision, and systemic support, offering implications for STEM education reform in ASEAN contexts.

Keywords: *inquiry-based teaching; instructional supervision; Science education; Mathematics education; BARMM; CREATE Model*

INTRODUCTION

Improving Science and Mathematics education remains a central concern across Southeast Asia as nations strive to prepare learners for knowledge-based economies and complex societal challenges. International large-scale assessments such as the Programme for International Student Assessment (PISA) consistently reveal persistent learning gaps in these domains, particularly among students in developing and marginalized regions. In the Philippines, performance trends highlight enduring instructional challenges that disproportionately affect geographically isolated, conflict-affected, and culturally diverse communities.

Inquiry-based teaching (IBT) has been widely endorsed as a pedagogical approach capable of addressing these challenges. Grounded in constructivist and experiential traditions, IBT emphasizes learners' active engagement in questioning, investigating, and constructing knowledge through meaningful

experiences. International organizations, including UNESCO and OECD, advocate inquiry-oriented STEM instruction as a means of fostering critical thinking, creativity, and problem-solving, competencies essential for 21st-century learners. Within ASEAN, inquiry-based and learner-centered pedagogies are increasingly embedded in curriculum reforms aimed at improving educational quality and equity.

In the Philippine context, Republic Act No. 10533, or the Enhanced Basic Education Act of 2013, mandates the use of constructivist, inquiry-based, and learner-centered pedagogies in K–12 classrooms. Despite this policy foundation, research continues to document a gap between curricular intentions and classroom realities. Teachers often struggle to implement inquiry-based approaches consistently due to constraints related to time, resources, assessment pressures, and professional preparation.

These challenges are particularly pronounced in the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM), a region shaped by historical marginalization, post-conflict reconstruction, and sociocultural diversity. The Ministry of Basic, Higher, and Technical Education (MBHTE) has undertaken significant reforms to improve educational access and quality; however, empirical evidence on how inquiry-based teaching is understood, practiced, and supported within this regional context remains limited. Existing Philippine studies on inquiry-based instruction largely focus on urban or mainstream settings, leaving a critical gap in understanding its implementation in Muslim-majority, resource-constrained, and post-conflict environments.

Furthermore, inquiry-based teaching is not solely dependent on teacher competence. Instructional supervision and school leadership play a crucial role in sustaining pedagogical change. Clinical supervision theory emphasizes reflective dialogue, classroom observation, and feedback as mechanisms for improving instructional practice. Yet, limited research has examined how principals enact instructional supervision to support inquiry-based teaching in contexts such as BARMM.

This study addresses these gaps by examining inquiry-based teaching in MBHTE–BARMM through the integrated perspectives of teachers, principals, and students. This study aimed to investigate the perceptions, practices, and challenges of Science and Mathematics teachers in adopting inquiry-based teaching, examine the instructional supervision of school principals, and analyze students’ experiences of inquiry-based learning within MBHTE-BARMM. The scope covered secondary schools in the Division of Lanao del Sur II, employing a convergent mixed-methods design to ensure a comprehensive understanding of the phenomenon. By doing so, the study contributes empirical and conceptual insights relevant to ASEAN discourses on equitable STEM education and instructional leadership in diverse educational contexts.

STATEMENT OF THE PROBLEM

Generally, this study aimed to investigate the inquiry-based teaching in Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) by exploring the perspectives and practices of Science and Mathematics teachers, challenges encountered, students’ experience of inquiry-based teaching, and the instruction supervision of the principals in the region. Specifically, it sought to answer the following research questions:

1. What are the perceptions of the Science and Mathematics teachers in MBHTE-BARMM in adopting inquiry-based teaching, in terms of:
 - 1.1 Orientation;
 - 1.2 Motivation?
2. What are the practices of the Science and Mathematics teachers in MBHTE-BARMM in adopting inquiry-based teaching, in terms of:
 - 2.1 Interaction;
 - 2.2 Application;
 - 2.3 Hands-on;
 - 2.4 Investigation;
 - 2.5 Exercise?

3. What are the challenges encountered by Science and Mathematics teachers in MBHTE-BARMM in adopting inquiry-based teaching, in terms of:
 - 3.1 Classroom. Management;
 - 3.2 Resources;
 - 3.3 System Restrictions?
4. How do principals in MBHTE-BARMM conduct instructional supervision to monitor and support the adoption of inquiry-based teaching?
5. What do students in MBHTE-BARMM report about their experience of inquiry-based teaching in Science and Mathematics classes?
6. What model of inquiry-based teaching in MBHTE-BARMM can be generated from the findings?

METHODOLOGY

Research Design

The study employed a convergent mixed-methods design, enabling the simultaneous collection and analysis of quantitative and qualitative data. This approach facilitated triangulation and allowed for a comprehensive examination of inquiry-based teaching and instructional supervision in MBHTE–BARMM. Quantitative data provided broad patterns of perceptions and practices, while qualitative data offered contextualized insights into lived experiences and institutional dynamics.

Research Locale and Participants

The study was conducted in the Division of Lanao del Sur II, one of the administrative divisions under MBHTE–BARMM. The locale was selected due to its representativeness of the broader regional context, encompassing diverse school settings and instructional conditions. Participants included 164 Science and Mathematics teachers and 360 Grade 9 students who responded to survey questionnaires. Qualitative data were gathered from interviews with 28 teachers (14 Science and 14 Mathematics teachers) and 14 school principals. Grade 9 students were selected because they possess sufficient cognitive and reflective capacity to report on classroom practices and have substantial exposure to Science and Mathematics inquiry activities.

Sampling Procedures

Simple random sampling was used to select survey respondents to ensure representativeness. For qualitative data, maximum variation purposive sampling was employed to capture a range of experiences based on teaching specialization, years of service, and professional development background. The combination of sampling strategies strengthened both generalizability and contextual depth.

Research Instruments

Quantitative data were collected using adapted survey questionnaires measuring teachers' perceptions, practices, and challenges related to inquiry-based teaching, as well as students' experiences of inquiry-oriented learning. Qualitative data were obtained through a semi-structured interview guide developed in alignment with the study's objectives and theoretical framework. All instruments underwent pilot testing and expert review, yielding acceptable reliability indices and ensuring conceptual alignment.

Data Analysis

Quantitative data were analyzed using descriptive statistics, particularly the mode, to summarize responses on Likert-scale items. Qualitative data were analyzed using thematic analysis, following systematic procedures of transcription, coding, theme development, and refinement. Integration of findings was achieved through side-by-side comparison of quantitative and qualitative results, allowing convergence and divergence to inform interpretation.

Ethical Considerations

Ethical clearance was obtained from the appropriate institutional ethics committee. Informed consent was secured from all participants, confidentiality and anonymity were ensured, and participation was voluntary throughout the study.

FINDINGS

Teachers' Perceptions of Inquiry-Based Teaching

Teachers' perceptions were determined in terms of orientation and motivation.

Orientation Toward Inquiry-Based Teaching

Survey data indicate a consistently strong and positive orientation of teachers toward IBT. The modal response for all orientation indicators was Strongly Agree, reflecting teachers' readiness to adopt inquiry-based practices, their desire to enrich professional practice, and their recognition of the need for institutional support.

The strongest endorsement was expressed for the need for institutional support, suggesting that while teachers are highly motivated, they recognize IBT as a resource- and skill-intensive pedagogy. Interview data reinforced this finding, with teachers describing IBT as student-centered, participatory, and transformative.

Contrary to studies reporting resistance or negative attitudes toward IBT (e.g., Twahirwa et al., 2022), teachers in MBHTE–BARMM demonstrated openness and readiness for pedagogical innovation. This suggests that the foundational attitudinal conditions for reform are already present in the region.

Motivation Toward Inquiry-Based Teaching

Teachers also expressed favorable motivation-related perceptions, where the modal response for all indicators was Agree. Teachers generally believed that IBT enhances student motivation, addresses learning difficulties, and benefits learners overall.

Qualitative evidence showed that teachers associate IBT with enhanced curiosity, higher-order thinking skills, and improved engagement, particularly in Science and Mathematics. This pattern is consistent with inquiry literature emphasizing IBT's role in fostering deep conceptual understanding and motivation (Pedaste et al., 2012).

Generally, results indicated that Science and Mathematics teachers held positive perceptions of inquiry-based teaching. Teachers viewed inquiry as effective in promoting student engagement, critical thinking, and deeper conceptual understanding.

These perceptions align with constructivist assumptions that learning occurs through active knowledge construction. However, positive orientations toward inquiry did not always translate into sustained classroom practice, suggesting a gap between beliefs and enactment.

Inquiry-Based Teaching Practices

Teachers' practices were examined across five dimensions: interaction, application, hands-on activities, investigation, and exercise. Interaction and application emerged as strong dimensions, hands-on activities and exercises as moderate, and investigation as the weakest dimension of practice.

Interaction

Interaction was one of the most consistently implemented elements of IBT. Students were frequently encouraged to explain ideas, engage in discussions, and participate in debates.

Interview findings confirmed that teachers relied heavily on questioning strategies, oral recitation, and guided discussion to stimulate thinking. However, while interaction was frequent, structured scientific

argumentation and student-generated questioning were less evident, suggesting the need for targeted professional development in facilitating evidence-based discourse.

Application

Application emerged as the strongest dimension of IBT practice. Survey data reflect consistent efforts to contextualize learning.

Teachers frequently employed real-life problems, community-based examples, and household contexts, reinforcing the relevance of Science and Mathematics. This finding is particularly significant in the BARM context, where culturally responsive pedagogy enhances engagement and equity.

Hands-On Activities

Hands-on activities were moderately implemented and largely teacher-directed. Survey data showed that students frequently engaged in experiments and problem-solving activities but typically followed prescribed procedures.

Qualitative data revealed teachers' resourcefulness in improvising materials and integrating basic technologies. Nonetheless, limited laboratory facilities and equipment constrained student autonomy. This pattern reflects partial inquiry implementation, wherein procedural engagement is emphasized over open exploration, a trend commonly observed in resource-constrained settings (Eltanahy & Forawi, 2019).

Investigation

Investigation was the least developed dimension of IBT practice. Survey data showed that opportunities for students to design, test, and choose their own investigations occurred only in some lessons. These findings indicate a critical gap between teachers' positive perceptions of IBT and the depth of classroom implementation. While guided inquiry and collaborative projects were reported, fully student-driven investigations remained rare.

Exercise

Exercises were widely used as part of IBT implementation. Students commonly progressed from simple to complex tasks, while repetitive drills occurred in some lessons.

Effort to balance traditional practice with inquiry principles. While exercises supported skill mastery, excessive reliance may constrain exploratory learning, highlighting the need for reflective and synthesis-oriented tasks.

Generally, survey and interview findings revealed that teachers commonly employed inquiry-related strategies such as questioning, group discussion, and contextualization of lessons. Nevertheless, classroom practices remained largely teacher-directed, with structured and guided inquiry more prevalent than open inquiry. Teachers reported carefully controlling inquiry activities to manage time, curriculum pacing, and classroom behavior.

This pattern reflects findings from regional and international studies indicating that inquiry-based teaching is often implemented at lower levels of inquiry in resource-constrained contexts. From an experiential learning perspective, teachers appeared to adapt inquiry cycles pragmatically, emphasizing feasibility over idealized models.

Challenges in Implementing Inquiry-Based Teaching

Teachers' challenges clustered into three domains: classroom-related, resource-related, and system-level constraints.

Classroom-Related Challenges

Survey data showed that concerns about student discipline were moderately present, while lack of teacher confidence and group work management were largely Disagree. Interviews clarified that challenges were primarily student-related, low readiness, limited comprehension, absenteeism, and overreliance on

peers or technology. These findings suggest that classroom challenges are manageable but require targeted learner support mechanisms.

Resource-Related Challenges

Lack of adequate materials emerged as the most critical barrier, with Strongly Agree as the dominant response. Teachers consistently cited insufficient laboratories, equipment, and consumables. While textbooks were generally aligned with IBT, material scarcity forced teachers to improvise, limiting the depth of hands-on and investigative inquiry.

System-Level Constraints

Time constraints were identified as the most significant systemic challenge, with teachers strongly agreeing that the curriculum schedule limits IBT implementation. Other factors, assessment alignment, curriculum rigidity, and resistance to change, were largely dismissed as major obstacles. This indicates that IBT is conceptually supported by policy (e.g., RA 10533 and the MATATAG Curriculum) but constrained by pacing and scheduling realities.

These challenges identified by the teachers highlight the importance of systemic and institutional support in enabling inquiry-based pedagogy.

Instructional Supervision Practices

Principals acknowledged the importance of inquiry-based teaching and reported conducting classroom observations and post-observation feedback. However, supervision practices were primarily compliance-oriented, focusing on lesson documentation and adherence to curriculum standards rather than reflective coaching. While aligned with administrative accountability, such practices limited the potential of instructional supervision to support pedagogical innovation, as emphasized in clinical supervision theory. This study suggested that sustaining inquiry-based teaching required a feedback-rich environment that could motivate teachers, collaborative learning structures build capacity, open and supportive leadership fosters trust, student-centered opportunities that make inquiry visible, systematic monitoring of instructional planning, and reliable provision of resources coupled with technical assistance.

Students' Experiences of Inquiry-Based Learning

Students reported greater engagement, interest, and enjoyment when inquiry-based strategies were employed, particularly during hands-on activities, experiments, and collaborative discussions. However, these experiences were inconsistent across classes, reflecting uneven implementation of inquiry-based teaching. When inquiry was limited, students described lessons as passive and less meaningful. The overall pattern was that the students experience frequent discussion and relevance-rich teaching, regular guided hands-on work but less frequent student-designed investigations, and common practice with sequential difficulty rather than mere drill.

Development of the CREATE Model

Drawing directly from the study's findings, the CREATE Inquiry-Based Teaching Model (Connect, Research, Engage, Analyze, Test, and Evaluate) was developed to address the documented gap between teachers' strong positive orientation toward inquiry and their limited capacity to implement full inquiry cycles in practice. Empirical results demonstrated that while interaction and contextualization were consistently evident, authentic student-led investigation remained constrained by time, resources, and systemic support.

The CREATE Model responds to these constraints by offering a structured yet flexible inquiry pathway that progressively shifts instructional control from teacher-guided to student-driven learning.

Unlike established inquiry frameworks such as the 5E Model, which often presuppose resource sufficiency and advanced learner readiness, CREATE was intentionally designed for resource-constrained and culturally diverse contexts such as MBHTE-BARMM. The model is theoretically anchored in constructivism, experiential learning, and social learning theory, and operationally strengthened through

the explicit integration of school principals’ instructional supervision. This dual pedagogical–supervisory alignment positions CREATE as both a classroom innovation and a system-level reform mechanism.

The CREATE Model consists of six interrelated phases that function as a progressive inquiry continuum (Figure 1). Each phase is pedagogically distinct yet cyclic, reinforcing inquiry as an iterative process rather than a linear sequence.

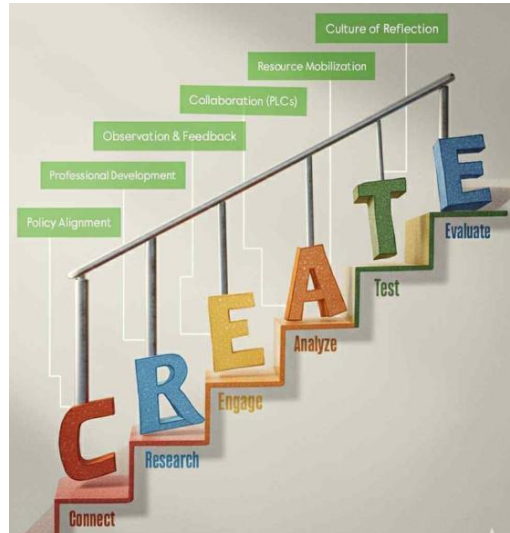


Figure 1. CREATE Inquiry-Based Teaching Model

Phases of the CREATE Inquiry-Based Teaching Model

The Connect phase establishes relevance by anchoring inquiry in learners’ prior knowledge and lived experiences, a critical factor for engagement in culturally diverse contexts. Research builds foundational understanding through guided inquiry, ensuring conceptual readiness before deeper exploration. The Engage phase foregrounds social interaction and discourse, consistent with socio-constructivist perspectives that emphasize learning as a collaborative process.

In Analyze, learners synthesize evidence and construct meaning, marking a shift toward higher-order cognition. The Test phase represents the apex of inquiry, where students apply knowledge in authentic, problem-based contexts, thereby validating or refining their understanding. Finally, Evaluate institutionalizes reflection and formative assessment, reinforcing inquiry as a cyclical and self-regulatory learning process rather than a terminal activity.

Table 1 illustrates the Phases, Pedagogical Focus, and Supervisory Alignment of the CREATE Model.

Table 1. Phases, Pedagogical Focus, and Supervisory Alignment of the CREATE Model

Phase	Core Pedagogical Focus	Dominant Teacher Role	Supervisory Emphasis
Connect	Activating prior knowledge and contextual relevance	Facilitator	Policy alignment
Research	Guided exploration and information gathering	Scaffold provider	Professional development
Engage	Collaborative discourse and meaning-making	Discussion facilitator	Observation and feedback
Analyze	Interpretation, synthesis, and reasoning	Cognitive coach	Professional collaboration

Test	Application, experimentation, and problem-solving	Inquiry mentor	Resource mobilization
Evaluate	Reflection, assessment, and metacognition	Reflective guide	Culture of reflection

School Principals’ Instructional Supervision and the CREATE Model

A salient result of the study is the identification of instructional supervision as a decisive factor in sustaining inquiry-based teaching. The CREATE Model explicitly embeds principals’ supervisory roles as parallel enablers across all inquiry phases, transforming supervision from a compliance-driven function into a developmental process. Findings revealed that when principals aligned policies, provided targeted professional development, and offered formative feedback, teachers demonstrated greater confidence and consistency in implementing inquiry practices.

Within CREATE, instructional supervision operates through six interconnected functions: policy alignment, professional development, observation and feedback, collaboration, resource mobilization, and cultivation of a reflective culture. These supervisory mechanisms ensure coherence between curriculum mandates and classroom practices, thereby reducing the fragmentation often associated with pedagogical reforms. By positioning principals as instructional leaders rather than administrative overseers, CREATE strengthens both implementation fidelity and teacher professional growth

CONCLUSIONS

The conclusions of the study are the following:

- The study strongly supports adopting and strengthening inquiry-based teaching in Science and Mathematics in MBHTE-BARMM.
- Teachers’ high motivation and positive attitudes provide a strong foundation, but implementation remains mostly teacher-guided with limited student-led inquiry.
- Partial implementation is driven more by structural constraints than by teacher resistance, including limited resources, time constraints, rigid curriculum, and learner readiness issues.
- Instructional supervision plays a critical role in improving inquiry-based teaching.
- School principals can act as change agents by providing mentoring and coaching, promoting open communication, and designing inquiry-supportive learning environments
- Developmental supervision is more effective than compliance-based monitoring in fostering: reflective teaching practice, collaboration among teachers, and willingness to innovate despite resource limitations
- Students’ positive responses confirm the value of inquiry-based teaching for curiosity, communication, and meaningful learning.
- Student challenges highlight the need for stronger system-level support and gradual development of learner autonomy.
- The CREATE Model addresses these needs by integrating constructivist and experiential learning theories, providing practical classroom strategies, incorporating clinical supervision mechanisms, and emphasizing scaffolding and reflection
- The model aligns with national and international policies, including RA 10533, Philippine Professional Standards for Teachers, Bangsamoro Education Code, and UNESCO Sustainable Development Goal 4.
- Overall, the model offers a context-sensitive pathway to improve quality, equity, and relevance of Science and Mathematics education in BARMM.

RECOMMENDATIONS

Drawing from the findings and conclusions, the following recommendations are to be made:

- Teachers are encouraged to adopt the CREATE Model as a structured yet flexible guide for deepening inquiry-based instruction. Emphasis should be placed on gradually shifting from teacher-led questioning to student-driven investigation, particularly by strengthening the Research, Analyze, and Test phases of the model. Participation in professional learning communities is recommended to support collaborative lesson planning, shared reflection, and collective analysis of student work. Teachers are also encouraged to integrate reflective practice systematically, using insights from the Evaluate phase to refine instructional strategies and respond to learners' evolving needs.
- School principals are urged to assume active roles as instructional leaders and change agents by aligning supervision practices with inquiry-based pedagogy. This includes moving beyond routine classroom monitoring toward coaching-oriented supervision, mentoring, and feedback focused on inquiry processes. Principals should facilitate professional learning communities, support teacher capacity building, and strategically mobilize available resources, including partnerships and low-cost innovations, to support inquiry activities. Integrating digital tools for collaboration, assessment, and virtual simulations can further mitigate resource limitations and expand opportunities for inquiry.
- Education stakeholders and policymakers are encouraged to institutionalize inquiry-based teaching as a core pedagogical approach in Science and Mathematics by embedding it in professional development programs, curriculum guides, and supervisory frameworks. Investments in laboratory facilities, digital resources, and low-cost instructional materials should be prioritized, alongside flexible curriculum pacing that allows full inquiry cycles. Capacity-building programs for teachers and school leaders, particularly those leveraging digital platforms and culturally responsive practices, are essential to sustaining inquiry-based reforms in the BARMM context.
- For Future Research, more rigorous design such as quasi-experimental, mixed methods or longitudinal study, to test effectiveness of the CREATE Model may be used to assess learners' achievement on higher order thinking and 21st-century skills. Additionally, comparative research on CREATE and existing inquiry-based models may be appropriate to delineate the contributions of the model elements to inquiry pedagogy.
- Future studies may employ quasi-experimental, longitudinal, or mixed-methods designs to evaluate the effectiveness of the CREATE Model in enhancing higher-order thinking skills and 21st-century competencies. Comparative studies with other inquiry-based models may further clarify the unique contributions of scaffolding and reflection.
- Additional research is also recommended to examine leadership theories, such as transformational or distributive leadership, in relation to instructional supervision for inquiry-based teaching, particularly focusing on principals' professional development needs and their impact on teacher practice and student outcomes.

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SOSYO-KULTURAL NA PAGGALUGAD SA MGA INSTRUMENTONG RONDALLA AT COMPARSA

(SOCIO-CULTURAL EXPLORATION OF RONDALLA AND COMPARSA MUSICAL INSTRUMENTS)

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ABSTRACT

This qualitative research is a combination of historical musicology and phenomenology. It sought to examine the similarities and differences between *rondalla* and *comparsa*. The term *comparsa* emerged to describe semi-professional and more skilled *rondalla* musicians, according to de la Pena. In particular, it sought to identify the difference between *rondalla* and *comparsa*. It aimed to revisit and rekindle *comparsa* music, an almost lost vibrant cultural tradition in the rural communities of Visayas. It examined also the lived experiences of the remaining *comparsa* musicians. It assessed and assisted the potential for revitalizing *comparsa* music especially in the local context. Results revealed that there existed similarities and differences between *rondalla* and *comparsa* musical instruments in terms of materials they being made of, instrument composition and purposes. It found out also two categories of *comparsa* musicians: the active and the inactive. Causes of *comparsa's* waning: musicians died without replacement, destruction of musical instruments, no more *comparsa* music in chapel and religious celebrations, the introduction of digitalization of music and lack of government support. Participation of few *comparsa* players in community celebrations such as weddings, barangay programs, birthdays, and fiestas did not only serve as a source of financial support but also provided an avenue for artistic expression particularly. To preserve and transmit the tradition to future generations, and sustainability, including training and workshops, the local government of Bilar supported young musician talent as a crucial element in this preservation, demonstrated through policy support, and active participation in competitions, where the municipality garnered notable achievements. The Municipality of Bilar participated in the Province of Bohol Daygon and *Rondalla/Comparsa* Competition in 2022 and 2023, wherein they won second and first runner-up, respectively. Strong sustainable government policies and programs to re-invigorate and re-introduce the almost lost cultural heritage are imperative especially to today's young generations.

Keywords: *Comparsa, rondalla, paggalugad, kulturang musika, napapanatiling buhay*

PANIMULA

Iilan, kung hindi man lahat sa henerasyong Z ngayon, ang hindi na nakakaalam sa pagkakaroon ng mga maayos na grupong pangmusika sa Pilipinas noong unang bahagi ng 1900s hanggang sa huling bahagi ng ika-20 siglo, lalo na sa Visayas at ilang bahagi ng Mindanao. Ang pagkakaroon ng *comparsa* o *comparza* ay bunga ng talino ng mga Pilipino at isang pagbabago mula sa grupong pangmusika na *rondalla* na karaniwang matatagpuan sa mga akademya at unibersidad.

Ipinakita ng mga sulatin tungkol sa pagsisimula ng *Rondalla* sa Pilipinas na ipinakilala ito ng mga Kastila noong ika-16 na siglo habang ang iba ay nagpahayag na ito ay noong ika-18 siglo (1701-1800). Gayunpaman, sa kabila ng kanilang magkakaibang pag-aangkin, isang bagay ang malinaw; ipinakilala ito

ng mga Espanyol sa Pilipinas. Ang mga dayuhang sayaw, tulad ng jota, fandango, habanera, polka, pasodoble, lanciers, rigodon at pas-a-quatro ay ipinakilala rin ng mga Kastila na may kasamang musikal na saliw ng isang rondalla.

Ang rondalla, isang tradisyonal na grupo ng mga kuwerdas, ay may mahalagang lugar sa pamana ng kultura ng Pilipinas. Bagama't nagkakaiba ang mga iskolar tungkol sa eksaktong panahon ng pagpapakilala nito, may ilan na nagsasabing ito ay dinala ng mga Kastila noong ika-16 na siglo at ang iba naman ay nagsasabing ang pagdating nito ay naganap noong ika-18 siglo. Gayunpaman, mayroong pangkalahatang pinagkasunduan na ang tradisyon ay ipinakilala nga noong panahon ng kolonyal na Espanyol (CCP Encyclopedia of Philippine Art, 1994). Kasama ng rondalla, ipinakilala rin ng mga Kastila ang iba't ibang sayaw na Europeo tulad ng jota, fandango, habanera, polka, pasodoble, lanciers, rigodon, at pas-a-quatro, na kadalasang sinasabayan ng masiglang tunog ng mga instrumentong may kuwerdas. Sa simula, ang rondalla ng Espanya ay nagtampok ng iba't ibang hanay ng mga instrumento kabilang ang mga bandurya, biyolin, gitara, plawta, cello, bass, tamburin, castanet, at triangle (CCP Encyclopedia of Philippine Art, 1994). Sa paglipas ng panahon, inangkop ng mga Pilipino ang rondalla upang maiakma sa mga lokal na panlasa, mapagkukunan, at konteksto ng pagtatanghal, na sumasalamin sa inilalarawan ni Rivadu (2004) bilang isang pagpapakita ng katutubong talino, pagkamalikhain at kalinangan ng mamamayang Pilipino. Higit sa lahat ang isang Pilipino ay dapat makabayan.

Sa pag-aaral ni Palay (2017) kanyang isinulat na ang paggiging makabayan ay hindi lamang pagmamahal sa bayan kundi kasama ditto ang pagmamahal at pagsabuhay n gating kultura, tradisyon at kaugalian. Kaya akma lamang sa pag-aaral ng kulturang musikang comparsa na maibalik ang kasiglaan at pahalagahan sa kasalukuyan.

Ayon naman kay Rosela (2021) ang unting pagkalimot sa mga kaugaliang Pilipino (kasama na nito ang kultura) ay may malaking epekto lalo na sa ating magandang pagkakakilanlan at naapektohan din not ang mga pag-uugali na kabataang Pilipino.

Ayon naman kay Miano-ang (2020), maipakita ng isang mamayan ang kanyang pagiging makabansa sa ibat-ibang paraan kaya ng pagmamahal ng kanyang kultura, ituro at ipasa ito sa sunod na mga generasyon.

Ayon kay de la Peña (2013), ang rondalla ay sumisimbolo sa isang idyllic na aspeto ng buhay-bayan ng Pilipinas, katulad ng bahaykubo, pista ng baryo, at iba pang tradisyon sa kanayunan. Noong huling bahagi ng ika-19 at unang bahagi ng ika-20 siglo, ang mga rondalla ensemble ay mahalaga sa mga pagdiriwang sa lungsod at kanayunan, kabilang ang mga pista sa bayan, kasalan, at mga pagtitipon sa komunidad. Sa loob ng tradisyong ito, lumitaw ang terminong comparsa upang ilarawan ang mga semi-propesyonal at mas bihasang musikero ng rondalla na madalas na nagtatanghal sa mga pampublikong kaganapan at pribadong pagdiriwang. Gaya ng nabanggit, ang mga kaugnay na termino tulad ng murza/murga ay tumutukoy sa mga musikero sa kalye, habang ang estudiantina ay tumutukoy sa mga ensemble na nakabase sa mga estudyante. Sa Visayas, partikular, ang comparsa ang naging pangunahing termino para sa mga grupong nagbibigay ng buhay na musika tuwing may mga kaarawan, pista, at maging sa bahay-bahay na pag-awit ng mga awiting pamasko noong panahon ng Pasko simula pa noong kalagitnaan ng ika-20 siglo.

Sa kanyang pag-aaral, sinabi ni Canta (2025) na ang terminong rondalla ay inihalintulad din sa iba pang hindi gaanong popular na mga katawagan, tulad ng comparsa at estudiantina, bagamat nagdulot ito ng kaunting kalituhan kung ang mga ito ba ay parehong mga grupo ng musika na may magkaibang pangalan. Samakatuwid, ang pagsusuri sa terminolohiya na nakapalibot sa rondalla ay maaaring makatulong sa puntong ito. Ang dalawang terminong ito (rondalla at comparsa) ay tila magkaibang mga termino, kahit noong ika-19 na siglo, marahil ang isang pagsisiyasat kung paano naunawaan at ginamit ang rondalla sa Espanya ay maaaring magbunyag din ng iba pang PhD thesis ni Kim Rockell.

Ang comparsa ay isang grupo ng mga mang-aawit, mananayaw, at musikero na nakikilahok sa mga karnabal at kasiyahan, lalo na sa Espanya at Latin America. Ang termino ay mayroon ding mga ugat sa Italyano at Espanyol, kung saan maaari itong mangahulugang isang "theatrical extra," "appearance," o isang "masquerade". Gayunpaman, sa Pilipinas lalo na sa Visayas, ang comparsa ay isang binagong bersyon ng na may maraming pagkakatulad at pagkakaiba.

Mahalaga ang mga pagbabago sa orihinal na instrumentong Espanyol. Si Juan Silos, kinikilala bilang "Ama ng Pilipinong Rondalla," ay nagpakilala ng mga karagdagang instrumento tulad ng mandola o bandolina upang palakasin ang mas mababang rehistro ng laud at octavina, na nagresulta sa isang pangunahing grupo na karaniwang binubuo ng bandurria (pangunahing instrumento), laud, octavina, gitara, at bass guitar (Rivadu, 2004). Ang mga adaptasyong ito ay hindi lamang nagpahusay sa saklaw ng musika kundi ginawa rin nitong mas madaling ma-access ang rondalla ng mga komunidad ng Pilipino.

Sa kasalukuyang panahon, ang tradisyon ng comparsa ay patuloy na umuunlad, sa kabila ng mga hamon na may kaugnayan sa pangangalaga at paghahatid ng kultura. Mula noong 2016 pataas, isa sa mga mananaliksik ang nakibahagi sa pagkolekta at pagpapanumbalik ng mga vintage (ang ilan ay mula sa panahon bago ang Ikalawang Digmaang Pandaigdig), mga inabandona, at bahagyang nasira na mga instrumentong compara, na marami sa mga ito ay naayos na at naibalik sa maayos na kondisyon. Ang muling pagkabuhay na ito ay nagdulot ng panibagong interes sa mga nakababatang henerasyon, na humantong sa pagbuo ng mga lokal na grupo ng comparsa upang higit na maunawaan ang mga karanasan, motibasyon, isang at mga mithiin ng mga musikero na ito, ang mananaliksik, kasama ang dalawang kolaborador, ay nagsagawa ng malalimang panayam at mga talakayan sa focus group kasama ang mga manunugtog ng comparsa mula sa iba't ibang lokalidad. Nilalayan ng pag-aaral na ito na tuklasin ang positibong kaibuturan ng pagiging musikero ng comparsa, ang papel nito sa buhay kultural ng komunidad, at ang mga estratehiya para sa pagpapanatili at paghahatid ng pamana ng musika sa mga susunod na henerasyon.

MGA LAYUNIN

Ang pangunahing layunin ng pag-aaral na ito ay upang tuklasin ang musika ng comparsa muling bisitahin, buhayin ang sining at pamana ng mga musikero ng comparsa na isang dating sikat na grupo ng musika sa mga rural na komunidad ng Visayas at Mindanao. Ang pananaliksik na ito ay nagsilbing pagpapatuloy ng naunang gawain ng mananaliksik, ang **The Languidness and Deterioration of Comparsa Music** (2015), na nagbigay-diin sa agarang pangangailangan para sa mga inisyatibo sa muling pagkabuhay ng kultura. Sa partikular, hinangad ng pag-aaral na ito na:

1. Talakayin ang mga pagkakatulad at pagkakaiba sa pagitan ng mga instrumentong pangmusika ng rondalla at comparsa sa mga tuntunin ng mga materyales, komposisyon ng instrumento at mga layunin at kilalanin ang mga sanhi ng paghina at pagkasira ng mga manunugtog ng comparsa;
2. Tukuyin ang mga karanasan ng mga natitirang musikero ng comparsa, lalo na ang kanilang mga pagtatanghal at ang mga benepisyong natanggap nila bilang mga tagapagtanghal ng musika; at,
3. Suriin, buhayin at ipagpalaganap ang mahalagang kulturang musikang comparsa sa mga kontemporaryong konteksto lalong-lalo na sa mga batang generasyon ngayon.

METODOLOHIYA

Gumagamit ng kwalitatibong pananaliksik na ito ng historical musicology at phenomenology gamit ang mga pagsusuri sa mga instrumentong ginamit ng mga musikero ng rondalla at comparsa, isang balangkas na nakatuon sa pagtukoy ng mga pagkakatulad, pagkakaiba, at mga materyales na ginamit sa paggawa ng mga instrumentong pangmusika, kasama ang mga posibleng dahilan at layunin ng mga naturang kondisyon. Sinuri rin nito ang mga karanasan ng mga musikero ng comparsa, mga sanhi ng kanilang halos hindi nararamdamang presensya o pagkasira lalo na kung paano nila nakikita at naiisip ang kanilang kinabukasan, at bumuo ng mga estratehiya para sa pagpapanatili, at ginalugad ang mga paraan upang mapanatili ang mga inisyatibong ito sa paglipas ng panahon.

Lahat ng mga instrumentong may kuwerdas ng rondalla-bandurria, octavina, gitara at bajo de arco at ang mga instrumento ng comparsa-banjo bandurria, banjo laud, banjo tenor, gitara at bajo de uñas ay

sinuri at tinasa mismo ng mga mananaliksik upang malaman ang kanilang mga pagkakatulad at pagkakaiba, kabilang ang kanilang mga himig at manipulasyon.

Sa paghahambing ng mga karanasan ng mga musikero ng comparsa sa mga baying Loboc at Bilal Probinsya ng Bohol, walang musikero ng comparsa ang lumahok sa pag-aaral: lima sa mga aktibong grupo para sa semi-structured in-depth interviews at tatlo mula sa mga hindi aktibong grupo para sa isang focus group discussion. Karamihan sa kanila ay nasa kanilang senior years upang ibahagi ang kanilang pakikilahok sa comparsa lalo na noong kanilang kasagsagan (FGD) o Focus Group Discussion. Ang mga kalahok ay nilalayon na pinili batay sa kanilang makabuluhang karanasan sa tradisyon bilang mga musikero kapwa sa kasalukuyan at sa nakaraan. Ang laki ng sample ay naaayon sa mga rekomendasyon ng Interpretative Phenomenological Analysis (IPA), na inuuna ang lalim ng pananaw kaysa sa lawak (Smith & Osborn, 2008). Ang datos ay nakalap sa pamamagitan ng mga harapang sesyon sa mga oras at lugar na kumbinyente para sa mga kalahok, gamit ang isang napatunayang gabay sa panayam. Ang mga pag-uusap ay isinagawa pangunahin sa Visayan o Boholano upang hikayatin ang bukas at tunay na pagbabahagi. Ang bawat interaksyon ay naitala sa audio nang may pahintulot, na-transcribe sa pamamagitan ng matalinong verbatim translation, at inorganisa. Ang FGD ay ginawa rin sa isa sa mga dating miyembro o dating miyembro ng isang grupo ng comparsa noong kanilang kasagsagan. Sinubukan din ng mananaliksik na makipag-ugnayan sa lokal na yunit ng pamahalaan ng bayan at kalaunan ay nakahanap ng suporta sa pamamagitan ng lokal na ordinansa pati na rin ang pagsasanay sa mga batang musikero sa paghahambing para sa mga pagtatanghal at mga kalahok sa mga paligsahan.

Panghuli, pinahusay ang kredibilidad sa pamamagitan ng pagsusuri ng mga miyembro, na nagpapahintulot sa mga kalahok na suriin at kumpirmahin ang mga transcript. Mahigpit na sinunod ang mga etikal na protocol, kabilang ang may kaalamang pahintulot, pagiging kompidensiyal, at pagiging hindi nagpapakilala. Ang datos ay ligtas na nakaimbak sa isang aparatong protektado ng password na maa-access lamang ng mga mananaliksik.

MGA RESULTA AT TALAKAYAN

Inilalahad ng bahaging ito ang mga natuklasan ng pag-aaral sa paggalugad ng musikang comparsa, na naglalayong muling bisitahin at muling buhayin ang mga instrumentong pangmusika ng rondalla at comparsa. Sa partikular, natukoy ng mga resulta ang pagkakaiba sa pagitan ng musikang comparsa at rondalla at itinampok ang kanilang pagkakaiba sa mga tuntunin ng mga materyales at komposisyon ng instrumento at ang kanilang mga layunin.

I. Mga Pagkakatulad at Pagkakaiba sa Pagitan ng Musikang Comparza at Rondalla

Ipinakita ng Talahanayan 1 ang pangunahing pagkakaiba sa pagitan ng mga instrumentong comparza at rondalla sa mga tuntunin ng mga materyales ay nakasalalay sa paggamit ng tanso o metal para sa mga pambalat o tambol ng mga instrumentong comparza, kumpara sa mga katawang kahoy ng mga instrumentong rondalla, na kadalasang gawa sa nangka, palotsina, at mga katulad na materyales. Gaya ng banjo-bandurria (may 12 kuwerdas) ng comparza ay tumutugma sa bandurria na gawa sa kahoy ng rondalla (14 na kuwerdas), habang ang banjo-laud (5 kuwerdas) ay kahanay ng soctavina ng rondalla (14 na kuwerdas), parehong magkapareho ang tono ngunit mas mababa ng isang oktaba.

Tampok din sa comparsa ang kakaibang banjo-tenor, na gawa sa tambol na tanso at mas mahaba at mas payat na leeg, na may dalang apat na kuwerdas na nakatono tulad ng viola. Ang instrumentong ito ay walang direktang katumbas sa rondalla. Ayon sa kasaysayan, ang mga instrumentong comparsa ay gumagamit ng balat ng kambing o iba pang balat ng hayop bilang takip sa kanilang mga unang taon ng pag-iral; gayunpaman, ang mga takip na iyon ay madaling lumambot sa gabi o maulan na kondisyon, at lumilikha ang mga ito ng mapurol na tunog dahil sa kahalumigmigan lalo na sa gabi. Ibinalik ng mga musikero ang kalinisan sa pamamagitan ng pagpapainit ng mga takip sa apoy.

Sa kasalukuyan, ang mga X-ray film ang ginagamit sa halip, na nag-aalok ng mas matibay at lumalaban sa mga kondisyon ng panahon. Bukod pa rito, itinatampok ng paghahambing na ito kung gaano

katangi-tangi ang pagkakagawa ng mga instrumentong comparsa, lalo na sa mga inobasyon tulad ng banjo-tenor at adaptive na paggamit ng X-ray film para sa mga pagpapahusay ng tunog. Sa kabaligtaran, ang mga instrumentong rondalla ay sumusunod sa isang mas standardized na konstruksyon na nakatuon sa wooden resonance at tradisyonal na mga arrangement ng kuwerdas, nang walang paggamit ng mga takip o hybrid na uri ng instrumento tulad ng banjo-tenor.

Bukod dito, ang modernong Pilipinong rondalla ay karaniwang binubuo ng bandurria(s), octavina(s), gitara(s), at bajo de arco. Ang apat (4) na pangunahing instrumentong ito ay sapat na upang tumugtog at lumikha ng maayos at nagpapahayag na musika. Bagama't maaaring isama ang mga karagdagang instrumento tulad ng mga biyolin, violas, at cello upang pagyamanin ang tunog, hindi ito mahalaga para sa karaniwang pagtatanghal ng rondalla. Ang kombinasyon ng mga pangunahing instrumentong kuwerdas na ito ay nagbibigay sa rondalla ng natatanging mainit at matunog na tono nito.

Sa kabilang banda, ang comparsa ay nagtatampok ng ibang hanay ng mga pangunahing instrumento. Ang ensemble nito ay karaniwang binubuo ng banjo-bandurria, banjo-laud, banjo-tenor (na may mga katawan o "mga kahon" na gawa sa metal o tanso), gitara, at bajo de uñas. Katulad ng rondalla, maaaring idagdag ang mga opsyonal na instrumentong kuwerdas tulad ng mga biyolin o ukulele upang mapahusay ang kalidad ng musika. Gayunpaman, ang limang pangunahing instrumento ay may kakayahang lumikha ng masigla at mahusay na pinaghalong mga rendisyon. Ang paggamit ng mga instrumentong uri ng banjo na may mga metal o tansong katawan ay nagbibigay sa comparsa ng mas maliwanag at mas percussive na tono kumpara sa mahinahong tunog ng rondalla.

Bukod pa rito, ipinapalagay ng pananaliksik na ito na ang mga instrumentong comparsa ay sumasalamin sa katatagan at pagiging malikhain ng mga Pilipino sa pagdadala ng musika sa kanayunan lalo na sa pag-awit ng mga awiting pamasko tuwing panahon ng Pasko. Maraming salik ang nag-ambag sa pahayag na ito.

Una, ang mga instrumentong comparsa, na karaniwang gawa sa tanso o metal na pambalot, ay mas matibay kumpara sa mga kahoy na pambalot ng mga instrumentong rondalla. Ang tibay na ito ay nagbibigay-daan sa kanila na mas makatiis sa madalas na paggamit at iba't ibang kondisyon ng kapaligiran na karaniwan sa mga rural na lugar kasama ang madaling paggalaw.

Pangalawa, ang kanilang kadalihan sa pagdadala ay isang malaking bentahe. Halimbawa, ang bajo de uñas ay madaling madala mula sa isang bahay patungo sa isa pa, hindi tulad ng bajo de arco, na malaki, mabigat, at mahirap ilipat. Ang kadalihan ito sa paggalaw ay sumusuporta sa komunal na katangian ng mga pagtitipon ng musikang Pilipino, kung saan ang mga instrumento ay kadalasang pinagsasaluhan sa pagitan ng mga sambahayan.

Talahanayan 1. Paghahambing ng mga Materyales na Ginamit sa mga Instrumentong Comparsa at Rondalla

<i>Mga Instrumentong Comparsa</i>	<i>Mga Instrumentong Rondalla</i>
Banjo-bandurria- na may tambol na tanso/metal; 12 kuwerdas	Bandurria na may kahoy na katawan (hal., nagka, palotsina); 14 kuwerdas
Banjo-laud, na may brass/metaltrum; 5 kuwerdas	Octavina na may katawang kahoy; 12 na kuwerdas
Banjo Tenor na may tambol na tanso/metal na may payat at mas mahabang leeg; 4 na kuwerdas	<i>Walang direktang katumbas na rondalla (ang pinakamalapit ay viola)</i>
Bajo de Uñas - Mas Maliit at Madadala na may 4 na kuwerdas na metal	Bajo de Arco - mas malaki, malaki at mahirap dalhin; may 4 na kuwerdas na nylon
Gitara- may anim na kuwerdas metal	Gitara - may anim na kuwerdas metal
<i>*Dati ay balat ng kambing o iba pang hayop pantakip ng metaltrum; ngayon ay mga X-ray film kadalasan</i>	<i>Walang kilalang gamit ng lamad o pantakip sa balat; gumagamit ng disenyo ng soundboard na gawa sa kahoy</i>

Pangatlo, ang mga materyales na ginagamit para sa mga kuwerdas ng comparsa ay nakadaragdag sa kanilang praktikalidad. Lahat ng mga kuwerdas ay gawa sa metal, na madaling makuha mula sa mga lokal na pamilihan sa bayan. Sa kabaligtaran, ang ilang mga instrumentong rondalla, lalo na ang bajo de arco, ay nangangailangan ng mga espesyal na kuwerdas ng nylon na dapat bilhin mula sa mga tindahan ng musika o supermarket, na ginagawang mas mahirap ang pagpapanatili sa mga liblib na lugar.

Panghuli, ang pangkalahatang kadalian ng pagdadala ng mga instrumentong comparsa ay ginagawa silang lubos na angkop para sa mga komunidad sa kanayunan, kung saan ang mga grupo ng musika ay madalas na nagtatanghal sa iba't ibang lokasyon. Tinitiyak ng kadaliang dalhin na ito na ang musika ay makakarating kahit sa pinakamalayong mga barangay, na nagpapatibay sa halagang kultural ng mga instrumentong ito sa pagpapaunlad ng koneksyon sa lipunan at pagdiriwang.

Talahanayan 2. Mga Instrumentong Rondalla



Talahanayan 3. Paghahambing ng mga Instrumentong Comparsa Mula Kanan Patungong Kaliwa:



1. **Bajo de Uñas** (na may 4 na metal na kuwerdas) - maaaring dalhin mula sa isang lugar patungo sa isa *Pamilya Bilbao noong 1941*) - katumbas ng **Bajo de Arco** ng Rondalla mahirap dalhin dahil sa laki nito (ginawa (*Gawa ng* na may 4 na nylon na kuwerdas))
2. **Banjo Bandurria** (na may 12 kuwerdas, ginawa bago ang WWII, at *pagmamay-ari ng Lolo ng mananaliksik*) - katumbas ng **Bandurria** ng Rondalla (*may 14 na kuwerdas*)
3. **Banjo Tenor** (*nakatono bilang Viola*) (*ginawa bago ang WWII at pagmamay-ari ng mga kamag-anak ng mananaliksik*) - Walang katumbas sa Rondalla,
4. **Banjo Laud** (na may 5 kuwerdas) (Ginawa noong mga 1950 ng mga Rabuya) - Ang **Octavina** ay katumbas ng Rondalla (*may 12 kuwerdas*)
5. **Acoustic Guitar** (*may 6 kuwerdas na metal*) - parehong nasa Comparsa at Rondalla

Ang mga instrumentong rondalla at comparsa at ang mga katumbas nito ay parehong nakatono sa parehong mga nota mula sa mga unang kuwerdas hanggang sa mga huli. Ang Banjo bandurria at bandurria ay nakatono mula sa una hanggang ika-anim na kuwerdas gaya ng sumusunod: Sol, Re, La, Mi, Ti (Si) at Fa#. Ang banjo laud at octavina ay may parehong mga himig gaya ng bandurria at banjo bandurria ngunit mas mababa ng isang oktaba.

II. Mga Karanasan at Benepisyo bilang mga Musikero ng Comparsa

Mga Karanasan ng mga Aktibong Musikero ng Comparsa: Oras na Ginugol at Edad ng Pakikilahok

Isiniwalat ng mga natuklasan ang magkakaibang karanasan sa mga musikero ng comparsa sa mga tuntunin ng kanilang haba ng pakikilahok at edad nang sumali sila sa grupo.

Sinimulan ng ilang miyembro ang kanilang pagtutugtog sa comparsa sa medyo batang edad. Batay sa ibinahagi ng isang musikero, "Kasama ko ang grupo nang humigit-kumulang tatlong taon at ako ngayon ay 14 na taong gulang," na nagpapahiwatig na ang kalahok ay sumali sa edad na 11. Gayundin ang ipinahayag ng isa pang miyembro, "Apat na taon na, at ako ngayon ay 11," na nagpapakita ng mas maagang pagsisimula sa pakikilahok sa musika. Itinatampok ng mga salaysay na ito kung paano nagsisilbing daan ang musika ng comparsa para sa maagang pagkakatamad sa musika at pag-unlad ng mga kasanayan sa mga kabataan.

Samantala, sumali ang iba pang mga miyembro sa kanilang pagtanda at pinanatili ang kanilang pakikilahok sa loob ng ilang taon. Isang musikero ang nagmuni-muni, "Sinimulan namin ang musika ng comparsa noong 2019... Nagsimula akong sumali noong ako ay 21 taong gulang," na nagpapakita ng limang taong pangako sa grupo. Ang pagsasama ng mga nakababatang nasa hustong gulang ay nagmumungkahi na ang musikang comparsa ay umaakit din sa mga indibidwal na nasa kanilang mas hustong gulang na mga taon, na posibleng nag-aambag sa pagpapatuloy ng kultura.

Kapansin-pansin, kasama rin sa comparsa ang mga beteranong musikero na naging bahagi ng tradisyon sa loob ng mga dekada. Buong pagmamalaking ibinahagi ng isang senior member, "Matagal na akong kasama ng comparsa at ako ay 64 taong gulang na ngayon," habang ang isa pa, na may edad na 60, ay nagpatibay, "Sa edad na 60, aktibo pa rin ako sa grupo ngayon." Ang kanilang patuloy na pakikilahok ay hindi lamang nagpapakita ng pangmatagalang personal na halaga ng pagtatanghal ng musika kundi sumasalamin din sa papel ng mga nakatatandang musikero bilang mga tagapagdala ng kultura at tagapayo para sa mga nakababatang henerasyon.

Ipinakita ng mga natuklasang ito na ang musikang comparsa ay isang intergenerational na kasanayan, na kinakasangkutan ang mga miyembro na kasingbata ng 7-11 taong gulang at nagpapanatili ng pakikilahok hanggang sa mga senior year. Ang pagkakaiba-iba ng edad na ito ay nagtataguyod ng isang dynamic na palitan ng mga kasanayan, kwento, at tradisyon, na tinitiyak ang sigla at pagpapatuloy ng comparsa sa komunidad.

2. FGD sa mga Senior Musician na dating miyembro ng Comparsa (Mga Hindi na Aktibo sa Grupo)

Sa kanilang kasagsagan noong dekada 1950 hanggang huling bahagi ng dekada 1980, lahat sila ay nagkakaisa sa lahat ng barangay sa lokalidad ay may mga comparsa group at in demand tuwing mga pista, pagtitipon at selebrasyong pangrelihiyon, mga programa sa barangay, kasalan man at iba pang selebrasyon, maging ang mga sayaw kung saan sila ang mga accompanist. Gayunpaman, inamin nila ang kanilang unti-unting paghina at pagkasira.

“Ang ilan sa aming mga miyembro ay namatay na at walang pumalit sa kanila,” sabi ng isa. “Ang aming kaugnayan at kahalagahan ay nawala simula nang dumating ang ‘sing along’ o karaoke o ang digitalization ng musika,” pagbabahagi ng isa pa. “Hindi na kailangan ang aming mga serbisyo sa mga kapilya at mga selebrasyong pangrelihiyon kabilang ang mga musikal na rendition at pagtatanghal,” sabi ng ikatlong dating miyembro.

Nang tanungin tungkol sa suporta ng gobyerno, lahat sila ay sumagot na sila ay nakalimutan at halos isinantabi pa ng gobyerno. “Sana ay makatulong ang gobyerno sa pagpapanumbalik ng comparsa music lalo na sa mga nakababata upang makita ang kagandahan at kadakilaan nito.”

3. Mga Benepisyo ng mga Aktibong Musikero ng Comparsa sa Kanilang mga Pagtatanghal

Binigyang-diin ng pag-aaral na ang paglahok ng mga musikero ng comparsa ay hinihimok ng parehong pamana ng kultura at praktikal na mga pangangailangan. Isang kalahok ang nagbahagi, "Ang aking mga magulang ay mga musikero ng comparsa, kaya sinundan ko lang ang kanilang mga yapak," na nagpapakita na para sa ilan, ang pakikilahok ay isang pagpapatuloy ng tradisyon ng pamilya at pagkakakilanlang kultural.

Gayunpaman, karamihan sa mga tugon ay ay laong mapaingting ang motibasyon sa pananalapi upang kumita. Ilang musikero ang nagpahayag na ang pagiging bahagi ng comparsa ay nakatulong sa kanila na matugunan ang mga personal at pangangailangan ng pamilya. Ipinaliwanag ng isa na ito ay nagbibigay ng kanilang baon sa paaralan, habang ang isa naman ay nagbigay-diin na ito ay nagsisilbing pinagkukunan ng kita para sa pang-araw-araw na pangangailangan at pambili ng bigas. Gayundin, ibinahagi ng iba na nakakatulong ito sa pagsupurta sa pamilya. Itinampok ng mga tugon na ito ang comparsa hindi lamang bilang isang pagpapahayag ng kultura kundi pati na rin bilang isang mahalagang pagkakataon sa kabuhayan para sa mga miyembro nito.

Mula rito, ipinakita ng pag-aaral na ang comparsa ay nakikinabang sa mga musikero nito sa pamamagitan ng pagpapanatili ng mga tradisyon ng pamilya, pag-aalok ng pinagkukunan ng kita, at pagtulong na mapanatili ang edukasyon at mga pangunahing pangangailangan ng mga miyembro nito.

Bukod pa rito, ang mga salaysay ng mga kalahok ay nagsiwalat ng dalawang pangunahing kategorya: una ay ang kanilang mga nakaraang karanasan at benepisyo bilang mga musikero ng comparsa, at pangalawa, ang mga posibleng aksyon at interbensyon upang muling buhayin at pasiglahin ang halos nawawalang pamana ng musika-kultura.

III. Mga Inisyatibo ng mga Lokal na Pamahalaan ng Bilar at Batuan sa Pagpapanatili at Pagtataguyod ng Musikang Comparsa

Ang Lokal na Yunit ng Pamahalaan (LGU) ng Bilar ay gumanap ng mahalagang papel sa pagpapanatili ng tradisyon ng musikang comparsa sa pamamagitan ng pag-institusyonal ng mga hakbang na nagsisiguro sa pangangalaga at pagtataguyod nito. Sa pamamagitan ng Municipal Ordinance No. 129, serye ng 2024, Seksyon 7.2, talata C, hayagang ipinag-utos ng LGU ang pag-oorganisa ng isang lokal na rondalla (comparsa) sa pakikipagtulungan ng pribadong sektor, kasama ang pag-iiskedyul ng mga

pagtatanghal sa iba't ibang bayan at lungsod sa loob at labas ng rehiyon. Ang patakarang ito ay nagpakita ng isang sinadyang pangako hindi lamang upang buhayin at pangalagaan ang pamana ng kultura ng musikang comparsa kundi pati na rin upang mapadali ang paghahatid nito sa iba't ibang henerasyon. Bukod pa rito, ang aktibong pakikilahok ng LGU sa Daygon ng Lalawigan ng Bohol at Kompetisyon ng Comparsa/Rondalla, na nakakuha ng Pangalawang Runner-Up noong 2022 at Unang Runner-Up noong 2023, ay sumasalamin sa dedikasyon nito sa pagpapakita ng lokal na talento at pagpapataas ng presensya ng kultura ng munisipalidad sa antas ng probinsya. Ang mga pagsisikap na ito ay nagbigay-diin sa papel ng LGU bilang tagapag-alaga at tagapagtaguyod ng pamana ng musika ng Bilar, na tinitiyak na ang musikang comparsa ay nananatiling isang masigla at pangmatagalang bahagi ng pagkakakilanlang kultural ng bayan. Isang MOA ang malapit nang lagdaan sa pagitan ng extension office ng BISU Bilar School of Advance Studies (SADS) upang sanayin ang mga manlalaro ng comparsa sa mga piling barangay at mga mag-aaral sa rondalla hanggang elementarya sa isang pribadong paaralan sa munisipalidad.

KONKLUSYON

Binalikan at muling pinagalaw ng pag-aaral na ito ang pamana ng musikang compara, isang masiglang tradisyong kultural sa mga rural na komunidad ng Visayas at Mindanao, sa pamamagitan ng pagsusuri sa mga karanasan ng mga musikero nito at ang mga salik na nagpapanatili sa pagsasagawa nito. Ipinakita ng mga natuklasan ang mga pagkakaiba sa pagitan ng musikang comparsa at rondalla sa mga tuntunin ng mga materyales at komposisyon ng instrumento bagama't medyo magkapareho ang mga tungkulin at operasyon. Sa pamamagitan ng mga naratibo, ang mga musikero ng comparsa ay ikinategorya sa mga aktibo at hindi aktibo. Bukod pa rito, ipinahiwatig din nito na ang pakikilahok sa comparsa ay hindi lamang nagsilbing mapagkukunan ng suportang pinansyal kundi nagbigay din ng daan para sa artistikong pagpapahayag, lalo na sa pamamagitan ng mga pagtatanghal sa mga pagdiriwang ng komunidad tulad ng mga kasalan, programa sa barangay, kaarawan, at mga pista. Sa pagpapanatili at pagpapasa ng tradisyon sa mga susunod na henerasyon, at sa kanilang mga iminungkahing hakbang para matiyak ang pagpapanatili, kabilang ang pagsasanay at mga worksyap, sinupurtahan ng lokal na pamahalaan ng Bilar ang talento ng mga batang musikero na pinairal bilang isang mahalagang elemento sa pangangalagang ito, na ipinakita sa pamamagitan ng suporta sa patakaran, mga inisyatibo sa pakikipagtulungan sa pribadong sektor, at aktibong pakikilahok sa mga kompetisyon sa rehiyon, kung saan ang munisipalidad ay nagkamit ng mga kapansin-pansing tagumpay. Higit sa lahat, ang matibay na mga patakaran at programa ng pamahalaan para sa napapanatiling pagpapanatili upang muling ipakilala at muling pasiglahin ang halos natabunang kultural na pamana ay mahalaga lalo na sa mga bagong henerasyon ngayon.

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EVIDENCE-BASED POLICY RECOMMENDATIONS FOR ADMINISTRATIVE OFFICE MANAGEMENT IN PRIVATE HIGHER EDUCATION INSTITUTIONS IN MARAWI CITY

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ABSTRACT

Administrative office management is central to the effective operation of higher education institutions, as it supports coordination, communication, record-keeping, and compliance with institutional policies. However, private higher education institutions (HEIs) in resource-limited and post-conflict contexts, such as Marawi City, continue to encounter administrative challenges that affect office efficiency. This study examined how administrative officers in private HEIs in Marawi City perceive their roles and responsibilities, identified the existing policies and practices that guide administrative office work, and explored the challenges they experience in performing their work. Using a qualitative case study design, the study employed semi-structured one-on-one interviews and a focus group discussion. Six administrative officers from six private HEIs in Marawi City participated in the study. Data were collected using validated interview guide questions and a follow-up focus group discussion. These instruments were reviewed by a school administrator and pilot-tested with non-participant administrative staff. The findings identified six themes related to administrative roles and responsibilities and eight themes describing existing policies and practices guiding office operations. Challenges emerged across workload and communication, record-keeping and resource management, financial and technological support, and work environment and policy compliance. Based on these findings, the study proposed evidence-based policy recommendations with a detailed implementation phase to enhance administrative efficiency and institutional support. Overall, the findings indicate that administrative inefficiencies stem from structural resource constraints and inconsistent policy implementation. Strengthening administrative office management requires targeted staffing support, digitalization, capacity-building, and inclusive governance to enhance operational efficiency, compliance, and institutional resilience in private HEIs.

Keywords: *Administrative Office Management (AOM), Challenges, Higher Education Institutions (HEIs), Evidence-Based Policy*

INTRODUCTION

Administrative office management is vital to the overall effectiveness of educational institutions because it ensures smooth coordination among students, faculty, and administrators through organized communication, scheduling, record-keeping, and policy compliance. However, many schools especially private HEIs in resource-limited and post conflict settings struggle with issues such as heavy workloads, inadequate resources, and weak communication systems. These persistent challenges highlight the crucial yet often overlooked role of administrative officers in maintaining institutional stability and sustainability. Existing studies highlight several recurring themes in administrative challenges. Workload pressures (Bucoya & Torrentira, 2024; Esmene & Quezon, 2024). Communication and coordination barriers

(Francisco, 2020; Maca, 2023). Resource and infrastructure limitations (Parveen et al., 2021; Bozkus, 2022). Workplace conditions and stress factors (Almerez & Duping, 2022; Bangalan, 2025). Despite this body of research, most studies have focused either on public schools or on broad HEI contexts, leaving private HEIs, particularly those in Marawi City, largely unexplored. No known study has examined the administrative challenges of non-teaching personnel in private HEIs in Marawi City, despite the region's distinct post-conflict and resource-constrained setting. This gap is critical, as institutions in Marawi face unique operational difficulties, including post-conflict recovery limitations, infrastructure deficits, and cultural and socio-political complexities. This study therefore sought to explore the key challenges encountered by administrative officers in private HEIs in Marawi City.

STATEMENT OF THE PROBLEM

This study sought to answer the following questions: (1) How do administrative officers perceive their roles and responsibilities in private HEIs in Marawi City? (2) What existing policies and practices guide administrative office work in these institutions? (3) What challenges, if any, do they experience in performing their work, particularly in relation to workload and communication, record-keeping and resource management, financial and technological support, and work environment and compliance with institutional policies? (4) What policy recommendations can be proposed to strengthen administrative office management in private HEIs in Marawi City?

METHODOLOGY

The research methodology section outlined a qualitative approach that explored the perceived roles and responsibilities, existing policies and practices that guide administrative officers, and challenges encountered. This approach aimed to capture diverse perspectives, which was achieved through semi-structured interviews and a focus group discussion with six (6) administrative officers from six (6) private higher education institutions (HEIs) in Marawi City. Participants were selected through purposive sampling to prioritize depth over breadth and to ensure that those included could provide context-specific insights aligned with the study's objectives. Braun and Clarke's (2006) thematic analysis was utilized to identify recurring patterns and themes from the qualitative data. Ethical considerations including obtaining informed consent and ensuring confidentiality were strictly observed throughout the process. Overall, the methodology provided a systematic and coherent plan for collecting and analyzing data, enabling a comprehensive examination of the key challenges encountered in administrative office management.

FINDINGS

1. Administrative Officers' Roles and Responsibilities

This presents a qualitative analysis of administrative officers' roles and responsibilities in private higher education institutions (HEIs) in Marawi City, using inductive and deductive thematic analysis guided by Braun and Clarke (2006). Six major themes emerged, highlighting administrative officers as the backbone of institutional operations through records management, compliance, student services, and governance support. Consistent with literature, particularly AACRAO (2020), Schreier (2006), and Bangalan (2025), the findings show that administrative work is both technical and relational, involving accuracy, service orientation, emotional labor, and regulatory compliance (Liu et al., 2023). While roles vary by position from registrar staff handling student-facing tasks to executive secretaries supporting governance, all functions collectively sustain academic delivery, institutional memory, and operational stability.

The analysis further reveals that administrative work is characterized by overlapping responsibilities and collaborative task management, especially during peak periods. Participants described managing role overlap through informal coordination, teamwork, and formal mechanisms such as meetings, procedural hierarchies, and approval chains, reflecting organizational theories on task interdependence and coordination (Mintzberg, 1979; Bolman & Deal, 2017). Administrative tasks also function as strategic institutional support, providing data for decision-making, planning, compliance, and student retention, aligning with decision-support and student integration frameworks (Bolman & Deal, 2017; Johnson et al., 2022). The convergence of inductive findings with deductive constructs underscores the registrar's role as custodian of academic data and compliance infrastructure, reinforced by statutory requirements such as RA 9470.

Finally, the findings highlight a dynamic balance between role clarity and contextual role expansion, varied onboarding practices, and informal yet functional policy guidance. While many participants reported clear role definitions through manuals and orientations supporting literature on role clarity and performance (Tubre & Collins, 2000) resource constraints and evolving demands often lead to role creep and informal practices (Min, 2015). Onboarding and policy guidance ranged from formal to experiential, reflecting sensemaking and tacit knowledge transmission in HEIs (Louis, 2010; Whitchurch, 2019). Collectively, these patterns suggest the need for standardized yet flexible role manuals, onboarding systems, and policy documentation to sustain administrative effectiveness while preserving adaptive capacity (Braun & Clarke, 2006; Rizzo, House, & Lirtzman, 1970).

Table 1 presents the Participants Narratives and Themes extracted for Administrative Officers' Roles and Responsibilities

Participants Narratives	Theme
Records handling, enrollment, grade evaluation, student assistance, Heart of the school, Class scheduling,	Backbone of Institutional Operations
Collaborative problem-solving through meetings, Informal assistance/favors among colleagues, Clear procedural hierarchy to resolve overlaps	Collaborative Management of Overlapping Responsibilities
Reporting, audits, data provision, Facilitating smooth operations and communication Supporting strategic frameworks	Administrative Tasks as Strategic Institutional Support
Existence of institutional manual, Additional duties arising from needs, Multiple roles/multitasking, reminders	Role Clarity with Contextual Role Expansion
Role clarity dependent on interpersonal support Peer learning, self-initiation, Learning through experience, Peer-led orientation	Varied Onboarding and Orientation Processes
Oral policies, Informal policy communication, Reliance on supervisors/colleagues for policy guidance	Informal Yet Functional Policy Guidance

2. Existing Policies and Practices Guiding Administrative Office Work

This section examines how existing policies and practices guide administrative office work in private higher education institutions, using inductive and deductive thematic analysis grounded in Bureaucratic Management Theory, Contingency Theory, and the Resource-Based View. Eight interrelated themes show that administrative operations are strongly policy-driven, guided by presidential directives, institutional handbooks, and CHED/CMO regulations. These policies structure daily work, define timelines, regulate behavior, and ensure compliance, accountability, and operational efficiency (Hoy & Miskel, 2013; Anderson, 2011). While policies promote consistency and clarity, participants also revealed a compliance-

oriented governance culture where centralized authority and strict timelines sometimes increase workload pressure and limit administrative discretion, particularly in small private HEIs with constrained resources. Findings further reveal a hybrid policy environment characterized by the coexistence of written policies and informal, verbal practices. Written policies support standardization and legitimacy, while informal practices provide flexibility and allow offices to adapt to situational demands (Fullan, 2007; Mintzberg, 2011; Puranam, 2018). However, reliance on informal guidance creates risks of inconsistency, role ambiguity, and dependence on individual actors (Borry, Rangel, & Ugrin, 2018; Kaufman, 2015). Although policies are widely perceived as effective and relevant, this perception is often based on longevity, regulatory compliance, or familiarity rather than systematic evaluation, raising concerns about policy drift and stagnation (Denhardt et al., 2019; Hoy & Miskel, 2013). Communication of policies follows predominantly top-down channels through meetings, memos, and announcements, blending formal and informal methods but limiting inclusivity and precision (Bush, 2011; Robbins & Judge, 2019).

The study also highlights uneven staff involvement in policy-making, irregular review mechanisms, and mixed approaches to compliance monitoring. Most administrative officers function as policy implementers rather than contributors, despite their outputs informing decision-making, which may weaken ownership and morale (Friedman & Miles, 2006; Chou, 2017). Policy reviews occur periodically or reactively, lacking consistent structure, while compliance monitoring combines formal evaluations and informal reminders, sometimes emphasizing obedience over reflective accountability (Dessler, 2020; Hoy & Miskel, 2013). Collectively, the findings depict a policy-driven yet adaptive administrative system where formal rules, informal practices, and hierarchical governance interact. While this hybrid system sustains daily operations and compliance, gaps in participation, documentation, communication, and systematic review justify the need for more inclusive, standardized, and continuously evaluated policy frameworks to strengthen administrative effectiveness and institutional governance (Fullan, 2007; Atanaw, Estifanos, & Negash, 2024).

Table 2 presents the Participants Narratives and Themes extracted for Existing Policies and Practices Guiding Administrative Office Work

Participants Narratives	Theme
Reliance on school president’s directives; adherence to CHED/CMO; handbook-based procedures; time-bound task completion	Policy-Guided Administrative Operations
Existence of written memos and manuals; verbal instructions; undocumented routines; situational guidance	Written and Informal Policy Practices
Clear role boundaries; workflow control; discipline enforcement; shared expectations	Policies Promote Consistent Office Performance
Long-standing policies; CHED-driven updates; situational adjustments; belief that no policy is outdated	Policies Remain Functional and Relevant
Monthly meetings; memos; verbal announcements; selective information sharing	Formal and Informal Policy Communication
Limited consultation; staff as implementers; founder or senior staff dominance; post-decision notification	Inconsistent Staff Policy Involvement
Annual or monthly review; reactive revisions; uncertainty about schedules; external-triggered updates	Periodic and Situational Policy Review
Reminders during meetings; departmental monitoring; executive oversight; performance evaluation	Structured and Informal Compliance Monitoring

3. Challenges in Performing Administrative Work

This section examines the multifaceted challenges encountered by administrative officers in private HEIs in Marawi City, particularly in relation to workload, communication, record-keeping, resources, financial and technological support, and work environment and policy compliance. Cross-thematic analysis

reveals that these challenges are interconnected: heavy and multi-role workloads intensify communication breakdowns, while limited resources and infrastructure compound inefficiencies in record management and policy compliance. These patterns underscore how central administrative roles are burdened by high responsibility, cyclical peak demands, and structural constraints, consistent with role centrality and role overload theories (Bolman & Deal, 2017; Karasek, 1979; Rizzo, House, & Lirtzman, 1970).

Findings on workload and communication show that administrative officers experience intensive, cyclical, and multi-role responsibilities, especially during enrollment, graduation, and semester-end periods. Although formal communication channels exist and generally function well, delays, misunderstandings, and technical disruptions remain common due to human error, unclear instructions, and weak infrastructure (Mintzberg, 1979 & Robbins & Judge, 2019). While experience and coping strategies help some officers manage stress, limited staffing and persistent overload heighten the risk of burnout and inefficiency (Maslach & Leiter, 2016; Woelert, 2023).

In terms of record-keeping, resource management, and financial and technological support, the study highlights persistent inefficiencies arising from manual and hybrid systems, data inconsistencies, limited storage, and staffing shortages. Manual processes are time-consuming, error-prone, and vulnerable to loss during crises, while partial digitization and inadequate infrastructure reduce the effectiveness of technological adoption (McLeod & Schell, 2017; Yidana, 2022; Chou, 2003). Although financial and technological support is generally adequate and administrative leadership is perceived as responsive (Eisenberger et al., 2002), gaps in systematized applications, internet reliability, and formal ICT training constrain workflow continuity and productivity (Al-Omari et al., 2017; Laudon & Laudon, 2019).

Regarding work environment and policy compliance, participants described a generally supportive and collaborative climate that nonetheless is challenged by noise, limited space, interruptions, and ergonomic constraints, all of which negatively affect concentration and task accuracy (Vischer, 2007; Dul & Ceylan, 2011). Institutional policies are largely clear, but inconsistent implementation and compliance difficulties arise due to flexibility in special cases, coordination gaps, and rushed regulatory requirements (Mintzberg, 1979; Kaufman, 2015; Hoy & Miskel, 2013). Overall, the findings suggest that improving administrative performance requires integrated strategies encompassing workload management, digital transformation, infrastructure enhancement, systematic training, and consistent policy enforcement, aligning with organizational, contingency, and capacity-building theories.

Table 3 presents the Participants Narratives and Themes extracted for Challenges in Performing Administrative Work

Challenge Domain	Participants Narratives	Theme
Workload and Communication	Multiple task handling; role extension beyond job description; multitasking during peak periods; handling students, faculty, and reports simultaneously	Intensive and Multi-Role Administrative Workload
	Fatigue during enrollment/graduation; pressure from deadlines; backlog of documents; emotional exhaustion	Overwhelmed Due to Heavy Workload
	Missed instructions; unclear task ownership; information gaps between offices; inconsistent directives	Persistent Communication Breakdowns
	Late memos; verbal instructions forgotten; misinterpretation of announcements; reactive clarification	Delayed and Misunderstood Communication
Record-Keeping and	Handwritten logs; physical filing; repetitive encoding; slow retrieval of documents	Manual Records Limit Efficiency

Resource Management	Missing files; inconsistent data; duplication of records; human encoding errors	Challenges Compromise Record Accuracy
	Basic supplies available; shared equipment; limited storage; rationed materials	Sufficient Yet Limited Resources
	Equipment sharing delays; insufficient filing cabinets; lack of office space	Resource Limitations Restrains Efficiency
Financial and Technological Support	Administrative support present; partial digitization; gradual system changes	Adequate Support with Adaptation Needed
	Outdated computers; unstable internet; lack of integrated systems	Technology and Infrastructure Limitations
	Self-learning; peer assistance; lack of structured IT training	Limited Formal Technology Training
	System downtime; manual fallback processes; interrupted transactions	Technological Gaps Disrupt Workflow Continuity
	Calls for automation; database systems; digital archiving	Need for Technological Enhancement
	Management assistance when available; delayed funding approval	Responsive Administrative Support with Limitations
Work Environment and Policy Compliance	Cooperative colleagues; service-oriented culture; high pressure	Positive Yet Challenging Work Environment
	Stressful peak seasons; overcrowded offices; limited rest	Adverse Workplace Conditions
	Uneven enforcement; office-based interpretation; situational compliance	Inconsistencies in Policy Implementation
	Changing instructions; unclear guidelines; compliance pressure	Difficulties in Policy Compliance

4. Policy Recommendations

Based on the challenges identified in administrative office work, a set of 15 policy recommendations has been formulated to enhance operational efficiency, staff productivity, and compliance with institutional regulations. These recommendations address four major areas: workload and communication, record-keeping and resource management, financial and technological support, and work environment and compliance with institutional policies.

The proposed actions emphasize practical and attainable strategies. To improve workload management and communication, policies such as standardizing submission schedules for teachers’ grades, strengthening interdepartmental communication channels, and establishing formal staff consultation mechanisms are proposed. In the area of record-keeping and resource management, recommendations include implementing a centralized record management system, increasing office space and storage capacity, optimizing office layout, and ensuring clear documentation of all policies to reduce errors and enhance accessibility. Regarding financial and technological support, upgrading and maintaining office technology, conducting regular capacity-building training on technology, and allocating a dedicated budget for office supplies and equipment are emphasized to ensure continuity of operations and staff competency. Finally, to ensure compliance with institutional policies, it is recommended to implement regular policy reviews, develop emergency response procedures, introduce workload monitoring protocols, and integrate performance evaluation linked to policy adherence. Collectively, these policy recommendations are feasible within existing institutional structures and resources, while effectively promoting efficiency, accountability, staff well-being, and compliance with institutional and regulatory requirements.

Moreover, these also outline a five-phase policy implementation framework designed to systematically operationalize the proposed recommendations, from preparation and capacity-building to rollout, monitoring, and long-term institutionalization. The framework assigns clear objectives,

responsibilities, timelines, and performance indicators to each phase, ensuring coordinated execution and accountability among key offices. By integrating training, system setup, compliance monitoring, performance evaluation, and continuous policy review, the phased approach supports sustainable implementation while allowing for assessment and refinement. Overall, the table demonstrates a structured, realistic, and sustainable pathway for embedding administrative reforms into routine institutional practice.

Table 4 presents the Policy Recommendations

Policy Recommendation	Participant Quote	Thematic Pattern	Specific Implementation
1. Introduce workload monitoring and task redistribution protocols.	“Work frequently piles up because of insufficient staffing, leading to backlog.” “When a colleague is absent, I have to cover their tasks as well, which makes the day hectic.” “Tasks that could be completed promptly often end up being delayed.”	Workload Management; Staff Efficiency; Operational Effectiveness (Fayol, 1949; Robbins & Coulter, 2021)	Establish a monthly workload monitoring system in each administrative office using a simple task log (Excel or IMS module) to identify task overload and redistribute duties during peak periods or staff absences.
2. Strengthen interdepartmental communication channels.	“Sometimes announcements differ because we need to adjust the original plan to accommodate students who enrolled late.” “So, of course, when it comes to following or not following these policies, it often leads to miscommunication and misunderstandings among everyone.” “Most of the time, policies are discussed yearly, usually before the start of the semester... if we want to add a new one, it’s presented to the executive committee.”	Workload & Communication; Policy Compliance; Coordination (Fayol, 1949; Robbins & Coulter, 2021)	Institutionalize scheduled interdepartmental coordination meetings once per semester and require all policy-related announcements to be disseminated through official memos and a shared digital platform.
3. Standardize submission schedules for teachers’ grades and student requirements.	“There are times when teachers do not submit their grading sheets or students’ grades at the same time... I keep searching for their grades and can’t find them.” “Sometimes, we cannot decide whether to open another section to accommodate students who failed a subject because teachers submit their grades late.” “Students are encouraged to visit the	Workload & Communication; Record-keeping Accuracy; Compliance with Institutional Policies (Fayol, 1949; Robbins & Coulter, 2021; CHED, 2025)	Adopt a standardized academic submission calendar approved by the Academic Council, with fixed deadlines for faculty grade submission and automated reminders sent two weeks and three days before deadlines.

	registrar to check their records. Faculty must submit grades and syllabi promptly, as these are CHED requirements.”		
4. Implement a centralized record management system integrating digital and physical records or the Institution Management System (IMS).	“Another big challenge for us was the Marawi Siege, when some of our documents were damaged... some of the students’ documents are stored there and can be accessed.” “limited filing systems and storage.” “Tasks that could be completed promptly often end up being delayed due to limited storage and resources.”	Record-keeping & Resource Management; Technology Support; Disaster Preparedness (Laudon & Laudon, 2020; CHED, 2025; Fayol, 1949)	Deploy the Institution Management System (IMS) designed only for BARMM HEIs, integrating digital student records with a backup physical filing system, including cloud and external hard-drive backups.
5. Allocate a dedicated budget for office supplies and technology upgrades.	“Yes, the financial support they provide goes beyond what is needed.” “Financial support they provide is sufficient for what we lack.” “Support was sufficient when employees requested a salary increase.”	Financial & Technological Support; Operational Efficiency (Robbins & Coulter, 2021; Laudon & Laudon, 2020)	Include a separate budget line item for administrative office supplies and ICT upgrades in the annual institutional budget, with a clear request-approval-procurement workflow.
6. Conduct regular capacity-building training on technology for administrative staff.	“I have been working for five years, but I have not received any training on technology. However, I have knowledge in using technological tools in the office because I studied IT.” “So far, none, ma’am. But I have a little experience because I finished two years in technology.” “Training includes video conferencing tools, digital collaboration tools, messaging apps, and document management and sharing platforms.”	Capacity-building; Technology Support; Staff Competency (Robbins & Coulter, 2021; Laudon & Laudon, 2020;)	Conduct at least one annual technology training workshop for administrative staff focusing on IMS use, document management, and digital communication tools.
7. Upgrade and maintain office technology and equipment (computers, projectors, printers).	“We only have one computer and one printer in our department... printer is often problematic.” “Yes, support is adequate for my function, including reliable audio equipment, secure digital archives, and office resources for drafting and printing	Financial & Technological Support; Resource Management; Work Performance (Laudon & Laudon, 2020;	Implement a three-year rolling equipment upgrade plan, prioritizing offices with shared or malfunctioning computers and printers, with annual preventive maintenance checks.

	official documents.” “Although there is no computer in my office because my encoder’s office is separate, we still use the computer there for processing our papers.”	Fayol, 1949; Robbins & Coulter, 2021)	
8. Increase office space and storage capacity.	“Limited filing systems and storage make the work physically and mentally challenging.” “When it comes to supplies, filing systems, and storage, I’d say the space is really insufficient for a registrar’s office.” “Important files are often stacked or stored on separate encoder’s computer, so it takes extra time to locate documents.”	Resource Management; Work Environment; Administrative Efficiency (Laudon & Laudon, 2020; Robbins & Coulter, 2021)	Optimize existing office layouts and install vertical filing systems and modular cabinets before expanding physical space.
9. Develop emergency response procedures for office disruptions (e.g., power outages).	“When there is a power outage, tasks like printing, preparation, and encoding are delayed.” “Before, our original campus was destroyed... office space is very limited.” (DU26 P5) “Another big challenge for us was the Marawi Siege.”	Disaster Preparedness; Resource Management; Technology Support (Laudon & Laudon, 2020; CHED, 2025)	Formulate a basic Office Continuity Plan (OCP) covering power outages, document protection, and alternative work arrangements, including offsite backups.
10. Optimize office layout and ergonomics for better work environment.	“Maintaining a conducive work environment is challenging because noise makes it hard to focus.” “Limited workspace and storage cause disruptions in arranging documents and meeting deadlines.” “Temperature inconsistencies and no ventilation affect my comfort and productivity.”	Work Environment; Productivity; Resource Management (Robbins & Coulter, 2021; Fayol, 1949)	Redesign office layouts to reduce noise and congestion, improve ventilation, and designate quiet work zones where feasible.
11. Implement a clear policy communication strategy.	“Our regular monthly meeting is our main purpose. We call meetings to introduce any new policies.” “If a policy is made in the middle of the semester, it is communicated through a memo.” “Announcements are made to us whenever there is something new... it is informal.”	Communication & Policy Compliance; Institutional Transparency (Robbins & Coulter, 2021; Fayol, 1949)	Require that all new and revised policies be communicated through formal memos, orientation briefings, and a centralized digital policy repository.

12. Establish a formal consultation mechanism or staff input in policy-making.	“Of course, I am involved because, in a way, we are the third founder of our institution.” “Yes, sometimes as committee chair for drafting policies.” “No, we are not consulted. We are just informed after a meeting.”	Policy Development; Staff Participation; Institutional Transparency (Robbins & Coulter, 2021; Fayol, 1949)	Create a Policy Consultation Committee (PCCo) with representatives from administrative offices to provide feedback before policy approval.
13. Ensure clear documentation of all written and informal policies.	“Actually, it is written, ma’am. I just have not memorized the policies of the school.” “For now, the policies regarding the registrar are verbal only.” “Written policies, such as drafted memos and special orders.”	Policy Compliance; Documentation; Administrative Efficiency (Robbins & Coulter, 2021; Fayol, 1949)	Compile all institutional policies into a Policy Manual (digital and printed), including previously informal or verbal policies.
14. Implement performance evaluation linked to policy adherence and Policy Compliance Committee (PCC).	“In monitoring compliance... faculty and staff are always reminded about the school’s policies.” “Each department has assigned personnel responsible for monitoring and evaluating whether policies are implemented correctly.” “Through executive reporting, periodic compliance reports from campus heads, and annual performance reviews of senior administrators.”	Compliance Monitoring; Policy Effectiveness; Workload & Accountability (Robbins & Coulter, 2021; Fayol, 1949)	Integrate policy compliance indicators into annual performance evaluations, overseen by a Policy Compliance Committee (PCC).
15. Schedule regular reviews and updates of institutional policies.	“We review and update our policies every month.” “Most of the time, policies are discussed yearly, usually before the start of the semester.” “As required by external mandates or when operational gaps are identified.”	Policy Management; Compliance with Regulations; Organizational Adaptability (Robbins & Coulter, 2021; CHED, 2025)	Conduct annual policy reviews before the start of each academic year, with mid-year reviews only when mandated by CHED or operational necessity.

Table 5 presents the Proposed Detailed implementation Phase

Phase	Key Activities	Responsible Office/ Personnel	Time line	Expected Outputs
Phase 1: Preparation and Planning	Issue executive memorandum approving policy recommendations. Create the Policy Compliance Committee (PCC). Designate office focal persons. Finalize implementation schedule and monitoring indicators.	Office of the President HR Office Administrative Heads	Months 1–2	Approved memorandum. PCC formally constituted. Implementation plan and timeline approved.
Phase 2: Capacity-Building and System Setup	Conduct technology and IMS orientation/training. Orient staff on workload monitoring and task redistribution protocols. Set up shared digital platforms and policy repository. Procure priority equipment and filing systems.	HR Office IT Unit Finance Office Administrative Office Heads	Months 3–5	Trained administrative staff. Functional IMS/digital platforms. Upgraded office equipment and storage.
Phase 3: Policy Rollout and Operationalization	Implement workload tracking and task redistribution. Enforce standardized grade and document submission schedules. Deploy centralized record management system. Disseminate policy manuals (digital and printed).	Registrar’s Office Deans and Program Heads Administrative Offices PCC	Months 6–9	Reduced workload backlogs. On-time submission of grades and records. Improved document retrieval efficiency.
Phase 4: Monitoring, Evaluation, and Adjustment	Conduct compliance monitoring and audits. Gather staff feedback through surveys or consultations. Integrate policy adherence into performance evaluations. Prepare policy implementation assessment report.	PCC HR Office Executive Committee	Months 10–12	Compliance monitoring reports. Performance appraisal results with policy indicators. Recommendations for policy refinement.
Phase 5: Institutionalization and Sustainability	Integrate policies into staff orientation programs. Allocate recurring annual budgets. Schedule annual policy review meetings. Continue capacity-building and system maintenance.	Office of the President Finance Office HR Office IT Unit	Years 1-3	Institutionalized administrative policies. Sustained compliance and improved efficiency. Continuous improvement mechanisms.

CONCLUSION

The study reveals that administrative officers in private HEIs in Marawi City handle multi-faceted duties under heavy workloads, limited staffing, and constrained resources. Communication gaps and inconsistent policy implementation further complicate administrative efficiency. Manual and hybrid record-keeping systems slow processes and increase errors. Technological support exists but is limited by infrastructure gaps and insufficient training. Financial resources are generally adequate, yet access and allocation sometimes delay operations. Positive work environments support collaboration, though noise, space limitations, and interruptions affect productivity. Officers rely on coping strategies and informal practices to sustain operations.

The findings highlight the need for digitalization, capacity-building, standardized policies, and resource optimization. Implementing phased, monitored, and context-sensitive recommendations can enhance efficiency, compliance, and institutional resilience.

RECOMMENDATIONS

Based on the findings, recommendations focus on strengthening administrative efficiency and staff performance in post-conflict private HEIs in Marawi City.

1. Policy makers/Governing Agencies (CHED, MBHTE, LGUs) should develop clear, context-sensitive policies covering workload management, digital record-keeping, communication, and governance, while providing infrastructure and capacity-building support.
2. School administrators must operationalize these policies by ensuring equitable workloads, streamlining processes, and maintaining clear communication, compliance monitoring, and resilience measures.
3. Administrative officers and HR/IT units should implement digital systems, standardized workflows, and regular training programs, supported by measurable action plans, audits, and mentorship to sustain efficiency, compliance, and institutional resilience.

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ADOPTION OF PALAYCHECK MANAGEMENT PRACTICES AMONG RICE FARMERS IN BOHOL

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ABSTRACT

The PalayCheck System is an integrated rice crop management approach developed to help farmers improve yield and sustainability. It is anchored on nine key checks, the best management practices, that serve as guides in monitoring crop growth and ensuring productive rice farming. The study used a quantitative descriptive research design. It investigated the adoption of the nine key checks, the best management practices of PalayCheck Technology among rice farmers in the province of Bohol. Findings show that rice farmers had fully adopted the nine management practices of PalayCheck System. However, there are challenges they have encountered while adopting the management practices. The challenges included a lack of capital or financial support, limited access to inputs such as seeds and fertilizers, a lack of training programs, easier access to markets to sell their products, and better farm infrastructure, such as farm-to-market roads and irrigation systems. Suggested solutions to address challenges are conducting more hands-on training and guidance from Agricultural Extension Workers (AEWs), upscaling financial assistance and subsidies for seeds and fertilizers, and conducting more information campaigns to raise awareness of the efficiency and productivity in adopting the nine management practices of the PalayCheck. Ultimately, strengthening support for farmers in these areas will not only enhance productivity but also ensure the long-term sustainability of rice farming in the province. It is recommended to sustain the program in PalayCheck technology, the nine management practices by continuously monitoring the farmers who are adopting the technology, conduct continuous training and information dissemination for the technology to motivate other farmers to use the nine best management practices PalayCheck System and make the technology accessible to all farmers by posting the information on all media platforms and establish a demo farm within the community.

Keywords: *palaycheck management practices, keychecks, adoption*

INTRODUCTION

Rice farming has always been a vital part of life in the Province of Bohol, providing food, livelihood, and stability for many communities. To help farmers meet the growing challenges of climate change, water scarcity, and declining soil fertility, the Philippine Rice Research Institute (PhilRice) introduced the PalayCheck System in the early 2000s. Designed as a practical and easy-to-follow guide, PalayCheck brings together the best practices in rice farming to help farmers improve their yields, manage their resources wisely, and sustain their farms for future generations.

Farmers' decisions are shaped by their education, financial resources, farming traditions, and the level of access they have to training and extension services. Without enough localized support and context-specific strategies, even proven technologies like PalayCheck System struggle to reach their full potential among smallholder farmers.

While there have been studies on PalayCheck adoption in broader contexts, there is a notable absence of research conducted specifically in the province of Bohol. Existing studies often address

adoption challenges in generalized terms, overlooking the distinct socio-economic, cultural, and environmental conditions of Bohol's farming communities. This lack of localized research makes it difficult for policymakers, agricultural extension workers, and development agencies to design targeted interventions that effectively respond to the specific needs and realities of Boholano farmers.

Despite proven to bring real benefits to rice farmers, yet not everyone in Bohol has been able to take full advantage of it. In some areas, farmers who have embraced the system are enjoying higher yields, while others continue with traditional practices. This difference raises important questions: why do some farmers adopt the technology while others don't, and how can they be better supported? This study aims to look closely at how widely the nine best management practices of the PalayCheck System have been adopted among rice farmers in Bohol, with the hope of identifying practical ways to help more farmers use the system successfully improving both their productivity and the sustainability of their farms.

Addressing this gap is crucial. Improving the level of adoption of PalayCheck is not just about boosting rice production. It is about helping farming families build better, more resilient lives, and contributing to larger goals like ending hunger and promoting sustainable farming practices (SDG 2 and SDG 12). PalayCheck's nine management practices hold the potential to transform rice farming in Bohol, but this potential can only be realized if we understand the real barriers farmers face and the support systems they need.

The PalayCheck System, developed by the Philippine Rice Research Institute (PhilRice), serves as an integrated rice management framework that promotes nine key checks covering seed quality, land preparation, crop establishment, nutrient management, pest and water management, and harvest practices. It aims to guide farmers in improving productivity and sustainability through science-based, experiential learning. Understanding how farmers adopt these practices in Bohol requires examining recent studies on adoption behavior, constraints, and enabling conditions in similar rice-farming contexts.

Research on the adoption of the PalayCheck System and other rice management technologies highlights both opportunities and challenges that are highly relevant for Bohol. Malonzo et al. (2021) found that smallholder farmers in San Mateo, Isabela recognized the system's value, particularly in boosting yields and improving the efficient use of resources. Yet, some practices were harder to adopt because they demanded more labor, money, or technical skill. Their study showed that adoption was highest when farmers found practices both useful and easy to implement, suggesting that even the most beneficial technologies may be overlooked if they are too costly or complicated. Similarly, Sebastian et al. (2016) noted that while PalayCheck improved productivity and resource management, farmers often struggled to apply all components consistently due to technical, institutional, and socioeconomic challenges. These findings underline the importance of accessible extension services and practical training, especially in areas like Bohol, where support can differ widely between municipalities. Acierto et al. (2020) further highlighted that adoption is shaped by a combination of socio-demographic, institutional, biophysical, and economic factors. Limited capital, low soil fertility, and infrequent extension visits were major constraints, whereas structured learning approaches such as Farmer Field Schools helped farmers better understand and implement PalayCheck practices.

Other research reinforces these patterns and adds further insights. Ambong (2022) found that rice farmers in Occidental Mindoro were quick to adopt early-stage production technologies, like certified seeds and improved seedling practices, but water management and postharvest technologies were less consistently applied. Strong management in early stages often predicted better adoption later, suggesting that supporting farmers from the start can improve overall outcomes. Ambong and Paulino (2020), using the Technology Acceptance Model (TAM), found that perceived usefulness and clear advantages drove adoption more than ease of use, meaning farmers may take on complex or labor-intensive practices if the benefits are obvious, though financial resources, input access, and institutional support remain critical. International evidence echoes this pattern: Connor et al. (2021) observed that rice farmers in Central Java, Indonesia, often adopted only selected practices rather than full packages due to field conditions, labor constraints, and cropping patterns. Connor et al. (2023) reported similar findings across Asian rice granaries, where adoption of best management practices was often partial, limited by high input costs, lack of quality seeds and fertilizers, labor shortages, and weak infrastructure. However, strong extension support, demonstration plots, and

active farmer networks significantly improved adoption and practice retention. These findings suggest that in Bohol, while farmers may recognize the benefits of PalayCheck, success will rely on practical support, hands-on training, and strong community networks to help them implement the system fully and sustainably.

Finally, studies consistently show that adoption of PalayCheck and related rice management technologies is non-uniform and context-specific, influenced by economic capacity, labor availability, technical knowledge, and institutional support. While farmers generally recognize the benefits of the PalayCheck System, their ability to implement all nine key checks depends on both internal (e.g., knowledge, attitudes, resources) and external (e.g., extension services, infrastructure) factors. Given the limited empirical evidence on PalayCheck adoption in Bohol, this study seeks to fill that gap by determining the extent to which rice farmers in the province adopt the nine management practices, identifying the challenges they face, and assessing implications for sustainable rice production and rural development.

OBJECTIVES OF THE STUDY

The main objective of the study was to determine the level of adoption of the nine management practices of Palaycheck System in the Province of Bohol. Specifically, it aimed to:

1. Determine the farmer-respondents' level of adoption of the Palaycheck System 's management practices in the Province of Bohol.
2. Identify the challenges encountered in the adoption of the nine management practices of Palaycheck System.
3. Provide recommendations to enhance adoption, effectiveness and sustainability of the of Palaycheck System.

METHODOLOGY

This study used a quantitative descriptive research design to examine the adoption of PalayCheck Technology on rice farming in the Province of Bohol. The research was conducted in the top five major rice-producing municipalities of Ubay, Pilar, San Miguel, Carmen, and Dagohoy, where PalayCheck training programs are actively implemented.

The study's respondents included 304 farmer-graduates who completed a season-long training program through the Learning Sites for Agriculture (LSA) and Farmers Field Schools (FFS) under the Rice Extension Services Program of the Technical Education and Skills Development Authority from 2019 to 2021. These farmers were purposely selected because they had direct experience in using PalayCheck Technology on their farms.

The instrument used was a self-made structured questionnaire divided into three sections. The first section assessed the level of adoption of the nine management practices of Palaycheck System, such as the use of high-quality seeds, land preparation, crop establishment, nutrient and pest management, water use, and harvest techniques, using a five-point scale from "No Adoption" to "Fully Adopted." In the second section, the participants were asked about the challenges they encountered in the adoption of the nine management practices, such as lack of capital, limited access to inputs or training, and issues with infrastructure or government support. Lastly, the third section invited them to share suggestions on how to improve adoption, effectiveness and sustainability of the technology.

Before data collection, the researchers secured formal approval from relevant authorities to ensure ethical and institutional compliance. Endorsements were obtained from Bohol Island State University officials, followed by permissions from municipal mayors, agricultural offices, and barangay captains. Courtesy calls were made, and data were gathered through face-to-face and phone interviews with farmers.

Participants' confidentiality was strictly maintained. Frequency counts and percentages were used to analyze data from levels of adoption of the nine management practices of the Palaycheck System,

challenges, and recommendations. The weighted mean was used to interpret the level of adoption of the nine management practices of the PalayCheck System.

RESULTS AND DISCUSSION

This section deals with presentation, analysis and interpretation of data findings. There were several information taken to determine the level of adoption of the nine management practices of Palaycheck System and challenges encountered in the adoption of the technology.

Level of adoption of the nine management practices of Palaycheck System

The results in Table 1 clearly showed that farmers were fully embracing the nine management practices of Palaycheck System, with an impressive overall weighted mean of 4.63, indicating widespread and consistent application. This high level of adoption reflected both the relevance of the practices and the farmers' trust in the system's effectiveness.

Among the practices, using high-quality seeds of a recommended variety stood out with the highest score (4.69). This was supported by Maghirang et al. (2021), who emphasized that certified seeds significantly improve yield and crop performance.

Secondly, The field was well-leveled, providing a smooth and even surface that supported efficient use for farming or activities, ensured safety, and allowed proper distribution of resources. It received a high rating of 4.67, indicating excellent quality, and the practice was fully adopted, reflecting consistent implementation and good management. This aligns with studies from India, the Philippines, Vietnam, Cambodia, Thailand, and Afghanistan showed that leveled fields can boost crop yields by up to 40%, improve water productivity by up to 27%, and reduce crop losses (Miao, Q. et al. 2021, Nguyen-Van-Hung, et al. 2022, Hashimi, et al. 2017). These findings confirm that adopting proper leveling practices enhances productivity, resource efficiency, and overall farming effectiveness.

Table 1. Level of adoption of the nine management practices of Palaycheck technology

PalayCheck Management Practices	Weighted Mean	Descriptive Interpretation
Used high-quality seeds of a recommended variety	4.69	Fully adopted
Well-leveled field	4.67	Fully adopted
Practiced synchronous planting after a rest period	4.63	Fully adopted
A sufficient number of healthy seedlings	4.63	Fully Adopted
Sufficient nutrients from tillering to early panicle initiation (EPI) and flowering	4.60	Fully adopted
No significant yield loss due to pests	4.55	Fully Adopted
Avoided stress caused by drought or excessive water that could affect the growth and yield of the crop	4.64	Fully adopted
Harvested the crop at the right time	4.60	Fully adopted
Properly dry, clean, and store grains (target moisture content, protection from dampness, pests, etc.) to maintain quality	4.66	Fully adopted
Overall Weighted Mean	4.63	Fully adopted

Thirdly, farmers carefully dry, clean, and store their grains to maintain quality, prevent losses, and improve market value with a weighted mean of 4.66 which implies that farmers demonstrated strong knowledge and practical skills in post-harvest management. Recent research showed just how important it was for farmers to carefully dry, clean, and store their grains. Müller, Nunes, Maldaner, Coradi, and colleagues (2022) found that paying attention to drying temperature, keeping moisture at safe levels, and

using proper storage methods kept rice grains in top condition for longer. Similarly, Borlagdan, Elauria, Elepaño, de Padua, and Dizon (2017) showed that moisture content, storage temperature, and length of storage directly affected grain color and quality, highlighting that careful post-harvest practices made a significant difference in preserving both the quality and value of the harvest.

Furthermore, farmers had fully adopted both practices by planting at the same time after letting the land rest and using enough healthy seedlings with a weighted mean of 4.63. This showed strong community coordination, good early crop care, and a clear commitment to sustainable farming that supported better yields and healthier fields. This aligns with recent experimental work on nursery management, seedling age and tray density (Lampayan 2015; Dong 2024; Ling 2024) directly supports this finding “sufficient number of healthy seedlings” result because better seedlings improve establishment and yield. Landscape and field-level studies and extension reports (Ali 2019; Horgan 2024; PhilRice 2016) showed that coordinated/synchronized planting especially after a rest or fallow period — interrupts pest life cycles, enhances natural enemies, and reduces outbreaks, which aligns with your synchronous-planting finding.

The practice with the least mean score was “no significant yield loss due to pests” (4.55), suggested that farmers were actively managing risks. This proactive approach aligns with Cuyno and Rola (2022), who found the integrated pest and water practices reduce crop losses and improve the over all productivity.

Challenges encountered in the adoption of the nine management practices of Palaycheck System

Table 2 reveals the challenges identified by the farmer-respondents which align with findings from various studies on agricultural technology adoption, particularly in resource-limited settings.

Challenges	Frequency (f)	Percentage (%)
Lack of capital or financial support	138	46
Limited access to inputs (e.g., seeds, fertilizers)	96	32
Poor extension services or lack of training	48	15
Limited market access	12	4
Lack of infrastructure (e.g., irrigation, farm to market roads)	10	3
TOTAL	304	100

Financial constraints were the most significant barrier, with 46% of farmers reporting a lack of capital or financial support. This is consistent with the study by Ragasa et al. (2016) that smallholder farmers in the Philippines struggle with financing, making it difficult for them to invest in improved seed varieties and fertilizers.

Suggestions for sustaining the implementation of the nine management practices of Palaycheck System

Table 3 highlights the key areas that need attention to encourage greater adoption of the nine management practices of the PalayCheck System. The most frequently suggested solution was more regular training and extension services, with 36% (108 respondents) emphasizing the need for hands-on guidance. This aligns with studies by Feder et al. (2018) and Mignouna et al. (2020), which show that frequent training helps farmers better understand and apply new agricultural technologies.

Suggested Improvement	Number of Farmers	Percentage (%)
More hands-on training and guidance from agricultural experts	108	36
Financial assistance or subsidies for seeds, fertilizers, and other inputs	82	27

More information campaigns to raise awareness about PalayCheck	52	17
Easier access to markets to sell PalayCheck-grown products	46	15
Better farm infrastructure, such as farm to market roads and irrigation systems	16	5
Total Responses	304	100

Another major concern was financial support or subsidies, chosen by 27% (82 respondents). Many small-scale farmers struggled to afford essential farm inputs such as seeds and fertilizers, which were critical for implementing PalayCheck. Research by Ragasa et al. (2016) highlights that without financial assistance, farmers may hesitate to invest in new technologies due to the risks involved.

Moreover, many farmers (52 or 17%) felt that more information campaigns were needed to help others understand PalayCheck. While a lot of farmers already know about it, some still aren't fully aware of how to apply its principles on their farms. Expanding education through workshops, field demonstrations, radio programs, and printed materials could give farmers practical knowledge on crop management, pest control, and nutrient application, helping more of them adopt PalayCheck successfully and achieve better harvests.

Furthermore, easier access to markets to sell PalayCheck-grown products (46 farmers, 15%) Several farmers highlighted the need for easier access to markets to sell their PalayCheck-grown produce. Research supported this finding that limited market access reduces profits and motivation for smallholder rice farmers (Kürschner et al., 2016), while improved access through cooperatives, better supply chains, or government programs can help farmers earn more and consistently apply PalayCheck, leading to more sustainable and profitable farming (Mataia et al., 2015).

Finally, the least challenges encountered by farmers were about infrastructure like irrigation and farm to market- roads. Research on the PalayCheck system shows that most farmers already have the basic physical conditions needed to apply improved rice practices, such as irrigation and road access. Program findings from the Philippine Rice Research Institute (2015) highlight that farmers are more often limited by gaps in knowledge, skills, and technical support than by infrastructure itself. This means adoption is less about whether farmers can implement the practices and more about whether they receive enough guidance and capacity-building to apply them effectively.

CONCLUSIONS

This study assessed the level of adoption of the nine recommended best management practices under the PalayCheck System. The findings revealed that the farmer-respondents demonstrated a very high level of adoption of these practices, with all indicators interpreted as "Fully Adopted." The consistent implementation of these practices was found to contribute to increased crop productivity, improved grain quality, and more efficient rice farming operations. On the other hand, the most significant challenge farmers faced in adopting the technology was a lack of capital or financial support. Consequently, they suggested providing more hands-on training and guidance from agricultural experts, as well as financial assistance or subsidies for seeds, fertilizers, and other farm inputs for its sustainability.

RECOMMENDATIONS

1. Sustain the program in PalayCheck by continuously monitoring the farmers who are adopting the nine best management practices of Palaycheck System.
2. Conduct continuous training and information dissemination for the technology to motivate other farmers to use Palay Check technology.

3. Make the technology accessible to all farmers by posting the information on all media platforms and establish a demo farm within the community.
4. Use farmer-led extension program strategy with Agricultural Training Institute's financial support.

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BULLYING EXPERIENCES AND TEACHERS' PERSPECTIVES: INTERVENTIONS, MEDIATION, AND AFFIRMATIVE ACTIONS

(MGA KARANASAN SA BULLYING AT MGA PANANAW NG MGA GURO: MGA INTERBENSYON, PAMAMAGITAN AT POSITIBONG AKSYON)

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This explorative qualitative study through documents analyses and interpretative phenomenological analysis (IPA) examined bullying in classrooms homes and workplaces. Forty (40) first year college students and thirty teachers (30) were asked to write their experiences about bullying plus how they employed solutions to it and five (5) active students from elementary and senior schools were interviewed. Each of 75 participants was assured of confidentiality and anonymity. Bullying with its different causes and forms had caused negative effects to the bullied. Results revealed that all those who experienced bullying especially elementary and high school students and even teachers during their basic education years experienced emotional and social stress, lack of self-appreciations, and low self esteem. Majority experienced anxiety, depression, withdrawal from social contacts and suicidal tendencies. Its effect and impact devastate human person even to the point of committing suicide. The most fragile and vulnerable to bullying in man and woman's life are based on the physical appearance that includes face appearance, color of the skin and curly hairs, and body built and physical defects. And the most common forms are verbal assault, gossips, name –calling, exclusion, mocking of one's names, body shaming and social media posts. Despite its negatives effect, nevertheless it has also its positive effects: stronger faith and trust in God, deepening family relationships, hope, communication and openness, finding true friends, caring teachers, and support networks, building self-esteem, courage and socialization. Teachers interventions, mediations and actions against bullying included: creating a safe, healthy and inclusive environment; calling bullies attention; talking privately to those bullied; contacting and having conference with students' parents and guardians; and, building supportive networks from peers, professionals and guidance counselors.

Mga Susing Salita: *Bullying, Mga Biktima, Mga Mag-aaral, Mga Guro, Mga Interbensyon at Mga Aksyon*

PANIMULA

Ang bullying ay ang sinasadya at patuloy na pang-aabuso ng kapangyarihan sa pamamagitan ng paulit-ulit na berbal, pisikal, at/o sosyal na pag-uugali upang magdulot ng pisikal, at/o sikolohikal na pinsala (Ncab, 2003). Gayundin, ang seksyon 2 ng RA 10627 (Anti Bullying Act of 2013) ay tumutukoy sa anumang matindi o paulit-ulit na paggamit ng isa o higit pang mga mag-aaral ng isang nakasulat, berbal o elektronikong ekspresyon, o pisikal na kilos o kilos o anumang kombinasyon ng mga ito, na nakadirekta sa ibang mag-aaral na may epekto ng aktwal na pagdudulot o paglalagay sa huli sa makatwirang takot sa emosyonal o pisikal na pinsala o pinsala sa kanyang ari-arian.

Inaatasan ng Republic Act 10627 ang lahat ng elementarya at sekondaryang paaralan na magpatibay ng mga patakaran at pigilan at tugunan ang bullying sa kanilang mga institusyon.

Sinabi ni Sen. Sherwin Gatchalian sa pagdinig ng senado tungkol sa pagpapatupad ng batas laban sa bullying na hindi bababa sa pito sa sampung estudyante sa mga pampublikong paaralan sa Pilipinas ang nakaranas ng bullying, kaya naman nanguna ang bansa sa 70 bansang may ganitong isyu. At ayon kay Bernadette Madrid ng Child Protection Network Foundation, ipinakita ng Nation's Health Survey na 40 hanggang 60 porsyento ng mga batang may edad 13 hanggang 17 ang nakaranas ng bullying (Felipe, 2023).

Ang pisikal na pambu-bully, berbal na pambu-bully, cyber bullying at maging ang mga mensaheng sexist, racist at homophobic ay lumilikha ng isang masungit na kapaligiran, kahit na hindi direktang tinarget ang iyong anak (Parents Editors, 2023).

Ang pagtatangkang sirain ang reputasyon o relasyon ng ibang tao ay kilala bilang social bullying. Ang ganitong uri ng pambu-bully ay nakakaapekto sa pakiramdam ng pagiging kabilang ng isang tao, na nakakapinsala sa kanilang kalusugang pangkaisipan dahil taliwas ito sa kalikasan ng tao. Ang social bullying ay maaaring mangyari nang personal o online, at dahil maaari itong maging direkta at hindi direkta, maaari itong mahirap makilala (Marshall-Seslar, 2022).

Bilang karagdagan, ang ilang legal na hurisdiksyon ay nagbigay ng kahulugan sa emosyonal na pang-aabuso, at ang emosyonal na pambu-bully ay naobserbahan sa iba't ibang relasyon, kabilang ang mga matalik na pakikipagsosyo at pagkakaibigan kabilang ang mga bata, kabataan, katrabaho at marami pang iba (Fish, 2023).

Bukod dito, ang gender-based bullying ay maaaring mangyari batay sa tunay at pinaghihinalaang pagkakakilanlang pangkasarian, pagganap ng kasarian at oryentasyong sekswal ng isang tao. Kabilang dito ang isang huwaran ng pagbabanta, pananakot, panliligalig, pananakit at/o mapang-abusong pag-uugali, o kombinasyon ng mga ito, upang itaguyod ang tradisyonal na status quo ng kasarian (Nadal, 2017).

Ang bullying sa paaralan ay hindi bago. Ito ay mas lumalago nitong mga nakaraang araw. Dahil sa pagtaas ng mga insidente ng bullying, ito ay nagiging isang isyu na patuloy na tumatanggap ng konsiderasyon mula sa mga analyst, instruktur, tagapag-alaga, at mga mag-aaral (Nakamoto, 2009). Bukod pa rito, ang karanasan ng mga bata sa bullying ay karaniwang nagreresulta sa mababang pagtingin sa sarili, takot, galit, at kawalan ng pag-asa sa mga bata (Biscocho, 2016).

Ang bullying sa mga paaralan ay naging isang pandaigdigang problema, at sa ilang mga kaso, ang mga epekto nito ay maaaring magkaroon ng pangmatagalang implikasyon sa mga biktima. Iba-iba ang kahulugan ng bullying. Gayunpaman, ang pag-uugali ay may mga karaniwang katangian, kabilang ang intentionality, repeatability, at power imbalance. Sa konteksto ng paaralan, ang bullying ay kinabibilangan ng pisikal at berbal na mga pag-atake kasama ang panliligalig sa isang biktima ng isang indibidwal o grupo ng mga mag-aaral sa loob ng mahabang panahon. Sa kabila ng maraming pag-aaral at pagsisikap na ginawa upang matugunan ang problemang ito, ang bullying ay patuloy na nakakaapekto sa milyun-milyong mag-aaral sa lahat ng bansa sa buong mundo (Jan & Husain, 2015).

Isa pang teoryang iminungkahi ni Lev Semenovich Vygotsky ay ang Socio-Cultural Theory, kung saan ang mga interaksyong panlipunan ay tinitingnan bilang kritikal na puwersa sa pag-unlad ng isang bata. Ang mga bata ay nakikipag-ugnayan sa lipunan at kultura ayon sa kanilang mga impluwensya sa kapaligiran (Cherry, 2012).

Bilang suporta upang mabawasan ang bullying, ang Republic Act 10627, o ang Anti-Bullying Act (ang "Batas"), ay naglalayong protektahan ang mga batang naka-enroll sa kindergarten, elementarya, at sekundaryang paaralan at mga learning center (sama-samang tinatawag na "Mga Paaralan") mula sa pagiging bullying. Kinakailangan nito ang mga Paaralan na magpatibay ng mga patakaran upang matugunan ang bullying sa kani-kanilang mga institusyon. Kinikilala nito ang kahalagahan ng pagpigil at pagtugon sa bullying, kabilang ang cyber-bullying, sa mga institusyong pang-edukasyon. Ang mga paaralan ay dapat magpatibay ng mga patakaran at mekanismo upang mapangasiwaan at matugunan nang epektibo ang mga insidente ng bullying.

Mayroong limang uri ng bullying, na kinabibilangan ng pisikal na bullying, verbal na bullying, social bullying, reactive victims, at cyberbullying. Ang bawat isa sa mga ito ay may iba't ibang konteksto batay sa kung paano isinasagawa ang bullying ng mga nagkasala (McLellan & Seddon, 1997). Ang pisikal na pang-aapi ay ang pinakakaraniwang uri ng pang-aapi na umiiral sa buong mundo at ang pinakakilalang

uri ng pang-aapi sa Cameroon, na nangyayari sa pamamagitan ng stereotyping sa mga paaralan (Elame, 2013).

Ang pang-aapi ay isang malawakang isyu sa mga paaralan at komunidad. Ang penomeno ng pang-aapi ay malawakang nararanasan ng mga mag-aaral sa iba't ibang panahon ng pag-unlad, heograpiya, at mga grupong demograpiko. Ang mga mag-aaral na pumapasok sa paaralan ngunit nananatiling takot na ma-bully (o nakakaramdam ng pangangailangang makisali sa mga pag-uugali ng pang-aapi) ay kadalasang naliligaw mula sa mga pangunahing aktibidad ng paaralan at nahihirapang matuto (Glew et al., 2005; Swearer, 2011; CDC, 2019).

Ayon sa isang survey, humigit-kumulang 1 sa 5 mag-aaral sa elementarya at 1 sa 10 mag-aaral sa middle school ang binu-bully. Bukod dito, iniulat ng ibang mga pag-aaral sa pananaliksik ang mataas na paglaganap ng pang-aapi sa paaralan sa buong mundo na nagreresulta sa pagtaas ng bilang ng mga reklamo sa somatiko, pagkabalisa, depresyon, pagtangga sa paaralan, at pangkalahatang mababang pagpapahalaga sa sarili sa mga mag-aaral na binu-bully (Bowllan & Nancy, 2011).

Bukod pa rito, iniuugnay ng ibang mga pag-aaral ang mga sanhi ng pambu-bully sa paaralan sa mga salik na panlipunan (Menesini & Salmavalli, 2017; Bevilacqua et al., 2017). Ang pagiging magulang ay may mahalagang papel sa kung paano lumalaki at umuunlad ang mga bata kasama ang uri ng mga nasa hustong gulang na sila ay magiging sa kalaunan. Nabanggit ni Bevilacqua et al. (2017) na ang mga batang nalantad sa mga problema ng magulang o pamilya ay malamang na makisali sa pambu-bully nang tatlong beses na mas madalas kumpara sa kanilang mga katapat na may malusog na pagiging magulang.

Ayon sa pag-aaral nina Aprilia et al (2023) na pinamagatang Meta-Analysis: Effect of Bullying on the Risk of Suicide in Adolescents, natuklasan nila na ang pambu-bully ay nakakaapekto sa buhay ng maraming bata at kabataan. Ang mga pag-aaral sa mga bansang may mataas na kita ay nag-ulat ng isang kaugnayan sa pagitan ng pambu-bully at pag-uugali ng pagpapakamatay sa mga kabataan sa paaralan. Isang halimbawa na natuklasan ng mga pag-aaral sa iba't ibang bahagi ng Estados Unidos na ang mga mag-aaral na na-bully ay mas malamang na makaranas ng pag-iisip ng pagpapakamatay, pagpapalano, at mga pagtatangka ng pagpapakamatay. Nilalayon ng pag-aaral na ito na matukoy ang epekto ng pambu-bully sa panganib ng pagpapakamatay sa mga kabataan.

Malaki ang impluwensya ng bullying sa paaralan sa akademikong tagumpay at kalusugan ng mga estudyante, at ang mga negatibong epektong ito ay maaaring magpatuloy sa kanilang buhay. Sa kadahilanang ito, ang bullying sa paaralan ay isang isyu na dapat hawakan nang may pag-iingat ng mga propesyonal sa kalusugan tulad ng mga nars sa paaralan, sikologo, tagapayo sa sikolohikal, at mga manggagamot. Ang pagtukoy sa mga sanhi ng bullying sa mga paaralan at pagpapatupad ng mga epektibong hakbang upang maiwasan ang bullying ay dapat tiyakin ng isang interdisciplinary team upang ang mga pag-uugali ng bullying ay hindi makapinsala sa mga estudyante (Özakar Akça, 2020).

Ang threshold study sa karahasan laban sa mga bata sa mga pampublikong paaralan ng PLAN Philippines na pinamagatang “Tungo sa isang Kapaligiran sa Edukasyon na Palakaibigan sa Bata” ay muling isinagawa.

MGA LAYUNIN

Nais ng pag-aaral na ito na:

1. Tukuyin ang kahulugan ng bullying at ang mga karaniwang sanhi at anyo ng bullying;
2. Suriin ang iba't ibang karanasan at epekto ng bullying sa mga estudyante sa elementarya, sekondarya, at mga guro noong sila pa estudyante;
3. Tukuyin ang mga negatibo at positibong epekto ng bullying; at,
4. Suriin ang mga estratehiya ng mga guro upang magtaguyod ng ligtas na kapaligiran para sa mga mag-aaral.

METODOLOHIYA

Gumamit ang pag-aaral ng kwalitatibong pagsusuri ng dokumento at interpretatibong phenomenological analysis (IPA) na may dinamikong oryentasyon na gumamit ng dalawang-yugtong hermeneutika: binibigyang-kahulugan ng mga kalahok ang kanilang mga karanasan sa buhay, at binibigyang-kahulugan naman ng mga mananaliksik ang interpretasyon ng mga kalahok sa kanilang mga karanasan sa buhay (Smith at Eatough, 2012). May tatlong grupo ng mga kalahok sa pag-aaral. 1. Apatnapong (40) mag-aaral sa unang taon ng kolehiyo (sa kanilang mga karanasan ny bullying noong high school sila) ang lumahok sa pag-aaral sa pamamagitan ng pagsulat ng kanilang mga karanasan tungkol sa bullying, mga hamon, epekto, at epekto na naapektuhan nila, at kung paano nila nalampasan. 2. Tatlung (30) guro, karamihan ay mula sa DepEd at ilan mula sa mga pribadong paaralan, ang binigyan din ng mga ganitong gawain upang isulat ang kanilang mga karanasan sa bullying ngunit may karagdagang impormasyon kung paano nila ginamit ang ilang solusyon at interbensyon upang makatulong sa paglutas at pagpapagaan ng bullying. 3. Limang (5) aktibong mag-aaral mula sa elementarya at senior school ang kinapanayam tungkol sa kanilang mga karanasan sa bullying. Sa kabuuan, mayroong 75 kalahok sa pag-aaral at bawat isa sa kanila ay tiniyak na kumpidensyal at hindi nagpapakilala sa kanilang pagkatao. Mayroong tatlong grupo ng kalahok sa pag-aaral na ito upang magkaroon ng triangulation kaugnay ng mga resulta ng unang grupo na mga estudyante sa kolehiyo.

Ang bawat kalahok ay ipinaalam tungkol sa layunin ng pag-aaral at kinuha ang informed consent bago ang kanilang pakikilahok. Isang self-made na talatanungan ang ginawa at pinatunayan ng mga eksperto sa larangan. Ang lahat ng mga panayam ay tumagal mula tatlung minuto hanggang isang oras hanggang sa maabot ang saturation ng impormasyon. Sa mga panayam, hinikayat ang mga kalahok na gumamit ng wikang komportable sila lalo na ang diyalektong Cebuano o Boholono upang maipahayag nang malalim ang kanilang mga saloobin. Ang mga tugon ay naitala, na-transcribe at ikinategorya ayon sa mga layunin ng pag-aaral. Sa pagtatapos ng bawat panayam, mayroong isang debriefing na muling nagpapatunay sa layunin ng pag-aaral, ang pagtiyak ng pagiging kompidensiyal patungkol sa mga kinapanayam at datos na nakalap.

Sa pagsusuri ng mga dokumento mula sa mga kalahok sa kolehiyo pati na rin sa mga guro, ikinategorya, na-code at inuri ng mga mananaliksik sa mga temang may kaugnayan sa datos tungkol sa kanilang mga karanasan sa pambu-bully.

Sa pag-transcribe ng mga transcript ng panayam, ginagamit ng mga mananaliksik ang isa sa tatlong uri ng verbatim transcription: 1) Intelligent Verbatim (kilala rin bilang clean read o clean verbatim) na kinabibilangan ng transkripsyon na may detalyadong pag-ecedit at kung minsan ay kaunting paraphrasing upang lumikha ng madaling basahin na transcript. Ang ganitong uri ng transkripsyon ay karaniwang gumagamit ng qualitative research (QLR) software habang ang dalawa pa ay maaaring hindi o maaaring gamitin ang mga ito. Gumamit ang mananaliksik ng Intelligent Verbatim sa pag-aaral na ito dahil ang lahat ng mga panayam ay nasa wikang Cebuano, hindi ginamit ang software application.

Ang mga verbatim transcription na ikinategorya at naka-code sa mga tema ay inilapat gamit ang isang qualitative method ng pananaliksik na IPA na nakabatay sa tatlong mahahalagang posisyon: phenomenology, hermeneutics at ideography kung saan ang una (phenomenology) ay nakatuon sa mga istruktura ng kamalayan na nararanasan mula sa first-person point of view. Ang Hermeneutics ay tumatalakay sa praktika at proseso ng interpretasyon kung saan ang interpretasyon ng IPA ay nakatuon sa paglitaw ng katotohanan at kontekstong may maraming patong sa bahagi-kabuuang pagkakaugnay-ugnay ng teksto (Smith et al., 2009). Ang pangatlo ay ang ideograpiya, na bilang isang pamamaraan ay nakatuon sa indibidwal at partikular bilang mahalagang baryabol sa pag-aaral, kasigasigan sa mga detalye, lalim ng pagsusuri at partikular na konteksto (Smith et al., 2009).

Ang proseso ng balangkas ng pagsusuri ng datos ay gumamit ng isang paunang natukoy na istruktura na sumasalamin sa mga layunin, mithiin, at interes sa pamamagitan ng pagtuon sa mga partikular na sagot at iniwan ang iba ayon kina Pope, Ziebland, at May (Lwi, 2019) upang suriin ang mga natuklasan ng mga mananaliksik. Ang mga nakolektang salaysay ay sinuri gamit ang mga kwalitatibong pamamaraan ng pagsusuri ng datos na kinabibilangan ng mga pamamaraan kabilang ang tematikong pagsusuri, pagsusuri

ng nilalaman, o pagsusuri ng salaysay at pagtukoy sa mga paulit-ulit na tema, padron, at istruktura sa loob ng mga salaysay. Upang mapangalagaan ang pagiging kumpidensyal, lahat ng datos ay naka-lock sa computer ng mga mananaliksik upang mapangalagaan ang pagiging kumpidensyal at matiyak na sila lamang ang may access sa mga ito.

MGA RESULTA AT TALAKAYANAN

I. Bullying

Tulad ng nabanggit nina McLellan at Seddon (1997), mayroong limang uri ng bullying, kabilang ang pisikal na bullying, verbal na bullying, social bullying, reactive victims, at cyber bullying. Ang bawat isa sa mga ito ay may iba't ibang konteksto batay sa kung paano isinasagawa ang bullying ng mga gumagawa nito. Ang pisikal na bullying, sa kabilang banda, ayon kay Elame (2013), ay ang pinakakaraniwang uri ng bullying na umiiral sa buong mundo at ang pinakakilalang uri ng bullying sa Cameroon, na nangyayari sa pamamagitan ng stereotyping sa mga paaralan.

Mga Karaniwang Sanhi ng Bullying na Naranasan ng:

A. Mga Kalahok sa Sekondarya

1. Pisikal na Hitsura.

Mahigit sa kalahati ng 40 pangunahing impormante (22) na kalahok ang sumulat tungkol dito sa maraming aspeto bilang sanhi ng pagiging bullying tulad ng hitsura ng mukha, mental na kakayahan, kulay ng balat, pangangatawan, pisikal na depekto at kulot na buhok. Tama sina McLellan at Seddon pati na rin si Elame sa kanilang mga natuklasan na ang pisikal na bullying ang nangunguna at ang pinakakaraniwang uri ng bullying na umiiral sa buong mundo.

Mga karaniwang komento ng mga bully na nakakasira at nakakasakit sa iba: “Malaki ang mga tainga mo,” sabi ng isa. “Malapad ang noo mo,” sabi ng isa pa. “Pangit ang ngipin mo,” pang-aapi sa iba. “Pangit ang mukha mo.” “Hi George gorilla”, “Ang nanay mo ang reyna ng mga gorilya,” komento ng isa. “Hindi ako makakita nang tama, dahil dito kadalasan akong binu-bully ng ilan sa mga kaklase ko parang walang may gusto sa akin dahil sa kapansanan sa paningin.”

2. Katayuan sa Buhay at Trabaho ng mga Magulang

Ang istilo ng pagiging magulang ay may mahalagang papel sa kung paano lumalaki at umuunlad ang mga bata kasama ang uri ng mga pagtanda na magiging sila sa kalaunan. Nabanggit nina Bevilacqua et al. (2017) na ang mga batang nalantad sa mga problema ng magulang o pamilya ay malamang na mabiktima ng pambu-bully nang tatlong beses na mas madalas kumpara sa kanilang mga katapat na may malusog na pagiging magulang.

Isinulat ng ilan sa mga kalahok na ang mga problema sa pamilya, katayuan ng mga magulang at kahirapan ang dahilan ng kanilang pambu-bully. Isa na nito, kung ang isang tao ay may lasenggong ama o sugarol na ina, karaniwang ipapatama sa kanila ng mga bully ang mga katotohanang ito.

Ang mga komento ng mga bully na matinding tumama at nakakasakit ay: “Anak ka ng basag na kawayan”. “Nalunod ang tatay mo sa sopas”. Napakasakit nito para sa mga estudyanteng walang kumpletong magulang lalo na sa mga anak sa labas. “Amoy isda ang naamoy mo.” Isang biro na ibinabato sa isang anak na lalaki o babae na ang kinikita ng mga magulang ay pagtitinda ng isda. “Lasenggo ang tatay mo” “Kalbo ang tatay mo”. “Babaero ang tatay mo” “Karaniwan kaming binubully ng ate ko dahil mahirap”.

Bukod pa rito, iniuugnay ng ibang mga pag-aaral ang mga sanhi ng bullying sa paaralan sa mga salik na panlipunan, ayon kina Menesini at Salmavalli (2017).

3. Oryentasyong Pangkasarian

“Sa mga seremonya ng watawat, karaniwan akong binubully ng ilan na nagsasabing: ‘Kailangan mong sundin ang linya ng mga babae dahil sa mahaba mong buhok’”. “Nakita ko ang isa sa mga kaklase ko na binubully bilang bakla kaya mabigat at pinahihirapan rin ako ng pagiging ganoon.”

Ang pag-aaral nina Hu, Jones at Bruce (2013) ay tumatalakay sa Child Maltreatment and Bullying: Pagsusuri sa mga Karanasan ng mga Batang LGB, ang panliligalig sa akademikong kapaligiran ay nakakaapekto sa pisikal at mental na kalusugan ng biktima, na siya namang nakakaapekto sa taong inatake, sa organisasyon, at kasarian.

4. Relihiyon

Sa pag-aaral ni Anas, “Acceptance of the others and religious tolerance (2025), sinasabi nito na, malaking pag-unlad ang nagawa sa patuloy na mga hamon sa pagpapanatili ng religious tolerance ... upang mabawasan ang mga potensyal na pinagmumulan ng alitan, ang ilang mga mag-aaral ay binu-bully dahil sa kanilang relihiyon. Ito ay salungat sa ilang mga mag-aaral na nakaranas ng bullying dahil sa kaugnayan sa relihiyon sa Pilipinas.

“May mga aktibidad sa paaralan na hindi ako kasali at ang ilan sa aking mga kaklase ay nagsasabi ng masasakit na salita dahil sa aking relihiyon.”

B. Ayon sa mga Guro

1. Tungkol sa Pisikal na Hitsura at Katayuan sa Buhay at Trabaho ng mga Magulang at Relihiyon

Tulad ng sa mga mag-aaral, isinulat ng ilan sa mga guro na sila ay binu-bully dahil sa pisikal na anyo noong sila ay mga mag-aaral at mga mag-aaral na sumusuporta sa natuklasang ito. Natuklasan din nila na ang ilan sa kanilang mga estudyante ay binu-bully dahil sa pisikal na anyo at mahinang pag-iisip sa mga paaralan.

Gayundin, ang kanilang katayuan sa pamilya at trabaho ang naging dahilan ng kanilang pagka-bully. “Mayroon akong estudyante na tinawag ng ilan sa kanyang mga kaklase na ‘burot-burot’ dahil nagtitinda ng isda ang kanyang mga magulang na ikinahiya niya.” “Samantalang ang isa naman ay binu-bully dahil isa siyang anak sa labas. Siya ay tinutukso at ininsulto nang pasalita na naging dahilan upang siya ay maiwan at maliitin.”

“Kabilang ako sa ibang Kristiyanong Pananampalataya. Ang bawat guro ay inutusang dumalo sa isang pagdiriwang sa bayan. Sa kadahilanang ng aking karapatan at kalayaan bilang iba ang relihiyon, ipinaliwanag ko sa aking punong-guro kung bakit hindi ako dumalo sa naturang pagdiriwang at mapagkumbabang hiniling ang kanyang konsiderasyon ngunit nagbitaw siya ng masasakit na salita at binato ako ng mga pang-iinsulto. Binanggit pa niya na ang DepEd ay hindi dapat kumuha ng mga guro na kapareho ko ng relihiyon” “Ipinagbabawal ng relihiyon ko na kailangan naming bumoto tuwing eleksyon. Nagbiro sa akin ang ilan sa mga kasamahan ko, 'Kaya hindi ka nakatanggap ng ambon (uwan-uwan) mula sa mga kandidato dahil hindi ka bumoto noong eleksyon.'”

2. Ang mga pressure sa trabaho, mga kasamahan, at akademikong pagpupursige ay karaniwan lamang sa mga guro at hindi sa mga estudyante.

"Nakaranas pa nga ako ng pambu-bully sa trabaho ko ngayon bilang isang guro dahil tinutukso, pinagtatawanan, at minamaliit ako ng ilan sa mga kasamahan ko sa pamamagitan ng tsismis at panlilibak." "Para sa naka-iskedyul na obserbasyon sa klase ng aming superbisor, agad na nagkomento ang aking mga kasamahan na ako at ang guro sa ika-anim na baitang ang dapat obserbahan dahil pareho kaming kumukuha ng aming Master's Degrees dahil hangad namin ang mas mataas na posisyon. Nasaktan ako sa komentong iyon dahil sa problema sa aking birth certificate, sinabi sa akin ng aking mga kasamahan, 'Natapos mo ang kolehiyo pero hindi ka nagtatrabaho sa iyong degree'. Nakakasakit ang komentong iyon at nagparamdam sa akin na wala kang nakamit sa kabila ng aking pagsusumikap."

C. Ayon sa mga Kinapanayam na Mag-aaral sa Elementarya

1. Hitsura ng Mukha at Katawan

Nang kapanayamin, sa 5 kalahok na mag-aaral, ang pisikal na hitsura at hitsura ang pangunahing dahilan kung bakit sila binu-bully.

"Tinawag akong payat, matangkad ngunit kuba dahil sa payat na anyo.", ganito ang sabi ng kalahok na mag-aaral 1. "Binu-bully din ako dahil walang ngipin at payat," ganito rin ang sabi ng kalahok na mag-aaral 2. "Tinawag akong matanda dahil sa aking puting buhok," sabi ng isa pang kalahok na mag-aaral 3. "Pisikal at pisikal akong pinahiya ng mga bully dahil sa kanilang mga negatibong komento tungkol sa aking hitsura," sagot ng parehong kalahok na mag-aaral sa ika-12 baitang.

Ipinakita ng Talahanayan I na mayroong limang uri ng bullying na nabanggit sa mga kalahok:

1. Pisikal na anyo; 2. Katayuan ng mga magulang/pamilya; 3. Oryentasyon ng kasarian; 4. Relihiyon; at 5. Panggigipit mula sa mga kapantay at trabaho.

Ang mga mag-aaral sa kolehiyo ay nakaranas ng apat sa mga sanhi habang nasa hayskul, ang dahilan bilang 5 dahil hindi pa sila nagtatrabaho. Sa kabilang banda, ang mga Guro ay naharap din sa apat sa mga sanhi; gayunpaman, wala ni isa sa kanila ang binu-bully dahil sa oryentasyong kasarian. Ang mga nakapanayam ay binanggit lamang Pisikal na anyo ang pangunahing sanhi kung bakit sila binu-bully. Gayunpaman, ipinost ng mananaliksik na tulad ng mga estudyante sa kolehiyo, tiyak na naranasan din nila ang iba pang mga sanhi.

Talahanayan 1. Mga Sanhi ng Bullying

Causes	College Students (first year college)	Teachers	Elementary and high school students
1. Physical Appearance	experienced	experienced	experienced
2. Parents/family status	experienced	experienced	-
3. Gender Orientation	experienced	Not-experienced	-
4. Religion	experienced	experienced	-
5. Pressures from work and peers	Not-experienced	experienced	-

Mga Karaniwang Uri ng Bullying na Nararanasan ng mga Estudyante, Mag-aaral, at Guro

1. Verbal Assault, Tsismis, Pagtawag ng Pangalan, Pagbubukod, Pagkutya sa Pangalan ng Isang Tao, at Body Shaming.

Ang mga ganitong uri ng bullying ay naranasan ng tatlong grupo ng mga kalahok, mga estudyante, mag-aaral, at guro. Ang tatlong grupo ng mga kalahok ay nagkaisa sa pagsasabing ang verbal assault, tsismis, pagtawag ng pangalan, at pagbubukod ay mga karaniwang uri ng bullying noong mga unang taon nila sa paaralan. Gayunpaman, nang tanungin tungkol sa bullying noong sila ay nasa kolehiyo, halos lahat ng mga estudyante ay sumulat na ang mga ganitong uri ng bullying ay hindi gaanong nararamdaman nila. Kinumpirma rin ito ng mga guro na ibinahagi na mula noong kolehiyo, sa trabaho, at hanggang ngayon ay hindi na nila nararanasan ang mga ganitong uri ng bullying.

Gayunpaman, may mga guro na hindi nakaranas ng bullying noong sila ay estudyante pa lamang o kahit ngayon sa kanilang trabaho bilang guro. "Noong bata pa ako, mapalad ako na hindi ako nakaranas ng matinding bully". "Mapalad ako na mula pagkabata ay hindi ako nakaranas ng bullying. Ngunit ngayon, nakita ko ang ilan sa aking mga estudyante na binu-bully". "Sa aking kaso, hindi ako nakaranas ng pambu-bully sa aking 26 na taon. Sa kabilang banda, mayroon ding mga guro na hindi alam kung bakit sila binu-bully ngunit sinasaktan lamang ng pisikal o berbal na pananakit ng mga bully noong sila ay bata pa.

2. Mga Post sa Social Media

Ilang kalahok sa 3 grupo ang nagkaisa sa pagdedeklara na minsan o higit pa silang naging biktima ng pambu-bully sa social media at cyber-bullying.

“Ang aking pangit na larawan ay nai-post sa social media ng aking pinsan dahil nag-away kami dahil sinabi niya sa akin na ako ay isang halik sa aking Tita. Tumawa siya at pabiro na nagkomento sa aking nai-post na larawan na nagdulot ng sakit at stress sa akin.”

“Isang matalik kong kaibigan ang naninira sa aking reputasyon sa pamamagitan ng pag-post ng mga maling paratang laban sa akin. Ito ay nagpagalit at nagpa-stress sa akin”. “Isang nakakatawang larawan ko ang nai-post sa aming group chat na nagdulot ng ilang pangungutya at masasakit na biro mula sa aking mga kaibigan. Noong una ay wala akong pakialam tungkol ditto subalit naiinis ako dito nang ako ay personal na binu-bully dahil dito.”

Ang Republic Act 10627, o ang Anti-Bullying Act (ang "Batas"), ay naglalayong protektahan ang mga batang naka-enroll sa kindergarten, elementarya, at sekundaryang paaralan at mga learning center (sama-samang tinatawag na "Mga Paaralan") mula sa pagiging bullying. Kinakailangan nito ang mga Paaralan na magpatibay ng mga patakaran upang matugunan ang bullying sa kani-kanilang mga institusyon. Kinikilala nito ang kahalagahan ng pagpigil at pagtugon sa bullying, kabilang ang cyber-bullying, sa mga institusyong pang-edukasyon. Dapat magpatibay ang mga paaralan ng mga patakaran at mekanismo upang epektibong mahawakan at matugunan ang mga insidente ng bullying.

3. Pananakot at Pangingikil maging sa Pisikal at sa Social Media

Sa pag-aaral ni Lee (2024) tungkol sa papel ng moral na pag-alis ng interes at media literacy sa mga ugnayan sa pagitan ng mapanganib na pagkakalantad sa online content at cyber aggression sa mga kabataang Koreano, natuklasan niya ang walong agresibong online na pag-uugali na matatagpuan sa pakikipag-ugnayan ng mga mag-aaral sa social media: karahasan sa salita, paninirang-puri, paniniktik, pagpapadala ng mapanghamong nilalaman, pagtagas ng personal na impormasyon, pambu-bully, pangingikil, at pamimilit.

Tatlong estudyante ang nagtapat na sila ay biktima ng social media sa pamamagitan ng pananakot, pangingikil at mga panggigipit na halos kumitil ng kanilang buhay habang iniisip nilang magpakamatay. Sinusuportahan ito ng pag-aaral ni Lu (2015) na nagsasabing, may ilang opisyal ng paaralan na nagteorya na ang pambu-bully sa mga paaralang Hapones ay nakakatuong sa mataas na bilang ng mga bata na nagpapakamatay sa Japan. Kamakailan lamang, sa buong mundo, ang pambu-bully ay lumawak mula sa berbal at pisikal na pag-atake patungo sa iba pang uri ng pang-aabuso; tulad ng pambu-bully sa internet at pag-udyok sa mga estudyante na magpakamatay. Ang mga estudyanteng target ng pambu-bully ay dumaranas ng pagkabalisa, depresyon, at iba pang mga problemang sikolohikal.

Karamihan sa mga nakapanayam na mag-aaral sa elementarya ay nakaranas din ng pisikal na pambu-bully. "Binu-bully ako ng aking mga kaklase dahil maliit ako. Minsan ay kinukulong nila ako at pinagbabantaang gagawin ko rin ang pareho kung hindi ko gagawin ang iniuutos nila sa akin. Talagang naramdaman ko ang sakit at kahihyan." "Noong una ay pabiro kong kinukulong ang aking kaklase bilang isang uri ng libangan. Ngunit kalaunan ay naging masakit ito na dahilan para magalit ako." "Humingi ng pera sa akin ang mga bully at hindi ko kailanman sinabi sa aking ina ang tungkol dito dahil sa takot."

II. Ang Mga Negatibong Epekto ng Bullying sa mga Kalahok

1. Lahat ng nakaranas ng bullying, maging ang mga estudyante sa kolehiyo, elementarya at hayskul, at maging ang mga guro mismo, ay nakaranas ng emosyonal at sosyal na stress, kawalan ng pagpapahalaga sa sarili, at mababang pagpapahalaga sa sarili. Karamihan ay nakaranas ng pagkabalisa, depresyon, at paglayo sa mga pakikisalamuha. Ang mga pagganap sa akademiko at paaralan ay negatibong naapektuhan ngunit kadalasan ay sa maikling panahon lamang. Iilan ang lumipat ng paaralan at isa ang tumigil sa pag-aaral sa loob ng isang taon dahil sa mga salik ng mga guro. Bilang mga biktima, nakaranas sila ng mga kawalan ng seguridad, pressure, at kawalan ng empatiya.

2. Mga Tendensiya sa Pagpapakamatay. Bagama't nananatili sa ilalim ng balatkayo ng depresyon o pagkabalisa, ilan sa mga kalahok ang sumulat tungkol sa mga pagtatangka sa pagpapakamatay at mga nabigong pagpapakamatay dahil sa pambu-bully mula sa mga kaklase at maging mula sa mga miyembro ng pamilya.

Ang pag-aaral ni Aprilia et Al (2013) Ang mga rate ng pagpapakamatay ng mga estudyante ay kadalasang tumataas sa panahon ng pasukan, at mula noong 2011, ang pagpapakamatay ang naging pangunahing sanhi ng pagkamatay ng mga tinedyer. Ang ilang mga opisyal ng paaralan ay nagteorya na ang pambu-bully sa mga paaralan.

III. Mga Positibong Epekto mula sa Bullying sa mga Kalahok

Mas matimbang ang mga positibong epekto kaysa sa mga negatibo: Ang bawat positibong epekto ay pinagsama-sama ayon sa pagpili ng mga kalahok:

1. Mas Matibay na Pananampalataya at Tiwala sa Diyos

Ang mga Pilipino bilang mga Kristiyano ay palaging inilalagay ang Diyos bilang sentro ng kanilang buhay. Upang anuman ang mga hamon at pagsubok na kanilang kaharapin, ang pananampalataya sa Diyos ay lalong lumakas. Humigit-kumulang isang-katlo ng mga kalahok ang sumulat tungkol sa kanilang pananampalataya sa Diyos bilang pangunahing dahilan kung bakit sila nagpatuloy upang mabuhay sa gitna ng mga hamon at pagsubok.

“Maraming pagsubok ang kailangan kong malampasan bago ako magtagumpay. Sa bawat problemang aking naranasan, lagi kong iniisip ang ating Panginoong Hesus.” “Sa bawat sandali na ako ay binu-bully, lagi kong iniisip na hindi ako nag-iisa dahil ang Diyos ay nasa aking panig.” “Mga sandali na natutukso akong wakasan ang aking buhay dahil labis akong nalulumbay, naiisip ko na ang Diyos ay nagsasalita sa harap ko. Sa gayon ay umiyak ako at naranasan ang paggaling. Bumalik ako upang maglingkod sa Kanya bilang miyembro ng koro ng aming Immaculate Conception Parish” “Muntik na akong magpakamatay nang 3 beses. Ngunit sa ikatlong pagkakataon, may naramdaman ako tungkol sa awit ng Diyos sa pagliligtas sa akin.” Ibinalik Niya ang aking pananampalataya at isinuko ang aking sarili sa Kanya.” “Sa kabila ng aking kawalan ng tiwala sa sarili bilang bunga ng pambu-bully, palagi akong nagpapasalamat sa Diyos dahil lagi kong nararamdaman ang Kanyang pagmamahal para sa akin na nagpapaisip sa akin na lahat ng Kanyang nilikha ay maganda.”

2. Pagpapalalim ng Ugnayan ng Pamilya, Pag-asa, Komunikasyon at Pagiging Bukas

Ang pagbubuklod, pagiging malapit, at pagiging bukas ng pamilya ay nakakatulong sa paglutas ng mga sakit ng mga biktima tungkol sa pambu-bully. Ang mga magulang ay may mahahalagang papel sa pagtugon at pambu-bully sa pamamagitan ng pagpapalaganap ng bukas na komunikasyon, pagmomodelo ng mga positibong pag-uugali, pagsubaybay sa mga interaksyon, at pakikipagtulungan sa mga paaralan. Maaari silang lumikha ng suportadong kapaligiran na naghihikayat ng kabaitan at empatiya.

“Sa kabila ng minsang pagtatawag sa akin sa pamilya bilang mga itim na tupa at pambu-bully bilang mataba, nagpapasalamat pa rin ako at mapalad na mayroon akong pagmamahal at atensyon ng aking mga magulang.” “Ako ay binu-bully ng isang babaeng kaklase at pisikal na sinaktan ng isang lalaki. Ibinunyag ko ito sa aking ama at kinabukasan ay hinarap niya ang bata at binalaan siyang huwag na akong apihin muli.

3. Paghahanap ng Tunay na Kaibigan, Mapagmalasakit na Guro, at Mga Network ng Suporta

Ang mga tunay na kaibigan ay mahahalagang hiyas na parang ginto na kumikinang kahit sa pinakamadilim na bahagi ng gabi. Bagama't ang mga tunay na guro ay parang mga positibong impluwensya na pumapalibot at umaakay sa mga kaluluwang lituhin patungo sa liwanag. Higit sa lahat, ang mga network ng suporta ay mahalaga sa pagbuo ng pagpapahalaga sa sarili at kumpiyansa.

"Sa kabila ng pader na itinayo ko sa aking sarili, may mga taong umakyat pa rin dito at nagdala ng bagong pag-asa sa aking nanlulumong kaluluwa. Nagsimula akong buksan muli ang aking sarili dahil sa tulong ng mga kaibigan pati na rin ng aking pamilya."

4. Pagbuo ng Pagpapahalaga sa Sarili, Katapangan at Pakikisalamuha

Dahil ang mga indibidwal na binu-bully ay karaniwang sumusuko sa mababang imahe sa sarili, kawalan ng lakas ng loob at paglayo sa mga pakikipag-ugnayan sa lipunan bilang mga anyo ng pagkabilanggo sa sarili, ang isang therapeutic self-help at muling pagpapataas ng kanyang ego ay kinakailangan upang masira ang pamatok ng pagkaalipin na dulot ng sarili at iba. Bakit ang pagkaalipin na dulot ng sarili at iba? Kung ang isa ay malakas, hindi siya dapat maantig ng mapang-api na iba. Kung alam ng bully o mga bully ang pinsalang maaari niyang idulot sa iba, tiyak na iiwasan niya ang anumang kilos o salita na maaaring sumira sa natural at espirituwal na kagandahang ipinagkaloob sa bawat tao ng kanyang Lumikha.

IV. Mga Interbensyon, Pamamagitan, at Aksyon ng mga Guro Laban sa Bullying

Ang mga guro, bilang de facto na tagapayo sa kanilang mga mag-aaral at estudyante, ay may tungkuling manguna sa pagpapatupad ng mga nakasaad sa RA 10627 na tumutukoy sa Anti-Bullying Act of 2013 at RA 11313, na kilala rin bilang Safe Spaces Act o ang Batas na "Bawal Bastos". Gayundin, dapat nilang tiyakin na ang kaayusan, kapayapaan, at pagkakasundo sa kanilang kapaligiran at mga estudyante ay maisasagawa at maisabuhay upang ang anumang estratehiya o mga estratehiya na may kaugnayan sa katuparan ng kanilang mga layunin ay palaging isang bentahe at karapat-dapat purihin.

1. Paglikha ng Ligtas, Malusog, at Inklusibong Kapaligiran. "Lumikha ako ng isang ligtas at inklusibong silid-aralan sa gayon ay ipinapaalala sa bawat isa sa aking mga estudyante ang kahalagahan ng paggalang, ang pag-iwas, at pag-iwas sa pambu-bully". "Naniniwala ako na ang aking tungkulin bilang isang guro ay tulungan ang aking mga estudyante na madama ang pagmamahal, pagtanggap, at paggalang, sa gayon ay nag-uudyok sa kanila na gawin din ito." "Naging bahagi na ng buhay ko bilang isang guro ang pagyamanin ang suporta at inklusibong kapaligiran sa silid-aralan, hinihikayat ang aking mga estudyante na maging mabait at gumawa ng ilang mga aktibidad upang mapahusay ang higit na pagiging bukas lalo na ang pagpapahayag ng sarili sa klase pati na rin ang pagpapahayag ng kanilang mga alalahanin sa klase nang hayagan." "Ang paglikha ng isang inklusibo at suportadong kapaligiran sa silid-aralan ay hindi lamang nakakatulong sa mga binu-bully kundi nagpapatibay din ng pakiramdam ng responsibilidad sa mga estudyante na manindigan laban sa bullying."

2. Pagtawag ng Atensyon sa mga Bully. "Karaniwan, kinakausap ko nang pribado ang bully at binibigyang-diin ang mga negatibong epekto ng kanyang mga aksyon sa kanyang binu-bully." "Bilang isang guro, palagi akong kumikilos nang maagap at namamagitan kapag nangyayari ang bullying. Pinaghihiwalay ko ang parehong binu-bully at ang bully at kinakausap ko sila nang pribado. Binibigyang-diin ko sa bully kung paano makakaapekto ang mga negatibong epekto sa buhay ng kanyang binu-bully." "Araw-araw ay sinisikap kong ipaalala at turuan ang mga bully na may negatibong epekto sa iba."

3. Pakikipag-usap nang pribado sa mga Binu-bully. "Nasaksihan ko kung paano binu-bully ang isa sa aking mga estudyante. Tinawagan ko ang estudyanteng iyon at nakipag-usap nang pribado sa kanya upang maunawaan ang kanyang nararamdaman at upang hikayatin siyang magbukas at ipahayag ang kanyang mga kinikimkim na emosyon." "Lumapit sa akin ang isang estudyante dahil sa kanyang pagkadismaya dahil sa pang-aasar sa kanyang hitsura. Sinigurado kong seryosohin ang kanyang mga alalahanin at lumikha ng ligtas na espasyo para maipahayag niya ang kanyang mga nararamdaman. Nagtutulungan kami upang bumuo ng mga estratehiya sa pagharap sa mga problema."

4. Pakikipag-ugnayan at Pakikipagpulong sa mga Magulang at Tagapangalaga ng mga Estudyante. "Tinawagan ko ang mga magulang ng mga estudyanteng binu-bully pati na rin ang mga bully upang ipaalam

ang kalagayan ng kanilang mga anak at upang makahanap ng mas maraming impormasyon tungkol sa kanilang mga anak.” “Tinawagan ko at isinasali ang mga magulang at tagapag-alaga kung kinakailangan para sa kanilang pakikipagtulungan upang mapangalagaan ang mga positibong pag-uugali ng mga bata sa bahay.” “Nakikipag-usap ako sa mga magulang at tagapag-alaga ng mga bully at bully upang makatulong sa pagsugpo ng bullying sa klase at upang magkaroon ng pinag-isang positibong diskarte sa pagtugon sa bullying”.

5. Pagbuo ng mga Supportive Network mula sa mga Kapantay, Propesyonal at mga Guidance Counselor. “Hinikayat kami ng aming guidance counselor na bumuo ng isang supportive network mula sa mga kapantay, kaibigan, eksperto at propesyonal lalo na sa mga guidance counselor upang makatulong na mapagaan at mabawasan ang bullying lalo na sa mga paaralan.” “Bagama’t isang hamon ang pagharap sa mga epekto ng bullying, ang paghingi ng suporta mula sa mga kaibigan, pamilya o counselor ay maaaring makagawa ng malaking pagkakaiba lalo na sa paggaling at paglaki ng mga bullied. Gayundin, makakatulong din ito sa pagsugpo at pag-redirect ng mga karaniwang direksyon na tinatahak ng mga bully.”

MGA KONGKLUSYON

Ang mga resulta ng eksploratibong kwalitatibong pag-aaral na ito sa pamamagitan ng mga pagsusuri ng dokumento at interpretatibong phenomenological analysis (IPA) ay nagpapakita na ang bullying ay isang karaniwang penomeno na karaniwang nararanasan ngunit hindi limitado sa mga silid-aralan kundi nangyayari rin ito sa mga tahanan, lugar ng trabaho, at iba pang mga establisyimento. Ang mga epekto nito ay laganap lalo na sa mga kabataan at sa social media ngayon. Ang mga indibidwal at bata ay nalalantad sa bullying sa kanilang mga unang taon ng pag-iral, maging sa paaralan, sa bahay, o sa anumang iba pang lugar, maging sa mga matatanda. Ang pinakamahina at mahina sa bullying sa buhay ng mga lalaki at babae ay batay sa pisikal na anyo na kinabibilangan ng hitsura ng mukha, kulay ng balat at kulot na buhok, at mga depekto sa pangangatawan at pisikal na anyo. Sinusundan ito ng katayuan sa buhay ng mga biktima at trabaho ng mga magulang, relihiyon, oryentasyong kasarian, ang ilan ay hindi alam kung bakit sila binu-bully at kakaunti ang hindi nakaranas ng bullying sa kanilang buhay. Ang mga karaniwang anyo ng bullying ay ang berbal na pananakit, tsismis, at pagbubukod; sarkastiko, pagtawag ng pangalan, at pangungutya sa sariling pangalan; pisikal na pananakit, pananakot, at pangingikil. Ang karaniwang kahinaan ng bullying sa mga Pilipino ay ang kulay ng balat, kulot na buhok, katayuan sa sarili, at katayuan sa pamilya. May mga salita at parirala na hindi kanais-nais marinig ng mga Pilipino bilang mga salitang mapang-diskrimina.

Ang bullying ay may mga negatibong epekto tulad ng emosyonal at sosyal na stress, kawalan ng pagpapahalaga sa sarili, mababang pagpapahalaga sa sarili, pagkabalisa, depresyon at paglayo sa mga pakikisalamuha, kawalan ng seguridad, pressure ng mga kasamahan, at kawalan ng empatiya. Mayroon din itong negatibong epekto sa akademiko at paaralan sa loob lamang ng maikling panahon o maaaring tumagal pa ng mahabang panahon.

Sa kabilang banda, ang mga positibong epekto bilang bunga ng bullying at gaslighting ay mas malaki kaysa sa mga negatibo tulad ng pagbuo ng mas matibay na pananampalataya at tiwala sa Diyos; pagpapalalim ng ugnayan ng pamilya, pag-asa, komunikasyon, at pagiging bukas; paghahanap ng mga tunay na kaibigan, matulunging guro, at mga network ng suporta; at, pagbuo ng pagpapahalaga sa sarili, lakas ng loob, at pakikisalamuha.

Ang mga interbensyon, mediasyon, at aksyon ng mga guro laban sa bullying ay kinabibilangan ng: paglikha ng isang ligtas, malusog, at inklusibong kapaligiran; pagtawag ng atensyon ng mga bully; pakikipag-usap nang pribado sa mga binu-bully; pakikipag-ugnayan at pakikipagpulong sa mga magulang at tagapag-alaga ng mga estudyante; at, pagbuo ng mga supportive network mula sa mga kasamahan, propesyonal, at mga guidance counselor.

At panghuli, karamihan sa mga interpretative phenomenological analyses (IPA) ng mga mananaliksik ay naisama na sa mga nakaraang talata at ang mga natitirang pagsusuri ay ibibigay sa mga rekomendasyon.

MGA REKOMENDASYON

1. "Mens sana in corpore sano" (isang malusog na isip sa isang malusog na katawan) isang Latin na kasabihan na nagbibigay-diin na ang tao ay dapat munang magkaroon ng malusog na isip upang magkaroon ng malusog na katawan. Dahil ang pambu-bully ay isa lamang kathang-isip ng mga mapang-akit na termino upang atakehin ang marupok na pag-iisip at emosyon ng tao, mas mainam na ang mga kabataan, maging ang mga paslit hanggang sa paglaki, ay dapat matutunan ang pagpapahalaga at tunay na pagmamahal sa sarili. Lalo na sa mga Pilipino na karamihan ay 'union skin' sa mga walang batayan na komento, tulad ng kulot iyong buhok na nagtutulak sa isa na isipin na siya ay isang acta.

2. Relihiyon - Bagama't hindi marami ang sumulat tungkol sa relihiyon bilang pangunahing sanhi ng pambu-bully, ang pagbibigay ng stress dito ay makabuluhan lalo na para sa mga guro at pinuno ng mga paaralan at unibersidad. Art. Ayon sa Seksyon 5 ng Kodigo ng Propesyonal na Etika para sa mga Propesyonal na Guro, "Ang isang guro ay hindi dapat makisali sa pagtataguyod ng anumang interes na pampulitika, relihiyoso, o iba pang partisan, at hindi dapat, direkta o hindi direkta, humingi, humingi, mangolekta, o tumanggap ng anumang pera o serbisyo o iba pang mahahalagang materyal mula sa sinumang tao o entidad para sa mga naturang layunin.

3. Pisikal na Pananakit, Pananakot at Pangingikil. Ang mga sanhi ng pambu-bully na ito ay hindi matatagpuan sa mga grupo ng mga mag-aaral at guro kundi sa mga elementarya. Ngunit mahalaga ba ang mga ito at sulit na tingnan? Tahimik silang nangyayari at gumagapang lalo na sa mga mahiyain at malayong mag-aaral at mga mag-aaral na inaalipin ng takot. Dapat seryosong suriin ng mga guro, pinuno, magulang at tagapag-alaga ang bagay na ito. Kung mananatiling hindi nasusuri ang mga ito, maaaring ang susunod ay ang droga at iba pang anyo ng kasamaan.

4. Ang Social Media - Ang pagkontrol sa social media sa pamamagitan ng mga batas at patakaran ay tila walang silbi sa pagpigil sa kanilang mga epekto tungkol sa mga pekeng post ng balita at mga post na nabuo ng AI dahil sa kanilang transnasyonal na katangian at sistema. Ang paaralan lalo na ang pamilya ang may higit na kapangyarihang kontrolin ang kanilang mga anak sa paggamit at pag-access sa social media. Ang responsable at matalinong mga gumagamit ng media ay kinakailangan sa mga batang ay pinakamahina sa mga epekto ng social media.

Ang mga guro, stakeholder ng paaralan, mga eksperto at mga propesyonal sa larangan ng edukasyon, sikolohiya at pagpapayo at maging ang mga network ng mga taong may mabuting kalooban tulad ng Simbahan at mga NGO ay dapat magsama-sama upang matugunan ang pambu-bully sa pamilya, paaralan at iba pang mga establisyimento.

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PROBLEMS, CHALLENGES, AND RESILIENCE OF PARENTS OF CHILDREN WITH SPECIAL NEEDS AND ASD IN THE CENTRAL PHILIPPINES

(MGA PROBLEMA, HAMON, AT KATATAGAN NG MGA MAGULANG NA MAY MGA BATANG MAY ESPESYAL NA PANGANGAILANGAN AT ASD SA GITNANG PILIPINAS)

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ABSTRACT

Raising children with autism and other special needs presents complex challenges that significantly affect parents' lives. Autism spectrum disorder (ASD) is a developmental condition that influences communication, behavior, and social interaction, with symptoms often emerging in early childhood. The study tried to identify the problems and challenges parents face in dealing with them, share their resilience, coping mechanisms, and adjustments; and points out parents' concerns and goals for their children. While research has explored various aspects of parenting children with disabilities, limited attention has been given to the lived experiences of parents within the local setting. This qualitative research using interpretative phenomenological analysis (IPA) explored the experiences of parents raising children with autism and special needs. Data was gathered through in-depth interviews and analyzed thematically to identify recurring patterns and meanings. And intelligent verbatim was applied in the transcription process. Results showed that parents' early responses were categorized into denial and acceptance, with acknowledgment marking the beginning of coping and adjustment. Parents faced multifaceted challenges such as financial strain, social discrimination, time constraints, and behavioral management. Coping strategies involved professional interventions, SPED and skills training programs, emotional resilience, and fostering understanding within the family. Educational access depends on resources and severity of conditions. Furthermore, parents' main concerns are centered on their children's future independence, with hopes ranging from full recovery to mastery of basic survival skills. Overall, the findings highlight the crucial role parents play not only as caregivers, but also as advocates, educators, and emotional anchors for their children. Indeed, they are the ones addressing their children's needs and making every possible effort to help them reach in their journey.

Mga Susing Salita: *Mga karanasan at hamon ng mga magulang, mga batang may mga espesyal na pangangailangan, katatagan, Interpretative Phenomenological Analysis (IPA)*

PANIMULA

Ang pagpapalaki ng mga batang may autism at iba pang mga espesyal na pangangailangan ay nagpapakita ng mga kumplikadong hamon na may malaking epekto sa buhay ng mga magulang. Ang Autism spectrum disorder (ASD) ay isang kondisyon sa pag-unlad na nakakaimpluwensya sa komunikasyon, pag-uugali, at pakikipag-ugnayang panlipunan, na may mga sintomas na kadalasang

lumilitaw sa maagang pagkabata. Bagama't siniyasat ng pananaliksik ang iba't ibang aspeto ng pagiging magulang ng mga batang may kapansanan, limitado ang atensyon na ibinigay sa mga karanasan ng mga magulang sa loob ng lokal na kapaligiran.

Maraming pag-aaral ang nag-ulat na ang mga magulang na may ASD ay nasa panganib ng sikolohikal na stress, pagkabalisa, depresyon, at mahinang kalusugan kumpara sa pagkakaroon ng mga batang may iba pang kapansanan (Pisula, E. 2007 at King, J. et al. 2009). Ang mga resulta sa pagiging magulang ay naapektuhan ng mga batang may antas ng ASD, mga problema sa pag-uugali na nauugnay dito, mga kahirapan sa komunikasyon, edukasyon at pag-aangkop at pag-access sa mga serbisyo para sa bata.

Inihayag ng mga magulang, ang pagpapalaki ng isang batang may autism o iba pang mga espesyal na pangangailangan ay maiihalintulad sa paglalakbay sa isang hindi pa natutuklasang teritoryo, kung saan walang umiiral na takdang tuntunin para sa pagiging magulang. Ang karanasan ay maaaring magdulot ng parehong positibo at negatibong katotohanan. Sa positibong panig, ang mga pamilya ay maaaring bumuo ng mas matibay na ugnayan, magpalalim ng suporta sa isa't isa, at linangin ang katatagan sa pag-navigate sa mga hamon. Sa kabilang banda, ang tungkulin ay kadalasang nangangailangan ng malalaking pagsasaayos, pagbibigay ng masinsinang pangangalaga, emosyonal na paghihirap, at malaking pangangailangang pinansyal upang masakop ang mga therapy, edukasyon, at pangangalagang pangkalusugan (Woodgate et al., 2008). Ang kalidad ng pagiging magulang ay may mahalagang papel sa intelektwal, sosyal, at emosyonal na pag-unlad ng isang batang may autism, dahil ang pamilya ay nananatiling pangunahing institusyon para matugunan ang mga pangunahing pangangailangan ng isang tao, at tungo sa pagpapaunlad ng kakayahang gumana sa lipunan (Rabbani-Khorasgani at Esfahani, 2014).

Sa pag-aaral nina Karst, JS at Hecke, AV (2012), isinulat nila na ang mga pamilyang may espesyal na anak o mga anak na may ASD ay maaaring makaranas ng mga paghihirap sa pananalapi, pressure sa oras, alitan sa mag-asawa, paghihiwalay sa lipunan, pagtaas ng oras ng pangangalaga, pagbawas ng self-efficacy, hindi sapat na serbisyo ng suporta, patuloy na pagtataguyod ng bata, at kawalan ng katiyakan tungkol sa kinabukasan ng bata habang tumataas ang mga stressor. Ang pangkalahatang karanasan ng mga magulang na nag-aalaga ng mga batang may ASD ay kinabibilangan ng pambu-bully bilang isang hamon na kinakaharap ng mga magulang (Glazzard J. at Overall K., 2012).

Ayon sa pag-aaral nina Hoogsteen et al (2013) na sinipi nina Wan et al (2022), ang mga nakaraang pananaliksik na hinggil sa mga karanasan ng mga pamilya ng mga batang may kapansanan na naninirahan sa mga rural na lugar ay hindi sapat. Ang mga magulang sa mga lugar na ito ay may iba't ibang paniniwala sa kultura na mga salik sa kakulangan ng kaalaman at kasanayan sa pagiging magulang ng mga batang ito. Gayundin, ang kakulangan ng mga pasilidad at iba pang kinakailangang suporta ay maaaring hadlang sa mga diagnosis at therapy ng mga bata.

Ipinakita ng mga pag-aaral na ang mga magulang ng mga batang may autism ay nahaharap sa patuloy na mga hamon na kinasasangkutan ng pag-uugali, komunikasyon, pakikisalamuha, at mga interpersonal na relasyon ng kanilang mga anak (Ross at Salah, 2016). Ang pagiging magulang sa kontekstong ito ay nangangailangan ng kombinasyon ng emosyonal, asal, at sikolohikal na pagsisikap (Gona et al., 2016). Ang pag-access sa edukasyon ay isang mahalagang alalahanin, dahil pinatutunayan ng mga internasyonal na kasunduan na ang mga taong may kapansanan ay may parehong karapatan sa edukasyon, trabaho, at pakikilahok sa komunidad tulad ng iba (Forshay et al., 2006; Compton et al., 2010). Gayunpaman, ang pag-aaral ay kadalasang mas matagal, at ang pagkuha ng mga kasanayan ay maaaring mas mahirap para sa mga batang may mga kondisyon sa pag-unlad (Erikson, 2011).

Sa kabila ng lumalaking kalipunan ng mga literatura tungkol sa autism at edukasyon para sa mga may espesyal na pangangailangan, nananatili ang kakulangan sa pag-unawa sa mga karanasan ng mga magulang, lalo na sa mga lokal na konteksto, tungkol sa kanilang mga mekanismo sa pagharap sa mga problema, mga estratehiya sa edukasyon, at mga pangmatagalang pag-asa para sa kanilang mga anak. Karamihan sa mga umiiral na pananaliksik ay nakatuon sa mga klinikal na interbensyon, mga rate ng paglaganap, o pagsasama sa edukasyon, ngunit mas kaunti ang nalalaman tungkol sa pang-araw-araw na realidad na kinakaharap ng mga magulang, ang mga pagsasaayos na ginagawa nila, at kung paano nila nakikita ang kinabukasan ng kanilang mga anak.

Bagama't ang autism spectrum disorder (ASD) ay isang kondisyon sa neurolohikal at pag-unlad na nakakaapekto sa komunikasyon, pakikipag-ugnayan sa lipunan, pagkatuto, at pag-uugali, maaari itong masuri sa anumang edad, ito ay kadalasang natutukoy sa unang dalawang taon ng buhay (National Institute of Mental Health, 2024). Ang mga batang may autism ay kadalasang kasama sa mas malawak na kategorya ng mga batang may mga espesyal na pangangailangan at inilalarawan bilang mga "nasa kanilang sariling mundo," kasama ng iba na may iba't ibang kapansanan sa pag-unlad o pisikal. Ang pagkakaroon ng batang may autism sa isang pamilya, lalo na kung higit sa isang bata ang apektado, ay maaaring magkaroon ng malaking epekto sa dinamika ng pamilya, pang-araw-araw na gawain, at pagpapalano sa hinaharap. Ang mga magulang at kapatid ay kadalasang nahaharap sa malalaking hamon habang sila ay umaangkop sa emosyonal, sosyal, at pinansyal na aspeto sa mga pangangailangan ng pag-aalaga. Kadalasan, ang mga batang ito ay natutukoy sa kanilang kakulangan sa halip na sa kanilang mga kakayahan at potensyal (Pandit, 2010).

Tinutugunan ng pag-aaral na ito ang kakulangang iyon sa pamamagitan ng paggalugad sa mga pananaw ng mga magulang.

MGA LAYUNIN NG PAG-AARAL

Ang pangunahing layunin ng pag-aaral na ito ay upang tuklasin at unawain ang mga karanasan ng mga magulang na nagpapalaki ng mga batang may autism at mga espesyal na pangangailangan. Partikular na nilalayon nito na:

1. Tukuyin ang mga problema at hamong kinakaharap ng mga magulang sa pagharap sa mga ito;
2. Naibabahagi ang kanilang katatagan, mga mekanismo sa pagharap, at mga pagsasaayos; at,
3. Tukuyin ang mga alalahanin at mithiin ng mga magulang para sa kanilang mga anak.

METODOLOHIYA

Gumamit ang pag-aaral ng isang kwalitatibong Interpretative Phenomenological Analysis (IPA), na pinili dahil sa dinamikong oryentasyon nito at diin sa malalim na pag-unawa sa mga karanasang naranasan. Gumagamit ang IPA ng dalawang yugtong prosesong hermeneutic: una, binibigyang-kahulugan ng mga kalahok ang kanilang sariling mga karanasang naranasan; pangalawa, binibigyang-kahulugan ng mga mananaliksik ang interpretasyon ng mga kalahok sa mga karanasang iyon (Alase, 2017; Smith et al, 2009). Ang mga rekording ng panayam ay na-transcribe gamit ang Intelligent Verbatim method (kilala rin bilang clean read o clean verbatim), na kinabibilangan ng magaan na pag-eedit at kaunting paraphrasing upang makagawa ng isang madaling basahin na transcript habang pinapanatili ang kahulugan at konteksto.

Isinagawa ang pangongolekta ng datos sa pamamagitan ng harapan, semi-istruktura, at malalimang panayam, na siyang pangunahing instrumento ng pananaliksik. Isang gabay sa panayam na binuo ng sarili ang nilikha at pinatunayan ng mga eksperto sa larangan. Isang kabuuang labindalawang (12) magulang-kalahok ang napili sa pamamagitan ng homogenous sampling sa mga piling bayan ng Probensya ng Bohol, na binubuo ng mga magulang na nagpapalaki ng mga anak na may autism o iba pang mga espesyal na pangangailangan. Ang pamamaraang ito ng sampling, gaya ng inilarawan ni Robinson (2014), ay tinitiyak ang homogeneity ng kasaysayan ng buhay, dahil lahat ng kalahok ay nagbabahagi ng parehong nakaraan at kasalukuyang karanasan sa pagiging magulang ng mga anak na may magkatulad na kondisyon.

Mahigpit na sinunod ang mga prinsipyong etikal sa buong pananaliksik. Ang informed consent, anonymity, at confidentiality ay masigasig na pinanatili. Ang lahat ng impormasyong nakuha ay nanatili lamang sa pagitan ng mga mananaliksik at mga kalahok upang pangalagaan ang personal na datos at matiyak ang pagiging mapagkakatiwalaan ng proseso. Ang mga panayam ay tumagal ng 30 minuto hanggang 1 oras, na nagpapatuloy hanggang sa maabot ang saturation ng datos. Hinikayat ang mga kalahok na gamitin ang wika o diyalekto na pinakakomportable sila, lalo na ang Visayan o Boholano, upang

maipahayag nila nang buo ang kanilang mga iniisip at emosyon. Ang lahat ng tugon ay naitala, na-transcribe, at inorganisa ayon sa mga layunin ng pag-aaral.

Batay sa pagsusuri ng datos, ang pag-aaral ay sumunod sa isang paunang natukoy na istruktura na nakahanay sa mga layunin at mithiin nito. Ang pagkokodigo, pagkategorya, at konseptwalisasyon ay inilapat upang sistematikong suriin ang datos ng panayam. Inihayag ng prosesong ito ang mga karanasan sa buhay ng mga kalahok, mga mekanismo sa pagharap, mga hamon, at mga alalahanin sa pagpapalaki ng mga batang may autism o mga espesyal na pangangailangan. Sinuri ang mga salaysay gamit ang mga pamamaraan ng kwalitatibong pagsusuri, kabilang ang tematikong pagsusuri, pagsusuri ng nilalaman, at pagsusuri ng salaysay, upang matukoy ang mga paulit-ulit na tema, mga pattern, at mga istruktura sa loob ng mga salaysay ng mga kalahok.

MGA RESULTA AT TALAKAYAN

Inilalahad ng seksyong ito ang mga natuklasan ng pag-aaral sa mga karanasan ng mga magulang na may mga autistic at espesyal na anak, na binigyang-kahulugan sa pamamagitan ng isang penomenolohikal na lente. Inilalarawan ng mga salaysay ng mga kalahok ang kanilang mga unang reaksyon sa diagnosis, ang mga hamong kinakaharap nila sa pang-araw-araw na pangangalaga, ang kanilang mga pamamaraan sa edukasyon at pagsasanay sa kasanayan, lalo na ang kanilang mga pangmatagalang pag-asa at alalahanin para sa kinabukasan ng kanilang mga anak. Ang bawat tema ay tinalakay kasama ng mga direktang salaysay mula sa mga magulang, na nagbibigay-diin sa parehong emosyonal at praktikal na dimensyon ng pagpapalaki ng isang batang may mga espesyal na pangangailangan.

I. Mga Tugon, Problema, at Hamon ng mga Magulang

A. Dalawang Kategoriya ng mga Tugon ng mga Magulang

Isiniwalat ng pag-aaral ang dalawang pangunahing tugon sa mga magulang nang malaman nilang autistic ang kanilang anak: ang mga unang itinanggi ang kondisyon bago ito tuluyang tanggapin, at ang mga yumakap sa diagnosis mula sa simula.

1. Mga Magulang na May Mga Tugon sa Pagtanggap

Madalas na inilalarawan ng mga magulang sa grupong ito ang kanilang unang reaksyon bilang pagkabisigla, paglaban, at emosyonal na pakikibaka, na minsan ay tumatagal nang maraming taon. Ibinahagi ng isang magulang, "Hindi madaling tanggapin na mayroon kaming anak na autistic. Maraming taon kaming nasa pagtanggap. Pagkalipas ng halos sampung taon, nagawa naming tanggapin ang katotohanang iyon. Naalala ng isa pa na tinanggihan ng kanilang asawa ang ideya sa loob ng maraming taon: "Mula tatlo hanggang limang taon nang isilang ang aming anak, sinimulan naming maunawaan ang autism ng aming anak dahil mula pa sa simula ay nasa estado ng pagtanggap ang aking asawa. Nang magsimula akong magsaliksik sa internet tungkol sa mga sintomas ng autism, sinimulan kong mapagtanto na ang aking anak ay may mga sintomas na iyon.

Inilarawan ng iba ang ganap na pagtanggap sa ideya noong una. Paliwanag ng isa, "Una sa lahat, walang lugar sa puso ko para tanggapin na mayroon kaming anak na autistic. Puro pagtanggap lang iyon. Apat na taon pagkatapos noon ay sinimulan na namin itong tanggapin". Sabi naman ng isa, "Mula sa simula, itinanggi namin ang katotohanan, at mga dalawang taon na ang lumipas bago namin ito sinimulang tanggapin mula sa mga natuklasang medikal".

2. Grupo ng Mga Magulang na Bukas ang Pagtanggap

Sa kabaligtaran, iniulat ng mga magulang sa 'grupong pagtanggap' na tinanggap nila ang kondisyon ng kanilang anak mula noong simula, na nakatuon sa pagmamahal, pangangalaga, at disiplina. Ibinahagi ng isa, "Mula pa sa simula ng abnormalidad ng aking anak, lagi ko siyang pinaparamdaman ang aking pagmamahal at pangangalaga. Sinigurado kong palagi akong may oras para sa kanya pati na rin ang

disiplina. Ang isa naman ay nagpahayag ng pasasalamat, na nagsasabing, “Sa kabila ng kanyang kapansanan, nagpapasalamat ako sa Diyos at tinanggap ito dahil ang kanyang kaso ay kayang pamahalaan at akuhin”.

Iniugnay ng ilan ang kanilang pagtanggap sa mga partikular na karanasang medikal. Naalala ng isa, “Noong pitong buwan pa lamang ang aking anak, siya ay may sakit na meningitis na malamang na naging sanhi ng kanyang pagiging abnormal at epileptiko. Sa kadahilanang ito, sinimulan kong tanggapin na hindi siya isang normal na bata”. Sabi naman ng isa, “Alam na namin pagkatapos ipanganak ang aking anak na siya ay autistic, ayon sa ulat ng nars at doktor. Bagama’t nadismaya, pinilit ko ang aking sarili na tanggapin ang katotohanan”.

Inilarawan ng iba ang isang proseso ng unti-unting pag-aadjust: “Unti-unti kong inayos at tinanggap na ang aking anak ay may abnormalidad dahil pagkatapos niyang ipanganak, nilalagnat na siya. Paminsan-minsan, kailangan namin siyang dalhin sa ospital. Kalaunan, sinabi ng doktor na hindi ito lagnat kundi epilepsy”. Para sa ilan, ang pagtanggap ay nakatali sa pagtiyak na ang kanilang anak ay nakakaramdam ng emosyonal na seguridad, gaya ng ibinahagi ng isang magulang: “Sa simula pa laman ay lagi kong iniisip na iparamdam sa aking anak na siya ay minamahal at hindi kailanman mararanasan ang pagiging pinabayaan dahil siya ay autistic”.

B. Ang mga Problema

Inilarawan ng mga magulang ang iba't ibang mga pattern at tendensiya sa pag-uugali na kanilang naobserbahan sa kanilang mga autistic o espesyal na anak. Kabilang dito ang limitadong komunikasyon, hyperactivity, paulit-ulit na pag-uugali, pagiging sensitibo sa mga nakagawiang pagbabago, at natatanging pakikipag-ugnayan sa lipunan.

Isang magulang ang pumuna sa kaunting pagsasalita at mabagal na pagtugon ng kanilang anak: “Ang aking anak ay nagsasalita lamang ng ilang salita at natatagal bago tumugon kapag tinatawag”. Isa pa ang nag-oberba ng hyperactivity at hindi mapakali, na nagsasabing, “Hindi siya maaaring manatili sa isang lugar; patuloy siyang gumagalaw at humahawak ng mga bagay”. Isa pa ang nagpahayag na bukod sa hindi makapagsalita, ang kanyang anak ay hindi nakikinig sa normal na paraan: “Bukod sa hindi makapagsalita, ang aking anak ay hindi nakikinig nang normal.”

Inilarawan ng isang magulang kung paano nahihirapang makipag-usap ang kanyang anak. Kapag may kailangan siya, minsan nagagalit siya at puro turo lang ang sinasabi, kaya nahihirapan siyang intindihin ang ibig niyang sabihin: “Nahihirapan makipag-usap ang anak ko. Minsan kapag may kailangan siya, nagagalit siya at tinuturo lang ang mga daliri niya sa isang bagay na hindi ko maintindihan.”

Isinalaysay naman ng isa na hindi nagsasalita ang anak niya, at kung may gusto siya pero hindi niya makuha, nag-aalburuto siya. May tendensiya rin siyang itapon ang anumang hawak niya at sipain ang anumang makita niya sa sahig: “Hindi nagsasalita ang anak ko at hindi makapagsalita. Kung may gusto siya, nag-aalburuto siya kung hindi ito maibigay. Kung may mahawakan siyang bagay, itatapon niya ito. At kung saan may bagay sa sahig, kadalasan ay sinisipa niya ito.”

Isang ina ang nagpahayag ng hirap sa pagpapalaki ng isang batang autistic na hindi nagsasalita. Ibinahagi niya na kapag hindi maipabatid ng kanyang anak ang kanyang mga pangangailangan, minsan ay nagiging marahas ito at sinasaktan ang sarili, na nakakadurog ng pusong masaksihan: “Napakahirap sa amin na magkaroon ng anak na autistic dahil kung may kailangan siya hindi madali dahil hindi siya makapagsalita dahil hindi siya nagsasalita. Nagiging marahas siya at nagdudulot ng sakit sa sarili niyang katawan. Napakasakit na makita siyang ginagawa iyon.”

Isang magulang ang nagsabi na ang kanyang anak, na bingi at may epilepsy, ay may tendensiyang gumala nang walang patutunguhan malayo sa kanilang tahanan, nang walang direksyon o kamalayan: “Ang anak ko ay bingi at epilepsy at naglalakad lang siya kahit saan malayo at malapit sa aming bahay nang walang anumang direksyon at katinuan ng pag-iisip.”

Ibinahagi naman ng isa na umabot ng halos tatlong taon bago nagsimulang gumapang at kalaunan ay lumakad ang kanyang anak. Naantala rin ang kanyang pagsasalita, ngunit ngayon ay nakakapagsalita na siya, bagama’t sa mga putol-putol na pahayag lamang: “Inabot ng humigit-kumulang 3 taon bago

nagsimulang gumapang ang aking anak at pagkatapos ay lumakad. Naantala rin ang kanyang kakayahang magsalita ngunit ngayon ay nakakapagsalita na siya nang paunti-unti.”

Isang magulang ang nagsabing lubhang mahirap ang magpalaki ng isang batang autistic na hindi makapagsalita o makapagpahayag ng kanilang mga gusto, dahil sila ay nabubuhay sa sarili nilang mundo at hindi kayang ibahagi ang kanilang mga problema: “Napakahirap maging magulang ng isang batang autistic na hindi kayang magsalita at magpahayag ng kanilang mga gusto. Hindi nila maipahayag ang kanilang mga problema dahil mayroon silang sariling mundo.”

Ang mga natuklasang nabanggit sa itaas ay naaayon sa mga pag-aaral nina Ross at Salah (2016) na nagsasabing ang mga magulang ng mga batang may autism ay nahaharap sa patuloy na mga hamon na may kinalaman sa pag-uugali, komunikasyon, pakikisalamuha, at mga ugnayang interpersonal ng kanilang mga anak.

C. Mga Hamong Hinaharap ng mga Magulang

Patuloy na inilarawan ng mga magulang ang paglalakbay ng pagpapalaki ng isang autistic o espesyal na anak bilang mahirap, na minarkahan ng mga emosyonal, pinansyal, at panlipunang hamon kabilang ang pang-araw-araw na stress at pagkapagod mula sa patuloy na pagbibigay ng pangangalaga, lalo na kapag pinamamahalaan ang mga hindi mahuhulaan na pag-uugali.

1. Mga Hamong Pinansyal

Isang magulang ang nagbahagi ng hamon sa pananalapi ng pagsuporta sa isang batang may autism at epilepsy: “Ang aking autistic at epileptic na anak ay nangangailangan ng badyet para sa sustento dahil kung hindi niya ito kayang tiisin ay aatake siya ng kanyang epilepsy.”

Ang isa naman ay nagpahayag na ang kanilang pinakamalaking problema ay ang pagiging nabibigatan sa utang, dahil kailangan nilang sakupin hindi lamang ang sustento para sa kanilang espesyal na anak kundi pati na rin ang panustos sa kanilang pitong anak: “Ang aming malaking problema ay ang pagiging nabibigatan namin dahil bukod sa sustento para sa aming espesyal na anak, mayroon kaming 7 anak.”

Isinalaysay ng isang ina kung paano, mula nang masuri ang kanyang anak, hindi pa sila nakapagpagawa ng sarili nilang bahay. Nahihirapan siyang magdesisyon kung ano ang uunahin—ang pagpapatayo ng bahay o ang pagsuporta sa edukasyon at therapy ng kanyang anak—dahil ang pagtupad sa isang pangangailangan ay nangangahulugan ng pagsasakripisyo sa isa pa: “Hanggang ngayon ay hindi pa kami nakakapagtayo ng sarili naming bahay matapos siyang ma-diagnose. Nahihirapan ako kung ano ang uunahin, kung kailangan naming magpatayo ng bahay, hindi namin siya lubos na masusupurtahan, at kung kailan namin siyang payagang mag-aral at magpa-therapy, hindi namin maipapatayo ang aming bahay. Iyan ang aming pinagdadaan.” Sinuportahan ang natuklasang ito nina Karst at Hecke (2012) na nagsasabing, ang mga pamilyang may espesyal na anak o mga anak na may ASD ay maaaring makaranas ng mga problema sa pananalapi.

2. Diskriminasyon at Bullying mula sa Iba

Isang ina ang nag-alala sa isang masakit na karanasan nang ang isang kapitbahay ay nagbigay ng masasakit na salita tungkol sa kanyang anak: “Naawa ako sa batang iyon, lalo na’t babae siya.”

Ibinahagi naman ng isa na ang kanilang 24-taong-gulang na anak na lalaki ay madaling maimpluwensyahan ng mga bully, kadalasang sumusunod sa kanilang mga mapaminsalang mungkahi nang hindi nauunawaan ang mga kahihinatnan: “Ang aming anak na lalaki na ngayon ay 24 taong gulang ay madaling maimpluwensyahan ng mga bully na iyon ng kanilang mga hangal na mungkahi, halimbawa ang pagsasabi sa kanya na magbato o manakit ng isang tao, na ginagawa niya nang wala sa kanyang katinuan.” Kaugnay ng natuklasang ito ang pag-aaral nina Glazzard J. at Overall K. (2012) na nagsabing, ang pangkalahatang karanasan ng mga magulang na nag-aalaga ng mga batang may ASD ay kinabibilangan ng pambu-bully bilang isang hamon na kinakaharap ng mga magulang.

3. Oras at Presensya

Binigyang-diin ng isang magulang ang kahalagahan ng pagiging naroroon para sa kanilang anak, kahit na ito ay mahirap: "Napakahalaga ng oras at presensya, kaya kailangan mong magbigay ng oras kahit na mahirap. Paminsan-minsan, kailangan mong maging naroroon sa kanya lalo na bago matulog sa pamamagitan ng pagkukuwento sa kanya."

Ibinahagi naman ng isa na karamihan sa kanilang oras ay inilalaan sa kanilang anak, na nagpapahirap sa pagdalo sa mga pagtitipon o kahit na magsimba: "Karamihan sa aming mga oras ay ginugugol para sa kanya. Hindi kami maaaring dumalo sa mga pagdiriwang ng kaarawan, mga okasyon at kahit na pumunta sa simbahan dahil mahirap ito."

Inilarawan ng isang magulang kung gaano kahalaga ang patuloy na atensyon dahil sa hyperactive na pag-uugali ng kanilang anak: "Lahat ng hamon ay naroon lalo na ang iyong oras. Dapat nakatuon ang lahat ng mata sa kanya dahil sa kanyang hyperactive na ugali. Kailangan mo siyang hawakan nang mahigpit kung hindi ay tatakbo siya palayo. Kahit sa paglalaba, kailangan mo siyang dalhin at asikasuhin."

Nabanggit din ng isa pa na ang kanilang autistic na anak ay ayaw na mapunta sa maraming tao at madalas na tinatakpan ang kanyang mga tainga, na humahantong sa mas kaunting imbitasyon sa mga sosyal na kaganapan: "Sa kadahilang ang aking autistic na anak ay takot na mapunta sa maraming tao at kadalasan ay tinatakpan niya ang kanyang mga tainga gamit ang kanyang mga kamay, kaya nga bihira na kaming iniimbitahan para sa isang pagdiriwang."

Isinalaysay ng isang magulang kung paano nakakaranas pa rin ang kanilang anak ng gabi-gabing epileptic seizures kahit na sa pagtanda, na nangangailangan ng patuloy na pangangalaga: "Tuwing gabi ay umaatake ang epilepsy ng aking anak kahit na siya ay nasa hustong gulang na. Kaya naman kailangan namin siyang asikasuhin o isa sa amin ang makakasama niya halos sa lahat ng oras. Mas mabuti kung makakainom siya ng kanyang maintenance medicine dahil hindi mangyayari ang seizure."

4. Pag-uugali at Komunikasyon ng mgamay ASD at Espesyal na Bata

Isang magulang ang nagpahayag ng kahirapan sa pagtuturo at pakikipag-usap sa isang batang hindi makapagsalita: "Tulad ng sinabi ko, mahirap turuan ang bata at makipag-usap. Paano natin maiintindihan kung hindi siya makapagsalita, pagkatapos ay iiyak siya at magagalit na napakahirap intindihin."

Ibinahagi naman ng isa ang hamon ng pagtanggap sa mga pag-uugaling mahirap intindihin: "Mahirap talagang tanggapin ang kanyang pag-uugaling hindi maintindihan. May gusto siya na hindi mo alam. Minsan siya ay sobrang aktibo, o tumatakas o pumanhik sa isang bagay na kaya niya."

Inilarawan ng isang magulang ang pangangailangang mag-adjust at sumuko sa mga hindi mahuhulaang gusto ng bata: "Upang mag-adjust at sumuko sa gusto niya dahil ang kanyang mga gusto ay hindi mahuhulaan. Minsan ay natatanong ko, ano ang kailangan ng batang ito?"

Itinuro ng isa pa ang kahirapan ng hindi pakikipag-usap sa bata, na binanggit na ang bata ay hindi makapagpahayag ng mga problema o damdamin: "Sa sitwasyong ito, hindi ka maaaring makipag-usap sa bata, hindi niya masasabi ang kanyang mga problema at damdamin dahil wala siya sa katinuan. Halos lahat ng oras ay tahimik at hindi aktibo ang bata."

II. Katatagan at Pagsasaayos, Edukasyon at mga Pag-aalala at Pag-asa ng mga Magulang

Ang pagtanggap sa pagkakaroon ng isang autistic o espesyal na bata ay hindi lamang nagmamarka ng katapusan ng pagtanggap kundi pati na rin ang simula ng isang panghabambuhay na paglalakbay, isang paglalakbay na ibinabahagi sa isang taong ang direksyon sa hinaharap ay lubos na nakasalalay sa pangangalaga at gabay ng iba. Ang mga indibidwal na ito ay kadalasang umaasa sa walang humpay na suporta ng mga nakapaligid sa kanila, lalo na ang kanilang mga magulang at mga mahal sa buhay. Bilang resulta, ang huli ay nagdadala ng bigat ng paggawa ng mga kinakailangang pagsasaayos, paghahanap ng mga epektibong pamamaraan sa edukasyon, pagbuo ng mga mekanismo sa pagharap, at pagharap sa parehong mga pag-asa at mga pagkabalisa na kasama ng pag-iisip sa kinabukasan ng kanilang mga anak.

A. Katatagan, Mga Mekanismo at Pagsasaayos sa Pagharap

Inilarawan ng mga magulang ang iba't ibang paraan ng kanilang pag-aangkop sa mga katotohanan ng pagpapalaki ng isang autistic o espesyal na bata, kadalasang pinagsasama ang disiplina, pagmamahal, pagtanggap, at personal na sakripisyo. Para sa ilan, ang dating kaalaman tungkol sa autism ay nakatulong sa paghubog ng mga maagang interbensyon. Isang magulang ang nagbahagi, “Kapag alam mo kung paano disiplinahin ang isang batang alam mong autistic, binibigyan mo siya ng pagkakataong lumago at dapat matutunan ng mga magulang kung paano sila haharapin sa pamamagitan ng pagsasaliksik para hindi magkaroon ng malalang autism ang bata. Gaya ng alam mo, ang autism ay may dalawang kategorya: ang banayad at malubha. Karaniwan, nagsisimula ito sa banayad, kung tama at sapat ang iyong suporta, hindi ito hahantong sa pinakamasama. Sa aking sariling karanasan, ang pagmamahal at disiplina ay epektibo. Kailangan mong disiplinahin kasabay ng pagpapakita ng pagmamahal. Hinihikayat ko rin ang aking anak sa pamamagitan ng pagbibigay sa kanya ng gantimpala para sa anumang nagawa niya at pakikipag-usap sa gabi.”

Ang ilang mga magulang ay nagpahayag ng buong pagtanggap mula sa simula, kadalasang may pasasalamat. Ang isa ay nagmuni-muni, “Tinanggap ko mula sa simula pa lang at nagpasalamat pa ako sa Panginoon dahil kahit na autistic siya, hindi niya kami binibigyan ng mga problema. Madali namin siyang inaalagaan at kaya naman siyang pamahalaan.”

Para sa iba, ang pagtanggap ay dumarating sa pamamagitan ng isang emosyonal na proseso. Inamin ng isang magulang, “Noong una, madalas akong umiiyak at tinitanong ang Panginoon kung bakit Niya ako binigyan ng anak na autistic dahil sa simula pa lang ay mahal ko na ang anak ko. Subalit kalaunan ay napagtanto ko na binigyan Niya ako ng hamon dahil alam Niyang kaya ko itong tiisin. Mula sa sandaling iyon, talagang niyakap ko ang ideya na kahit ano pa man, anak ko pa rin siya.”

May ilan na nangailangan ng propesyonal na payo bago naging posible ang pagtanggap. Gaya ng paliwanag ng isa, “Mula sa mahabang panahon ng pagtanggap hanggang sa sinabi ng doktor na kailangan naming dalhin ang aming anak dahil kung ang mga normal na bata ay kailangang pumasok sa paaralan, lalo na ang mga autistic. Nabuksan ang aming mga puso na kailangan naming dalhin ang aming anak sa paaralan at hindi itago siya sa iba.”

May ilan na naglarawan ng matinding emosyonal na reaksyon nang unang mabunyag ang diagnosis. Naalala ng isa, “Nang maospital ang anak ko at ipinagtapat sa amin ng doktor na autistic ang anak namin, naging hyper-reactive ako. Noong araw na iyon, pag-uwi namin, agad akong pumunta sa sementeryo papunta sa puntod ng aking ina dahil noong nabubuhay pa siya, mahal na mahal niya ang apo niya. Umiiyak ako at unti-unti naming inaayos ang aming mga sarili sa sitwasyon kung saan kailangan naming ng oras para sa mga imbitasyon, libangan, at maging sa pagdalo sa simbahan para lang makasama ang aming anak na autistic.”

Kinailangan din ang mga pangmatagalang pagsasaayos para sa mga pamilyang nag-aalaga ng mas matatandang special children. Ibinahagi ng isang magulang ng isang 24-taong-gulang, “Ang aming special child ay 24 taong gulang na ngayon. Noong mga unang taon ng kanyang buhay, siya ay bingi-pipi at naospital. At sinabi ng doktor na maaari siyang maging maayos ang kanyang pisikal na kalagayan ngunit ang kanyang pag-iisip ay mananatiling parang isang bata. Tootoo iyon. Kamakailan lamang ay itinali namin siya ng lubid dahil pumupunta siya sa isang lugar at pagkatapos ay sa isang malayong lugar. May pagkakataon pa nga na nawala siya nang isang buwan. Masakit sa amin na itali siya o ikulong. Gayunpaman, kung kaya niyang inumin ang kanyang maintenance medicine, nananatili siyang kalmado at matino.”

Naalala naman ng isa pa ang pagkatuklas sa kondisyon ng kanilang anak pagkatapos niyang ipanganak, “Pagkapanganak pa lang namin, alam na naming isa siyang special child dahil nilagnat siya agad pagkatapos niyang manganak. Paulit-ulit kaming bumabalik sa ospital hanggang sa sinabi sa amin ng doktor na hindi lagnat ang sanhi ng seizure ng aming anak kundi epilepsy. Sa tuwing nagkaroon siya ng seizure, hindi na namin siya dinadala sa ospital dahil alam naming dahil iyon sa epilepsy.”

B. Edukasyon at mga Pagsasanay sa Kasanayan ng mga Autistic at Special Children

Ang mga magulang ng mga autistic at special children sa pag-aaral ay nagpahayag ng iba't ibang estratehiya at pagsisikap na kanilang isinagawa upang makapagbigay ng mga pagkakataon sa edukasyon at

pagpapaunlad ng kasanayan para sa kanilang mga anak. Para sa marami, ang paglalakbay ay nagsimula sa pagtukoy sa mga kalakasan at limitasyon ng kanilang anak at pagkatapos ay pag-aangkop ng mga interbensyon upang umangkop sa mga pangangailangang iyon. Ang ilang mga magulang ay umaasa sa pormal na pag-aaral sa pamamagitan ng mga programa ng SPED, habang ang iba ay humingi ng mga therapy at suporta sa bahay dahil sa mga natatanging hamon sa pag-uugali lalo na sa pandama ng kanilang anak.

Isang kalahok ang nagbahagi ng kahalagahan ng personalized na suporta sa pag-aaral: "Tutorial muna upang makayanan niya ang aralin ng guro. Bagamat anuman ang gawin ng tutor, may mga autistic na batang hindi kumikilos kung hindi nila gusto. Sa kaso ng aking anak, napagtanto kong gusto niya ang sining lalo na ang pagguhit ngunit nahihirapan sa matematika, kaya binilhan ko siya ng mga materyales sa pagguhit. Sinuportahan siya sa kung ano ang kanyang interes at tinulungan siyang makayanan ang kanyang mga paghihirap lalo na ang matematika."

Inilarawan ng isa pang kalahok ang kanyang pangako sa pormal na edukasyon: "Ipinasok ko siya sa SPED dahil gusto niyang pumasok sa paaralan. Masigasig ko siyang sinamahan at sinuportahan sa paaralan. Ngayon ay marunong na siyang magsulat at makinig sa kanyang guro."

Sa mga iilan, ang mga therapy ay mahalagang bahagi rin ng paglago ng edukasyon ng kanilang anak. Isang magulang ang nagsabi lamang: "Ipinasok namin siya sa SPED therapy."

Ipinaliwanag ng isa pang kalahok ang kanilang pinagsamang pamamaraan ng pag-aaral at therapy: "Nag-aaral na siya ngayon ng SPED sa Central school dalawang beses sa isang linggo. Tuwing Biyernes, kailangan niyang pumunta sa Tagbilaran para sa occupational therapy at speech therapy." Kapansin-pansin, ang ilang mga bata ay umunlad sa mga pangunahing setting. Tulad ng pagmamalaking ibinahagi ng isang kalahok, "Ang aking 16 taong gulang na anak na may autism ay isa na ngayong regular na estudyante sa isang pampublikong high school. Noong una ay hindi kami makapaniwala at laking gulat na siya ay isang atleta sa CVRAA."

Gayunpaman, hindi lahat ng bata ay nakakapag-adapt sa pormal na pag-aaral. Sinabi ng isang magulang: "Ang aking anak ay hindi pumasok sa pormal na pag-aaral dahil takot siya sa maraming tao. Kung makakasama niya ang maraming tao, kailangan niyang takpan ang kanyang mga tainga gamit ang kanyang mga kamay."

May mga magulang na naharap sa karagdagang mga hamon kaugnay ng kondisyong medikal at kaligtasan ng kanilang anak. Naalala ng isa ang pagbisita ng isang guro: "Minsan ay binisita ako ng isang guro at pinayuhan kaming dalhin ang aming anak sa paaralan. Ikinuwento namin sa kanya ang tungkol sa sitwasyon ng epilepsy ng aming anak at ang kanyang mga kilos na parang bata kahit na 24 taong gulang na siya. Sinabi pa namin sa kanya na minsan kailangan namin siyang ikulong dahil nagtatambay lang siya at gumagala nang walang direksyon. Pagkatapos, naunawaan niya ang kaso ng aming anak."

Ang iba ay nakakita ng mabagal ngunit makabuluhang pag-unlad. Gaya ng ibinahagi ng isang magulang: "Ang aking anak na lalaki ay 16 taong gulang na ngayon at anim na taon na siyang nasa SPED sa Central school. Sa kanilang klase sa SPED, medyo mas mahusay siya kaysa sa iba at kadalasan ay sinusunod niya ang hinihiling sa kanya ng kanyang guro. Nakakaintindi siya nang maayos."

Para sa ilan, ang pagbuo ng mga pangunahing kasanayan sa buhay ay kasinghalaga ng pag-aaral sa akademya: "Natutuwa kami na mayroon na siyang mga pangunahing kasanayan tulad ng paliligo nang mag-isa at pagsusuot ng kanyang damit, minsan ay naghahalaman siya at sumasayaw ngunit may mga pagkakataon na siya ay ligaw lalo na kung ayaw niya ng isang bagay tulad ng pagpasok sa paaralan."

C. Mga Pag-aalala at Pangarap para sa Kanilang mga Anak na Autistic at Espesyal

Nagpahayag ang mga magulang ng malalim na may halo ng pag-aalala para sa kinabukasan ng kanilang mga anak at pag-asa para sa kanilang paglaki, na kadalasang nakabatay sa katotohanan ng kanilang sariling pagtanda at ang habambuhay na pagdepende ng kanilang mga anak.

Isang magulang ang taos-pusong nagmakaawa, "Ang hangad ko para sa aking anak ay ang kanyang paggaling dahil kaming mga magulang ay matatanda na. Kailangan siyang maintindihan at kadalasan ay ibinababa namin ang aming mga sarili upang maunawaan siya"

Ang aspeto ng pananalapi ng pangangalaga ay isang apurahang pag-aalala para sa ilan. Malinaw na sinabi ng isang magulang, "Umaasa kami na magkaroon ng sapat na pera para sa kanyang maintenance na gamot." Ang iba ay naghahangad ng pagbuti sa kondisyon ng kanilang anak, kahit na tumatanggap ng mga medikal na pagtatasa. Ang isa ay nagbahagi, "Maaaring mas mabuti kung makakagaling siya ngunit gaya ng sinabi ng doktor, palagi siyang magkakaroon ng saloobin na parang bata. Ito ang pinakamasakit sa amin."

Ang kawalan ng katiyakan tungkol sa hinaharap ay isang paulit-ulit na tema rin. Inamin ng isang magulang, "Mahirap isipin ang kanyang kinabukasan. Umaasa ako na mabubuhay siya at mabuhay at matutong mamuhay nang mag-isa kahit na wala siyang degree."

May ilang mga magulang na napanatag sa pag-unlad ng kanilang anak, kahit na mahirap ang landas na tinahak. Isang magulang ang nagkuwento, "Nagpapasalamat ako na ang aking anak na may autism ay kaklase ng kanyang nakababatang kapatid. Medyo normal na siya ngayon at muli siyang naging atleta ng CVRAA. Ngunit sa simula, mahirap ito at hindi man lang kami nakapagpatayo ng sarili naming bahay para sa kanyang mga gamot".

Para sa iba, ang pag-asa ay pinasigla ng banayad na autism ng kanilang anak at ng mga pangunahing kasanayang natutunan nila. Isang magulang ang nagbahagi, "Tuwang-tuwa ako na ang aking anak ay mayroon lamang mild autism. Nakapagsalita na siya at alam na ang ilang pangunahing kasanayan para mabuhay. Hangad ko ang magandang buhay niya."

Binigyang-diin ng ilang mga magulang ang kanilang patuloy na pangako na tulungan ang kanilang mga anak na pamahalaan ang kanilang kondisyon. Isang masayang pahayag ay, "Kahit na ganoon siya, hangad namin na makayanan niya ang kanyang autism sa tulong naming mag-asawa. Umaasa kami na lalago siya nang normal sa kabila ng kung ano siya ngayon."

Ilang mga magulang ang umaasa sa pagtuturo ng mahahalagang kasanayan sa kaligtasan, gaya ng ipinahayag ng isa: "Sana alam ng aking anak na babae ang mga pangunahing kasanayan sa kaligtasan kung paano sila mabubuhay halimbawa ang pangangalaga sa sarili".

MGA INTERPRETASYONG PENOMENOLOHIKAL

Ang mga unang saloobin ng mga magulang tungkol sa pagkakaroon ng mga anak na autistic o espesyal ay lumitaw sa dalawang pangkalahatang padron. Ang una ay ang Non-acceptance Group, kung saan ang mga magulang ay unang nahirapang harapin ang katotohanan ng kondisyon ng kanilang anak ngunit kalaunan ay napilitan silang tanggapin ito, lalo na matapos kumpirmahin ng mga espesyalista sa medisina ang diagnosis. Ang pangalawa ay ang Acceptance Group, kung saan agad na kinilala ng mga magulang mula sa simula na ang kanilang mga anak ay may mga hamon sa pag-unlad o pag-uugali.

Isiniwalat ng pag-aaral ang ilang karaniwang katangian ng mga autistic at espesyal na bata gaya ng inilarawan ng mga magulang. Ang mga may banayad na kondisyon ay karaniwang mapapamahalaan at kayang gawin ang mga gawain na katulad ng sa mga indibidwal na neuro-typical. Sa kabaligtaran, ang mga batang may malalang kondisyon ay madalas na inilalarawan bilang bingi, pipi, walang tugon, malayo sa kanilang sariling mundo, at kung minsan ay marahas. Binigyang-diin ng mga magulang na sa pamamagitan ng wastong interbensyon mula sa mga propesyonal, ang parehong banayad at malalang kaso ay maaaring bumuti; gayunpaman, nang walang interbensyon, ang mga banayad na kaso ay maaaring umunlad sa mas malalang kondisyon. Iniulat din ng ilang mga magulang ang mga pagkakataon kung saan ang mga interbensyon ay hindi epektibo.

Ang mga problema at hamong hinaharap ng mga magulang sa pagpapalaki ng kanilang mga anak na autistic at espesyal na bata ay nakasentro sa mga kahirapan sa pananalapi dahil sa mataas na gastos sa edukasyon, mga therapy, at mga gamot sa pagpapanatili. Ang diskriminasyon at pambu-bully ay isa ring paulit-ulit na alalahanin, gayundin ang mga hinihingi sa oras at patuloy na pangangasiwa na kinakailangan, lalo na para sa mga batang may malalang kondisyon. Maraming magulang ang nahihirapan sa mga problema sa pag-uugali at komunikasyon ng kanilang mga anak, na nangangailangan ng pasensya, pag-aangkop, at mga espesyal na estratehiya.

Ang pagtanggap sa pagkakaroon ng isang autistic o espesyal na bata ay isang takda hindi lamang sa paglutas ng pagtanggap kundi pati na rin sa simula ng pagbuo ng mga mekanismo at estratehiya sa pagharap sa mga problema upang maalagaan sila. Karamihan sa mga bata sa pag-aaral ay nakapag-aral sa mga klase ng SPED at lumahok sa mga programa sa pagsasanay sa kasanayan. Ang ilang mga magulang ay humingi ng mga espesyal na serbisyong medikal o therapeutic para sa kanilang mga anak, depende sa kanilang kakayahang pinansyal. Kapansin-pansin, isang bata ang lumipat sa isang regular na paaralan at naging isang atleta ng CVRAA. Gayunpaman, ang mga batang may mas malalang kondisyon sa pangkalahatan ay hindi nakapagtapos ng pormal na edukasyon.

Ang pangunahing alalahanin ng mga magulang ay nakasentro sa tanong kung paano mabubuhay ang kanilang mga anak kapag wala na sila upang alagaan sila, dahil sa kanilang sariling pagtanda. Ang kanilang mga pag-asa at mithiin ay mula sa pagnanais para sa ganap na paggaling ng kanilang mga anak, hanggang sa kahit man lang pagbuo ng mga pangunahing kasanayan sa kaligtasan tulad ng pangangalaga sa sarili, hanggang sa ganap na pagtitiwala sa Diyos sa kinabukasan ng kanilang mga anak sa mga pagkakataon kung saan tila malabong magkaroon ng pagbuti.

KONKLUSYON

Sinaliksik at naunawaan ng pag-aaral na ito ang mga karanasan ng mga magulang na nagpapalaki ng kanilang mga anak na may autism at iba pang mga espesyal na pangangailangan, na nagpapakita ng isang paglalakbay na minarkahan ng mga emosyonal, sosyal, at pinansyal na hamon, ngunit gayundin ng katatagan, kakayahang umangkop, at pangmatagalang pag-asa. Ang mga unang tugon ng mga magulang ay iba-iba mula sa pagtanggap hanggang sa maagang pagtanggap, ngunit ang pagtanggap sa huli ay naging pundasyon para sa pag-navigate sa mga hinihingi ng pangangalaga. Kinumpirma ng kanilang mga salaysay na ang mga katangian at pangangailangan ng kanilang mga anak ay malawak ang saklaw, mula sa mga banayad na kondisyon na nagpapahintulot sa pakikilahok sa mga pangunahing aktibidad hanggang sa mga malubhang kaso na nangangailangan ng patuloy na pangangasiwa at espesyal na suporta.

Ang mga hamong kinakaharap ng mga magulang ay maraming aspeto, kabilang ang pinansyal na pilay dahil sa mataas na halaga ng mga therapy, espesyal na edukasyon, at mga gamot; diskriminasyon sa lipunan at pambu-bully na nakatuon sa kanilang mga anak; at ang matinding oras at emosyonal na pangako na kinakailangan para sa pang-araw-araw na pangangalaga. Bagama't hindi matukoy ng ilang mga magulang ang sanhi ng kondisyon ng kanilang anak, iniugnay ito ng iba sa mga salik sa panahon ng pagbubuntis tulad ng pag-inom ng gamot, kakulangan ng mga suplemento, o stress.

Bilang tugon sa mga katotohanang ito, gumamit ang mga magulang ng iba't ibang mekanismo at pagsasaayos sa pagharap, mula sa paghingi ng mga propesyonal na interbensyon at pagpapatala ng mga bata sa mga programa ng SPED, hanggang sa pagbuo ng pasensya at emosyonal na pagtitiis. Para sa ilan, nakamit ng kanilang mga anak ang mga kahanga-hangang milestone, kabilang ang pagsasama sa regular na pag-aaral at pakikilahok sa mga kompetisyon sa palakasan.

Ang mga alalahanin ng mga magulang ay malalim na nakaugnay sa kawalan ng katiyakan sa kinabukasan ng kanilang mga anak, lalo na habang sila mismo ay tumatanda at inaasahan ang panahon na maaaring hindi na nila kayang magbigay ng pangangalaga. Ang kanilang mga mithiin ay mula sa mga pag-asa para sa ganap na paggaling ng kanilang mga anak hanggang sa pagnanais na magkaroon sila ng mga pangunahing kasanayan sa buhay na magbibigay-daan sa isang sukatan ng kalayaan.

Sa pangkalahatan, itinatampok ng mga natuklasan ang mahalagang papel na ginagampanan ng mga magulang hindi lamang bilang mga tagapag-alaga, kundi pati na rin bilang mga tagapagtaguyod, tagapagturo, at emosyonal naiaknig para sa kanilang mga anak. Sa katunayan, sila ang tumutugon sa mga pangangailangan ng kanilang mga anak at gumagawa ng lahat ng posibleng pagsisikap upang matulungan silang maabot ang kanilang buong potensyal—anuman ang potensyal na iyon.

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RICE PLANT COLOR DETECTOR AND NITROGEN MONITORING SYSTEM DEVICE

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ABSTRACT

Efficient nitrogen (N) management is essential in rice production to ensure optimal crop yield and reduce fertilizer wastage. Traditionally, farmers relied on the Leaf Color Chart (LCC) to visually assess leaf greenness as an indicator of nitrogen deficiency; however, this method was time-consuming, subjective, and dependent on human color perception, resulting in inconsistent readings and limitations for farmers with color-vision deficiencies. This study addressed the need for a more efficient, objective, and inclusive alternative to the conventional LCC. The study aimed to design and developed a rice plant leaf color detector and nitrogen monitoring device and to evaluate its level of acceptability in terms of functional suitability, performance efficiency, portability, user-friendliness, and maintainability. A research and development (R&D) design was employed. The device integrated a color sensor, Arduino Pro Mini microcontroller, LCD screen, push buttons, power switch, rechargeable lithium battery, and DC boost converter module. The system, programmed using Arduino Sketch 1.8.5, detected leaf greenness classified into four levels—yellow green, light green, green, and dark green—corresponding to nitrogen status standards used by farmers. A researcher-modified questionnaire was conducted to thirty (30) respondents, consisting of twenty (20) rice farmers and ten (10) experts. Findings revealed that the device was highly accepted by both groups, with user-friendliness obtaining the highest mean rating (4.80) and functional suitability the lowest yet still highly acceptable rating (4.69). The results indicated that the device was efficient, portable, easy to use, and reliable for field applications, providing faster and more objective nitrogen assessment compared to the traditional LCC.

Keywords: *Leaf Color Chart, Nitrogen Monitoring, Precision Agriculture, Rice Plant, Arduino-Based Device*

INTRODUCTION

Rice production remained a vital component of the Philippine economy and a primary source of food security and livelihood for millions of Filipino families. As one of the world's leading rice-consuming nations, the Philippines continuously faced the challenge of balancing domestic production with increasing population demand. Despite sustained production efforts, the country still relied on rice imports to stabilize supply and prices, highlighting persistent productivity and efficiency gaps within the agricultural sector. Beyond yield maximization, modern agricultural systems increasingly emphasized sustainability, climate resilience, and cost efficiency. Major production inputs—including labor, fertilizers, seeds, and pesticides continued to account for the largest share of operational expenses, reinforcing the importance of precision agriculture strategies that optimized resource use while maintaining profitability.

Nitrogen fertilizer played a critical role in rice growth and yield formation; however, its application remained one of the most mismanaged inputs in conventional farming systems. Farmers traditionally applied nitrogen on a fixed schedule, even though crop maturity, soil fertility, rainfall variability, and temperature conditions significantly influenced actual nutrient requirements. Research by International

Rice Research Institute emphasized that inefficient nitrogen management resulted in low recovery efficiency, with a substantial portion of applied fertilizer lost through leaching, volatilization, and denitrification. These losses not only reduced farmer income but also contributed to environmental degradation, including greenhouse gas emissions and water contamination. Studies further indicated that improving nitrogen use efficiency (NUE) was among the most cost-effective strategies for increasing rice productivity while minimizing ecological impact.

To address this issue, Philippine Rice Research Institute and International Rice Research Institute developed the Leaf Color Chart (LCC), a low-cost visual diagnostic tool designed to estimate the nitrogen status of rice plants by comparing leaf greenness intensity. The LCC provided farmers with a practical guide for timing nitrogen topdressing applications based on plant demand rather than fixed schedules. Empirical studies demonstrated that proper LCC use improved nitrogen use efficiency, reduced unnecessary fertilizer application, and maintained or increased grain yield. However, despite its accessibility and simplicity, the LCC relied heavily on human visual interpretation, which was susceptible to subjectivity, lighting variability, and inconsistent color perception among users. These limitations suggested the need for a more objective and technology-assisted approach to nitrogen assessment.

Recent advances in sensor technology, digital imaging, and mobile-based agricultural applications opened new opportunities for real-time crop health monitoring. Research in precision agriculture demonstrated that optical sensors and colorimetric analysis could accurately estimate chlorophyll content and nitrogen deficiency by analyzing leaf reflectance and pigmentation patterns. Such technologies reduced dependence on manual observation and enhanced decision-making accuracy. Moreover, the integration of microcontrollers and mobile interfaces allowed data recording, trend monitoring, and site-specific fertilizer recommendations, aligning with Industry 4.0 applications in agriculture.

Despite these developments, several research gaps remained evident. First, many existing nitrogen monitoring technologies were either costly, laboratory-dependent, or designed for large-scale commercial farms, limiting accessibility for smallholder farmers in developing regions. Second, while smartphone-based imaging applications existed, limited studies validated their accuracy against traditional LCC readings under local Philippine field conditions. Third, there was insufficient integration of portable sensor-based devices with structured nitrogen monitoring systems that provided consistent, calibrated, and environment-adaptive measurements. These gaps indicated a need for a localized, affordable, and user-friendly device capable of improving nitrogen assessment accuracy while maintaining practicality for community-level rice farmers.

Furthermore, few studies explored the development of a standalone Rice Plant Color Detector integrated with a systematic nitrogen monitoring framework that combined sensor calibration, standardized color referencing, and digital data logging. Existing tools often focused solely on detection without incorporating long-term nutrient tracking or decision-support features. The absence of such integrated systems limited the scalability and sustainability of precision nitrogen management practices in rural farming communities.

In response to these identified gaps, this study proposed the development of a Rice Plant Color Detector and Nitrogen Monitoring System designed to provide a systematic, objective, and user-friendly alternative to the traditional Leaf Color Chart. The device aimed to enhance nitrogen use efficiency, reduce fertilizer-related expenses, and minimize environmental impact through improved timing and accuracy of fertilizer application. By integrating sensor-based color detection with digital monitoring capabilities, the study sought to contribute to precision agriculture initiatives that supported sustainable rice production, improved farmer profitability, and strengthened national food security efforts.

STATEMENT OF THE PROBLEM

The purpose of the study was to develop Rice Plant Color Detector and Nitrogen Monitoring System Device.

Specifically, the study answered the following research questions:

1. What are the stages undertaken in the development of the Rice Plant Color Detector and Nitrogen Monitoring System Device using SDLC model?
2. How do the respondents evaluate the Rice Plant Color Detector and Nitrogen Monitoring System Device using ISO/IEC 25010 in terms of:
 - 2.1 functional suitability;
 - 2.2 performance efficiency;
 - 2.3 portability;
 - 2.4 user-friendliness; and
 - 2.5 maintainability?
3. What is the evaluation of the end-users and experts on the Rice Plant Color?
4. Detector and Nitrogen Monitoring System Device using ISO/IEC 82079 in terms of:
 - 4.1 Completeness;
 - 4.2 Correctness; and
 - 4.3 Durability.
5. What is the difference between the evaluation of end-users and experts in the use of the Rice Plant Color Detector and Nitrogen Monitoring System Device based on the aforementioned variables?
6. What are the issues encountered by the respondents on the use of the Rice Plant Color Detector and Nitrogen Monitoring System Device as perceived by the end-users and experts?
7. What implementation plan may be developed on the use of the Rice Plant Color Detector and Nitrogen Monitoring System Device?

METHODOLOGY

This study employed a research and development (R&D) design methodology for the design, development, and evaluation of the system device. The descriptive method utilized a survey questionnaire as the primary data-gathering instrument, providing an effective means of obtaining information for formulating hypotheses and identifying relationships among variables. According to Manuel and Medel (1976), descriptive research involves the systematic description, recording, analysis, and interpretation of the present nature, composition, or processes of phenomena. Through this approach, questionnaires and interviews were administered to end-users and subject-matter experts, enabling the researcher to collect relevant data and perform appropriate statistical analyses.

In addition, the study applied the developmental research method. Richey (1994) defines developmental research as the systematic study of designing, developing, and evaluating programs, processes, and products that must satisfy criteria of internal consistency and effectiveness. Guided by this framework, the researcher designed, constructed, and assessed the system device to determine its functionality and organizational impact. The integration of descriptive and developmental approaches ensured a comprehensive evaluation of both user perceptions and the operational effectiveness of the developed device.

FINDINGS

The summary of the design result stated as follows were established based on the analysis and interpretation conducted by the proponent and the evaluation made by the respondents.

Results of the study are summarized as follows:

1. Stages Involved in the Development of the Rice Plant Color Detector and Nitrogen Monitoring System Device

The system device underwent a structured development process that guided its completion. The technical stages were based on the System Development Life Cycle (SDLC), specifically the Waterfall Model. The design and development phases were anchored on the system block diagram and system flowchart, which served as the blueprint for hardware integration, sensor configuration, and program logic.

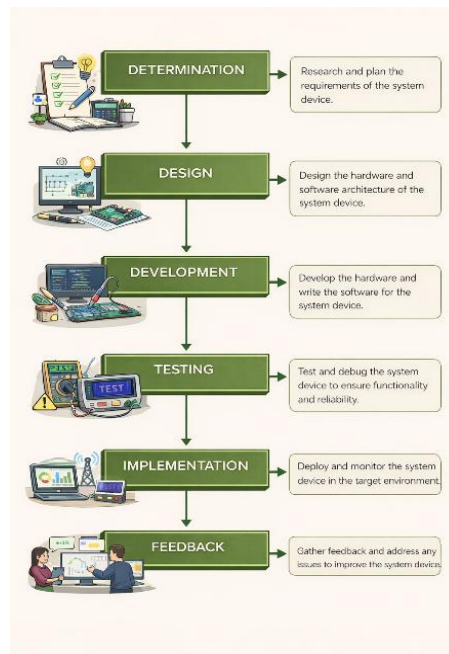


Figure 1. Stages Involved in the Development of the Rice Plant Color Detector and Nitrogen Monitoring System Device Using the Waterfall Model

The use of the Waterfall Model aligned with established engineering development frameworks that emphasized sequential design, testing, and validation processes. Literature in systems engineering suggested that structured development models improved documentation, minimized design errors, and enhanced system reliability. Furthermore, precision agriculture studies emphasized that clear system architecture—through block diagrams and flowcharts—improved functional clarity and ensured alignment between hardware components and decision-support algorithms. The staged development approach therefore strengthened the technical robustness and operational reliability of the nitrogen monitoring system.

2. Evaluation of End-Users and Experts on the System Device in Terms of Different Variables

The evaluation of the system device was grounded on software and product quality principles consistent with the ISO/IEC 25010 quality model, which assessed functional suitability, performance efficiency, usability, portability, and maintainability.

2.1 Functional Suitability

In terms of functional suitability, the system device garnered an average weighted mean of 4.67 as assessed by the end-users and 4.70 as perceived by the experts, both verbally interpreted as “Highly Acceptable.” This indicated that the device effectively performed its intended functions, particularly in

detecting rice plant color and monitoring nitrogen status. According to ISO/IEC 25010, functional suitability measures the degree to which a system provides functions that meet stated and implied needs. The high rating suggested that the device successfully translated theoretical nitrogen monitoring concepts into practical field application. This finding aligned with precision agriculture research, which emphasized that accurate nitrogen detection tools significantly improved fertilizer timing and crop health management.

2.2 Performance Efficiency

For performance efficiency, the system device obtained an average weighted mean of 4.76 from the end-users and 4.72 from the experts, both interpreted as “Highly Acceptable.”

Performance efficiency referred to the system’s ability to deliver appropriate performance relative to the number of resources used. The high ratings implied that the device processed sensor readings quickly and displayed results without delay. Literature on embedded agricultural systems indicated that real-time data processing was essential for field usability, particularly in mobile or handheld devices. Efficient processing ensured timely fertilizer decisions, supporting improved nitrogen use efficiency (NUE).

2.3 Portability

In terms of portability, the system device garnered an average weighted mean of 4.75 from the end-users and 4.74 from the experts, both verbally interpreted as “Highly Acceptable.”

Portability was particularly important in agricultural field settings, where farmers required lightweight and easily transportable tools. Research in agricultural technology adoption highlighted that portability significantly influenced farmer acceptance, especially among smallholder farmers. The high rating indicated that the device design was practical for on-field deployment, supporting accessibility and operational convenience.

2.4 User-Friendliness

With respect to user-friendliness, the system device obtained an average weighted mean of 4.74 from the end-users and 4.85 from the experts, both interpreted as “Highly Acceptable.”

Usability, as defined in ISO/IEC 25010, referred to the extent to which a product could be used effectively, efficiently, and satisfactorily by specified users. The results suggested that the interface, display, and operational procedures were understandable and manageable. Studies on technology adoption in agriculture indicated that ease of use significantly influenced farmers’ willingness to integrate digital tools into traditional farming practices. Therefore, the strong usability rating strengthened the likelihood of sustained adoption.

2.5 Maintainability

In terms of maintainability, the system device garnered an average weighted mean of 4.68 from the end-users and 4.80 from the experts, both interpreted as “Highly Acceptable.”

Maintainability referred to the ease with which a system could be modified, repaired, or improved. Literature in system engineering emphasized that maintainable systems reduced long-term operational costs and enhanced sustainability. The high rating indicated that the device components were accessible and structured in a way that allowed troubleshooting and future upgrades.

2.6 Overall Acceptability

Overall, the Rice Plant Color Detector and Nitrogen Monitoring System Device obtained a composite mean of 4.72 from end-users and 4.76 from experts, both verbally interpreted as “Highly Acceptable.” The findings suggested strong alignment between system performance and user expectations. Consistent with innovation diffusion theory and agricultural technology studies, high acceptability ratings indicated readiness for practical application and potential scalability.

3. Evaluation by the Respondents of the Device Components in Terms of Different Variables

The device components of the “Rice Plant Color Detector and Nitrogen Monitoring System Device” were evaluated by the respondents based on selected performance and quality variables. The assessment focused on determining the level of acceptability and functionality of each component to ensure reliability and effectiveness in field application. The results provided quantitative measures reflecting the overall performance of the developed system.

3.1 Completeness

In terms of completeness, the system device received three (3) “Yes” responses from the end-users and two (2) “Yes” and one (1) “No” from the experts. Both were interpreted as “Highly Acceptable.”

Completeness referred to the presence of all necessary hardware and software components required for proper operation. Engineering literature emphasized that incomplete systems often led to operational inefficiencies and reduced reliability. The results suggested that the device contained the essential functional components required for nitrogen detection.

3.2 Correctness

In terms of correctness, the system device received three (3) “Yes” responses from both end-users and experts, interpreted as “Highly Acceptable.”

Correctness indicated that the device generated accurate readings consistent with expected nitrogen monitoring outcomes. Precision agriculture studies emphasized that accuracy in chlorophyll or color detection was critical for fertilizer recommendation reliability.

3.3 Durability

In terms of durability, the system device received three (3) “Yes” responses from end-users and two (2) “Yes” and one (1) “No” from experts, interpreted as “Highly Acceptable.”

Durability was essential for agricultural tools exposed to varying environmental conditions such as heat, humidity, and dust. Literature suggested that device robustness influenced long-term usability and cost-effectiveness.

4. Difference Between the Evaluation of End-Users and Experts

A significant difference was found between the perceptions of end-users and experts regarding the system device. This variation may be attributed to differences in technical knowledge and evaluation standards. Studies on expert-based assessment indicated that experts often applied stricter technical criteria, whereas end-users focused more on practical usability.

Table 1. T-test Table on the Significant Difference on the Acceptability of the Developed Rice Plant Color and Nitrogen Monitoring System Device Detector as Perceived by the Respondents

Variables	Respondents	Mean	Sd	Df	T	Sig	Ho	VI
1. Functional Suitability	End-user	4.67	0.08	29	-0.35	0.737	FR	NS
	Expert	4.70	0.11					
2. Performance Efficiency	End-user	4.76	0.03	29	0.70	0.506	FR	NS
	Expert	4.72	0.04					
3. Portability	End-user	4.75	0.08	29	0.10	0.919	FR	NS
	Expert	4.74	0.18					
4. User-friendliness	End-user	4.74	0.04	29	-2.19	0.60	FR	NS
	Expert	4.85	0.01					
5. Maintainability	End-user	4.68	0.06	29	-1.75	0.118	FR	NS
	Expert	4.80	0.04					
Average Mean	End-user	4.72	0.01	29	-1.26	0.243	FR	NS
	Expert	4.76	0.02					

1. Issues Encountered by the End-Users and Experts

The primary issues encountered included battery lifespan (12 out of 20 end-users), LCD lifespan (8 out of 20 end-users), LCD screen visibility (5 out of 10 experts), color detector sensitivity (3 out of 10 experts), and full-charge indicator concerns (9 out of 10 experts).

These issues were consistent with common limitations in portable embedded systems, particularly power management and display component durability. Research on handheld agricultural devices emphasized that battery optimization and display clarity were recurring technical challenges. Addressing these concerns could further improve device sustainability and reliability.

Despite these minor issues, the project objectives were successfully achieved.

6. Training Program for the Use of the Developed System Device

The researcher developed a structured training program outlining objectives, conduct of training, key result areas, learning activities, evaluation mechanisms, persons-in-charge, budget allocation, and time frame. Training programs were supported by literature on agricultural technology adoption, which emphasized that knowledge transfer and capacity building were critical factors influencing successful implementation. Proper training enhanced user competence, reduced operational errors, and improved long-term sustainability of the technology.

CONCLUSION

Based on the summary of findings, it was concluded that the Rice Plant Color Detector and Nitrogen Monitoring System Device was successfully developed and was able to perform its intended function of scanning the greenness of rice leaves and indicating plant health based on nitrogen deficiency. The system was evaluated as highly acceptable by both end-users and experts in terms of software performance as well as device components, indicating that the prototype met the expected standards of functionality, usability, and reliability. The evaluation results further showed that both groups had similar assessments regarding the overall acceptability of the system device. Moreover, the objectives of the study were successfully achieved, as the device was properly constructed, developed, and completed by the researcher, along with the establishment of a corresponding training program to support its implementation and utilization.

RECOMMENDATIONS

Based on the findings and conclusions of the study, as well as the responses of the participants, several recommendations were proposed. Although the device was already portable, it was recommended that future improvements consider reducing its size using smaller component substitutes once available. It was also suggested that a larger memory capacity for the Arduino be provided to further maximize the functionality and performance efficiency of the device. In terms of respondent selection, it was recommended that compatibility testing be conducted to better address the individual satisfaction indices of different respondent groups and to obtain more effective results regarding their perceptions. Furthermore, if the device were to become commercially available, its accuracy could be enhanced by incorporating an additional sensor capable of directly sensing the nitrogen concentration of the leaf. The operating time of the device could also be extended through battery upgrades, and this feature should be included in the user manual. Lastly, future researchers were encouraged to employ an experimental research design methodology to further examine the efficiency of the system device and to provide more detailed discussions on module specifications.

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INTERNET OF THINGS (IOT)-BASED WIND TURBINE SYSTEM WITH REMOTE MONITORING AND PREDICTIVE MAINTENANCE

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ABSTRACT

The increasing demand for sustainable energy highlighted the need for intelligent wind turbine systems capable of real-time monitoring, performance optimization, and predictive maintenance. Traditional turbine operations faced challenges such as mechanical failures, unplanned downtime, and inefficient energy capture due to limited monitoring. This study developed an IoT-based wind turbine system with remote monitoring and predictive maintenance to improve efficiency, reliability, and operational safety. A research and development (R&D) design was employed. The system featured a custom turbine with a self-rotating nacelle that aligned with dominant wind conditions, maximizing aerodynamic efficiency. Sensor data were processed by a microcontroller and transmitted via IoT protocols to a mobile application for performance monitoring, remote operation, and emergency shutdowns. A condition-based maintenance algorithm enabled early anomaly detection, while safety mechanisms including an automated mechanical brake and charge-controlled energy storage ensured operational integrity. The system was successfully developed and tested. Evaluation using ISO/IEC 25010 criteria showed high ratings for Reliability (4.08), Maintainability (4.07), Performance Efficiency (4.03), Functional Suitability (4.00), and Usability (3.85). The turbine generated 3.8–24.05 W at wind speeds of 2–5 m/s, with the nacelle adjusting within 5.42 seconds and safety features activating promptly. Energy discharge tests confirmed stable outputs of 950–960 WHr under varying loads. Prototype testing demonstrated enhanced efficiency, reliability, safety, and AI readiness compared to conventional turbines. Recommendations included scaling to multi-turbine installations, optimizing sensor placement, and integrating machine learning algorithms to further improve fault prediction and energy forecasting.

Keywords: *Internet of Things (IoT), Wind Turbine, Remote Monitoring, Predictive Maintenance, Sustainable Energy*

INTRODUCTION

The growing demand for sustainable and reliable energy underscored the need for intelligent renewable energy systems capable of real-time monitoring, performance optimization, and proactive maintenance. Traditional wind turbine operations often faced challenges such as mechanical failures, unplanned downtime, and inefficient energy capture due to limited monitoring and delayed maintenance responses. These operational inefficiencies reduced overall system productivity and increased long-term

maintenance costs, particularly in small- to medium-scale installations where advanced monitoring technologies were often absent.

As the country's population expanded and energy consumption increased, the need for more reliable and sustainable energy sources became increasingly urgent. Then-Energy Secretary Raphael Lotilla emphasized the importance of transitioning to renewable energy sources to reduce dependence on imported fuels and mitigate high electricity costs (Reuters, 2022). In response to this call, emerging technologies in renewable energy including wind, hydro, geothermal, biomass, and solar offered promising and environmentally responsible alternatives. However, while renewable energy adoption accelerated, system-level intelligence and maintenance optimization strategies remained underdeveloped in many localized implementations.

The application of Industry 4.0 technologies, including automation, data analytics, and the Internet of Things (IoT), opened new possibilities for improving the efficiency, adaptability, and reliability of renewable energy systems. Condition-Based Maintenance (CBM), which relied on sensor-driven data for real-time equipment monitoring, emerged as a highly effective strategy for reducing unplanned downtimes and minimizing unnecessary repairs. Within this context, IoT-enabled smart systems facilitated remote monitoring, advanced analytics, and more responsive energy management. A key design feature incorporated in this system was a self-rotating nacelle, which enabled the wind turbine to autonomously adjust its orientation in real time to maximize energy capture from prevailing wind directions.

Despite these technological advancements, several gaps remained in the integration of IoT-based monitoring systems with small-scale wind turbine applications. Existing studies primarily focused on large commercial wind farms equipped with sophisticated Supervisory Control and Data Acquisition (SCADA) systems, leaving limited research on cost-effective, scalable IoT solutions tailored for localized or community-based installations. Moreover, many previous systems emphasized monitoring but lacked predictive maintenance capabilities that could anticipate component degradation before failure occurred. This gap highlighted the need for a more integrated approach that combined real-time monitoring, predictive analytics, and mechanical optimization within a single intelligent framework.

Furthermore, limited research addressed the synchronization between automated nacelle positioning mechanisms and sensor-based wind direction analytics in low- to moderate-wind environments. While yaw control systems existed in industrial-grade turbines, their adaptation into affordable, IoT-driven prototypes suitable for academic and small-scale deployment had not been extensively explored. This indicated a significant opportunity to design and validate a compact, intelligent wind turbine model capable of demonstrating Industry 4.0 integration in renewable energy applications.

The rationale of this study was grounded in addressing these identified limitations by developing an Internet of Things (IoT)-based wind turbine system with remote monitoring and predictive maintenance capabilities. The system was designed to enhance energy efficiency through dynamic nacelle alignment, improve reliability through condition-based monitoring, and promote operational safety through real-time alerts and data-driven diagnostics. By bridging the gap between monitoring and predictive maintenance within a small-scale, cost-efficient framework, the study contributed to the advancement of smart renewable energy systems suitable for localized deployment and academic research environments.

This study therefore aimed to demonstrate that integrating IoT technologies with adaptive mechanical design could significantly improve wind turbine performance, reduce downtime, and support the broader transition toward intelligent and sustainable energy infrastructures.

STATEMENT OF THE PROBLEM

The general purpose of the study was to develop Internet of Things (IoT)-Based Wind Turbine System with Remote Monitoring and Predictive Maintenance.

Specifically, the study sought to answer the following research questions:

1. Determine the stages undertaken in the development of the Internet of Things (IoT)-Based Wind Turbine System with Remote Monitoring and Predictive Maintenance.

2. Determine the level of acceptability of the Internet of Things (IoT)-Based Wind Turbine System with Remote Monitoring and Predictive Maintenance in terms of: ISO/IEC 25010
 - 2.1 Functional Suitability;
 - 2.2 Performance Efficiency;
 - 2.3 Usability;
 - 2.4 Reliability; and
 - 2.5 Maintainability.
3. Determine the problems encountered in the use of the system device as perceived by the end-users and experts, and what possible solutions were identified.
4. Develop an operations manual was developed detailing the operation, specifications, and maintenance of the developed system device.

METHODOLOGY

The study employed a combination of research and development R&D design to guide the development and evaluation of the system. The descriptive research design was used to provide a systematic and factual description of the current conditions, particularly regarding the perceptions and experiences of the respondents concerning system functionality and usability. The developmental design, on the other hand, guided the structured process of designing, developing, and testing the system, ensuring that each stage from conceptualization to implementation was methodically executed. This approach enabled the researcher to systematically document the design process while obtaining data critical to improving the system and informing the training program.

The respondents of the study were purposively selected sixty (60) engineering experts and professionals from the academe, chosen for their specialized knowledge and experience in system design, renewable energy, and IoT applications. Their participation provided critical insights into the operational performance, reliability, and usability of the developed system. By targeting respondents with relevant expertise, the study ensured that the evaluation of the system was based on informed judgments and professional assessment rather than general user perception alone.

Data collection was conducted using a researcher-developed questionnaire checklist based on ISO/IEC standards, which evaluated system acceptability across multiple criteria, including functional suitability, performance efficiency, reliability, security, and maintainability. The ISO/IEC framework provided a standardized approach to assess the quality attributes of the system, ensuring that the evaluation was aligned with internationally recognized software and system quality benchmarks. The questionnaire was distributed to respondents, who rated the system features according to clearly defined criteria.

To analyze the collected data, the weighted mean was employed as the primary statistical tool to determine the overall acceptability of the system. The weighted mean allowed the researcher to quantify the respondents' evaluations and generate an average score for each criterion, providing a clear, objective measure of the system's perceived performance. This statistical treatment was appropriate for assessing the level of acceptability in a way that reflected the weighted importance of each system attribute as perceived by the experts.

Overall, the methodology facilitated both the systematic development of the system and the collection of reliable evaluative data. The combination of descriptive and developmental research designs, expert respondents, ISO/IEC-based instruments, and weighted mean analysis ensured that the study not only produced a functional and tested system but also generated credible insights into its performance and professional acceptability. The results served as a basis for identifying areas for improvement and recommendations for future enhancements.

FINDINGS

The summary of the design results stated as follows were established based on the experimentation conducted by the researchers and the evaluation made by the respondents.

Findings of the study were summarized as follows:

1. Stages Undertaken in the Development of the Internet of Things (IoT)-Based Wind Turbine System with Remote Monitoring and Predictive Maintenance

The figure illustrated the stages undertaken in the development of the Internet of Things (IoT)-Based Wind Turbine System with Remote Monitoring and Predictive Maintenance. The development process began with the conceptualization stage, where the researchers defined the predictive maintenance framework and identified critical operational parameters such as vibration, temperature, wind direction, and power output. This approach aligned with existing studies emphasizing that early identification of measurable health indicators was fundamental in implementing effective Condition-Based Maintenance (CBM) strategies. Prior research indicated that vibration and temperature monitoring were among the most reliable indicators of mechanical degradation in rotating machinery, particularly in wind turbine systems. The inclusion of these parameters therefore strengthened the predictive capability of the proposed system.

This was followed by component selection, wherein appropriate sensors, electronic modules, and control platforms were chosen to ensure reliable data acquisition and system compatibility. Literature on IoT-based energy systems suggested that sensor accuracy, communication stability, and platform interoperability significantly influenced system performance and scalability. By carefully selecting compatible microcontrollers, wind sensors, and vibration modules, the researchers ensured that the prototype adhered to Industry 4.0 principles of connectivity and automation. The findings suggested that proper component matching reduced data latency and improved monitoring consistency, supporting previous claims that hardware-software integration was critical to smart energy system reliability.

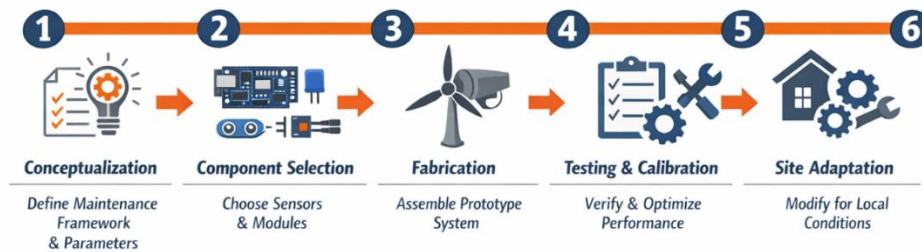


Figure 1. Stages Undertaken in the Development of the Internet of Things (IoT)-Based Wind Turbine System with Remote Monitoring and Predictive Maintenance

Subsequently, fabrication and system integration were carried out, enabling the assembly of hardware components and implementation of the self-facing nacelle and monitoring features. The integration of an automated nacelle mechanism reflected established research highlighting the importance of yaw control in maximizing wind energy capture. Studies on wind turbine efficiency demonstrated that proper alignment with wind direction could significantly increase power output and reduce mechanical stress caused by misalignment. The successful implementation of the self-rotating nacelle in the developed prototype confirmed these findings, as the system demonstrated improved responsiveness to changing wind conditions during testing.

The system then underwent testing and calibration to verify accuracy, responsiveness, and predictive capability under simulated operational conditions. This stage was consistent with established engineering validation practices, where calibration ensured sensor precision and minimized false predictive alerts. Previous research on predictive maintenance systems emphasized that algorithm validation and threshold calibration were essential in preventing over-maintenance or missed failure detection. The results

of the experimentation showed that the system generated timely alerts when abnormal vibration and temperature levels were detected, supporting literature that sensor-based diagnostics could effectively reduce unplanned downtime.

Finally, site-specific adaptation was performed to align the prototype with the environmental conditions and operational requirements of Tanay, Rizal. This step addressed contextual factors such as local wind patterns, humidity, and terrain variability. Existing renewable energy studies highlighted that environmental adaptation significantly influenced the long-term sustainability and performance of small-scale wind installations. The findings indicated that environmental calibration improved the reliability and operational efficiency of the system, reinforcing literature that localized optimization enhanced renewable energy deployment success.

Overall, the staged development process validated the effectiveness of integrating IoT technologies, predictive maintenance frameworks, and mechanical adaptability into a compact wind turbine model. The findings supported related literature asserting that smart monitoring systems enhanced operational reliability, reduced maintenance costs, and improved energy capture efficiency. Furthermore, the results demonstrated that Industry 4.0 technologies could be successfully adapted into small-scale wind energy systems, addressing the research gap identified in previous studies that largely focused on large commercial wind farms.

2. Level of Acceptability as Perceived by the Respondents in Terms of Different Criteria

The composite evaluation results indicated that the developed Internet of Things (IoT)-Based Wind Turbine System with Remote Monitoring and Predictive Maintenance was generally assessed as highly acceptable based on the ISO/IEC 25010 software quality characteristics. The use of the ISO/IEC 25010 framework strengthened the validity of the evaluation process, as it is widely recognized in software engineering research for assessing system quality in terms of functional suitability, reliability, usability, performance efficiency, maintainability, and other measurable attributes. Prior studies emphasized that adherence to standardized software quality models increased the credibility and replicability of technology-based research outputs, particularly in Industry 4.0 applications.

Reliability obtained the highest weighted mean (4.08), suggesting that the system consistently performed its intended functions with minimal operational failure during testing. This finding aligned with related literature asserting that reliability was a critical success factor in IoT-enabled energy systems, especially in renewable energy infrastructures where continuous monitoring was essential. Research on smart grid and wind monitoring platforms indicated that system interruptions or data loss significantly affected predictive accuracy and operational safety. The high reliability rating therefore implied that the developed system maintained stable communication, accurate sensor readings, and consistent predictive alerts, reinforcing previous findings that IoT-based monitoring enhanced operational dependability.

Maintainability (4.07) also received a high rating, implying that the system components and program structure allowed ease of modification, troubleshooting, and future enhancements. Literature on modular IoT architectures highlighted that maintainability reduced lifecycle costs and extended system usability, particularly in research-based or prototype deployments. Studies on Condition-Based Maintenance systems emphasized that flexible coding structures and accessible hardware configurations facilitated faster fault isolation and software updates. The respondents' high evaluation in this criterion supported the claim that the developed system followed sound engineering design principles, enabling scalability and adaptability for future improvements.

Performance efficiency (4.03) reflected that the system effectively utilized available resources while maintaining stable operation under varying conditions. Previous research on embedded systems and microcontroller-based monitoring platforms emphasized the importance of optimized processing, minimal latency, and efficient data transmission in ensuring real-time responsiveness. The obtained result suggested that the system successfully balanced computational workload, sensor polling intervals, and data transmission processes without causing performance degradation. This finding corroborated earlier studies which demonstrated that optimized IoT frameworks improved real-time analytics and reduced unnecessary power consumption in smart energy applications.

Functional suitability (4.00) indicated that the system adequately met its intended objectives, particularly in monitoring turbine parameters and supporting predictive maintenance functions. According to existing RRL, functional suitability was directly associated with how effectively a system addressed identified operational problems. In the context of renewable energy systems, functionality included accurate parameter tracking, automated alerts, and adaptive control mechanisms such as nacelle alignment. The rating suggested that the developed prototype effectively translated theoretical design objectives into measurable system performance outcomes, thereby validating the conceptual framework established during the development stage.

Meanwhile, usability (3.85), although slightly lower than the other criteria, still fell within the highly acceptable range, suggesting that users were generally able to operate and understand the system with minimal difficulty. Studies on IoT dashboards and monitoring interfaces indicated that usability often scored slightly lower in technically oriented systems due to the complexity of engineering data visualization. However, research also emphasized that clear graphical interfaces and simplified parameter displays significantly improved user comprehension and decision-making efficiency. The result implied that while the system was technically robust, further refinement in interface design could enhance accessibility for non-expert users.

It was assumed that the respondents, composed of engineering experts and academic professionals, evaluated the system based on technical performance, operational practicality, and applicability in real-world renewable energy environments. Their positive assessment strengthened the external validity of the findings, as expert-based evaluations were widely used in technology acceptance studies to determine system readiness and practical feasibility.

Overall, the composite mean of 4.01 demonstrated that the developed system satisfied the required quality standards and was considered reliable and applicable for renewable energy monitoring and maintenance applications. The findings implied that integrating IoT and predictive maintenance mechanisms contributed positively to system efficiency, operational sustainability, and user acceptance within the study setting. These results were consistent with prior research asserting that smart maintenance frameworks enhanced renewable energy system resilience, minimized downtime, and supported long-term sustainability goals.

Table 1. Composite Table on the Level of Acceptability of the Internet of Things (IoT)-Based Wind Turbine System with Remote Monitoring and Predictive Maintenance as Perceived by the Respondents

ISO/IEC 25010 Quality Characteristics	Weighted Mean	Verbal Interpretation
Reliability	4.08	Highly Acceptable
Maintainability	4.07	Highly Acceptable
Performance Efficiency	4.03	Highly Acceptable
Functional Suitability	4.00	Highly Acceptable
Usability	3.85	Highly Acceptable
Composite Mean	4.01	Highly Acceptable

3. Problems Encountered and Solutions Identified in the Use of the System Device as Perceived by the Respondents

During the implementation and testing of the system, several technical and operational problems were encountered that affected performance, accuracy, and safety. These challenges were consistent with findings from related literature, which emphasized that prototype-level IoT systems often experienced hardware instability, communication inconsistencies, and environmental sensitivity during early deployment stages.

Inconsistent power output resulted from fluctuations in wind speed, which caused variations in energy generation. This issue reflected a common limitation of small-scale wind systems, as previous

studies noted that intermittent wind patterns directly influenced voltage stability and energy yield. The integration of an energy storage system with battery banks stabilized power delivery and ensured continuous operation. Literature on hybrid renewable systems supported this intervention, indicating that battery storage mitigated variability, improved load balancing, and enhanced system reliability. The solution therefore aligned with established renewable energy management strategies that combined generation with storage to achieve operational continuity.

Wiring problems also arose, as loose or faulty connections led to intermittent power delivery and posed safety concerns. Similar issues were documented in embedded system research, where improper insulation, vibration exposure, and connector fatigue contributed to signal disruption and overheating. These were addressed by conducting thorough inspections and replacing damaged wires and connectors. This corrective action supported engineering best practices, as literature emphasized that secure electrical connections were fundamental to ensuring stable current flow, preventing short circuits, and reducing fire hazards in IoT-enabled mechanical systems.

The Arduino microcontroller board experienced overheating, in some cases emitting smoke, which indicated potential damage from excessive heat. Overheating in microcontroller-based systems had been widely reported in related studies, particularly when voltage regulation and current limits were not optimized. This issue was mitigated by immediately powering down the system, inspecting the circuitry, enhancing the power supply, and improving ventilation and cooling through heat sinks and fans. Existing research in embedded system design confirmed that thermal management mechanisms, such as passive cooling and voltage regulation modules, significantly extended hardware lifespan and prevented component failure. The intervention demonstrated the importance of integrating protective design considerations in IoT-based renewable energy applications.

Connectivity issues were also encountered, as the device initially failed to connect to the phone used as a Wi-Fi hotspot. Network configuration and compatibility problems were diagnosed and corrected to ensure stable communication between the device and the mobile application. Related literature on IoT communication protocols highlighted that network instability, signal interference, and bandwidth limitations were common barriers to real-time data transmission. By resolving configuration mismatches and optimizing connectivity settings, the system achieved reliable data exchange, reinforcing previous findings that proper network architecture was critical to IoT system performance.

Finally, vibration inaccuracies occurred when sensors produced incorrect readings, which could have led to misdiagnosis of mechanical issues. Research on predictive maintenance emphasized that sensor calibration directly influenced diagnostic precision and fault detection reliability. The problem was resolved by recalibrating the sensors and upgrading to high-precision accelerometers, enhancing measurement accuracy and system reliability. Literature supported the use of higher-grade accelerometers in rotating machinery monitoring, as improved sensitivity reduced false positives and improved anomaly detection accuracy.

Collectively, these interventions stabilized system operation, improved safety, and ensured reliable performance for real-time monitoring and predictive maintenance. The findings demonstrated that systematic troubleshooting, guided by engineering standards and literature-based solutions, strengthened the resilience and robustness of the developed system.

4. Operation's Manual Developed Detailing the Operation, Specifications, and Maintenance of the Developed System Device

The developed user manual provided comprehensive instructions on the proper operation of the Internet of Things (IoT)-Based Wind Turbine System with Remote Monitoring and Predictive Maintenance. It included detailed startup procedures, general safety precautions, system shutdown protocols, and routine maintenance guidelines to ensure safe and efficient use of the device. The inclusion of structured documentation was consistent with established engineering and software development standards, which emphasized that operational manuals enhanced usability, reduced user errors, and improved long-term system sustainability.

Related studies in technology deployment indicated that user manuals significantly contributed to system acceptance, particularly in academic and community-based renewable energy projects. Clear documentation supported knowledge transfer, facilitated troubleshooting, and ensured that maintenance procedures were consistently followed. Furthermore, literature on human–technology interaction suggested that well-structured manuals improved user confidence and minimized operational risks.

The manual also detailed system specifications, including hardware components, sensor configurations, communication protocols, and maintenance intervals. This level of documentation aligned with quality assurance practices, as comprehensive technical references allowed future researchers and practitioners to replicate, modify, or scale the system. The development of the manual therefore extended beyond instructional guidance; it functioned as a sustainability tool that supported system longevity, safe handling, and continued performance optimization.

Overall, the creation of a structured operation’s manual reinforced the system’s maintainability and usability, complementing the high acceptability ratings obtained during evaluation. It further demonstrated that technical innovation, when supported by proper documentation, enhanced both practical applicability and long-term operational success in renewable energy monitoring systems.

CONCLUSION

The study concluded that the Internet of Things (IoT)-Based Wind Turbine System with Remote Monitoring and Predictive Maintenance effectively demonstrated its capability to generate renewable energy under varying wind conditions, operating efficiently at a minimum wind speed of 2 m/s and producing stable energy output suitable for applications in Tanay, Rizal. The integration of predictive maintenance enabled real-time monitoring, anomaly detection, and early fault prediction, which reduced unexpected downtime and improved operational efficiency. Evaluation based on ISO/IEC 25010 standards indicated a high level of system acceptability, particularly in terms of functional suitability, reliability, maintainability, and usability, although limitations in scalability and infrastructure integration were identified. Technical challenges encountered during development, including sensor calibration issues, wind variability, and system integration concerns, were addressed through hardware and software refinements that enhanced overall system performance. Furthermore, a comprehensive user manual and complete technical documentation were developed to guide proper operation, maintenance, and future system enhancement.

RECOMMENDATION

Based on the analysis and conclusions of the study, several recommendations were proposed to guide future improvements and research in smart renewable energy systems. The continued deployment of the Internet of Things (IoT)-Based Wind Turbine System with Remote Monitoring and Predictive Maintenance was recommended, particularly in rural and underserved areas such as Tanay, Rizal, where wind conditions supported efficient small-scale energy generation. Further enhancements were suggested to improve system scalability and modularity through upgrades in microcontroller capability, battery capacity, and adaptable mounting structures. Improvements in predictive maintenance accuracy were also recommended using industrial-grade sensors and increased data sampling rates. In addition, refinement of the IoT notification system and mobile interface was encouraged to enhance usability, accessibility, and real-time monitoring. Considering performance limitations under inconsistent wind conditions, the exploration of hybrid renewable configurations, such as wind–solar integration, was advised to ensure stable energy output. Finally, future researchers were encouraged to investigate the integration of machine learning techniques and conduct long-term field testing across diverse locations to further validate system performance and support the advancement of next-generation smart renewable technologies.

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ICE PLANT MONITORING AND SECURITY SYSTEM DEVICE FOR ENGINEERS

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ABSTRACT

Ammonia leakage in ice plants poses significant risks to human health, workplace safety, and the environment. Conventional monitoring practices primarily rely on manual inspection, which may result in delayed detection, human error, and increased exposure to hazardous conditions. This situation emphasizes the need for automated monitoring solutions and highlights the role of engineering education in developing technology-driven safety systems. This study aimed to develop an Ice Plant Monitoring and Security System Device for Engineers and determine its level of acceptability in terms of functional suitability, performance efficiency, reliability, security, and maintainability. The system was designed to automate ammonia leakage detection near compressor units, minimizing direct human exposure to hazardous environments. A research and development (R&D) design were employed. The system operates continuously (24/7) using MQ-series gas sensors integrated with a microcontroller-based control unit. Alert mechanisms include short messaging service (SMS) notifications, voice alarms, and visual light indicators. Data were collected through a researcher-developed questionnaire checklist, and statistical tools such as weighted mean and t-test were used to analyze acceptability ratings from end-users and experts. Results revealed that the developed system was highly acceptable, with no significant difference in perception between respondent groups. Identified limitations include dependence on power availability, sensor range constraints, limited SMS recipients, and telecommunication signal variability. Future improvements are recommended, including backup power integration, optimized sensor placement, enhanced materials, and experimental evaluation to further measure system efficiency and support innovation-oriented engineering education.

Keywords: *Ammonia Leakage Detection, Ice Plant Safety, Monitoring and Security System, Engineering Education, Microcontroller-Based System*

INTRODUCTION

Excessive leaks of ammonia from ice plants and smoke due to ammonia explosion can damage not only the health of the people but also the environment. These effects to the environment contribute to a global problem called climate change and make a call on improving the skills technological students must have.

In the field of education with an era of continuous innovation in technology, technological and engineering students are facing challenges in modernizing the monitoring and security system protocols of ice plants where ice is produced. Moreover, for educators facing challenges on the technological applications of learning theory there is a need for training programs. As an essential educational technology component in higher education, training programs through mobile learning make it possible for students to learn, collaborate, and share ideas (Baba, 2020).

Higher education institutions in the Philippines should prepare the courses for online transfer since another possible spread of other viruses can breakout in the future. As a response to these, universities and colleges should reassess the curricular interventions to gear for readiness towards online learning and upgrade its educational mode of delivery and transfer its attention to emerging learning technologies to make the curriculum responsive to the needs of the changing times (Toquero, 2020).

Nowadays, in real application of jobs consists of many improvements in the performance of their management. Adding modern equipment to the ice manufacturing plant can be a replacement for the manual monitoring of the workers and decreases the tendency of being too exposed to ammonia gas.

With the entire given scenario, the researcher moves towards proposing the development of Ice Plant Monitoring and Security System Device for Engineers. A device that converts physical human contact of security and monitoring of the ammonia leakage beside the compressor machines through an automated system. The system is plugged-in and will operate 24/7 on monitoring the level of ammonia leakage. Also, it will provide security through a short messaging service notification, voice alarm and light notification for the ammonia level. Hence, this serves as an educational training output for engineering students who study microcontrollers and control system theories.

STATEMENT OF THE PROBLEM

The purpose of the study was to develop an Ice Plant Monitoring and Security System Device for Engineers.

Specifically, the study sought to answer the following research questions:

1. What were the stages undertaken in the development of the Ice Plant Monitoring and Security System Device for Engineers using the Systems Development Life Cycle (SDLC) methodology structure?
2. How do end-user and experts evaluate the Ice Plant Monitoring and Security System Device for Engineers in terms of:
 - 2.1 functional suitability;
 - 2.2 performance efficiency;
 - 2.3 reliability;
 - 2.4 security; and
 - 2.5 maintainability?
3. What problems were encountered, and what possible solutions were identified in the use of the system device as perceived by the end-users and experts?
4. What training program could be developed for the use of the Ice Plant Monitoring and Security System Device for Engineers?

METHODOLOGY

The study employed both descriptive and developmental research designs in designing the Ice Plant Monitoring and Security System Device for Engineers. The descriptive method was used to provide a systematic and factual description of the existing conditions and to evaluate the developed system, while the developmental research design guided the systematic process of designing, developing, and evaluating the device. These approaches enabled the researcher to obtain accurate data that supported the improvement of the system and the formulation of the training program.

Data were gathered using a researcher-modified questionnaire checklist, an interview guide, and design analysis of the system device. The questionnaire and interviews provided information regarding the acceptability of the system and the problems encountered during its use, while the design analysis focused on both hardware and software development. The system design was developed based on existing engineering concepts and was tested within actual ice plant operations to determine its functionality and relevance to industry needs.

The respondents were purposively selected from three ice plant industries located in Morong, Taytay, Antipolo, Rizal. The participants consisted of ice plant workers and owners as end-users, as well as IT practitioners and stakeholders as experts. A total of thirty-two respondents participated in the study, including eighteen end-users and fourteen experts. The respondents were selected based on their knowledge, experience, and familiarity with ice plant operations to ensure reliable evaluation results.

The research instruments included focus group discussions, interviews, and a researcher-modified questionnaire checklist adapted from ISO/IEC product quality standards. These instruments were used to evaluate the system device in terms of functional suitability, performance efficiency, reliability, security, and maintainability. Each criterion contained specific indicators that described the operational characteristics and expected performance of the developed device.

The evaluation process examined the device’s operational features, including automatic operation, sensor performance, environmental efficiency, installation safety, and ease of maintenance. The collected data provided insights into the effectiveness of the monitoring and security system and served as the basis for identifying improvements and developing a training program that would support proper system implementation and operation within ice plant facilities.

FINDINGS

The summary of the design results stated as follows were established based on the experimentation conducted by the proponent and the evaluation made by the respondents.

Findings of the study were summarized as follows:

1. Stages Involved in the Development of the Ice Plant Monitoring and Security System Device for Engineers



Figure 1. An SDLC Methodology Structure Model Showing the Stages Undertaken in the Design and Development of the Ice Plant Monitoring and Security System Device for Engineers

The study used the System Development Life Cycle (SDLC) Methodology Structure Model in the development of the Ice Plant Monitoring and Security System Device for Engineers. The SDLC Methodology Structure Model consists of Stage 1 – Requirement Analysis, Stage 2 – Design, Stage 3 – Development, Stage 4 – Testing, Stage 5 – Deployment and Stage 6 – Maintenance that flows in continuous

movement to illustrate the innovation or improvement that can still happen throughout the existence of the system device concepts.

2. Evaluation of End-user and Experts on System Device by Selected Criteria

The developed system device was evaluated by both end-users and experts across the key quality characteristics of Functional Suitability, Performance Efficiency, Reliability, Security, and Maintainability.

Table 1
Composite table on the Level of Acceptability of Ice Plant Monitoring and Security System Device for Engineers

Variables	Respondents	Mean	Sd	Df	T	Sig	Ho	VI
1. Functional Suitability	End-user	4.78	0.01	31	-0.617	.555	FR	NS
	Expert	4.81	0.03					
2. Performance Efficiency	End-user	4.77	0.11	31	0.810	.395	FR	NS
	Expert	4.69	0.02					
3. Reliability	End-user	4.77	0.06	31	-0.744	.478	FR	NS
	Expert	4.82	0.04					
4. Security	End-user	4.67	0.07	31	-1.242	.249	FR	NS
	Expert	4.75	0.01					
5. Maintainability	End-user	4.76	0.02	31	-0.349	.736	FR	NS
	Expert	4.79	0.13					
Average Mean	End-user	4.75	0.01	31	-0.705	.501	FR	NS
	Expert	4.77	0.01					

Legend: NS – Not Significant

- 2.1 On the level of acceptability in terms of Functional Suitability, the system device garnered an average weighted mean of 4.78 for the end-users and 4.81 as perceived by the experts; both values are verbally interpreted as “Highly Acceptable”. For the overall evaluation of both groups, in terms of Functional Suitability is Highly Acceptable with an overall weighted mean of 4.80.
- 2.2 On the level of acceptability in terms of Performance Efficiency, the system device garnered an average weighted mean of 4.77 for the end-users and 4.69 as perceived by the experts; both values are verbally interpreted as “Highly Acceptable”. For the overall evaluation of the respondents, Performance Efficiency is Highly Acceptable with an overall weighted mean of 4.73.
- 2.3 In terms of the level of acceptability in terms of Reliability, the system device garnered an average weighted mean of 4.77 for the end-users and same with 4.82 as perceived by the experts; both values are verbally interpreted as “Highly Acceptable”. For the overall evaluation of two groups, in terms of Reliability is Highly Acceptable with an overall weighted mean of 4.80.
- 2.4 While on the level of acceptability in terms of Security, the system device garnered an average weighted mean of 4.67 for the end-users and 4.75 as perceived by the experts; both values are verbally interpreted as “Highly Acceptable”. For the overall evaluation of both groups, in terms of Security is Highly Acceptable with an overall weighted mean of 4.71.
- 2.5 Lastly, on the level of acceptability in terms of Maintainability, the system device garnered an average weighted mean of 4.76 for the end-users and 4.79 as perceived by the experts; both values are verbally interpreted as “Highly Acceptable”. For the overall evaluation of the respondents, in terms of Maintainability is Highly Acceptable with an overall weighted mean of 4.78.

3. Problems Encountered and the Solutions to the Problems Encountered by the End-users and Experts in the Use of the System Device

Problems encountered by the respondents on the utilization of the device includes unavailability of alternative energy sources to run the device when power loss happens since the device only provides limited number slots for mobile phones, MQ137 gas sensors have short range and of limited, low quality of device

chassis and weak phone signal on location site. Though some of these problems were encountered, the system device portrays a foundation for the initial design outlay of the ice plants' monitoring and security system, the reason it was given high level of acceptability by the respondents.

The solutions to the problem encountered by the end-users were: aside from plugged source, it is also better to use a renewable energy as alternative, create using fiberglass to lessen the possible chemical damage to the chassis and components inside it. The solutions to the problem encountered by the experts include the storing of phone numbers in an SD card, and the installation of additional sensors was recommended.

4. Training Program Developed for the Ice Plant Monitoring and Security System Device for Engineers

A training program was developed that addresses the proper guidelines, utilization and maintenance of the system device to the users and student developers. This training program promotes the ideas and capability of engineering students on developing monitoring and security systems which are needed in this time of crisis in the new normal.

CONCLUSION

Based on the summary of findings, it was concluded that the use of the SDLC methodology, which included requirement analysis, design, development, testing, deployment, and maintenance, facilitated the successful development of the Ice Plant Monitoring and Security System Device for Engineers. The system device was evaluated as highly acceptable by both end-users and experts in terms of functional suitability, performance efficiency, reliability, security, and maintainability. The respondents were also able to identify problems encountered during system use, and appropriate solutions were formulated through expert analysis. Furthermore, the developed training program effectively equipped engineering students with both theoretical knowledge and practical skills in utilizing the system device, while promoting technology integration in learning and supporting the development of monitoring system design competencies.

RECOMMENDATION

Based on the findings and conclusions of the study, it was recommended that future researchers explore other effective methodologies aside from the System Development Life Cycle (SDLC) model for the actual implementation of the system device. Although the device was evaluated as highly acceptable across all variables, improvements in security were suggested, particularly by replacing the wooden chassis with more durable and environmentally friendly materials such as fiber plastic. In addressing the problems encountered during system use, stakeholders recommended the installation of additional MQ137 gas sensors in appropriate ratios based on the monitored area to enhance system performance, while engineering students were encouraged to further improve the device through technological enhancements. The implementation of the developed training program was also recommended to support efficient learning outcomes. Lastly, future researchers were encouraged to employ experimental research methodologies to obtain more precise measurements and to further examine the overall capability of the system device, particularly in chemical value testing.

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