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5. Articles must use APA style sheet; and,
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WORLDVIEW OF JUNIOR HIGH SCHOOL STUDENTS IN READING KOREAN NOVELS

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ABSTRACT

This study explores the influence of Korean novels on shaping the perspectives, values, and cultural understanding of young readers, particularly Grade 9 students at Polomolok National High School (PNHS). The research examines how these narratives inspire empathy, critical thinking, and a deeper understanding of social dynamics. By analyzing student's reflections, reading habits, and interpretations, the study highlights the role of Korean novels in broadening horizons, fostering global awareness, and contributing to young minds educational and cultural development. The researcher employed a combination of criterion sampling, in-depth semi-structured interviews, and document analysis to gather data. Thematic analysis of the data uncovered several significant themes, including finding refuge and rejuvenation, enticing challenge, relatability, connection within community, linguistic and cultural bridge, self-discovery, emotional rollercoaster, path to growth, inspiration and motivation, dream weavers, innovations of the world, and new perspectives. These expectations significantly influence their engagement with the story, contributing to excitement or, at times, disappointment. A book's plot aligns with or surpasses these expectations, resulting in a deeply gratifying reading experience. Through engaging with Korean novels, readers embark on journeys of self-discovery, cultural enrichment, and life-long learning. The complexities of Korean grammar and vocabulary can hinder comprehension and appreciation of the text's subtleties, making the experience both demanding and enriching. Despite these difficulties, the immersive experience of reading Korean literature can serve as a gateway to deeper cultural appreciation and personal growth.

Keywords: *Korean novels, cultural understanding, young readers, literary influence, empathy, global awareness, thematic analysis, student reflections, reading engagement, personal growth*

INTRODUCTION

Background of the Study

Literature plays a vital role in helping to understand the world and themselves, especially during pivotal moments in life. As navigated the challenges of junior high school, reading became a powerful tool for building empathy, broadening their perspective, and shaping their sense of identity. Korean novels, in particular, opened doors to rich cultural experiences and personal growth.

Literature has long been a cornerstone of education, fostering critical thinking, empathy, and cultural understanding. However, navigating the vast world of literature can be daunting, especially for young learners. In recent years, a captivating trend has emerged of global interest in Korean novels among junior high school students (Gilakjani et al., 2017).

This research adopts a phenomenological method to investigate the experiences of young readers engaging with Korean novels. It delves into how they interact with new cultural contexts, navigate language barriers, and process diverse storylines, focusing on the obstacles they face, the strategies they use, and the understanding they develop. The study underscores these novels' profound impact on young readers (Cruz, 2019).

Despite the enthusiasm, navigating cultural differences and language barriers poses significant student challenges. Unfamiliar references, social structures, and linguistic nuances can hinder comprehen-

sion and enjoyment (Park & Lim, 2020). Moreover, within the ASEAN region, literature highlights the balance between unity and diversity, shedding light on shared histories and regional identity while celebrating its rich cultural variety (Nguyen, 2018).

In the Philippines, literature serves as a crucial platform for safeguarding indigenous traditions, shaping the nation's identity, and tackling modern socio-political challenges, evident in the revival of regional voices and stories that amplify underrepresented perspectives (San Juan, 2016). Furthermore, employing varied teaching methodologies, such as contextualized and interactive approaches, fosters critical thinking, cultural appreciation, and deeper engagement with literary texts. These practices are essential in bridging the gap between theoretical knowledge and practical application, ultimately enhancing students' comprehension and appreciation of literature (Sevilla, 2021).

The Department of Education (DepEd) emphasizes localized and contextualized teaching to make learning more meaningful and relevant to students. This approach ensures that materials used in teaching literature reflect the cultural and societal realities of learners, fostering a deeper connection to the texts and enhancing their understanding of local traditions, values, and experiences (Department of Education [DepEd], 2016, DepEd Order No. 35).

Moreover, Instructional Approaches in Teaching Literary Texts A study conducted in 2022 examined the challenges faced by learners regarding the instructional approaches employed by their English teachers in teaching literary texts. The research aimed to provide insights into effective teaching strategies for literature in ESL classrooms (Cruz, 2019).

Despite the efforts of the Department of Education (DepEd) to promote localized and contextualized teaching in literature, several challenges persist in reading novels or literary texts among students. One common issue is the lack of interest or engagement, often stemming from the perceived irrelevance of traditional texts to students' contemporary experiences. Many learners struggle with outdated or foreign materials that fail to reflect their cultural realities, making it difficult for them to connect with the stories (Dela Cruz, 2022).

Statement of the Problem/ Research Question

This study described the worldview of junior high school (JHS) students in reading Korean novels. It answered the following questions:

1. What are the lived experiences of Junior High School students in reading Korean novels in view of their cultural differences and language?
2. What is the context of the lived experiences of Junior High School students in reading Korean novels?
3. How do Junior High School students view themselves in the future?

METHODOLOGY

Research Design

The current study employed Transcendental Phenomenology, a philosophical approach to qualitative research methodology primarily developed by Husserl, which aims to understand human experiences (Moustakas, 1994).

Moreover, qualitative research is a type of research methodology that focuses on exploring and understanding people's subjective experiences. It is a valuable approach in social sciences, including psychology, sociology, and anthropology (Creswell, 2023).

Qualitative research is particularly useful when investigating complex phenomena that cannot be easily measured or quantified. Qualitative research typically involves purposive sampling, where participants are selected based on their relevance to the research question (Cooper, et.al.2020).

Locale of the Study

This study was conducted at the Grade 9 Junior High School of Polomolok National High School at Cannery Site Polomolok, South Cotabato. The study focused on Korean literature and offered unique insights into factors influencing junior high school attitudes and behaviors in a specific socio-economic setting.

The researcher selected Grade 9 students as the focus of the study because they are taught Afro-Asian and World Literature as part of their curriculum, making them more suited for engaging with literature such as Korean novels, which require in-depth reading and analysis.

Research Participants

The research participants of this study consisted of at least nine (9) learners who intensively read the Korean novels literature of Polomolok National High School. The researcher took their willingness to participate in the study as evidence that they had gathered enough data. In this study, the researcher set criteria to determine their experiences in reading Korean literature. First, they must be a Grade 9 learner currently enrolled in the school year 2024 – 2025. Second, the participants must be 15 years old, regardless of gender.

Third, they should belong to the regular school and mainstream programs. Fourth, the participant's overall weighted average of at least (85-90) is the required limit of their respective categories. Lastly, participants must have parental or guardian consent to participate and be able to share their lived experiences confidently.

Sampling Techniques

Purposive sampling was used as a non-random technique in which researchers intentionally selected participants based on specific characteristics or traits. This method is commonly used in qualitative research to ensure that the sample aligns with the research question or objective (Palinkas, et.al., 2015).

Research Instrument

Braun and Clarke (2021) claim that qualitative surveys include open-ended questions, developed by researchers and are focused on a particular subject. The main objective of a questionnaire is to gather relevant data as accurately and dependably as feasible.

Similarly, in this study, the researcher utilized a semi-structured interview. The purpose of using semi-structured interviews for data collection is to gather information from key informants with personal experiences, attitudes, perceptions, and beliefs about the topic of interest (DEJonckheere et.al., 2019).

Data Gathering Procedure

In qualitative research, transcendental phenomenology is used as the method and approach of the study. The students employed this method to organize their experiences and make sense of them during the interviews.

The researcher conducted a trial interview with one participant to verify that the interview questions were relevant, engaging, and aligned with the participant's preferences. The researcher obtained permission from the school administration and the parents of the participants, as they were minors.

Data Analysis Methods

This study's data analysis involved summarizing the collected information and presenting the findings to highlight the most important aspects. The data was analyzed through data reduction, visualization, conclusion generation, and verification. Thematic analysis is a technique for examining qualitative data. It is often applied to collections of texts, such as interview transcripts. In this approach, the researcher scrutinizes the data to uncover recurring themes, topics, ideas, and patterns of meaning. Qualitative analysis requires the researcher to interpret the data through their perspective, drawing on prior knowledge and theoretical frameworks. This interpretive approach enables the researcher to construct meaning and generate distinct insights related to the research question.

Ethical Considerations

Ethical considerations were crucial in qualitative research, especially when addressing sensitive topics or working with vulnerable populations. The methodology used in this study raised important issues related to the ethical conduct of research, ensuring participant confidentiality, and maintaining anonymity.

Trustworthiness measured how accurately a study's conclusions reflected the realities shared by the participants. It addresses how researchers convinced their audience that the findings were credible and

worth considering. Trustworthiness ensured that the results genuinely represented the participants' experiences and perspectives.

Transferability encouraged research readers to relate the study's findings to their own experiences rather than making broad statements.

Dependability, like reliability, focuses on the consistency of findings over time. Typical qualitative methods such as audit trails, thorough documentation, triangulation, traditional approaches like inter-coder or inter-observer agreement, and code-recode consistency enhanced dependability.

Researcher's Positionality

In this qualitative study, the researcher navigated multiple roles: that of a literature teacher, researcher, and inquirer. With ten years of experience teaching English and Literature, the researcher's passion for literature education has been shaped by extensive work with junior high school students

FINDINGS/DISCUSSION

Twelve (12) relevant themes described the Worldview of Junior High School Students in Reading Korean Novels. These cover Finding Refuge and Rejuvenation, Enticing Challenges, Connection within Community, Linguistic and Cultural Bridge, Growth and Interaction, Personal Growth through Connection, Emotional Rollercoaster, Path to Growth, Inspiration and Motivation, Dream Weavers, Innovations of the World, and New Perspective

Relevant themes described the lived experiences of Junior High School students in reading Korean novels in view of their cultural differences and language.

Relevant Theme 1: Finding Refuge and Rejuvenation

According to Bandura (1986), research suggests that reading fiction offers a sense of escape, relaxation, and emotional well-being, especially for those looking to alleviate the stresses of everyday life. With their vibrant cultural stories and captivating characters, Korean novels provide a distinctive form of escapism and renewal. Engaging plots and well-crafted characters spark curiosity and captivate readers. The anticipation of discovering what happens next can create a profound immersion and enjoyment (Phillips, 2022).

Reading for pleasure is inherently motivating, as it is rewarding in itself. It provides a sense of achievement, fosters personal growth, and stimulates intellectual development (Phillips, 2022). Recent studies continue to support the psychological benefits of engaging in imaginative activities like reading fiction. For instance, a 2024 article highlights that reading fiction offers a mental escape that can rejuvenate emotional well-being (Psychology Today, 2025).

Relevant Theme 2: Enticing Challenges

With their distinctive mix of cultural subtleties, linguistic complexities, and thought-provoking stories, Korean novels offer readers an engaging challenge. Exploring unfamiliar cultural references, interpreting new vocabulary, and delving into a different literary tradition can be demanding and rewarding (Kim, 2018). Lee (2020) states that navigating these challenges can result in considerable personal growth and enhanced cultural understanding. Readers are often inspired to explore the Korean language and culture further, broadening their perspectives and deepening their appreciation for global literature.

With its unique grammar and vocabulary, the Korean language presents a significant challenge for non-native speakers. This can lead to difficulties in comprehension and appreciation of the nuances of the text (Lee, 2018).

Relevant Theme 3: Connection within the Community

Readers often find themselves relating deeply to the characters in Korean novels, drawing motivation and wisdom from their stories and principles. Such novels have the potential to cultivate a vibrant reading culture, encouraging individuals to explore literature and encounter fresh ideas (Lee, 2020).

Reading clubs and online groups focused on Korean novels offer a sense of connection, providing

spaces for discussion and shared experiences (Kim, 2015). Korean novels thus become powerful instruments for building community bonds. Readers find inspiration, support, and a sense of shared belonging by connecting with characters, joining reading groups, and participating in online dialogues.

Recent studies have highlighted the significant benefits of community connections on individual well-being. For instance, Kim and Kawachi (2017) found that increased social connections offer individuals social and psychological support, leading to enhanced self-esteem and reduced chronic stress

Relevant theme 4: Linguistic and Cultural Bridge

Translation Studies is a field that explores the complex interplay between languages, cultures, and the act of translating. It examines the challenges and opportunities involved in bridging linguistic and cultural gaps.

According to Skopos's Theory, this emphasizes the purpose or goal of a translation, arguing that the translator's primary task is to achieve the intended effect in the target language. According to the Cultural Transfer theory, this theory explores how cultural elements are transferred between languages and cultures through translation.

Recent studies have highlighted the role of language and translation in bridging cultural divides. For instance, Lin and Chen (2023) introduced Taiwan LLM, a language model tailored to Traditional Chinese as used in Taiwan, emphasizing the importance of culturally aligned language models in bridging linguistic divides

The quality of a translation can significantly influence a reader's experience and understanding of a foreign text. A well-executed translation can enhance the reader's appreciation for the original work, while a poor translation can hinder comprehension and enjoyment.

Relevant Theme 5: Growth and Interaction

Korean novels resonate with readers by capturing universal human experiences beyond cultural limits. Readers can gain insight into themselves and their lives by identifying with characters and their challenges.

The quality of relationships greatly influences communication, cooperation, and well-being. Healthy interpersonal connections promote trust, collaboration, and open communication. Cultural norms and values shape how people communicate, what they expect from interactions, and how they behave. Recognizing cultural differences is essential for successful interpersonal exchanges. These studies collectively demonstrate that structured and interactive discussions, whether in research papers or online platforms, are crucial for deepening understanding, fostering critical thinking, and advancing knowledge within various fields.

The interaction of interpersonal dynamics, cultural context, and family backgrounds shapes how people communicate, interact, and form connections.

Relevant Themes on the context of the lived experiences of Junior High School students in reading Korean novels.

Relevant Theme 6: Personal Growth through Connection

Korean culture deeply respects tradition and elders, influencing social interactions and decision-making. Yet, Korean society also shows a strong capacity for adaptation, adjusting to new situations, and evolving (Lee, 2020). Korean society often strives to integrate traditional values with contemporary practices, creating a dynamic cultural landscape. Younger generations in Korea significantly influence cultural trends, often challenging conventional norms (Kim, 2016).

A study published in *Frontiers in Psychology* found that a growth mindset negatively predicts loneliness through the mediating effects of interpersonal distress and well-being. This suggests that fostering a growth mindset can enhance social interactions and reduce feelings of loneliness (Zhao, et.al.,2024).

Relevant Theme 7: Emotional Rollercoaster

A study published in *Studies in Continuing Education* explored the emotional experiences of first-year online doctoral students. The research highlighted that these students often undergo significant emotional fluctuations, described as an emotional rollercoaster, impacting their learning and persistence.

The study emphasizes the need for institutions to provide adequate support to help students navigate these emotional challenges (Robinson & Smith, 2023)

Drawing readers into an empathetic bond with the main character relies on creating moments of shared experience. When emotional scenes are rendered authentically, readers may feel an echo of the character's emotions (Ackerman, 2016).

The lasting emotional effect of Korean novels illustrates the potency of storytelling and literature's capacity to resonate deeply with readers. Engaging with Korean literature's cultural intricacies and emotional richness allows readers to gain meaningful insights into human experiences and cultivate a greater admiration for the storytelling craft.

Relevant Theme 8. A Path to Growth

Korean novels offer readers a unique glimpse into another culture, creating avenues for self-growth, cultural insight, and emotional engagement. Through their storytelling, these novels invite readers into unfamiliar worlds, encouraging them to reconsider their perspectives and inspiring personal development. Engaging with Korean literature has been shown to foster personal growth and cultural understanding. For instance, a study by Kim (2016) found that reading Korean novels enhances empathy and broadens readers' perspectives on societal issues.

These stories often stir a wide range of emotions, from happiness and amusement to sadness and empathy, which can drive personal insight and self-exploration. Readers can reflect on their beliefs, values, and aspirations by engaging with the characters and narratives in Korean literature. This emotional journey promotes self-reflection and fosters a deeper understanding of oneself (Kim, 2016).

Relevant Themes on How Junior High School Students View Themselves in the Future.

Relevant theme 9: Inspiration and Motivation

Korean literature has experienced a significant rise in international acclaim, captivating readers with its intricate narratives, well-developed characters, and emotional depth. Beyond simple entertainment, these novels offer pathways for personal development, cultural awareness, and lifelong learning (Kim, 2019).

Furthermore, a 2023 article in *The Reading Teacher* introduces a new scale developed to measure children's reading engagement. The study emphasizes that understanding students' reading engagement can inform instructional practices, thereby supporting their motivation to read.

Korean novels often underscore the value of education and personal growth as strategies for counteracting manipulation and promoting positive change. By providing individuals with essential knowledge and skills, education helps them make thoughtful choices and free themselves from manipulative influences.

Relevant Theme 10: Dream Weavers

The pursuit of dreams and aspirations can lead to the development of valuable personal assets, such as: pursuing goals often requires acquiring new skills and knowledge, which can enhance personal and professional development; achieving goals and overcoming challenges can boost self-confidence and self-esteem, the ability to persevere through setbacks and setbacks is essential for achieving long-term goals and pursuing dreams often involves building relationships with like-minded individuals, which can expand opportunities and provide support (Lee 2024).

Bandura (1986) emphasizes that dreams and aspirations serve as powerful motivators. By setting specific goals and striving to achieve them, individuals can realize their potential and effect positive change in their surroundings.

Pursuing dreams and aspirations is vital for personal and societal advancement. By actively working toward their goals, individuals can cultivate important personal qualities, enhance cultural understanding, and contribute positively to the global community.

Relevant Themes 11: Innovations of the World

A captivating journey awaits readers seeking to explore new cultures, broaden their knowledge base, enhance their reading skills, and gain profound insights into the human condition. Students can embark on a transformative path of self-discovery, cultural understanding, and lifelong learning through these

narratives.

In the context of Korean literature, the Korean Wave has been leveraged to promote literary engagement. The 2020 publication *Korean Literature Through the Korean Wave* by Kiaer and Yates-Lu discusses how Korean cultural content, such as K-dramas, films, and songs, can be integrated into literature education. These studies highlight the potential of innovative methods, such as digital storytelling and the incorporation of popular cultural phenomena like the Korean Wave, in enriching literature education and fostering a deeper appreciation for literary works.

Relevant Theme 12: New Perspective

Literature possesses the unique ability to take readers on journeys to diverse worlds, allowing them to experience various cultures, eras, and viewpoints. Through engaging with the written word, individuals can investigate human existence's complexities, question their assumptions, and cultivate a richer understanding of their surroundings.

The rise of webtoons digital comics originating from Korea—has transformed the consumption of narratives, including those from Korean novels. A study titled; *Understanding Korean Webtoon Culture: Transmedia Storytelling* examines how webtoons serve as a medium for transmedia storytelling, influencing readers engagement with Korean literature (Lee, et.al.,2024).

According to Foster (2012), while expectations can be beneficial, subverting them can create a memorable and thought-provoking reading experience. Authors can challenge their expectations by defying genre conventions or surprising readers with unexpected plot twists, encouraging deeper engagement with the story.

CONCLUSIONS

In light of the findings from the analysis, this conclusion encapsulates the key insights gathered from both the thematic synthesis and the student's lived experiences lived experiences of Junior High School students in reading Korean novels in view of their cultural differences and language, context of the lived experiences of Junior High School students, Junior High School students view themselves in the future.

The more they engage in reading, the more they feel challenged, determined, and motivated to keep going, often influenced by their friends. Although the novels are originally written in Korean, they are translated into English, challenging students as they navigate the translations.

The lived experiences of Junior High School students in reading Korean novels reveal a complex interplay of cultural differences, language barriers, and personal engagement. While cultural nuances and linguistic challenges can present obstacles, many students find themselves drawn to the captivating narratives and unique cultural insights offered by these stories.

Korean literature also imparts valuable lessons about the dangers of manipulation and the significance of education and positive change. By examining the motivations and actions of characters, readers can sharpen their critical thinking skills and learn to identify and avoid manipulative behavior.

Individual reading preferences, prior reading experiences, and personal interests significantly shape students' engagement with Korean novels. Their motivations for reading, such as curiosity about Korean culture, escape from everyday life, or a desire to connect with friends, play a crucial role in their experiences.

Cultural background, prior knowledge of Korean culture, and exposure to Korean media just like K-pop and K-dramas, can significantly influence students understanding and appreciation of Korean novels. Familiarity with Korean language and cultural values can enhance their reading experience, while cultural differences can present challenges in comprehending certain aspects of the stories.

The increasing accessibility of Korean novels through digital platforms, online translation tools, and e-book readers has significantly broadened students' access to this genre. These technological advancements have also facilitated online discussions and interactions with other readers, enriching the overall reading experience.

Junior High School students envision their futures with a diverse range of aspirations and anxieties. Their self-perceptions are shaped by a complex interplay of personal goals, family expectations, societal pressures, and emerging self-awareness.

RECOMMENDATIONS

The study recommends the following:

1. Integrate structured Korean cultural literacy modules into the curriculum.
2. Establish a diversified Korean novel collection, featuring various genres and translation complexities.
3. Implement a formalized self-assessment and future planning workshop series for students.
4. Launch a dedicated career and mentorship program tailored to student aptitudes and future aspirations.

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ABSTRACT

Falls pose a serious threat to the well-being of the elderly, potentially leading to injuries or fatalities. The incidence of falls can be attributed to biophysical, behavior, environmental, and psychological factors. Assessing and identifying these risks, along with promoting proactive lifestyle modifications and safety measures, may prevent further injuries and fatalities among the elderly. This non-experimental, correlational research study assessed 38 elderly individuals from selected barangays in Batangas City, examining how their profiles and identified risk factors contribute to the frequency of fall-related injuries. The researchers utilized purposive and convenience sampling, and a self-made questionnaire validated by professionals, to collect pertinent data. The results indicated that the connection between the sex of older adults and their behavioral risk factors affects their increased risk for falls, and the connection between age and biophysical risk factors also affects their fall risk. The respondents mostly answered that they experienced falling due to brisk walking, lack of engagement in physical activities, absence of grab bars in the house, and a history of falls which are under the different fall risk factors identified in the study. Lastly, the researchers created a plan of action to foster awareness of fall risk factors and prevention strategies such as the proposal of grab bars installation of the elderly, enhancing their quality of life and overall well-being.

Keywords: falls, biophysical factor, behavioral factor, environmental factor, psychological factor

INTRODUCTION

Fall is a state where a person's body lies on the ground whether voluntarily or not. As the biological, physiological, and psychological functioning of the elderly fluctuated over time, then it was more possible that their physical and mental capacity with regard to balance could deteriorate which resulted in fall accidents or injuries. According to the World Health Organization [WHO], (2021) in a news headlined as "Falls", falls rank as the second most common cause of unintentional injury-related deaths on a global scale. Acknowledging the multitude of factors that contributed to falls among the elderly, the researchers aimed to investigate this complex issue through a comprehensive study.

According to Kenis et al. (2022), consequences of fall incidents could occur on a physical, psychosocial, and financial level. For example, 5–10 percent of fall incidents led to serious injury including fractures, tissue damage, or head trauma. On a psychosocial level, fear of falling, reduced social interaction, and a decrease in the quality of life could occur. The incidence of falls among the elderly can be attributed to various factors that elevate their risk of experiencing such accidents. These contributing factors can be categorized into biophysical, behavioral, environmental, and psychological risk factors.

Falls pose a serious threat to the well-being of the elderly, potentially leading to injuries or fatal consequences. Recognizing this issue, the Philippines, under Republic Act No. 7876, emphasizes the State's commitment to enhancing the social services and overall quality of life for all citizens, particularly the elderly. This legislation prioritizes an integrated and comprehensive approach to health development, with a focus on the well-being of seniors. However, there are limited studies that identify individuals

from the dwelling aging community who might be at risk for fall. Despite the high number of fall-related cases that have been documented in the Philippines, it is still unclear who is most at risk for suffering injuries or even passing away due to a fall (Int J Environ Research Public Health, 2020).

The researchers chose to conduct the study to identify the factors that contributed to injuries resulting from falls among the elderly. Little attention was given to this matter, so the researchers wanted to expand knowledge regarding this problem and address the risk factors that might have increased the incidence of falling among the elderly. The outcomes of this study aimed to enhance awareness of fall risks among the elderly, who were particularly susceptible to such fall incidents. Simultaneously, the study's findings guided the healthcare providers in crafting an awareness program focused on addressing fall risk factors and advocating preventive measures against fall-related injuries.

STATEMENT OF THE PROBLEM

This research study assessed and identified the risk factors of fall-related injury among the elderly. Thus, the result of the study answered the following statements:

1. What is the demographic profile of the respondents in terms of:
 - 1.1 Age,
 - 1.2 Sex,
 - 1.3 Marital Status,
 - 1.4 Educational Attainment; and
 - 1.5 Source of Income
2. What are the risk factors of fall-related injury among the elderly in terms of:
 - 2.1 Biophysical Factors;
 - 2.2 Behavioral Factors;
 - 2.3 Environmental Factors;
 - 2.4 Psychological Factors;
3. Is there a significant relationship between the profile of the respondents and the risk factors they presented?
4. Based on the research findings, what plan of action may be proposed to address the risk factors of fall-related injury among the elderly?

RELATED LITERATURE AND STUDIES

Globally, falls are the second most common cause of mortality from unintentional injuries. Over 684,000 falls are reported globally annually, most occurring in low- and middle-income countries. Adults 60 years of age and above are the age group most affected by fatal falls (World Health Organization [WHO], 2021). A higher fall risk was associated with socioeconomic characteristics like age, gender, education, unemployment, and employment in blue-collar jobs (Taekyoung K et al., 2020).

As outlined in the Philippine Journal of Physical Therapy (2022), the risk factor model underscored the multifaceted nature of fall incidence among the elderly, incorporating biological, behavioral, environmental, and socioeconomic factors. Notably, independent variables encompassed biophysical elements like grip strength, chronic conditions, and psychological aspects such as depressive symptoms, revealing a comprehensive understanding of the risk factors associated with falls (Oxford Academic, 2022).

There are falls and the variables that lead to them, like the patient's past fall history, frailty, poor nutrition, poor cognitive function, the quantity and kind of medications used for different illnesses or comorbidities, and diminished walking capacity. All of these elements combined make up the leading causes of non-mechanical falls. On the other hand, interactions with the physical environment are the main factors affecting mechanical falls (Dr. Stephen Z. Fadem, 2023). Moreover, studies have significantly correlated the number of chronic diseases with the elderly's risk of falling. Elderly people are more likely to fall if they have more chronic illnesses (Tang et al., 2022). Additionally, there was a significant impact of the individual's lifestyle on the possibility of falling, such as a sedentary lifestyle, use

of polypharmacy, or alcoholism (Gusmao, 2019).

Environmental factors encompassed those qualities that were not innate to the human host. The weather, stairs, uneven or slippery floors, and sudden vertical transitions were some examples of these features. These environmental and human factors were independent of the likelihood of falls (Sungmin Lee, 2021).

Depression in the elderly was associated with declining cognitive and physical functioning and an increased risk of falls. Older individuals may fear falling following a fall incident, resulting in restricted movements that could impair motor functioning and, consequently, a subsequent fall incident (Jo et al., 2020).

RESEARCH METHODOLOGY

Research Design

The researchers planned to conduct non-experimental research using a correlational design. A correlational research approach was used by researchers to look at the statistical association between fall risk factors and demographic profiles. Through this method, the study aimed to measure variables and explore their interrelationships to ascertain if and how they were connected. The primary objective was to investigate whether an individual's profile was correlated with specific fall risk factors.

Respondents

The researchers utilized purposive sampling and convenience sampling, wherein the population in the selected barangays in Batangas City was chosen based on who were most qualified to be at risk for falls and at the same time were conveniently available. The study included individuals aged 60 and older encompassing those with a history of falls. However, individuals who were terminally ill or severely cognitively challenged were excluded from the study to ensure the reliability of the information that was collected.

Barangay	Total no. of respondents
Alangilan	11
Bolbok	7
Calicanto	8
Kumintang Ilaya	7
Sta. Rita Aplaya	5
Total respondents:	38 elderly

Instrument

The researchers develop a self-made questionnaire derived from the related literature to gather data from respondents to determine the associated risk factors of fall-related injury among elderly. The questionnaire consisted of two (2) consecutive parts namely the demographic profile of the respondents, and the risk factors of fall. The first part of the questionnaire was composed of the demographic profile: age, sex, marital status, educational background, and source of income. The respondents will be requested to state their age, followed by inviting them to indicate their gender, disclose their marital status, share their educational background, and finally, to disclose their source of income. The second part focused on the assessment of risk factors of fall namely biophysical, behavioral, environmental, and psychological aspects wherein questions will be indicated in relation to the study. To validate the questionnaire, it underwent various modifications for review. The tagalized questionnaire was subjected for validation through a licensed Filipino teacher. Furthermore, the questionnaire was validated thoroughly by a general practitioner, physical therapist, and psychometrician to ensure the accuracy and relevance of the factors influencing fall risk and enhance the reliability of the study's findings.

Data Gathering Procedure

The researchers gathered relevant literature from credible online sources such as e-books, e-journals, and published studies to support their research. They used authorized government websites and educa-

tional platforms for comprehensive and reliable data collection. A self-made survey questionnaire was validated by a legal expert and a Filipino language teacher. Approval to conduct the study was obtained through formal request and recommendation letters from OSCA, PHO, and CHO, with guidance from their research adviser, Mrs. Maria Joycelyn C. Zaraspe, RN, MAN. After securing permits, the team conducted a pilot test and distributed the survey across selected barangays, with assistance from barangay officials and health workers, ensuring ethical procedures and statistical analysis were followed for accurate and meaningful results.

Statistical Treatment of Data

The researchers used several statistical tools to analyze the data collected from the respondents. Frequency distribution and simple percentage were applied to present data clearly and determine the proportion of responses in each category. The weighted mean, calculated through a standard formula, was used to assess respondents' ratings on key questionnaire items related to fall-risk factors. A 4-point Likert scale ("never" to "always") helped measure perceptions across biophysical, behavioral, environmental, and psychological aspects. Lastly, one-way ANOVA was employed to examine whether there were significant differences between demographic groups and the identified fall-related risk factors.

RESULTS AND DISCUSSIONS

1. Demographic Profile

**Table 2. Frequency and Percentage Distribution as to Sex
(n=38)**

Sex	Frequency	Percentage
Female	33	86.80
Male	5	13.20
Total	38	100.00

Table 2 displays the frequency and distribution of the respondents based on their sex. The data reveals that the majority of the respondents were female, accounting for 33 respondents or 86.80 percent of the total sample. In contrast, male respondents were fewer in number, comprising only 5 respondents, which is equivalent to 13.20 percent of the total respondents.

**Table 3. Frequency and Percentage Distribution as to Age
(n=38)**

Age	Frequency	Percentage
60 – 64 years old	11	28.90
65 – 69 years old	11	28.90
70 – 74 years old	10	26.30
> 75 years old	6	15.80
Total	38	100.00

Table 3 shows the frequency and distribution of the respondents as to age. The majority of the respondents were aged 60-64 and 65-69 with 11 respondents equivalent to 28.90 percent ranked first, followed by 70-74 with 10 respondents equivalent to 26.30 percent ranked second, and ranked third were >75 years old with 6 respondents equivalent to 15.80 percent.

**Table 4. Frequency and Percentage Distribution as to Marital Status
(n=38)**

Marital Status	Frequency	Percentage
Single / Separated	4	10.50
Married	20	52.60
Widow	14	38.80
Total	38	100.00

Table 4 shows the frequency and distribution as to marital status. The majority of the respondents were married with 20 respondents equivalent to 52.60 percent ranked first, followed by widow with 14 respondents equivalent to 36.80 percent ranked second, and ranked third were single/separated with 4 respondents equivalent to 10.50 percent.

**Table 5. Frequency Distribution as to Educational Attainment
(n=38)**

Educational Attainment	Frequency	Percentage
Elementary	16	42.10
High School	13	34.20
College	9	23.70
Total	38	100.00

Table 5 shows the frequency and distribution of the respondents as to educational attainment. The majority of the respondents were elementary graduates with 16 respondents equivalent to 42.10 percent ranked first, followed by high school graduates with 13 respondents equivalent to 34.20 percent ranked second, and ranked third were college graduates with 9 respondents equivalent to 23.70 percent.

**Table 6. Frequency Distribution as to Source of Income
(n=38)**

Source of Income	Frequency	Percentage
Family Support	3	7.90
Income from Business	4	10.50
Pension	22	57.90
Salary from Employment	4	10.50
None	5	13.20
Total	38	100.00

Table 6 shows the frequency and distribution as to their source of income. The majority of the respondents' source of income are from their pension with 22 respondents equivalent to 57.90 ranked first, followed by none or other source of income with 5 respondents equivalent to 13.20 ranked second, followed by income from business and salary from employment with 4 respondents equivalent to 10.50 ranked third, and family support with 3 respondents equivalent to 7.90 ranked fourth.

2. Risk Factors of Fall-Related Injury Among the Elderly in Selected Barangays in Batangas City.

Table 8, 9, 10, and 11 shows the mean response of the elderly in selected barangays in Batangas City regarding their risk factors.

Table 7. Mean Responses of the Elderly as their Biophysical Risk Factor of Fall

Indicators	Mean	SD	Verbal Interpretation	Rank
I have experienced falling because I have weak muscles.	2.92	0.67	Often	2
I have experienced falling because of unsteady balance.	2.84	0.82	Often	5
I have fallen because I walk fastly.	3.00	0.84	Often	1.5
I have fallen because I have poor posture.	3.00	0.81	Often	1.5
I have fallen because I have poor eyesight.	2.87	0.96	Often	4
I started experiencing more falls when I had osteoarthritis.	1.47	0.98	Never	7
I started experiencing more falls when I had hypertension.	1.61	1.05	Sometimes	6
I started experiencing more falls when I had a stroke	1.21	0.70	Never	8
Biophysical Factors	2.37	0.35	Sometimes	

Table 7 presents the elderly respondents' average ratings on biophysical fall risk factors, with an overall mean of 2.37 and a standard deviation of 0.35, interpreted as "sometimes." The highest-rated items, such as walking quickly (BIOP03) and poor posture (BIOP04), both had a mean of 3.00, indicating they are "often" experienced. Other commonly experienced factors include weak muscles, poor eyesight, and unsteady balance, all interpreted as occurring "often." In contrast, conditions like hypertension, osteoarthritis, and stroke were rated lower, with means ranging from 1.21 to 1.61, indicating they are "sometimes" or "never" experienced. These findings align with studies by Dr. Fadem (2023) and

Pana et al. (2021), which emphasized the significant role of physical conditions and chronic illnesses in increasing fall risk among older adults.

Table 8. Mean Responses of the Elderly as to their Behavioral Risk Factor of Fall

Indicators	Mean	SD	Verbal Interpretation	Rank
I have experienced falling due to dizziness because I eat less.	2.90	0.73	Often	3
I have experienced falling due to weak muscles because I spend most of my hours sitting and lying.	2.95	0.80	Often	2
I have experienced falling due to weak bones because I don't engage in any physical activities	3.00	0.84	Often	1
I have experienced falling because I forgot to take my medicine (Example: Anti-hypertensives, a medication for high blood pressure).	1.76	0.88	Sometimes	6
I have experienced falling from too much drinking.	1.16	0.44	Never	7
I have experienced falling due to a hangover from drinking	1.08	0.27	Never	8
I have experienced falling due to unstable balance because of obesity	2.34	0.88	Sometimes	5
I have experienced falling due to joint pain because of obesity	2.40	0.89	Sometimes	4
Biophysical Factors	2.20	0.38	Sometimes	

Table 8 presents the elderly respondents' average ratings on behavioral fall risk factors, with an overall mean of 2.20 and a standard deviation of 0.38, interpreted as "sometimes." The most commonly experienced factors include lack of physical activity (BEHA03), prolonged sitting or lying (BEHA02), and poor eating habits (BEHA01), all interpreted as occurring "often." Other behavioral factors such as obesity-related joint pain and balance issues were experienced "sometimes," while alcohol-related falls were rated as "never." These findings highlight how behaviors like inactivity, poor nutrition, and obesity contribute to fall risks among older adults. Supporting studies by Bally et al. (2023), Gusmao (2020), and Neri et al. (2019) emphasize the significant role of lifestyle choices, particularly sedentary behavior, obesity, and medication management, in increasing fall risk in the elderly population.

Table 9. Mean Responses of the Elderly as to their Environmental Risk Factor of Falls

Indicators	Mean	SD	Verbal Interpretation	Rank
I have experienced falling because of an uneven floor.	3.37	0.68	Often	2
I have experienced falling because of slippery floor surfaces.	3.21	0.81	Often	3.5
I have experienced falling because there are no grab bars in the house.	3.47	0.69	Often	1
I have experienced falling because of there are no stair railings.	3.21	0.84	Often	3.5
I have tripped or fall because there are a cluster of unarranged things on the floor.	3.18	0.65	Often	5
I have tripped or fall because I bump into a chair or bed	2.97	0.72	Often	7
I have experienced falling because of poor lighting or because the room is dark.	2.76	0.91	Often	8
I experience more falls when it rains.	3.05	0.77	Often	6
Environmental Factors	3.16	0.33	Often	

Table 9 presents the mean responses of elderly participants regarding environmental fall risk factors, with an overall mean of 3.16 and a standard deviation of 0.33, interpreted as "often." The most frequently cited factors include the absence of grab bars (ENVI03) and uneven floors (ENVI01), both of which received high mean scores, indicating regular occurrence. Other common hazards included slippery floors, lack of stair railings, cluttered spaces, and poor lighting, all reported as frequent causes of falls. These findings suggest that environmental conditions significantly contribute to fall incidents among older adults in the selected barangays. Supporting studies by Bally et al. (2023), Lee (2021), and Kim et al. (2022) reinforce the need to address home safety and environmental hazards to reduce fall risks in aging populations.

Table 10. Mean Responses of the Elderly as to their Psychological Factor of Fall

Indication	Mean	SD	Verbal Interpretation	Rank
I have a history of fall, and I am afraid that it will happen again	3.55	0.60	Often	1
There are times that I am afraid to stand up because I feel like I will just fall on the ground (fear of falling)	3.24	0.68	Often	4
There are times that I am afraid to do something because I feel like I will just fall on the ground	3.42	0.68	Often	2
I have experienced falling because I was absent-minded in the situation	2.47	0.69	Sometimes	8
I have experienced falling because of extreme sadness and I cannot think clearly in the situation	2.53	0.83	Often	7
I have experienced falling because I had to rush due to sudden anxiety or uncomfortable feeling of the surroundings	2.82	0.77	Often	6
I have experienced falling due to restlessness from lack of sleep	3.05	0.70	Often	5
I am afraid of going to sleep thinking I will fall out of bed	3.37	0.75	Often	3
Psychological Factors	3.06	0.30	Often	

Table 10 presents the mean responses of elderly participants regarding psychological fall risk factors, with an overall mean of 3.06 and a standard deviation of 0.30, interpreted as “often.” The most frequently reported concern was fear of falling again after a past incident (PSY01), followed by fear of movement or daily activities due to the risk of falling (PSY03 and PSY08). Other psychological factors such as anxiety, sleep disturbances, restlessness, and sadness also contributed to fall experiences, all interpreted as occurring often. These findings highlight how emotional and psychological states, such as fear, anxiety, and depression, can significantly influence fall risk among the elderly. Supporting studies by Jo et al. (2020) and Checa et al. (2020) emphasize the strong link between mental health issues and increased fall risk, underlining the need for early psychological support and intervention to protect older adults from fall-related injuries.

3. Hypothesis Testing

Table 11. Relationship between the Sex of the Respondents and their Fall Risk Factors

Independent Variable	Dependent Variable	t-value	df	p-value	Remarks
Sex	Biophysical	0.97	36	0.34	Not Significant
	Behavioral	-2.74	36	0.01	Significant
	Environmental	1.93	36	0.06	Not Significant
	Psychological	1.70	36	0.10	Not Significant

Table 11 compares fall risk factors by sex among the elderly. The analysis reveals no significant relationship between sex and biophysical, environmental, or psychological fall risk factors, as indicated by p-values of 0.34, 0.06, and 0.10, respectively, thus accepting the null hypothesis for these factors. However, behavioral fall risk factors show a significant relationship with sex, with a p-value of 0.01, leading to the rejection of the null hypothesis.

Table 12. Relationship between the Age of the Respondents and their Fall Risk Factors

Independent Variable	Dependent Variable	t-value	df	p-value	Remarks
Age	Biophysical	2.90	3,34	0.05	Significant
	Behavioral	0.71	3,34	0.55	Not Significant
	Environmental	1.27	3,34	0.30	Not Significant
	Psychological	0.82	3,34	0.49	Not Significant

Table 12 compares fall risk factors by age among the elderly. The results show that biophysical fall risk factors are significant, with an F-value of 2.90 and a p-value of 0.05, thus rejecting the null hypothesis. Behavioral fall risk factors are not significant, with an F-value of 0.71 and a p-value of 0.55, thus

accepting the null hypothesis. Environmental fall risk factors are not significant, with an F-value of 1.27 and a p-value of 0.30, thus accepting the null hypothesis. Psychological fall risk factors are not significant, with an F-value of 0.82 and a p-value of 0.49, thus accepting the null hypothesis.

Table 13. Relationship between the Marital Status of the Respondents and their Fall Risk Factor

Independent Variable	Dependent Variable	t-value	df	p-value	Remarks
Marital Status	Biophysical	0.33	2, 35	0.72	Not Significant
	Behavioral	0.67	2, 35	0.52	Not Significant
	Environmental	2.12	2, 35	0.14	Not Significant
	Psychological	0.51	2, 35	0.61	Not Significant

Table 13 compares fall risk factors by marital status among the elderly. The results show that biophysical, behavioral, environmental, and psychological fall risk factors are all not significant. The biophysical fall risk factor has an F-value of 0.33 and a p-value of 0.72. The behavioral fall risk factor has an F-value of 0.67 and a p-value of 0.52. The environmental fall risk factor has an F-value of 2.12 and a p-value of 0.14. The psychological fall risk factor has an F-value of 0.51 and a p-value of 0.61. Thus, the null hypothesis is accepted for all four fall risk factors.

Table 14. Relationship between the Educational Attainment of the Respondents and their Fall Risk Factors

Independent Variable	Dependent Variable	t-value	df	p-value	Remarks
Educational Attainment	Biophysical	0.29	2, 34	0.75	Not Significant
	Behavioral	0.12	2, 34	0.89	Not Significant
	Environmental	0.45	2, 34	0.64	Not Significant
	Psychological	0.42	2, 34	0.66	Not Significant

Table 14 presents a comparison of fall risk factors by educational attainment among the elderly, showing that biophysical, behavioral, environmental, and psychological fall risk factors are not statistically significant. Specifically, the F-value and p-value for each factor are as follows: biophysical (F=0.29, p=0.75), behavioral (F=0.12, p=0.89), environmental (F=0.45, p=0.64), and psychological (F=0.42, p=0.66). Consequently, the null hypothesis is accepted for all factors, indicating no significant relationship between educational attainment and fall risk factors. The environmental factor has the highest F-value (0.45), while the behavioral factor has the highest p-value (0.89).

Table 15. Relationship between the Source of Income of the Respondents and their Fall Risk Factors

Independent Variable	Dependent Variable	t-value	df	p-value	Remarks
Source of Income	Biophysical	0.82	4, 33	0.52	Not Significant
	Behavioral	0.17	4, 33	0.95	Not Significant
	Environmental	0.97	4, 33	0.44	Not Significant
	Psychological	0.77	4, 33	0.55	Not Significant

Table 15 compares fall risk factors by sources of income among the elderly. The results show that biophysical, behavioral, environmental, and psychological fall risk factors are all not significant, leading to the acceptance of the null hypothesis for all four fall risk factors

CONCLUSIONS

From the critical analysis of facts and data, the researchers had drawn the following conclusions:

1. Majority of the respondents were female, aged 60-65 and 66-70, married, elementary graduates, and had pension as their source of income.
2. Most of the elderly respondents' sometimes experience fall-related injury due to biophysical and behavioral risk factors, and often experience fall related injury due to environmental and psychological risk factors.
3. There is a significant relationship between the age of elderly respondents and their biophysical risk

- factors, as well as between the sex of elderly respondents and their behavioral risk factors.
4. An action plan is formulated to further aid fall risk factors awareness and promote preventive measures through lifestyle modifications against fall related injury among the elderly in the selected barangays in Batangas City.

RECOMMENDATIONS

Based on the result from the data gathered and conclusion that was presented, the following recommendations are hereby provided;

1. The Office of the Senior Citizen Affairs (OSCA) may conduct an in-depth and extensive study to gather understanding, perceptions, opinions, and recommendations to enhance awareness of fall risk factors among elderly individuals. To enhance the safety and well-being of the elderly, the OSCA may also place grab bars around places like markets, hospitals, and other public places where they frequently visit.
2. The barangay health centers should incorporate monthly fall preventive seminars for elderly individuals and their families on their regular consultation schedules, ensuring continuous reinforcement of knowledge and learning regarding preventive measures.
3. The University of Batangas, especially the College of Nursing and Midwifery Department, Dean, and faculty members may expand the learning outcomes on Care of Older Adults (NCM 114) emphasizing the significance of fall risk factor awareness among elderly for student nurses to attain adequate competency on preventive measures.
4. The researchers recommend the adaptation of the proposed action plan to foster awareness of fall prevention among elderly individuals, enhancing their quality of life and overall well-being.
5. The student nurses, especially those who are taking up the course Care of Older Adults (NCM 114), are encouraged to engage with research and learning materials focusing on the importance of fall risk factor awareness and preventive measures to enrich their knowledge and deepen their perception on the subject matter.

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DIFFICULTIES AND COPING MECHANISMS: LIVED EXPERIENCES OF TEACHING INTERNS IN A UNIVERSITY

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ABSTRACT

This phenomenological study aimed to determine the difficulties and coping mechanisms: lived experiences of teaching interns in a university. The participants of the study were the 5 student interns of Northern Iloilo State University Lemery Campus. Purposive sampling was used in selecting participants in Northern Iloilo State University Lemery Campus. In-depth interview, narrative and word map were used as the main instruments in gathering the data. Thematic analysis which used John Creswell's 5 Steps in the analysis of data. The themes generated that the difficulties they experienced were Lesson Planning, Shifting, Classroom Management, Learning Materials, Financial Problem, Time Management, and for the Coping Mechanisms were Prayer, Positive Mindset, Proper Time Management, and Support System which realized as an essential part of their experience as teaching interns of NISU Lemery Campus. Further, the essence of their experience was all "Experiential Learning", in which it is a hands-on, practical approach to education that emphasizes learning through experiences, reflection, and active management.

Keywords: *Teaching Interns, Coping Mechanism, Difficulty, Lived Experiences, Internship, Lesson Planning, Demonstration Teaching*

INTRODUCTION

An Educational philosopher once said that "education is the passport for the future, for tomorrow belongs to those who prepare for it". This only means that education is believed to be the most powerful wealth that every individual could have to secure the future for better livelihood and social development. Therefore, the decision and determination to pursue a higher education is one of the significant commitments that a person must decide in his life.

Teaching interns at Northern Iloilo State University Lemery Campus encounter a range of local challenges that complicate their practicum experience. A particularly pressing issue is the shortage of teaching materials and facilities—many partner schools lack adequate textbooks, learning aids, and basic infrastructure, which forces interns to improvise and delays the implementation of well-designed lessons. This aligns with broader funding shortages in Philippine education that limit the number of educational resources and impede technological integration. Interns often face heavy financial burdens due to out-of-pocket expenses on travel, daily meals, and the creation of teaching materials. These financial pressures are intensified in rural communities, where allowances are minimal or nonexistent. Interns also report struggles with lesson planning and time management, juggling multiple class loads, paperwork, and administrative demands—all within limited time frames. The shifting of grade level to teach further challenges unprepared interns, who must adapt quickly to learners' behaviors and mental capacity.

Teaching Internship in colleges and universities in the Philippines is seen as the center piece for the process of training teachers, whether for primary school, secondary school or higher academic levels. It is an integral part of the teacher training programme (Chireshe & Chireshe, 2010). Ngidi and Sibaya (2003) state that teaching internship is a period during which a teaching intern is given an opportunity to do teaching trials in a school situation. Before entering the teaching profession, teaching interns are given the chance to apply the theoretical knowledge they have learnt in lecture halls to classroom instruction (Kiggundu & Nayimuli, 2009).

Maphosa, Shumba, and Shumba (2007) cited in Chireshe and Chireshe (2010) view teaching practice as a period of guided or supervised teaching where teaching interns takes teaching responsibility for a given group of learners over a period of time under a mentor (a qualified and experienced classroom teacher).

CHED MEMORANDUM ORDER NO. 104, S.2017 Section 1 states that, the internship program is meant to provide students with an opportunity to complement their formal learning with practical knowledge, skills and desirable attitudes and to gain hands on experience in recognized Host Training Establishment (HTE). Also it states in the Section 5 that, CHED issues this Revised Guidelines for Student Internship Program in the Philippines (SIPP) for all Programs, in order to promote the well-being of higher education students, guarantee quality of their learning and exposure and ensure their safety while undergoing internship and considering the nature of the program.

The teaching profession requires a high level of knowledge, skills, and emotional resilience. For teaching interns, the journey towards becoming a fully-fledged teacher often begins with a teaching internship. The experience provides a crucial opportunity for teaching interns to apply their theoretical knowledge in a practical setting, gain firsthand experience, and develop their teaching skills. However, this period can also be fraught with challenges and difficulties.

Teaching interns may encounter a variety of difficulties during their teaching internship, ranging from managing classroom behavior and planning effective lessons to integrating technology into their teaching and dealing with the emotional stress of the teaching profession. Although teaching practice has been described generally as beneficial, a consistent minority of the teaching interns on teaching practice have persistently been stressed by the exercise (Capel, 1997). Teaching interns in many parts of the world have reported moderate to high level of anxiety with respect to teaching practice (Kazu, 2001; Morton, Vesco, Williams & Awender, 1997). In the same vein, stress and workload are reported to be recurring themes explaining the withdrawal of teaching interns from teacher training programs in some countries (Chambers & Rogers, 2000). These challenges can significantly impact their teaching experience, their professional development, and their overall well-being.

The findings of this study could contribute to a better understanding of the challenges faced by teaching interns during their teaching internship and the strategies they use to cope with these challenges. This knowledge could be beneficial for educational institutions, teacher educators, and teaching interns themselves. It could provide insights for improving the design and implementation of teaching internships, enhancing support for teaching interns, and promoting their professional development and well-being.

STATEMENT OF THE PROBLEM

This study aimed to determine the Difficulties and Coping Mechanism: Lived Experiences of Teaching Interns in a University.

Specifically, this study sought to answer the following questions:

1. What are the difficulties encountered by teaching interns in a university?
2. What are the coping mechanisms applied by teaching interns in a university?

METHODOLOGY

Research Design

This qualitative study sought to determine the difficulties and coping mechanisms: lived experiences of teaching interns in a university.

According to Smith, Flowers, and Larkin (2009), phenomenology shares a particular interest in thinking about what the experience of human being like, in all of its various aspects, but especially in terms of the things that matter to us, and which constitute our live world.

Phenomenological design aims to describe the common meaning of several individuals' lived experiences of a concept or a phenomenon. It's all about understanding the essence of the experience, not just the occurrence. Phenomenological design allowed us to capture rich, detailed descriptions of these experiences in the participants' own words, providing us with a deep, nuanced understanding of the phenomenon. It helped us to see the world from the student teachers' perspective, to understand their challenges and coping mechanisms in context, and to appreciate the complexity and uniqueness of their experiences. This approach aligns with our constructivist theoretical perspective, as it recognizes that knowledge is constructed by individuals as they interact with their world. By using a phenomenological design, the researchers were able to capture the ways in which student teachers construct their own understanding and coping strategies in response to the difficulties they encounter.

Participants of the Study

In this study, there were 5 teaching interns of Northern Iloilo State University Lemery Campus taking up Bachelor of Elementary Education program for academic year 2023-2024 who were purposively selected among 35 teaching interns who served as the participants of the study.

The researchers believed that these participants would be enough to provide sufficient and essential information to answer the questions raised in this study.

The profile of Northern Iloilo State University Lemery Campus Bachelor of Elementary Education student interns were secured from their class advisers.

Locale of the Study

This study was conducted at NORTHERN ILOILO STATE UNIVERSITY LEMERY CAMPUS, Poblacion South East Zone, Lemery, Iloilo.

Sampling Technique

Purposive sampling was used in this investigation. One kind of non-probability sampling method that relies on the researcher's discretion in choosing study participants is called purposive sampling. The criteria for the components that will be included in the study are predetermined, according to Alvi (2016). As a result, researchers only include those who are available and have fulfilled the specified requirements.

Additionally, Ary et al. (2010) noted that qualitative research deliberately chooses its subjects and environments. They choose purposive samples that they think will yield the most information and comprehension about the subject of their study. To choose a sample of participants who they think can offer pertinent information about the subject or environment, they draw on their expertise and experience.

As applied in this study, the researchers used the following criteria in selecting the research participants: (1) participants are a bonafide BEED 4 students of Northern Iloilo State University Lemery Campus who undergo teaching internship, (2) participants have expertise or specialized knowledge about the study, (3) participants possess specific characteristics that are relevant to the research question, (4) participants from diverse backgrounds with diverse perspectives to ensure range of viewpoints and experiences, (5) participants are readily available and willing to participate in the study.

Research Instrument

In-depth interview, narrative and word map were used as the main data gathering for this study.

Data Gathering Procedures

The individual interview was conducted with the Bachelor of Elementary Education (BEED) participants who have undergone teaching internship to gather data on what difficulties they experienced during their teaching internship.

In gathering the data, the researchers asked permission from the school administrator through a letter of request signed by the thesis adviser. After the approval, the researchers proceeded to the gathering of data through one on one interview with the selected teaching interns.

After administering the research instrument, the researcher reviewed the research instrument to make sure that all the important information needed to the findings was gathered from the respondents. Gathered data were summarized and analyzed using John Creswell's 5 Steps method.

Data Analysis Procedure

The data analysis was done on various forms of human communication. This may include written narratives, interviews and story map. In this study, the analysis of data was done by using John Creswell's 5 Steps namely: (1) Horizontalization or open coding where verbatim statement or phrases were culled from the narratives of the participants and during interview; (2) textual analysis, in this part the researcher integrate his or her insights on the statement of the participants by reflecting on them; (3) thematic coding, in this part the researchers group together the similar statements and come up with a theme; (4) essence of experience, in this part the researcher already gathered data of the participants; (5) and finally the formulation of an "essence" of the lived experiences of the participants. The ensuing analysis of the difficulties and coping mechanisms: lived experiences of teaching interns in a university were analyzed using Creswell's 5 Steps method.

FINDINGS

The qualitative research study aimed to determine the difficulties and coping mechanisms: lived experiences of teaching interns. Seven purposively selected teaching interns of NISU Lemery Campus were chosen as participants of the study.

The finding showed that the participants found out that difficulties and coping mechanisms realized 10 themes: Lesson Planning, Shifting, Classroom Management, Learning Materials, Financial Problem, Time Management, Prayer, Positive Mindset, Proper Time Management, and Support System. The findings and themes of their experiences revealed an essence of "Experiential Learning", for the participants belonged to the batch 2023-2024 of teaching interns from NISU Lemery Campus who experienced teaching internship.

Lesson Planning

Participants mentioned in the interview that lesson planning is one of the most challenging for you cannot start the class without lesson plan and you cannot teach effectively without the correct and prepared lesson plan. A participant also mentioned that they find difficult for the format that was being taught at school before internship is in traditional way which is quite different with the new format given by the DepEd. Another participant highlights that she had time constraints in making lesson plan. But, the participants also explained in the interview that they are learning everyday with the help of their co-operating teacher and as time goes by they learned how to master it. In this regard the participants manage it as time goes by for everyday is a day of learning which is needed and be applied for every other day.

According to Stilian Milkova, a lesson plan is the instructor's road map of what students need to learn and how it will be done effectively during the class time. According to DO 42, S. 2016, planning lessons is fundamental to ensuring the delivery of teaching and learning in schools. These guidelines aim to support teachers in organizing and managing their classes and lessons effectively and efficiently and ensure the achievement of learning outcomes. Upon taking into consideration their experiences during teaching internship, the participants pointed out that lesson planning is one of the difficulties they've encountered. Based on the written narratives gathered, they found difficult in making lesson plan especially for the new format that was being implemented to them.

According to Jean Piaget (1964), Constructivism is a learning theory that emphasizes the active role of learners in constructing their understanding of knowledge through experiences, reflection, and interactions with the environment. In the context of teaching interns struggling with lesson planning but eventually mastering this skill, Constructivism aligns well with the progression observed in their learning journey. Constructivism provides a theoretical framework that explains how teaching interns in our study transitioned from facing difficulties in lesson planning to master this skill over time.

Shifting

Shifting is one of the difficulties that the teaching interns encountered because they are being shifted from one grade level to another grade level after the pre-demonstration. Participant states in the narrative that it is a challenge of the school principal of one school in which the interns must undergo shifting to experience primary and intermediate approach. They found it difficult as most of the participants explained that it needs adjustments for the new set of learners. New strategies, new rules and disciplines, and new behaviors of learners. One participant highlights that she was being challenged by the shifting for the students are already attached to their previous student teacher so the students hardly accepted her as their new student teacher. Another participant states that it is hard to adapt new environment because they being used to the previous grade level they are assigned to. But in this matter, the principal explained to them that it is for their own benefit that they can experience different environment and they can learn a lot not just focusing on what they are used to.

Experiential Learning Theory, proposed by David Kolb (1984), emphasizes the importance of concrete experiences, reflective observation, abstract conceptualization, and active experimentation in the learning process. In the context of teaching interns transitioning between grade levels and gaining valuable insights from diverse environments, Experiential Learning Theory aligns with the interns' learning experiences in the following ways such as concrete experiences and reflective observation. The interns' ability to learn and grow from shifting between grade levels by embracing new environments and challenges reflects the principles of Experiential Learning Theory. Through a cycle of experiencing, reflecting, conceptualizing, and experimenting, interns engage in a dynamic learning process that enhances their adaptability, teaching efficacy, and overall professional development.

Classroom Management

Classroom management refers to the strategies, techniques, and practices that teachers use to create and maintain a positive and productive learning environment within a classroom setting. Effective classroom management is essential for promoting student engagement, fostering a safe and inclusive atmosphere, and maximizing learning outcomes. Based on the given narratives by our participants, classroom management is one of the difficulties that challenge their patience, initiatives, and strategies in disciplining themselves and the whole classroom setting. One participant point out that it's quite difficult to handle the class especially for the first time. The rapport was not yet built, and the background of the learners was not being known. Another participant states that you must know the background of the learners and their academic skills first for you to know what the best way in teaching diverse learners is. One participant answers during the interview that you must impose rules first, at the beginning of the class so that they will aware and they will follow as the class goes on. Another participant states also that she find difficult for she didn't know who her students are especially in connection to the shifting that you need to start from the very beginning for the students you are going to taught to is not the same as you were being with.

Learning Materials

Learning materials refer to the resources and tools used to facilitate learning and instruction in educational settings. These materials can include textbooks, workbooks, visual aids, multimedia resources, manipulative, and other supplementary materials designed to support the teaching and learning process. During teaching internships, the availability and quality of learning materials can pose challenges for aspiring educators. Limited resources, outdated materials, a lack of variety, accessibility issues, and inadequate training can hinder teaching interns' ability to create engaging and effective lessons that cater to diverse learning styles and needs. Based on the statements of our participant, the learning materials is one of the difficult thing to manage because it is time consuming, costly, and it must be new day by day

or every class. One participant also highlighted that sometimes there is no available resources for the specific learning material. To overcome these challenges, interns can explore alternative sources of materials, collaborate with colleagues, adapt existing resources, and seek guidance from mentors. By being resourceful, creative, and adaptable, teaching interns can navigate the difficulties associated with learning materials during their internship experience.

This could be related to the cognitive load theory which developed by John Sweller in the 1980's, which focuses on how the working memory processes information during learning. In the context of teaching internship, the theory suggests that the design and presentation of learning materials that can impact the cognitive load on students.

Financial Problem

Financial problems refer to difficulties or constraints related to managing money, budgeting, and meeting financial obligations. In the context of teaching interns, financial challenges arise due to various factors that impact their ability to effectively engage in their internship experience. Some ways in which financial problems can become a difficulty for teaching interns include limited funds for transportation to and from the internship site, as one of the participants' answer was she struggled to budget her allowance from transportation to foods to learning materials and sometimes for unexpected contributions. Another is insufficient funds for materials needed for teaching activities, another participant highlights that the money for her food was being used sometimes for the learning materials and other expenses. Also, financial stress that can affect interns' focus and performance in the classroom. Additionally, the need to balance part-time work to support oneself financially while completing the internship requirements can create time constraints and impact the interns' ability to fully immerse them in the teaching experience. These financial difficulties can hinder interns' professional development, limit their access to resources for effective teaching, and add stress and distractions that may impede their overall learning and growth during the internship period.

This could be related to Maslow's Hierarchy of Needs, which suggests that individuals have a hierarchy of needs that must be fulfilled in a specific order to achieve self-actualization. In the context of teaching internships, financial problems can directly impact the lower levels of Maslow's Hierarchy of Needs, particularly the physiological and safety needs.

Time management

Time management refers to the process of planning and organizing how to divide one's time between specific activities to maximize productivity and efficiency. In the context of teaching interns, effective time management is essential for balancing various responsibilities, such as lesson planning, classroom instruction, assessment preparation, professional development, and reflection. However, teaching interns often face challenges with time management due to the demanding nature of their roles. As per experienced of our participants, most of them answered that time management is one of the crucial thing in teaching internship. From the lesson planning to the lesson proper. Another participant states that as first she struggle because she has a kids and the attention was being divided with school works. One participant also highlights that sometimes she might be depressed due to hectic schedules and loaded work. It really challenges my time management for I don't know what to be done first.

Lack of experience in prioritizing tasks, setting realistic goals, and maintaining a healthy work-life balance can also contribute to time management challenges for teaching interns. By developing effective time management strategies, such as creating daily schedules, setting priorities, delegating tasks when possible, and practicing self-care, teaching interns can overcome these difficulties and enhance their overall effectiveness and success in their internship experience.

One theory that relates to time management as one of the difficulties in teaching internships is the Goal Setting Theory. The Goal Setting Theory, proposed by Edwin Locke and Gary Latham, emphasizes the importance of setting specific and challenging goals to enhance motivation and performance. In the context of teaching internships, effective time management is closely linked to the setting of clear and achievable goals.

Coping Mechanisms) Prayer, Positive Mindset, Proper Time Management, and Support System which realized as an essential part of their experience as teaching interns of NISU Lemery Campus.

Prayers

Prayer is a spiritual practice that involves communicating with a higher power or deity, offering emotional support, stress reduction, a sense of purpose, self-reflection, and community support. As a coping mechanism for teaching interns, prayer can provide comfort, solace, and a sense of connection to help manage stress, anxiety, and difficult emotions, fostering resilience, emotional well-being, and a deeper sense of purpose and community within their work environment. Upon taking into consideration the experiences of the participants, the participant point that trust in God is really important because if we did he will put us on the right way and place and we could carry how hard the thing is. Another participant also explained in the interview that praying makes everything better and reduce stress. If we believe in God we can carry all things. Also, one participant says that how hard the situation is, just kept on praying for that's the biggest thing that you can do that could help yourself for God knows everything and he will never give such challenges if he knew we can't handle it. So prayer really works.

It is essential to respect individual beliefs and practices while introducing prayer as a coping strategy and to create a safe and inclusive space for interns to explore this spiritual practice.

We can relate the prayer as a coping mechanism to Social Learning Theory, proposed by Albert Bandura (1997) which emphasizes the importance of observational learning, modeling, and reinforcement in shaping behavior. In the context of prayer as a coping mechanism, interns may observe and learn from others who engage in prayer as a way to cope with stress and difficult emotions. Through observation and modeling, interns can learn how prayer is used as a tool for emotional regulation, stress reduction, and spiritual connection.

Positive Mindset

A positive mindset is a mental attitude characterized by optimism, resilience, and a focus on opportunities and solutions rather than obstacles. As a coping mechanism for teaching interns, cultivating a positive mindset involves encouraging a proactive and hopeful outlook, emphasizing self-belief, gratitude, and the ability to learn from challenges. Based on the statement of one participant positive mindset is important for if we keep on believing that you can do how hard the thing is, you can really do it. Another participant highlights that one way to cope to stay positive, positive mindset that we should always think that we can do it, that we can overcome all the challenge. Strong positive mindset is much needed. By promoting a positive mindset, interns can develop the resilience and mental strength needed to navigate stress, setbacks, and uncertainties in their teaching roles, fostering a sense of empowerment, motivation, and emotional well-being to enhance their teaching effectiveness and overall job satisfaction.

According to Aaron Beck (1967), positive mindset could relate to the Cognitive-Behavioral Theory which focuses on how thoughts, beliefs, and attitudes influence behavior and emotions. In the context of cultivating a positive mindset as a coping mechanism, interns can learn to identify and challenge negative thought patterns, reframe situations in a more positive light, and develop adaptive coping strategies. By learning to restructure their thinking and behavior, interns can effectively manage stress, enhance resilience, and promote a more optimistic outlook, aligning with the principles of Cognitive-Behavioral Theory in promoting positive mental health and coping skills.

Proper Time Management

Proper time management refers to the efficient allocation of time to tasks and activities to maximize productivity and achieve goals effectively. As a coping mechanism for teaching interns, emphasizing proper time management involves teaching interns to prioritize tasks, set realistic deadlines, and create a structured schedule to balance their teaching responsibilities and personal well-being. By instilling effective time management skills, interns can reduce stress, avoid burnout, and maintain a healthy work-life balance, enabling them to meet job demands, enhance productivity, and cultivate a sense of control and accomplishment in their teaching roles.

The learning theory that can be related to proper time management as a coping mechanism is Goal Setting Theory. Goal Setting Theory emphasizes the importance of setting specific, challenging, and

achievable goals to motivate individuals and enhance performance. In the context of time management as a coping mechanism, teaching interns can benefit from setting clear goals related to task prioritization, deadlines, and daily schedules. By establishing specific goals for managing their time effectively, interns can create a sense of direction, focus³, and accountability, leading to improved time management skills, reduced stress, and increased productivity in their teaching responsibilities. Goal Setting Theory aligns with the principles of setting structured objectives to guide behavior and performance, making it a relevant framework for teaching interns to cope with time-related challenges in their roles.

Support system

A support system refers to a network of individuals, such as colleagues, mentors, friends, and family, who provide emotional, practical, and professional assistance during challenging times. As a coping mechanism for teaching interns, fostering a strong support system involves encouraging interns to seek guidance, share experiences, and receive encouragement from trusted individuals within their professional and personal circles. By nurturing a supportive environment, interns can access valuable resources, receive feedback, and feel validated in their experiences, ultimately enhancing their resilience, job satisfaction, and well-being in the teaching profession. A robust support system can offer emotional validation, practical advice, and a sense of belonging, empowering interns to navigate difficulties, manage stress, and thrive in their teaching roles.

Proper support system as a coping mechanism can be related to Social Learning Theory by Albert Bandura, which emphasizes the importance of observational learning, modeling, and reinforcement in shaping behavior. In the context of a support system as a coping mechanism for teaching interns, Social Learning Theory suggests that interns can observe and learn from the supportive behaviors and interactions of others in their network.

The Essence of Experiential Learning

The essence of the study on the difficulties and coping mechanisms of teaching interns in a university revolves around experiential learning. Experiential learning is a hands-on, practical approach to education that emphasizes learning through experiences, reflection, and active engagement. In this context, teaching interns face various challenges such as lesson planning, classroom management, financial issues, and the availability of learning materials.

Through experiential learning, interns are actively involved in addressing these challenges, gaining practical skills, and applying theoretical knowledge in real-world teaching environments. The coping mechanisms identified, such as prayer, support systems, positive mindset, and proper time management, reflect how interns navigate difficulties through experiential learning by actively engaging with their experiences, reflecting on their practices, and developing strategies to overcome obstacles.

By immersing themselves in the teaching process, reflecting on their experiences, and actively seeking solutions to challenges, teaching interns engage in experiential learning that enhances their professional growth, resilience, and ability to adapt to different situations in the educational setting. The essence of the study underscores the importance of experiential learning as a transformative and enriching process that allows teaching interns to learn, grow, and thrive in their roles as educators.

Teaching interns often encounter a range of challenges during their practicum, particularly in the areas of lesson planning, shifting, classroom management, access to learning materials, financial constraints, and time management. One of the most common difficulties is lesson planning, where interns struggle to align objectives, activities, and assessments effectively due to limited experience, pressure to meet mentor expectations and following new curriculum. The shifting of grade level to teach—from primary to intermediate setups—adds another layer of complexity and adjustment. Many interns are unprepared to handle digital tools or redesign lessons to suit virtual environments, leading to stress and reduced teaching effectiveness. Classroom management is another critical challenge, as interns often find it difficult to establish authority, manage student behavior, and create a positive learning environment, especially when dealing with unfamiliar learners or large class sizes.

In addition, the lack of access to learning materials hampers their ability to implement engaging and effective instruction. Interns may find themselves improvising or personally shouldering the cost of resources, which ties into the broader issue of financial problems. Many interns are assigned to far-flung schools, requiring daily transportation and meal expenses, while others lack stipends or allowances,

making it difficult to sustain their basic needs during their teaching assignment. Time management further complicates their experience, as interns juggle lesson preparations, documentation, teaching loads, and sometimes personal or academic responsibilities outside their practicum. These overlapping challenges can cause stress, fatigue, and even burnout. To address these, teaching interns need support through strong mentorship, resource access, time management training, and institutional provisions for financial assistance, all of which contribute to a more positive and productive practicum experience.

Teaching interns face a variety of stressors during their practicum, and to navigate these challenges, many turn to coping mechanisms such as prayer, maintaining a positive mindset, practicing proper time management, and relying on a strong support system. Prayer is a common coping strategy, especially among interns who draw strength and comfort from their spiritual or religious beliefs. It provides a sense of peace, guidance, and emotional relief, helping them stay grounded amidst pressure and uncertainty. Alongside this, cultivating a positive mindset plays a crucial role in overcoming setbacks and maintaining motivation. Interns who focus on growth, view mistakes as learning opportunities, and stay optimistic are better equipped to manage challenges and build resilience.

Another vital coping mechanism is proper time management. Interns who plan their schedules effectively—by setting priorities, organizing lesson materials in advance, and allocating time for rest—experience less burnout and are more productive in fulfilling their responsibilities. Good time management also allows them to balance academic tasks, teaching duties, and personal well-being. Lastly, a reliable support system consisting of peers, mentors, family, and friends provides emotional encouragement and practical assistance. Whether through collaborative lesson planning, shared experiences, or moral support, these networks help reduce stress and foster a sense of belonging. Collectively, these coping mechanisms not only help interns survive the demands of their practicum but also contribute to their growth and success as future educators.

CONCLUSION

The life of teaching interns revolves with the difficulty and coping mechanism. Difficulties encountered impacted the interns' overall teaching experiences, professional development, and well-being during internship period. Coping mechanisms plays a crucial role in helping interns manage and enhance their resilience in the face of difficulties. Prayer, positive mindset, proper time management and support system are both important within the educational institution and personal networks in interns' overall well-being and success in their teaching roles.

RECOMMENDATIONS

On the findings and conclusion made, the following recommendations are advanced:

1. The Teaching Internship Supervisor of the University encourage to allocate ample time for a workshop in lesson planning that aligned to the updated lesson plan format and Most Essential Learning Competencies from the Department of Education before the deployment of teaching interns.
2. The Teaching Internship Supervisor of the University encourage to establish support programs specifically tailored to address the identified difficulties faced by teaching interns, such as providing workshops or training session on making learning materials, classroom management, and financial management. These programs can equip interns with necessary skills and knowledge to navigate these challenges effectively.
3. Establish mentorship programs where experienced educators can provide guidance, support, and advice to teaching interns. Mentorship relationships can offer valuable insights, encouragement, and practical strategies for overcoming challenges during the internship.
4. The Teaching Internship Supervisor of the University encourages initiating an orientation to the parents/guardians of the teaching interns with the consent of SAS Associate Director and Campus Administrator. Orientation should focus to the awareness and commitment of parents/guardians to the needs of teaching interns.
5. To the future researchers, they may use mixed method to further enhance the study.

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UNVEILING THE REALITIES OF LIFE ON THE FRONTLINE: EXPERIENCES OF PHILIPPINE DRUG ENFORCEMENT AGENCY(PDEA) OPERATIVES

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ABSTRACT

Drug enforcement units are essential for public safety, national stability, and justice and have drawn attention from across the world. Global issues on the credibility of drug enforcement units are stemming from allegations of corruption, misconduct, and lack of transparency in their operations and handling different challenges such as combating transnational drug networks, societal perceptions, and managing physical and psychological stress. This study explored the experiences of the Philippine Drug Enforcement Agency (PDEA) operatives in performing their duties, Regional Office VII, Cebu, Philippines. Four (4) informants were subjected to an in-depth interview and six (6) informants for the focus group discussion. The findings of this study are articulated in eight (8) emergent themes. Four (4) themes for the experiences of the informants as PDEA agents which categorized into positive and negative experiences. For positive experience: Competitive Agents of Change; and Transparency at Work: When Protocol Becomes Principle while for the negative experiences: Undermined and Undefined: A Force Left Behind; and Mistrust in Play, Operations Delay. As to how the informants address the challenges they encountered, two (2) themes were generated: Determined to Strive: Duty Comes Alive; and Concerted Efforts: Building Bridges, Breaking Barriers. To express the aspirations of the informants to improve their performance of their duties, two (2) themes were generated: Modern Tool, Modern Rule: An Innovation Call; and Motivation at Its Peak, Compensation We Seek. The researcher recommends refining operational protocols to ensure better resource allocation, improving efficiency that will strengthen PDEA's overall capability, monitored by DDB to achieve its objectives more effectively and consistently.

Keywords: Law Enforcement, Criminal Justice, Innovation, Philippine Drug Enforcement Agency, Region VII, Cebu Philippines

INTRODUCTION

While law enforcement extends their role beyond their responsibilities, credibility issues including allegations of corruption, misconduct, and lack of transparency have affected their global reputation. In the United Nations Office on Drugs and Crime (UNODC) Annual Report 2023, emphasizes accountability and integrity in fighting organized crime and drug trafficking, addressing corruption and transparency in drug enforcement. Similarly, The Bureau of International Narcotics and Law Enforcement Affairs of the United States that works hard to disrupt illicit drug markets, tackles issues of transparency in law enforcement, emphasizing resource corruption and abuse of authority that erode public confidence. Also, in the Law Enforcement Action Partnership (LEAP) Impact Report 2023-2024 emphasizes how transparency concerns affect drug enforcement units' efficacy, especially in areas where corruption and unethical behavior are common.

Globally, drug enforcement agencies face multiple challenges, including transnational drug trafficking, public perception issues, and the psychological impact of their work. In the country, the Philippine Drug Enforcement Agency (PDEA) was created by virtue of the Republic Act No. 9165, also known as the Comprehensive Dangerous Drugs Act of 2002 and was designated as the primary agency responsible for enforcing drug-related laws and regulations. Its mandate includes conducting intelligence operations, anti-drug campaigns, and investigations to combat the proliferation of dangerous drugs and controlled chemicals (Republic Act No. 9165, 2002).

The intensification of the anti-drug campaign has placed the Philippine Drug Enforcement Agency (PDEA) at the forefront of a highly complex endeavor. The unique context of anti-drug campaign adds layers of operational, emotional, and ethical challenges for PDEA agents. They navigate the day-to-day realities of drug enforcement, working under intense pressure in environments that vary significantly by region. Their experiences not only reflect the broader challenges faced among other enforcement agencies but also provide valuable insights into the specific dynamics of drug enforcement and incidents arising concerns related to surveillance, handling evidence and mismanaged operations (Bagley & Rosen, 2017).

Despite the significance of PDEA agents in the fight against illegal drugs, research on their lived experiences remains limited. Existing studies mostly focus on policy implementation and community impact, leaving gaps in understanding the operational and personal challenges these agents face, particularly those assigned in Region VII. Addressing this research gap is essential to gaining deeper insight into their realities and the effectiveness of drug enforcement strategies.

STATEMENT OF THE PROBLEM

This study explored the experiences of the Philippine Drug Enforcement Agency (PDEA) operatives in performing their duties, Regional Office VII, Cebu, Philippines.

Specifically, the study sought to answer the following problems:

1. What are the experiences of the informants as PDEA agents?
2. How do the informants address the problems encountered in the performance of their duties?
3. What are the aspirations of the informants to improve their performance of duties?

REVIEW OF LITERATURE

This study was primarily anchored on Self-Efficacy Theory by Bandura (1977) and supported by Expectancy-Value Theory by Atkinson (1960) and Safety Culture Theory by Schein (1990).

According to self-efficacy theory, motivation and conduct are influenced by one's belief in one's own abilities. People can perform better and feel better in many areas of their lives by understanding and increasing their self-efficacy. Building confidence in particular skills, decision-making capabilities, and community engagement strategies are some of the areas using concepts of self-efficacy in training programs can be emphasized. Bandura also believed that subjective career success is typically measured relative to self-referent criteria, such as a person's career goals and aspirations. Creating a positive and encouraging organizational culture where individuals feel appreciated and capable of overcoming obstacles can greatly increase overall self-efficacy. In addition, believing in one's own abilities can be vital in measuring cognitive strength. Bandura further believes that self-efficacy also involves determination and perseverance such as seeing how it helps one overcome obstacle that would interfere with utilizing those innate abilities to achieve goals (Bandura, 1977).

While Atkinson (1960) referred to expectancy and value as adversely affected by bureaucracy, insufficient resources, and complex decision-making processes, which can lead to dissatisfaction and decreased motivation. The goals and values of an individual can differ greatly. While motivation is necessary, it's critical to make sure that a person stays in compliance with ethical standards and guidelines as individual needs and values are crucial in completing a task. It might be harmful to pursue results without taking ethical considerations into account. Likewise, people are more likely to be motivated to undertake something if they value the result and think they can succeed at it.

Lastly, according to Schein (1990), a fundamental characteristic of safety culture is its proactive approach. Organizations with a robust safety culture actively pursue enhancements in occupational safety instead of simply responding to incidents after they occur. This proactive approach includes recognizing potential dangers, applying preventive strategies, and cultivating a culture where safety is a collective duty among all employ. In addition, those organizations with strong safety cultures tend to experience fewer accidents and injuries. This reduction is often attributed to proactive safety measures and a heightened awareness of risks. Organizations that prioritize safety often see improvements in overall performance.

During the conduct of this research, pertinent legal frameworks and policies against anti-illegal drugs were established. The implementation of Republic Act No. 9165 known as the Comprehensive Dangerous Drugs Act of 2002 led to the establishment of the Philippine Drug Enforcement Agency (PDEA) as the primary law enforcement agency functioned as the implementing arm of Dangerous Drugs Board's (DDB). PDEA plays a crucial role imposing the government's drug control strategies in collaboration with other law enforcement agencies with the authority to investigate, arrest, and seize drug-related crimes. According to the provisions of this law, drug-related cases from Philippine National Police (PNP), Bureau of Investigation (NBI), and other international counterparts are forwarded to PDEA for additional action. These agencies mentioned also collaborate on major drug investigations that have regional and international implications (Dascil & Aquino, 2002).

To achieve the desired output, the agency has identified the conduct of anti-drug operations as its main programs, activities and projects (PAP). The conduct of anti-drug operations is directly linked to the agency's major final output (MFO). This PAP encompasses the following performance indicators of the agency: (1) arrest of high-value targets, (2) conduct of high-impact operations; and (3) drug-related information acted upon within one (1) hour (PDEA

In accordance with Section 14 of Republic Act 6975, the National Police Commission (NAPOLCOM) are entitled with the administrative control and operational supervision over the Philippine National Police (PNP). In line to this, the NAPOLCOM issued Resolution No. 2017-317 renamed the former PNP Anti-Illegal Drugs Group (PNP- AIDG) into PNP Drug Enforcement Group (PNP-DEG). The Philippine National Police Drug Enforcement Group (PDEG) serves as the specialized unit within the PNP, tasked with addressing the country's illegal drug problems. Its primary functions include targeting high-value individuals and syndicates involved in drug trafficking and conducting intelligence-driven operations to dismantle drug networks effectively. PDEG collaborates closely with other agencies, such as the Philippine Drug Enforcement Agency (PDEA), ensuring a unified approach to combatting illegal drugs. The group also engages with communities to promote awareness and support for anti-drug initiatives, fostering grassroots involvement in drug prevention and rehabilitation. Additionally, PDEG provides operational assistance to local police units and prioritizes training and capacity-building programs to equip its personnel with modern strategies to address the evolving tactics of drug syndicates.

Moreover, the PNP Drug Enforcement Group-Special Operations Units (PDEG-SOUs) and Drug Enforcement Units (DEUs) of Regional, District, Provincial, City, Municipal and Police Stations, are authorized to conduct anti-illegal drug operations and coordinate with PDEA. In 2021, the Philippine National Police (PNP) and Philippine Drug Enforcement Agency (PDEA) signed a Joint Memorandum Circular on the Unified Coordination Guidelines in the Conduct of Anti-Illegal Drug Operations that served a clear-cut coordination mechanism between PDEA and the PNP prior to the conduct of planned anti-drug operations.

METHODOLOGY

Qualitative method was utilized in this study employing the transcendental- phenomenological approach using an interview guide questions with an open-ended question for both individual and focused group discussion (FGD) in exploring the experiences of the informants. Furthermore, the study conducted at the headquarters of Philippine Drug Enforcement Agency Regional Office 7 (PDEA RO7) particularly at Doña Modesta Gaisano St, Cebu City. There were three (3) female informants and seven (7) males a total of ten (10) informants who participated in this study. Four (4) of them underwent in-depth

individual interviews, and the six of them had a focused group discussion (FGD) with the researcher.

After the approval of the research proposal by the panel, Interview Guide (IG) was submitted for validation and prepared all transmittal letters to all concerned in compliance with conditions set for my dissertation duly approved by the panel and ethics committee. The approved IG became the basis of the interview. Transmittal letter was submitted addressed to Philippine Drug Enforcement Agency Regional Office VII (PDEA) and asked for permission and preferred schedule. Additionally, all prepared documents were submitted to the ethics committee for verification prior to the conduct proper of the interview.

The researcher in this phenomenological study properly gathered all the data or information acquired from the informants coming from the in-depth interviews and Focus Group Discussion (FGD). During the interview, an audio-recording device was utilized during the process and often took notes. The researcher made sure to maintain neutrality during interviews with PDEA agents through refraining from asking leading questions and allowed participants to freely share their experiences. In this study, the researcher provides a transparent account of the steps taken to accurately represent the PDEA agent's experiences lived experiences.

The study employed Colaizzi's descriptive phenomenological method to analyze the data. The researcher read the participants' accounts multiple times to understand their lived experiences. Then, the researcher identified significant statements in each description that pertained to meaningful statements related to the informants' experiences. Formulated meanings were then derived from these statements, considering the latent meaning within the context. These formulated meanings were then organized into themes and clusters and exhaustively described the phenomenon under study. The fundamental structure of the phenomenon was identified, and the study was validated by receiving feedback from the informants.

The study extracted significant statements relevant to the research phenomenon from the informants' transcripts. These statements were then formatted into a cluster, developing 8 (8) emergent themes. These themes addressed the sub-problems and are summarized as follows: (a) experiences of the informants in the performance of their duties, (b) addressing the challenges encountered in the performance of their duties, and (c) the aspirations of the informants to improve their performance of their duties.

FINDINGS

The researcher generated four (4) themes for the experiences of the informants as PDEA agents which categorized into positive and negative experiences, namely, for positive experience- Competitive Agents of Change; and Transparency at Work: When Protocol Becomes Principle while the negative experiences were Undermined and Undefined: A Force Left Behind; and Mistrust in Play, Operations Delay.

As to how the informants address the challenges they encountered, the researcher formulated two (2) themes namely: Determined to Strive: Duty Comes Alive; and Concerted Efforts: Building Bridges, Breaking Barriers. While for the aspirations of the informants to improve their performance of their duties, two (2) themes were generated: Modern Tool, Modern Rule: An Innovation Call; and Motivation at Its Peak, Compensation We Seek.

Competitive Agents of Change. This theme emphasizes the role of PDEA operatives in driving positive shifts in society. This shows how committed informants are to combat illegal drug activities and making communities safer. They showed a strong desire, viewed as agents whose work not only implements the law but also helps everyone to arrive at solutions that are sustainable.

Transparency at Work: When Protocol Becomes Principle. Informants demonstrated commitment to maintaining a chain of custody in handling evidence. This theme emphasizes that their procedural compliance is constant and unbending, a manifestation of their dedication to ethical standards.

Undermined and Undefined: A Force Left Behind. This theme reflects the challenges faced by PDEA agents due to insufficient technological tools and specialized training. This theme further highlights informants' vulnerability of becoming demotivated due to lack of institutional benefits despite their dedication to their mission, making them hesitant to fully carry out their critical responsibilities.

Mistrust in Play, Operations Delay. This theme represents the challenges experienced by the inform-

ant. This includes when the community refuses to cooperate, having hard time finding reliable sources and operating with armed subjects are common experience that requires more meticulous planning and coordination to ensure the safety of civilians, therefore slowing down the pace of their operation.

Determined to Strive, Duty Comes Alive. This theme reflects how the informants strive to address insufficient resources to address immediate needs to continuously perform their duties. Common mechanisms of the informants are funding their own gadgets and marksmanship training, using their personal vehicle, debriefing sessions in lieu of formal training, and linkages to gain voluntary information.

Concerted Efforts: Building Bridges, Breaking Barriers. This theme reflects the experience of the informants wherein they formalized linkages and agreements. They practice issuance of memorandums and contracts to ensure clear communication to sustain partnerships and protection of the exchanged information.

Modern Tool, Modern Rule: An Innovation Call. This theme reflects the experiences of the informants wherein they felt the need for upgrade on tools and surveillance approach. They mentioned advanced surveillance tools such as drones, spy cameras, GPS trackers, DSLR etc. essentials in case-build-up. Informants also aspire accessible relevant training.

Motivation at Its Peak, Compensation We Seek. This theme represents the aspiration of the informant calling out for better compensation and benefits as recognition to their sacrifices in dealing with complex drug problems. It is important to note that PDEA was not included in the recent salary increase of government forces despite their dangerous role.

CONCLUSION

With the aims to effectively combat the persistent challenges of illegal drug proliferation, the Philippine Drug Enforcement Agency (PDEA) must integrate advanced training, ethical leadership, and resource optimization into their operational framework. First, a well-trained workforce equipped with specialized skills ensures that agents can adapt to evolving drug-related threats with efficiency and precision. Second, continuous training on surveillance techniques, intelligence gathering, crisis management, and evidence handling enhances their capacity to execute operations with professionalism and accountability. Lastly, ethical leadership enhancement plays a crucial role in reinforcing credibility, fostering public trust, and ensuring transparency within PDEA. Integrity in decision-making and enforcing strict ethical standards, leaders can empower operatives to act with fairness, discipline, and responsibility. This will also reassure the public that anti-drug initiatives are conducted with impartiality and respect for human rights.

RECOMMENDATIONS

The Philippine Drug Enforcement Agency (PDEA) requires a multifaceted approach that enhances its operational capabilities, workforce resilience, and interagency collaboration:

- PDEA operatives must deepen their understanding of constitutional responsibilities while improving evidence management and undergoing specialized training to reinforce their adaptability and leadership skills.
- To ensure long-term efficiency, national institutions such as but not limited to PDEA, PNP, IAS, DDB, and DILG should refine policies, allocate resources effectively, and promote interagency co-operation.
- Local Government Units (LGUs) and educators play a crucial role in community-based initiatives and awareness programs, fostering a collaborative environment that supports drug enforcement efforts.

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SELF-LEARNING MATERIALS AND CLASSROOM TEXTBOOK IN HIGH SCHOOL ECONOMICS: A COMPARATIVE STUDY OF ACCEPTABILITY

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ABSTRACT

One of the modalities being implemented is providing Self-learning Materials (SLM) across subject areas. This study determined the acceptability of the Social Studies Self-Learning Materials and the Classroom Textbook regarding content, organization, mechanics, and overall package. The study used descriptive comparative research design with 30 secondary teachers as respondents. Descriptive statistics such as mean and standard deviation, t-test for independent samples, and Analysis of Variance were used to analyze the data. Results revealed that SLM was more acceptable regarding organization, mechanics, and overall package, while Classroom Textbook was more acceptable in content. It was also found that there was no significant difference in the level of acceptability of the two materials, and no significant difference was established in the feedback of the respondents on the level of acceptability of the SLM. Based on the finding, the study recommends that it should enhance the effectiveness of self-learning materials, the content, organization, and mechanics of these resources should be informed by a diverse range of sources. Specifically, not only from traditional classroom textbooks but also from web-sites, other educational materials, and relevant online resources.

Keywords: *Self-Learning Materials, Classroom Textbook, Acceptability, descriptive, comparative*

INTRODUCTION

Global educational systems have undergone substantial changes because of the COVID-19 pandemic. To support modular distance learning (MDL), the Philippine Department of Education has implemented printed self-learning modules (SLMs). A self-learning module is a condensed educational unit that focuses on a particular conceptual aspect of a subject. It is intended to be a self-contained and autonomous instructional unit that focuses primarily on a small number of well-defined goals.

The problem arises with SLMs and Classroom textbooks in public high schools, including insufficient engagement due to dull writing styles and lack of relevance to students' lives. Additionally, textbooks may contain outdated or incorrect information, leading to misunderstandings without access to current resources. Furthermore, narrow viewpoints limit critical thinking by presenting only one perspective, hindering exploring alternative interpretations (TeacherVision Staff, 2024). In addition, there is a scarcity of comparative studies examining the relationship between various textbooks and SLMs, with most existing reports focusing on learning outcomes across different subjects in social studies (Siefert et al., 2021; Van den Ham & Heinze, 2018).

According to Lumapenet (2022), The finding of her study revealed that the self-learning approach improved student performance and success. This basically means that self-study learning resources can be used for lessons during the pandemic. Students' test results have been significantly improved using these modules. There were complaints about numerous inaccuracies and inconsistencies in the Self-Learning Modules (SLMs) and instructional videos prepared by the Department of Education (DepEd)

and aired on its affiliated television channel. The errors are mainly factual inaccuracies and errors in calculations or equations, as a study by Magsambol (2020) shows. Concerned people have suggested on social media that classes should be suspended due to these issues, suggesting that the education system is not adequately prepared to deal with the challenges of the “new normal.” In response, the Ministry of Education has announced plans to issue corrections to the SLMs, according to a report by Ronda (2020).

On July 1, 2020, DepEd announced that it would provide Self-Learning Modules (SLMs) along with alternative learning delivery modalities to support learners nationwide amid COVID-19 restrictions.

There is also much uncertainty about the factors affecting the utilization of SLMs and Classroom textbooks. Due to budget constraints and lack of technical infrastructure for digital resources, many schools may not have the resources to purchase excellent teaching materials (National Math & Science, 2024). However, a lack of literature studies the factors affecting the utilization of SLMs and Classroom Textbooks.

This study aimed to determine the significant difference in the level of acceptability of the Self-Learning Materials in Economics and Classroom Textbook in content, organization, mechanics, and overall Package in Public High School.

METHODOLOGY

Research Design

This study employed a descriptive-comparative research design to analyze the level of acceptability of Self-Learning Modules (SLMs) and traditional classroom textbooks in Social Studies, focusing on content, organization, mechanics, and overall presentation. According to Smelser (2023), a comparative research design involves examining both the similarities and differences among variables. Similarly, Iranifard (2022) emphasized that comparative research can be used to analyze issues within different contexts using quantitative approaches.

Locale of the Study

The study was conducted in selected municipalities under the Schools Division Office of Cotabato, specifically in the areas of Aleosan, Carmen, Kabacan, Matalam, and Pikit. These municipalities implemented the use of Self-Learning Modules (SLMs) for distance learning as part of the Department of Education’s response to the COVID-19 pandemic, in accordance with DepEd announcement entitled “Prepares Self-Learning Modules for Education’s New Normal.” The study was carried out during the school year 2023–2024 and involved schools that utilized both SLMs and classroom textbooks in the teaching of Economics.

Respondents of the Study

The respondents of the study were Grade 9 Araling Panlipunan teachers handling Economics in various schools under the Schools Division Office of Cotabato, specifically in the municipalities of Aleosan, Carmen, Kabacan, Matalam, and Pikit. All identified teachers were included as respondents through complete enumeration. The study's subjects were the Araling Panlipunan (Economics) classroom textbook, and the Self-Learning Module (SLM) provided by the Cotabato Division Office.

Research Instrument

The researcher adapted an analytic rubric as the primary research instrument for the respondents to use in evaluating the classroom textbook and the self-learning modules (SLMs) in terms of content, organization, mechanics, and overall presentation. The questionnaire was based on established criteria drawn from the study’s objectives, as well as its theoretical and conceptual framework. To ensure alignment with educational standards and relevance to the context, the rubric was further adapted from existing evaluation tools used in textbook and instructional material assessments. It underwent a thorough review and validation process by subject matter experts and experienced educators to confirm its content validity and reliability prior to data collection.

The statistician carefully reviewed and checked the study for their reliability test. The Cronbach's Alpha coefficient obtained was 0.70. Hence, the instrument demonstrated good reliability. The statisti-

cian also recommends the utilization of the survey questionnaire as a tool for conducting the study.

A five Likert scale, ranging from “Excellent” to “Poor” was included with each item in the statement in the analytic rubric. Respondents can use this rating scale to indicate how they agree with each statement.

Rating Scale	Range of Mean	Descriptive Rating	Interpretation
4	3.50-4.00	Excellent	Highly Acceptable
3	2.50-3.49	Very Good	Acceptable
2	1.50-2.49	Good	Not Acceptable
1	1.00-1.49	Poor	Highly not acceptable

Data Gathering Procedure

To collect the necessary data for the study, the researcher employed a systematic approach to ensure accuracy, validity, and reliability. An adapted analytic rubric was utilized for the evaluation of classroom textbooks and Self-Learning Modules (SLMs), focusing on four criteria: content, organization, mechanics, and overall package. This rubric was developed and revised based on the objectives and the study’s theoretical and conceptual framework.

To validate the instrument, the rubric underwent a thorough review by subject matter experts and experienced education researchers. Their feedback was incorporated to enhance the instrument's clarity, relevance, and reliability.

After finalizing the rubric, the researcher sought formal permission to conduct the study from appropriate authorities, including the Dean of the College of Graduate Studies (CGS) at Sultan Kudarat State University (SKSU) and the Board of Education in Pikit, Cotabato. This step ensured that ethical guidelines and institutional protocols were strictly followed.

Statistical Treatment

This comparative study employed both descriptive and inferential statistical methods. Descriptive statistics, specifically the mean and standard deviation, were used to assess the level of acceptability of the Social Studies SLMs and classroom textbooks in terms of content, organization, mechanics, and overall package.

To determine whether there was a significant difference between the acceptability levels of the two instructional materials, t-tests for independent samples were applied. Furthermore, Analysis of Variance (ANOVA) was used to identify significant differences in the respondents' feedback on the SLMs based on selected variables.

RESULTS AND DISCUSSION

This study compares traditional textbooks with self-learning materials to determine how effective the materials in the field of economics. Teachers and students seeking to improve their learning outcomes can all benefit from our insights.

Table 1. Level of Acceptability of SLM and the Classroom Textbook in Content, Organization, Mechanics, and Overall Package

Variables	IM	N	M	SD	Description
Content	SLMs	30	3.21	0.28	Acceptable
	Classroom Textbook		3.25	0.21	Acceptable
Organization	SLMs	30	3.20	0.21	Acceptable
	Classroom Textbook		3.17	0.26	Acceptable
Mechanics	SLMs	30	3.24	0.21	Acceptable
	Classroom Textbook		3.21	0.22	Acceptable
Overall Package	SLMs	30	3.35	0.24	Acceptable
	Classroom Textbook		3.24	0.25	Acceptable

Legend: 1.00 – 1.49: Highly Not Acceptable, 1.50 – 2.49: Not Acceptable, 2.50 – 3.49: Acceptable, 3.50 – 4.00: Highly Acceptable

It can be seen in the table that the Self-learning Materials and Classroom Textbooks in Economics has acceptable level of quality in Content, Organization, Mechanics, and Overall package.

The table also revealed that in terms of content, the Classroom Textbook reflected a mean rating of 3.25 and verbally described it as acceptable, which is 0.04 higher than the mean rating of the SLMs, which is equal to 3.21. Though both materials were acceptable as to their content as rated by the respondents, the Classroom Textbook is better than SLM. Regarding the respondents' rating, the Classroom Textbook was more consistent with a standard deviation of 0.21 compared to the 0.28 standard deviation of SLM. This only means that the Classroom Textbook is more acceptable than the SLMs in terms of its contents. The result is that the contents of the SLMs were taken from the Classroom Textbook.

As to the acceptability of the two materials in terms of their organization, the table revealed that the classroom textbook obtained a mean score of 3.20, which was verbally described as acceptable. In contrast, the SLMs obtained a mean score of 3.17 and were verbally described as acceptable. The result means that the two materials were acceptable regarding their organization, as the respondents rated. Based on the respondents' ratings, the result showed that the SLMs were more satisfactory than the textbook. It can also be seen in the table that SLM was more consistent based on the value of the standard deviation, which is 0.21, compared to the standard deviation of the textbook, which is 0.26.

Regarding the mechanics of the two materials, it was found that SLMs reflected a mean rating of 3.24 and were verbally described as acceptable. At the same time, the textbook material obtained a mean rating of 3.21 and was verbally described as acceptable. The result shows that SLM is more satisfactory in its mechanics than the textbook. Also, the SLM is more consistent in the respondents' ratings, with a standard deviation of 0.21, compared with the textbook, having a standard deviation of 0.22.

Finally, the table also showed that SLMs are more acceptable than textbooks in terms of their overall package based on the value of their mean rating. The SLM obtained a mean rating of 3.35 with a verbal description of acceptable and the textbook obtained a mean rating of 3.24 and verbally described as acceptable. This only means that both materials were acceptable regarding their overall package. As to the consistency of the ratings regarding the overall package of the materials, it was also revealed that SLM is more consistent with a standard deviation of 0.24 compared with the textbook, having a standard deviation of 0.25.

Table 2. Comparison of the Level of Acceptability of the Social Studies SLMs and the Classroom Textbook

Variables	IM	N	M	SD	T	df	P	Interpretation
Content	SLMs	30	3.21	.28	.497	58	.621	Not Significant
	Classroom Textbook		3.25	.21				
Organization	SLMs	30	3.20	.21	.626	58	.534	Not Significant
	Classroom Textbook		3.17	.26				
Mechanics	SLMs	30	3.24	.21	.478	58	.635	Not Significant
	Classroom Textbook		3.21	.22				
Overall Package	SLMs	30	3.35	.24	1.740	58	.087	Not Significant
	Classroom Textbook		3.24	.25				

**At 0.05 level of significance*

Table 2 shows the significant difference in the level of acceptability of the Social Studies SLMs and the Classroom Textbook regarding content, organization, mechanics, and overall package. The independent samples t-test comparing the SLMs and textbook content among Economics teachers yielded non-significant results ($t(58) = 0.497$, $p = 0.621$). The result implies no discernible difference in how these educators perceive the content provided by both instructional materials. The data suggest that based on the sample of 30 Economics teachers, both the SLMs and the textbook are viewed similarly regarding content quality and relevance. Thus, it appears that the content of both materials is perceived to be comparable by Economics teachers.

Similarly, the analysis of organizational aspects between the SLMs and the textbook revealed non-significant differences ($t(58) = 0.626$, $p = 0.534$). The result indicates that the Economics teachers perceive both instructional materials similarly regarding their organization. The findings suggest that neither the SLMs nor the textbook stands out significantly in terms of their structure or arrangement of information. Therefore, it can be inferred that the organization provided by both materials is viewed as comparable by the Economics teachers.

Regarding mechanics, the t-test results also showed no statistically significant difference between

the SLMs and the textbook ($t(58) = 0.478$, $p = 0.635$). The result implies that economics teachers perceive both materials' technical aspects, formatting, and presentation style similarly. The data suggest that neither instructional material is preferred over the other in terms of mechanics, indicating a comparable level of technical quality and presentation.

Regarding the overall package, while the analysis yielded a non-significant result ($t(58) = 1.740$, $p = 0.087$), the p -value suggests a trend toward significance. Despite this trend, caution should be exercised in interpreting the findings, as they did not meet the conventional threshold for statistical significance. Thus, while there is a potential indication of a difference, the data do not provide clear evidence of a significant distinction in the perceived overall package between the SLMs and the textbook. The result suggests that economics teachers perceive both instructional materials similarly regarding their comprehensiveness, effectiveness, and overall value.

Table 3a. Difference between the Content of Classroom Textbook and SLM

Source of Variation	SS	df	MS	F	p	Interpretation
Between Groups	0.526	5	0.105	0.412	0.640	Not Significant
Within Groups	44.421	174	0.255			
Total	44.947	179				

**At 0.05 level of significance*

Analysis of Variance (ANOVA) was conducted to investigate potential differences in the responses of 30 economics teachers regarding the content of Modules 1-6 in the SLMs. The analysis revealed no statistically significant differences among the groups, $F(5, 174) = 0.412$, $p = 0.840$. Therefore, at the 0.05 level of significance, the null hypothesis that there are no significant differences in content perception among the groups was not rejected.

The result implies that the content presented in these modules did not lead to discernible variations in the teachers' perceptions. The lack of significant differences could have several implications. Firstly, it suggests that the content of the modules is consistent across all six modules, with no module standing out as significantly different from the others in terms of its content. This consistency could indicate that the modules effectively cover the intended material without significant content quality or relevance deviation.

Secondly, it might imply that the teachers perceive the content of all six modules similarly, regardless of the specific topics covered in each module. The result suggests that the modules address a consistent difficulty, relevance, and applicability level across all issues presented.

Table 3b. Difference between the Organization of Classroom Textbook and SLM

Source of Variation	SS	df	MS	F	p	Interpretation
Between Groups	0.097	5	0.019	0.195	0.964	Not Significant
Within Groups	17.264	174	0.099			
Total	17.361	179				

**At 0.05 level of significance*

The ANOVA was conducted to explore potential differences in the responses of 30 economics teachers regarding the organization of Modules 1-6 in the SLMs. The analysis revealed no statistically significant differences among the groups, $F(5, 174) = 0.195$, $p = 0.964$. Therefore, at the 0.05 significance level, the null hypothesis of no significant differences in organization perception among the groups was not rejected. The result suggests that, based on the data collected, the organization of the modules did not lead to discernible variations in the teachers' perceptions.

The lack of significant differences could imply several things. Firstly, it suggests that the content organization across all six modules is consistent, with no module standing out as significantly different from the others in terms of its structure or arrangement of information. This consistency could indicate that the modules are effectively structured and organized to facilitate learning without significant deviation in organizational quality.

Secondly, it might imply that the teachers perceive the organization of all six modules similarly, regardless of the specific topics covered in each module. The result could suggest that the modules follow a consistent format or layout that is easy for teachers to navigate and understand across all topics presented.

Table 3c. Difference between the Mechanics of Classroom Textbook and SLM

Source of Variation	SS	df	MS	F	p	Interpretation
Between Groups	1.068	5	0.214	1.669	0.145	Not Significant
Within Groups	22.275	174	0.128			
Total	23.343	179				

**At 0.05 level of significance*

The ANOVA was conducted to assess potential differences in the responses of 30 economics teachers regarding the mechanics of Modules 1-6 in the SLMs. The analysis revealed no statistically significant differences among the groups, $F(5, 174) = 1.669$, $p = 0.145$. Therefore, at the 0.05 significance level, the null hypothesis of no significant differences in mechanics perception among the groups was not rejected.

The results of the one-way ANOVA examining the mechanics of Modules 1-6 within the SLMs program for economics teachers indicate no significant differences in how these educators perceive the technical aspects of the instructional materials. This finding suggests a consistent level of technical quality maintained across all modules, irrespective of the topics covered. Such uniformity underscores instructional designers' meticulous attention to detail, ensuring that all modules are presented professionally and credibly.

However, while the ANOVA results imply overall satisfaction with the technical aspects, it is imperative to complement this quantitative analysis with qualitative feedback or usability testing to ensure a positive user experience. Such insights could unveil opportunities for refinement and enhancement, ensuring the modules meet technical standards and align with users' preferences and needs. Thus, while the ANOVA results highlight uniformity in mechanics perception, ongoing efforts to improve user experience remain integral to instructional design and development evolution.

Table 3d. Difference between the Overall package of Classroom Textbook and SLM

Source of Variation	SS	df	MS	F	p	Interpretation
Between Groups	0.718444	5	0.144	1.183	0.319	Not Significant
Within Groups	21.13467	174	0.121			
Total	21.85311	179				

**At 0.05 level of significance*

The one-way ANOVA conducted to assess the responses of 30 economics teachers regarding the Total Package of Modules 1-6 in the SLMs program yielded non-significant results ($p = 0.319$). The result indicates no substantial differences in how these educators perceive the overall package of instructional materials across the different modules. The F-value of 1.183 further supports this conclusion, suggesting that any observed variations are likely due to random chance rather than systematic differences in perception.

From a practical standpoint, these findings suggest that economics teachers perceive the Total Package of Modules 1-6 similarly, regardless of individual modules' specific content or organization. While the lack of significant differences may indicate a consistent quality maintained across the modules, it is essential to consider additional factors such as usability, relevance, and alignment with learning objectives to ensure an optimal learning experience.

CONCLUSION

The study concluded that, in terms of content, organization, mechanics, and overall package, economics teachers found both the Classroom Textbook and Supplementary Learning Materials (SLMs) to be acceptable. SLMs, on the other hand, had better content and mechanics consistency and a marginally higher mean rating. The results point to a high degree of similarity between the two materials and suggest that SLMs were taken from the Classroom Textbook. Both materials were considered acceptable overall, with SLMs slightly superior in terms of consistency and quality.

In terms of content, organization, mechanics, and overall package, the study conducted among 30 Economics teachers revealed no discernible differences between the Social Studies Self-Learning Materials (SLMs) and the Classroom Textbook. The results suggest that both materials are viewed similarly

by educators regarding their quality, relevance, structure, and technical aspects. Though there was a tendency towards importance in the entire set, it failed to attain statistical significance. It follows that instructors of economics believe both SLMs and the textbook to be on par with one another, with no one source being noticeably superior to both.

Regarding the content, structure, mechanics, and overall package of Modules 1-6 in the Social Studies Self-Learning Materials (SLMs), the study's sample of thirty economics teachers revealed no statistically significant differences. Based on the results, it appears that all six modules' instructional materials are viewed as uniform and consistent, with no module being noticeably different from the others. This consistency suggests that the information is covered in an effective manner without materially deviating from the intended topic in terms of quality or relevance. A positive user experience and continuous improvement of the instructional materials are ensured by supplementing the ANOVA results, which show overall satisfaction with the technical aspects, with qualitative feedback and usability testing. All things considered, the study's findings imply that SLMs give economics instructors a reliable and successful teaching experience.

RECOMMENDATION

Based on the findings and conclusions of the study, the following recommendations are proposed:

1. Enhance the Quality of SLMs

To improve the effectiveness of self-learning materials (SLMs), their content, organization, and mechanics should be informed by a wide range of reliable sources. These should include not only traditional classroom textbooks but also credible websites, educational platforms, and other relevant digital and print resources.

2. Promote Innovation in SLM Development

Educators and instructional designers are encouraged to prioritize the creation of SLMs that incorporate innovative features, such as multimedia elements, interactive activities, and real-world examples. These enhancements can make learning more engaging, student-centered, and effective.

3. Encourage Differentiation from Traditional Textbooks

To enable meaningful comparisons between SLMs and traditional classroom textbooks, school authorities should support the development of SLMs that differ significantly in terms of content delivery, structure, and design. This can be achieved by integrating cutting-edge technologies, interactive digital tools, and learner-friendly layouts that support independent learning.

4. Improve Usability and Accessibility

SLMs should be organized in a logical, coherent, and user-friendly format to facilitate easy navigation and effective comprehension. Clear instructions, visual aids, and structured progression of topics should be emphasized to support diverse learning styles.

5. Recommendations for Future Research

Future researchers are encouraged to explore the impact of SLMs on teacher collaboration and professional development. Investigating how SLMs can be leveraged to promote shared instructional practices, and continuous professional growth may yield valuable insights for improving educational outcomes.

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RESEARCH AUTHORSHIP AND COLLABORATION OF LIBRARIANS AND THEIR SCHOLARLY CONTRIBUTION IN THE NATURAL SCIENCES

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ABSTRACT

This study explores the scholarly activity of librarians in natural sciences research through a systematic analysis of Scopus-indexed publications from 1864 to 2025. This includes the following eight disciplines: Earth and Planetary Sciences, Environmental Science, Agricultural and Biological Sciences, Chemistry, Biochemistry, Genetics and Molecular Biology, Physics and Astronomy, Energy, Mathematics, the research examines types of authorship, based on single librarians, main-authors librarians, librarian co-author teams, as well as co-authored with natural scientists. It further investigates increasing time trends on publication, affiliation or job title, and the majority of quality sources search authority in authors' affiliation or nationality. Results indicate an increased reading trend in librarians' collaborative roles, primarily as co-author with natural scientists, due to their integration into interprofessional research. Foreshadowing includes librarians and natural science's primary authorship affiliations in higher education and research institutions across various countries. This study establishes a foundation for understanding the evolving scholarly practice of librarians in natural sciences and suggestions for improving library practice and collaboration framework.

Keywords: *research productivity, research collaboration, librarianship*

INTRODUCTION

The roles of librarians in academic and research settings have transformed from organization information custodians to active agents of scholarly research. Technological advancements, scholarly communication transformation, and the changing research process complexity have been the charge for this change (Bedi & Walde, 2017; Nitecki & Davis, 2019). Librarians have increasingly joined research teams through the contribution of information discovery, publication management, and research data management, among others. Of importance, increasing librarianship has coincided with researchers reliant on grants and other external funding sources (Rabasa & Abrizah, 2022; Hart, 2018). Librarians have, therefore, evolved as essential partners to research collaborative projects. In Earth and Planetary Sciences, Environmental Science, Agricultural and Biological Sciences, Chemistry, Biochemistry, Genetics and Molecular Biology, Physics and Astronomy, Energy, Mathematics the areas, subject experts from which domains leverage the discipline to support university programs, research data support, digital humanities, and e-science initiative (Bracke et al., 2010). New digital and Open Access (OA) research development expands the viewpoints of library and librarianship and has added greater emphasis to managing open research data, those digital repositories, and guaranteeing stakeholders' compliance with funders' policies (Badenhorst & Raju, 2023; Kingsley, 2020).

Librarians need to acquire several skills to fulfill these evolving roles, such as in digital scholarship, systematic reviews, data curation, and bibliometrics and develop a strong foundation of research methodologies to facilitate manuscript authorship and research dissemination (Rabasa & Abrizah, 2022; Badenhorst & Raju, 2023). The most effective way to acquire such skills is through continuous professional development opportunities, such as training and workshops, which are both mandatory (Badenhorst & Raju, 2023). Despite the increasing importance and potential of integrating librarians into research

teams, some challenges must be overcome, including role definitions and the struggle for recognition as equal research partners (Bedi & Walde, 2017; Rabasa & Abrizah, 2022). The critical role they play in the open research agenda, notably in managing and disseminating research outputs such as grey literature, exemplifies the impact librarians have on scholarly communication (Kingsley, 2020). To be successfully integrated into research teams and maximize their respective potentials, librarians must receive institutional support and be afforded proper resources and recognition to develop their interdisciplinary skills and expertise (Rabasa & Abrizah, 2022; Badenhorst & Raju, 2023). This report explores librarians' scholarly contributions to natural science research and reviews 161 publications obtained through the Scopus database and analysis of the publication period from 1864 to 2025. It provides an overview of authorship patterns, publication trends, and distribution patterns, among others, to reveal the increasing role of librarians in research, particularly as co-authors.

Natural sciences, which include Earth and Planetary Sciences, Environmental Science, Agricultural and Biological Sciences, Chemistry, Biochemistry, Genetics and Molecular Biology, Physics and Astronomy, Energy, Mathematics, are becoming more data-intensive and interdisciplinary fields (Critchlow & van Dam, 2013; Hey et al., 2012). Data-intensive science, also called the "fourth paradigm", supplements rather than replaces the prior three paradigms because data-driven approaches have become essential parallel to traditional scientific methodologies (Bell et al., 2009; Aikat et al., 2017). These sciences generate large-scale datasets that need integrated methodologies. The authors support the argument that librarians not only play a crucial role in providing information to researchers. They also join the scientific teams and take responsibility for providing analytical or retrieval services, creating guidelines for conducting research, planning data management, and refining metadata for research outputs. These functions also include contributing directly to the preparation of outputs, such as authoring a manuscript. The research-oriented definition relies on the fact that the librarian contributes to producing research outputs (Parsons et al., 2011; Tautkevičienė & Pranckute, 2024). Librarians' ability to use digital technologies is crucial in this paradigm. It is worth noting that data-intensive and interdisciplinary science is highly instrumented, so it is impossible to conduct research without using digital outputs (Sundin et al., 2008; Borrego et al., 2018; Borrego & Pinfield, 2020).

In these fields, the librarians' participation goes beyond traditional support; they actively contribute to the research process. The experts not only conduct systematic reviews but co-author manuscripts and facilitate data management; they are often involved as team members of R1 institutions who believe in a high research quality-engagement relationship (Higgins et al., 2017; Tautkevičienė & Pranckute, 2024). Their participation positively influences the quality of the research and upholds the open science concept. They ensure data usability and working with the ever-increasing array of research products for a diverse audience (Parsons et al., 2011; Borrego & Pinfield, 2020). However, librarians face challenges such as limited time, continuous-learning requirement, and acceptance by the rest of the team, affecting their implementation and recognition (Borrego et al., 2018; Tautkevičienė & Pranckute, 2024). Nevertheless, the participation results in higher job satisfaction and better research-related services, identifying the recognition potential among the driving forces of science (Hoffmann et al., 2017).

Although natural sciences research increasingly involves librarians, a gap in the literature on authorship and collaborative contributions by librarians exists, especially in this field. While co-authorship of librarians has been studied in subdisciplines such as health sciences, the phenomenon remains relatively, speaking mostly underexplored in the broader natural sciences (Monnin & Lê, 2024; Owens, 2023). Quantitative studies of publishing productivity, bibliometric analyses, and works of authorship largely excludes librarians' roles, obscuring our understanding of the broader impact of their contributions (Wiberley et al., 2006; Walters & Wilder, 2015). Thus a study about natural sciences that examines publication trends on authorship patterns, publications' distributions, affiliations, and geographic patterns of librarians' work is deemed to be the fruitful cause of this study. This study demonstrates the contributions of librarians and argues for their recognition as research partners, informing strategies to promote and maximize their success in the emerging area of interdisciplinary collaboration in science.

Statement of the Problem

While there has been a growing acknowledgment of the importance and visibility of librarians' contribution to scholarly research, especially in highly data-intensive and interdisciplinary disciplines such as the natural sciences, the librarians' specific roles and impact remain relatively understudied. The present study aims to fill this gap as it focuses on multiple objectives:

1. How has publication in natural sciences evolved regarding the involvement of the librarians?
2. What authorship patterns can be distinguished to define the roles of the librarians in the research of natural sciences?
3. What can be said about the roles of the affiliation and geographical factors behind the librarians' involvement in natural sciences research?

REVIEW OF RELATED LITERATURE

The expanding functions of the librarian in the academic research has been beyond the traditional LIS fields of library services and has infiltrated into multi-disciplinary areas with much presence in research fields of general science; Agricultural and biological sciences; Earth and planetary sciences (Mineralogy, Climatology, Geological sciences, Natural geography, Physical geography, Geology, Soil science and Meteorology); Environmental science (Ecology, Pollution, Water, Air and Soil, Waste management, Ecosystem and Environmental studies); Biochemistry, Genetics and molecular biology; Chemistry; Physics and Astronomy; Energy and Mathematics. Their expertise in information organization, copyright, and open access policies, among other areas, can aid in the grant-funding stage of research as well as in the part of the research process involving the literature review and eventual manuscript preparation (Janke & Rush, 2014; Borrego et al., 2018; McKee et al., 2014). This engagement is frequently evidenced by effectiveness and Their emergence as partners in natural science research (Shin, 2021). Many are non-LIS journals through co-authorship as well. Rather, partnerships advance the research support role of librarians, align with institutional purpose, and are a source of professional satisfaction and enhanced library prestige (Borrego & Pinfield, 2020; Borrego et al., 2018).

More recently, the scholarly contributions of librarians are of increased interest as their areas of responsibility grow in size due to the data-intensive and interdisciplinary nature of fields such as natural sciences, Earth and Planetary Sciences, Environmental Science, Agricultural and Biological Sciences, Chemistry, Biochemistry, Genetics and Molecular Biology, Physics and Astronomy, Energy, and Mathematics, to name a few. The longitudinal analyses of librarians' publication access is therefore crucial for understanding librarians' ever-evolving scholarly output. For example, compared to the previous decade, 1993–1997, and the previous five-year period, 1998–2002, a 2017 study of U.S. academic librarians found a decline in overall librarians' publication output, a drop in peer-reviewed article publishing, and single article authorship. At the same time, patterns of consistent productivity remained stable for publishers, and the number of librarians publishing more than one article quintupled over the five years studied (Blecic et al., 2017). A 2016 study of academic librarians in Ireland also discovered a moderate increase in the number of publications, accompanied by a significant growth of Open Access publishing, which reflects the increasing scholar preferences and trends (O'Brien & Cronin, 2016). These studies show librarians' contribution dynamics but call for rigorous discipline-specific analyses.

Bibliometric methodologies, evident from the cited studies, are critical for assessing librarians' scholarly output over time. Citation analysis, through Scopus, Web of Science, and Google Scholar databases enables the measurement of the scholarly impact by counting the number of citations of librarians' publications (Moed, 2009; Mering, 2017; Iqbal et al., 2021). Content analysis, as evident from a recording of the health sciences librarianship literature between 2016-2020, helps capture trends and emerging subjects through evaluating the publications' content; data science and informatics have shown a greater increase among the subject research of choice (Gillum et al., 2023). Similarly, co-authorship and co-citation analyses provide more insights into the collaboration networks and work affecting individual librarians (Gan et al., 2022; Wani & Ganaie, 2025). The relevance of the methodologies to this study is evident in their objectives to analyze 161 publications from Scopus database between 1865 – 2025 in tracking librarians' subject trends and authorship networks tendencies in publication and their contributions to natural sciences field with reference to the need and benefits of related comprehensive bibliometric studies (Blecic et al., 2017; O'Brien & Cronin, 2016; Dubey et al., 2023).

Despite these findings, however, librarians continually struggle with time limitations and the necessity for constant skills development in which to actively participate within a research team (Borrego & Pinfield, 2020; Shin, 2021). Collaboration occurs at different frequencies in various countries, with some having few to no collaborative instances, indicating a requirement for additional efforts to facilitate engagement (Ramos-Eclevia et al., 2018; Zakaria, 2015). Moreover, the majority of said collaborations are built on existing long-term relationships with researchers to proceed as anticipated (Borrego & Pinfield, 2020; Shin, 2021). In order to assert their impact on research in natural science, librarians necessitate enhancements to the curriculum and institutional encouragement through which they can operationalize research competencies (Shin, 2021; Charbonneau, 2013). This research study explores librarians' authorship and collaborations within natural sciences research through a review of 161 publications from Scopus online database. It covers publication patterns, authorship sources, roles evident in professional affiliations and geographic distribution necessitating a better understanding of the scholarly contribution of librarians in the field.

METHODOLOGY

The study used the scoping review methodology to investigate Librarians' authorship patterns, publication trends, institutional affiliations, and geographic distributions in natural sciences research. The analysis framework rationale for the scoping review is guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews framework by Tricco et al., 2018. In this context, the scoping review methodology helped to map the scope of literature, track the trends, and gain insights into the understanding of librarians' scholarly contributions within eight disciplines of natural sciences, such as Earth and Planetary Sciences, Environmental Science, Agricultural and Biological Sciences, Chemistry, Biochemistry, Genetics and Molecular Biology, Physics and Astronomy, Energy, and Mathematics. The whole process has three main phases such as identification, screening, and data analysis as described in the data search diary included in the dataset.

Search strategy

The search was performed using the Scopus database, a bibliographic database that is well-suited for the identification of peer-reviewed scholarly reports from various academic fields. In this instance, the search was restricted to the "affiliations" category whilst adopting the search phrase "librarian." The latter term was used in the search due to the need to locate records where librarians were acknowledged as authors. Filters were applied to focus the search on the particular fields of natural sciences, namely, Earth and Planetary Sciences, Environmental Science, Agricultural and Biological Sciences, Chemistry, Biochemistry, Genetics and Molecular Biology, Physics and Astronomy, Energy, and Mathematics. Another search criterion involved an English language restriction. This way, the search was further limited to the source type: journal and excluded all other document categories. The initial search retrieved 174 records, all of which were screened and proceeded to the next stage. No duplicates were identified.

Data Screening and Eligibility

The screening was performed in two stages. In the first stage, the titles and abstracts of 174 records were screened, and relevance was based on the mention of "librarian" in the affiliation field. Thirteen records were removed because "librarian" was not listed as an affiliation, resulting in 161 records available for full text retrieval. One hundred sixty-one studies retrieved in full text were included into the review according to the set inclusion criteria: (1) librarian is included in the affiliations, (2) the study is published in the relevant fields of natural sciences, and (3) the study is a journal article in English. No further elimination of the records was conducted, resulting in the inclusion of 161 studies. The flow of the screening process was outlined in the PRISMA flow diagram (Figure 1) using a diagram generator based on the search diary in order to ensure transparency and reproducibility (Haddaway, et al., 2022).

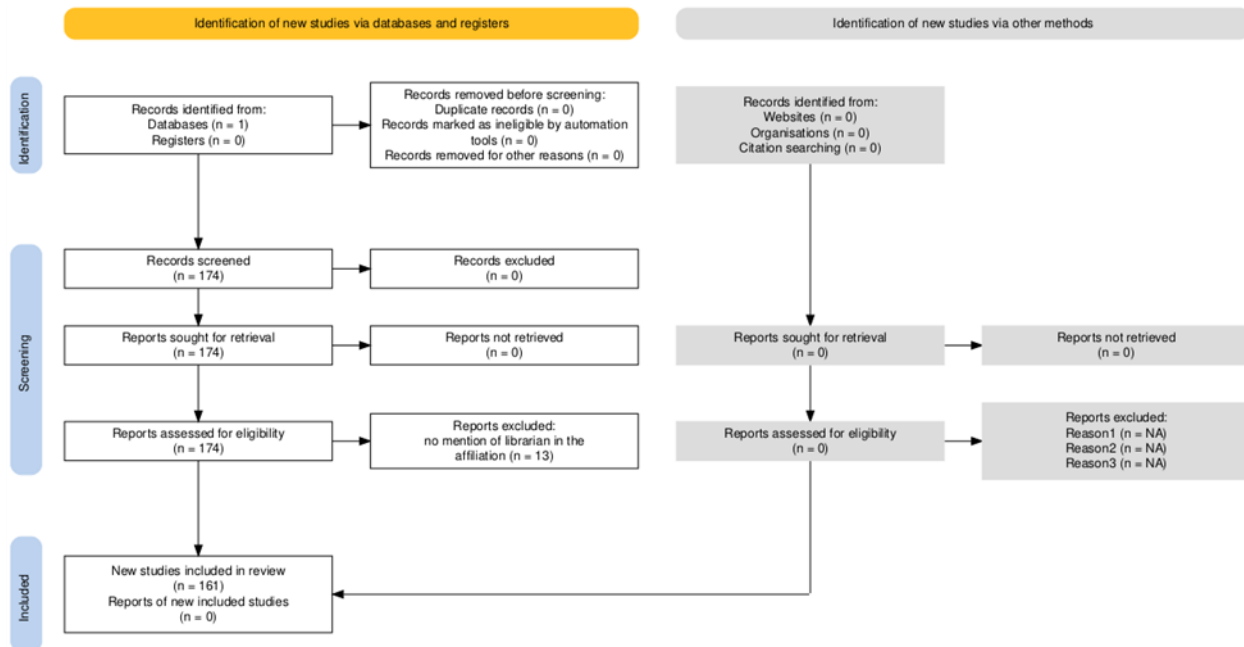


Figure 1. PRISMA flow diagram

Extraction of Data

Data from the 161 studies were extracted methodically to fulfill the purpose of the study to (1) investigate publication patterns, (2) reveal of authorship characteristics, and (3) analyze professional affiliation and geographical distribution. The extracted variables include year of publication, affiliation of the author/s, role of the author in authorship such as (a) single author ship, (b) main authorship collaboration with other researchers, (c) co-authorship with other librarians, and (d) co-authorship with other researchers. Institutional affiliation was also recorded along with the country of origin. The data was stored in a spreadsheet to maintain consistency, and precision. The chronological distribution of the publication spanned from 1864 to 2025, the latter containing publications thereafter, such as 2029, was considered as a potential input error or projection and was retained to examine whether the key was a potential outlier during the analysis.

Data Analysis and Presentation

Three data analysis stages were performed to address the research objectives adequately. Publication trends were described by synthesizing publications in 161 across 54 years and pursuing annual publication frequencies. Descriptive statistics and a line graph were applied to summarize and visualize the data, respectively, identifying publication activity growth and gaps between the peaks. The articles were presented in frequency for every year, capturing historical and contemporary high points. Authorship patterns were evaluated based on the classification of librarian roles into four categories: single author, co-author with researchers, co-author with other librarians, and main author with researchers. Table and bar chart summarize findings on frequencies, percentages, and time trends, demonstrating the independent links and influence of librarians, such as digital transformation and open science. Institutional affiliations and geographic distributions were analyzed using respective categories and 15 countries with authors' contributions, summarized in tables and a bar chart for the number of entries per year.

Interpretation of the data

The interpretation of the data was grounded in historical and current research contexts. For example, publication peaks 1919 are associated with the struggle for cataloging, and those in 2023 are linked to digital and open access, as found in the literature (studies of Lahti et al., 2015; Chigwada, 2019). Likewise, authorship patterns were interpreted against the backdrop of the almighty rise of interdisciplinary and data-intensive science, with stable co-authorship demonstrating the incorporation of librarians into

scientific teams (Borrego et al., 2018). Affiliation and geographical data were interpreted based on the role of libraries, research institutions, and the evolution of networks around the world, also confirmed by a study of Badenhurst and Raju in 2023. Potential limitations of the data, such as future dates or inconsistent annual distribution, were taken into account and made up for with strong classification and verification.

Presentation of data

The results of the study were presented in order to prioritize maintainability and comprehensibility, and they were integrated throughout the reporting. The tables represented a detailed quantitative distribution, such as publication counts and affiliation frequencies. The figures, including line graphs and bar charts, were used for the compiled data visualization. Both of the above-mentioned data representation forms were complemented by narrative explanations, which bound the findings with the pre-existing research and responded to the study's research questions outlining the trends and implications for librarians portfolio in a natural science field. The method described in this report demonstrated full compliance with the PRISMA-ScR guidelines, ensuring a systematic, transparent, and reproducible process of a librarian scholars mapping.

FINDINGS

Trend analysis of publications over time

The time-wise breakdown of 161 research publications ranging from an year 1864 up to 2025 was studied. The individual data consisting of 54-years was combined and then the annual counts of particular publications summarizes considering only the valid announcements as summarized in Table 1. The breakdown is shown in Figure 1 indicating the distribution of studies per year in a timeline graph for showing the development of publication activity throughout time.

The observed data in Table 1 and Figure 2 provide insights into the publication activity trends in 161 studies that range from 1864 to 2025. The most noticeable peak occurs in 2023, with 12 studies, followed by 1919 with 8 studies. As evidenced from the above analysis, the early 1910s show much higher activity such as 5 studies in 1911 and 1914, which may reflect the efforts to gather data related to bibliographic records, like publication notification. The 1980s is another decade with quite remarkable publication activity, particularly in 1981 and 1982 with 6 and 8 studies, respectively, which may indicate a phenomenal academic achievement in certain areas. Recent decades from 2009 to 2023 stand out for the increased numbers, particularly years counting 7 and more studies, like 2009, 2011, 2012, 2022, and 2023. Interestingly, there are years with no publications like 1998, while other years include less than five studies, which may point to the absence of some parameter in the dataset. Such a high peak in 2023, with 12 studies, is quite impressive and may be rooted in multiple hedged efforts in terms of interdisciplinary collaboration with information technology, health sciences, or geospatial disciplines. Therefore, the academic publishing trends are shifting, and while the peaks in the past focused on cataloging activities, modern academic events are steered up by digital and open access processes.

Table 1. Number of studies published per year

Year	Studies	Year	Studies	Year	Studies	Year	Studies	Year	Studies	Year	Studies
1864	1	1917	2	2000	3	1942	1	1986	3	2015	2
1881	1	1919	8	2001	2	1946	1	1987	1	2016	2
1889	1	1920	2	2003	2	1958	1	1988	3	2017	3
1911	5	1923	1	2005	1	1970	1	1989	1	2018	1
1912	1	1942	1	2006	1	1977	1	1990	1	2019	3
1913	4	1946	1	2007	1	1980	2	1991	4	2020	5
1914	5	1958	1	2008	3	1981	6	1992	2	2021	3
1915	4	1970	1	2009	7	1982	8	1993	5	2022	7
1917	2	1977	1	2010	5	1986	3	1994	2	2023	12
1919	8	1980	2	2011	5	1987	1	1995	1	2024	5
1920	2	1981	6	2012	5	1988	3	1996	1	2025	1
1923	1	1982	8	2014	2						

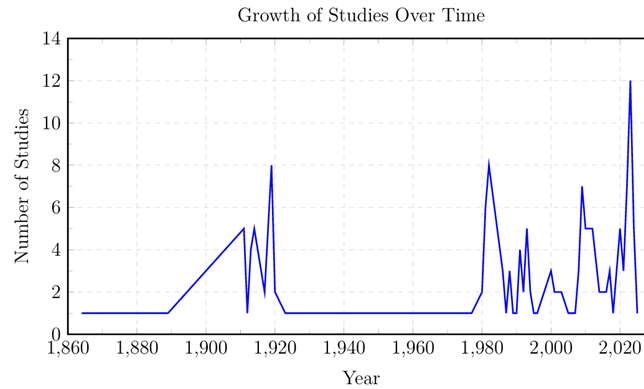


Figure 2. Line graph showing the number of studies published per year from 1864 to 2025

Open Science has dramatically changed the shape of academic research, in terms of improved access and reusability of research outputs, globally, enabling more effective collaboration and simultaneously elevating the prominence of scholarly work (Chigwada, 2019; Wilson et al., 2019; Johnson, 2012). This transition has been largely motivated by the emergence of open access publishing, a model where article processing charges are used to ensure free access to research articles, which has significantly transformed scholarly communication and extended the readership of research in data-rich topics such as natural science fields of Earth and Planetary Sciences, Environmental Science, Agricultural and Biological Sciences, Chemistry, Biochemistry, Genetics and Molecular Biology, Physics and Astronomy, Energy, and Mathematics (Pinfield, 2008; Willinsky, 2018). The most productive periods of research, especially in the natural sciences were historically underpinned by great cataloguing endeavors and traditional methods of publication, which facilitated systematic recording and distribution of academic research (Lahti, Pollock and White, 2015; Yarwood, Dick and Randerson, 2014; Thompson, 2006).

Librarian Affiliations and Natural Sciences Scholarship

Affiliations were categorized by their relevance to natural sciences (direct, indirect, general) to assess their role in supporting scientific research, data management, and interdisciplinary collaboration. The analysis examines counts, temporal trends, and specialization to highlight librarians' contributions to fields like biology, environmental science, and physics. Findings are reported in a table of affiliations and a bar chart of crucial science-oriented positions.

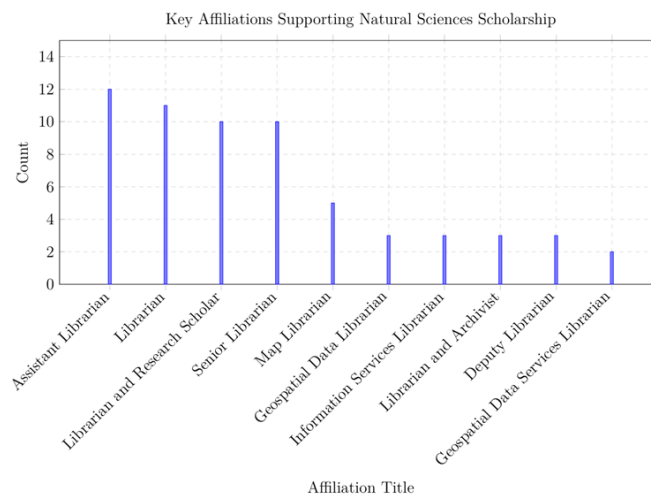


Figure 3. Bar chart showing the frequency of key librarian affiliations supporting natural sciences scholarship

The 60 unique librarian affiliations indicated by “general roles,” “directly relevant roles,” “indirect roles,” and “collaborative roles” that are reported in Tables 2a and 2b reveal a nuanced prioritization of natural sciences scholarship.

“General roles” such as “Librarian” occurred 11 times, 6.83% of the total, 1864–2011 and “Assistant Librarian” occurred 12 times, 7.45% of the total, 1986–1995 feature prominently in early affiliations, which is logical. In the period before 1950, a natural science depended on physical collections like the ones maintained by early librarians. Librarians in these roles fueled fields such as chemistry and biology by managing journals and providing a channel for literature searches. More particularly, general roles supported preservation and distribution of the discipline’s literature rather than creation of new literature, as evidenced by early correlator roles existing ever since 1864.

Directly relevant roles, such as “Biology Librarian” in 1991, “Pharmacology Librarian” in 2001, and “Environmental Research Librarian” in 2009, reflect the need for domain expertise in specialized fields. These 7 affiliations seem to be related to milestones like the Human Genome Project in 1990–2003 and climate research growth. Librarians provided access to discipline-specific databases and grey literature in the context of natural science growth and further fragmentation into sub-disciplines following 1990.

Indirect roles, totaling 21 affiliations appear to represent librarians’ adaptation to data-intensive and interdisciplinary science. For example, “Geospatial Data Librarian” in 2024–2029 occurs three times, and “Geospatial Data Services Librarian” in 2024–2029 occurs two times and vague, likely related to environmental science and geology representing a GIS and remote sensing. Data-related roles, on the other hand, such as “Data Services Librarian” in 2024 and “Research Data and Assessment Librarian” in 2024 align with researchers’ open science mandates and their attempts to grapple with datasets and reproducibility in genomics and climate modeling. Finally, “Technology Librarian” in 1919 appears to be a notable outlier. The librarian may be managing technical reports.

Collaborative roles such as “Librarian and Research Scholar” and “Science and Research Instruction Librarian” reflect librarians as research partners, exploring bioinformatics or environmental science projects with interdisciplinary collaboration facilitated by data literacy training and co-authorship. These 12 affiliations emphasize the collaborative nature of science in the modern era.

Temporal trends indicate a transition from generalist roles before 1950 to specialized and data-focused roles after 2000. This is consistent with the digital transformation, data-intensive research, and cross-cutting natural science priorities. The 60 affiliations’ diversity, such as the niche “Minerals and Mining Librarian”, underscores librarians’ responsiveness to applied sciences and societal imperatives like sustainability. As shown in Figure 3, the most frequent affiliations are generalist roles, including “Assistant Librarian” and “Librarian”, with such specialized roles as “Geospatial Data Librarian” potentially suggesting the future. The presence of 2029 suggests these are future roles or data errors that need further validation. These affiliations demonstrate the field moving from a literature-based past to a data-based and cross-cutting future. The big data revolution has had a huge impact on scientific research, particularly in the natural sciences. Data-driven approaches that use big datasets to establish patterns, identify information, or discover new facts are collectively referred to as the “fourth paradigm” (Zaki, 2012; Larivière et al., 2006; Aikat et al., 2017). Librarians are further developing from being oracles and curators to specialists and collaborators.

Table 2a. Unique librarian affiliations (Part 1)

Affiliation Title	Category	Count	%	Affiliation Title	Category	Count	%	Affiliation Title	Category	Count	%
Direct Support (Discipline-Specific)				Indirect Support (Cross-Disciplinary/Technical)							
Biology Librarian	Direct	1	0.62	Geospatial Data Librarian	Indirect	3	1.86	Minerals and Mining Librarian	Indirect	1	0.62
Pharmacology Librarian	Direct	1	0.62	Geospatial Data Services Librarian	Indirect	2	1.24	Patent and Trademark Librarian	Indirect	1	0.62
Physics Librarian	Direct	1	0.62	Data Services Librarian	Indirect	1	0.62	Associate Professor and Librarian	Indirect	1	0.62
Environmental Research Librarian	Direct	1	0.62	Data Services Metadata Librarian	Indirect	1	0.62	Agricultural, Consumer and Environmental Sciences Librarian	Indirect	10	6.21
Environmental Resources Librarian	Direct	1	0.62	Research Data and Assessment Librarian	Indirect	1	0.62	Librarian and Research Scholar	Indirect	1	0.62
Food, Agricultural and Environmental Sciences Librarian	Direct	1	0.62	Social Sciences Research Librarian	Indirect	1	0.62	Research Support Librarian	Indirect	1	0.62
Agricultural Librarian	Direct	1	0.62	Digital Projects Technologies Librarian	Indirect	1	0.62	Science and Research Instruction Librarian	Indirect	1	0.62
				Technology Librarian	Indirect	1	0.62				

Table 2b. Unique librarian affiliations (Part 2)

Affiliation Title	Category	Count	%	Affiliation Title	Category	Count	%	Affiliation Title	Category	Count	%
General Support (Broadly Applicable)				Medical Librarian	General	2	1.24	Librarian for Arabic, Islamic Studies	General	1	0.62
Librarian	General	11	6.83	Consumer and Family Sciences Librarian	General	2	1.24	Librarian for Middle East Studies	General	1	0.62
Assistant Librarian	General	12	7.45	Branch Librarian	General	2	1.24	Liaison Librarian for Health and Science	General	1	0.62
Senior Librarian	General	10	6.21	Associate Librarian	General	2	1.24	Local Studies Librarian	General	1	0.62
Reference Librarian	General	2	1.24	Liaison and Data Services Librarian	General	1	0.62	Research Scholar and Librarian	General	1	0.62
Library Services and Reference Librarian	General	2	1.24	Associate University Librarian	General	1	0.62	Subject Librarian	General	1	0.62
Reference Librarian/Bibliographer	Librarian	General	2	Business Librarian	General	1	0.62	Systems Librarian	General	1	0.62
Map Librarian	General	5	3.11	Children's Librarian	General	1	0.62	Teacher Librarian	General	1	0.62
Information Services Librarian	General	3	1.86	Clinical Librarian	General	1	0.62	Urban and Public Affairs Librarian	General	1	0.62
Librarian and Archivist	General	3	1.86	Departmental Librarian	General	1	0.62				
Deputy Librarian	General	3	1.86	Digital Humanities Librarian	General	1	0.62				
University Librarian	General	3	1.86								
Architecture and Fine Arts Librarian	General	3	1.86								

Country Distribution of Librarian Scholarship in the Natural Sciences

This analysis identifies unique countries, counts their contributions, computes percentages, and examines trends temporally. The findings report contributions are a table summary and a bar chart with the top 10 countries.

Table 3. Country distribution

Country	Count	%	Years
United States	74	45.96	1881, 1911–1917, 1919–1920, 1942, 1946, 1958, 1970, 1980–1982, 1991–1994, 2000–2001, 2003, 2006, 2008–2010, 2012–2013, 2015, 2017, 2020–2025
Canada	23	14.29	2009, 2012, 2014–2015, 2017, 2019–2020, 2022–2024
United Kingdom	23	14.29	1864, 1889, 1915, 1917, 1920, 1923, 1977, 1986–1989, 1991–1995, 2000, 2005, 2010, 2015–2016, 2018–2020
India	10	6.21	2000, 2011–2012, 2016, 2019, 2023–2024
Nigeria	3	1.86	2022–2023
Qatar	2	1.24	2010
Netherlands	1	0.62	2003
Kenya	1	0.62	1990
China	1	0.62	2022
Ireland	1	0.62	2020
Australia	1	0.62	2006
Spain	1	0.62	2010
Trinidad and Tobago	1	0.62	1986
France	1	0.62	2021

The dataset indicates 15 unique countries contributing, as shown in Table 3. The USA leads with 74 contributions (45.96%), with India contributing 10 (6.21%), followed by Ghana 8 (4.96%), then Trinidad and Tobago 3 (1.86%), and other countries contributing three or less. Temporal analysis reveals that the geographical representation pattern evolves. Prior to 1950, the USA (12) and the UK (4) are the only countries to contribute. This is expected since they were at the forefront in the science of the library and scientific societies. Between 1950 to 2000, the USA (17) and the UK (9) still occupy the top, but Trinidad and Tobago's single contribution in 1986 stands out. The trigger is specific to the librarian's work and deserves further exploratory analysis. After 2000, more diversity observed where Canada (23), India (10), Nigeria (3), Qatar (2), one each from the Netherlands, China, Ireland, Australia, Spain, and France.

Figure 4 visualizes the top 10 countries, highlighting the United States dominance and the balanced contributions of Canada and the United Kingdom. The United States dominates with 74 contributions, followed by Canada and the United Kingdom with 23 each.

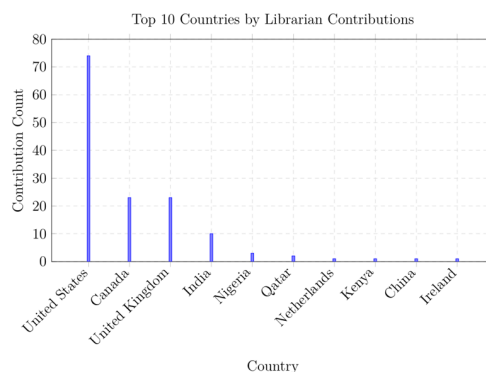


Figure 4 - Bar chart showing the frequency of librarian contributions by country

Librarians as Authors in Natural Science Research

Four specific roles were noted: librarians were identified as single authors, co-author with other librarians, co-author with other researchers, or lead author with other researchers. We quantify the frequency of roles and explore temporal trends and their implications for natural science scholarship. The results are reported on one hand in a table with roles, and on the other hand in a bar chart as a frequency plot.

Table 4. Authorship roles of librarians in natural sciences research

Authorship Role	Count	%	Years
Single Author	85	52.80	1864, 1881, 1889, 1911–1917, 1919–1920, 1923, 1946, 1958, 1970, 1977, 1980–1982, 1986–1989, 1991–1995, 2000–2001, 2003, 2005–2011, 2013–2016, 2018–2024
Co-author with other researchers	70	43.48	1988–1991, 1993–1994, 1996, 2000, 2003, 2008–2012, 2015, 2017, 2019–2025
Co-author with other librarians	4	2.48	2009, 2011–2012, 2019
Main Author; collab with other researchers	2	1.24	2009, 2022

The data illustrates four unique authorship roles for librarians, presented in Table 4, which are, deemed to demonstrate the contributions of the studied professional to natural sciences research productivity. The most frequent role is the single authorship with a total of 85 publications, representing 52.80%. This indicates the studied professionals' ability to lead scientific research on her or his own without involving other co-authors. Examples of notable contributors in this regard are Shaw D. comprising multiple publications in the period of 1986 to 1995 and Berolzheimer D.D. with several works in the period of 1911 to 1914. It is possible to assume that such professionals developed works emphasizing the application of library science, such as bibliometric analysis or information retrievals, in increasing the access of researchers to scientific data in such fields as biology or environmental sciences. The second most common role is co-authorship with other researchers that constitutes a total of 70 publications and 43.48%. Such a role emphasizes the integration of the studied professional into various interdisciplinary teams regarding the research in natural sciences. Examples of such contributions are the work of Rampal N. et al., published in 2024, and the work of Hipper T.J. et al., published in 2022, with 14 and 13 authors, respectively. It is possible to assume that librarians provided expertise in literature searches, data management, or metadata standards. This role aligns with the data-intensive nature of library science in modern natural sciences, which supports research in genomics and climate modeling, among others, through the robust incorporation of literature and compliance with publishing open mandates.

While this role of librarians is the rarest, main authorship in collaboration with other librarians comprises 4 publications and references 2.48% of the data. In these cases, among which there are Dodsworth E. et al., 2009, and Kamatchi S. Balasubramani R., 2012, librarians cooperate to enhance library functions, for example, the system of catalog or data storage, increasing the overall efficiency of scholars' work with resources and, as a result, productivity. Main authorship in collaboration with other researchers role has only 2 publications, comprising 1.24%. These instances are Diekmann F., 2009, and Miller M. Vielfaure N., 2022, and they denote librarians as initiators and participants of interdisciplinary endeavors that can be connected with open science ideology exposure or data literacy, affecting the scientific output more directly

The temporal trends depicted in Table 4 forward two obvious pointers. First, single authorship roles dominate pre-1950 25 publications, 1864-1946. It is due to the initial librarians' independent work in bibliographic organization in natural sciences – e.g. taxonomic bibliographies. Second, while single authorship 20 publications from 1950 to 2000 coexists with two emerging, collaboration on equal basis – with other researchers 5 publications, from 1988 to 1996, it means librarian's growing role in supporting interdisciplinary science. Post-2000, collaboration on equal basis 65 of 70 publications, 2000-2025 surpasses single authorship publication cases 40, as well as co-authorship with other librarians 4, and as main author in collaboration with other researchers 2. These changes align with digital transformation, data-intensive research, and open access trends in natural sciences.

Role frequencies in Figure 5 shed light on the contributions of librarians to natural sciences research H-index in main and citing attributes. The balance between single and collaborative authorship reveals the core of librarians' contributions to natural sciences research productivity: traditional vs embedded or collaborative role. The comparatively high prevalence of single authorship roles at 52.80% emphasize librarians' direct research productivity, most often in library science applications that facilitated scientific fields. The findings in co-authorship with other researchers at 43.48% reflect their specialty's embedded role in scientific workflows, strengthening research quality and breadth by contributing data and literature expertise. Both the low occurrences of co-authorship with other librarians and main authorship suggest specialized but impactful roles. Single authorship roles exports Information management tools, while co-authorship integrates librarians into scientific workflows and collaborations enhance infrastructures. The predominance of combination roles post-2000 reflects the interdisciplinary, data-intensive character of contemporary science. Notably, only single authorship roles predominate in the first half of the natural sciences research productivity domain, suggesting that librarians continued a historical role as independent scholars supporting chemical and biological fields.

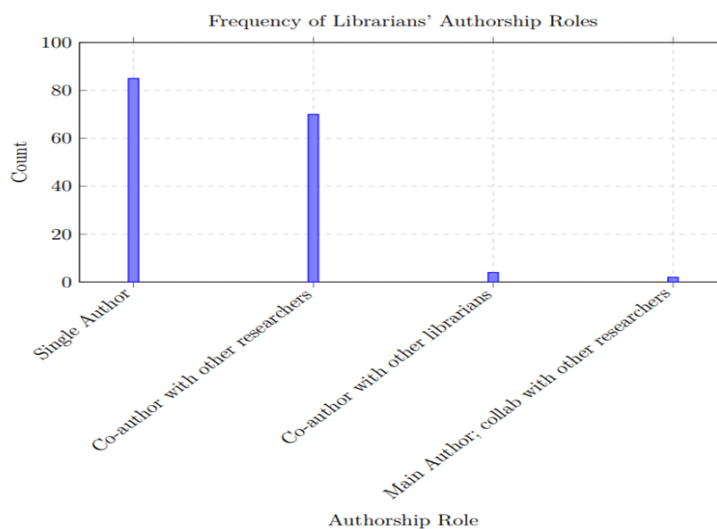


Figure 5. Frequency of librarians' authorship roles

CONCLUSION

This study demonstrates the evolving role of librarians as key participants in natural sciences research, which includes Earth and Planetary Sciences, Environmental Science, Agricultural and Biological Sciences, Chemistry, Biochemistry, Genetics and Molecular Biology, Physics and Astronomy, Energy, and Mathematics. As shown in the results, publication activity increased fast and strong after the year 2000, more than doubling by 2023. This trend is in line with open science's growth and data-intensive research growth (Chigwada, 2019; Aikat et al., 2017). Authorship in this field showcases the librarians' dual nature – single authorship when they research and create scholarship independently and co-authorship when working with other scholars in the interdisciplinary scientific teams (Borrego et al., 2018). The diversity of librarians' affiliations, from broad nouns such as “Librarian” to specialized ones like “Geospatial Data Librarian”, and the distribution of research among 15 countries, primarily led by the United States and Canada, testifies to librarians' contributions to a data-driven field on a global scale (Badenhorst & Raju, 2023). This study confirms the librarians' transformation from passive managers of information they give to active participants, fostering scientific milestones with their skills in data curation, literature analysis, and due diligence of open access standards.

As such, the findings of the study advocate for more recognition of librarians' scholarly efforts and the importance of institutional support to continue integrating them into natural sciences research. Challenges, such as the limitation of time and professional modeling, will also remain and will require serious professional development and curriculum reform measures to ensure effective digital scholarship and bibliometric practice among librarians (Rabasa & Abrizah, 2022; Shin, 2021). Thus, it is suggested for future research to explore librarians' motivations and barriers to a profound understanding that should be based on more comprehensive qualitative data analyses and these scholars' overall citation impact. Overall, this study fills the gap in the literature over librarians' authorship and collaboration on natural sciences that is a prerequisite to develop necessary interdisciplinary collaborations and foster necessary open science approaches to consider librarians vital participants in the global scientific challenge-solving process (Higgins et al., 2017; Tautkevičienė & Pranckute, 2024).

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ACADEMIC LIBRARIANS' TECHNOLOGY ACCEPTANCE OF WEB 2.0 AND WEB 3.0 TECHNOLOGIES: A CASE IN NORTHERN NEGROS

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ABSTRACT

This study investigates the acceptance of Web 2.0 and Web 3.0 technologies among academic librarians in Northern Negros, Philippines, addressing a critical research gap in technology integration within regional academic libraries. Employing an exploratory methodology, data were collected from 21 librarians across twelve institutions using a validated, adapted questionnaire. Findings reveal competent proficiency in Web 2.0 tools like Instant Messaging and Social Networking Sites, but beginner-level skills in Web 3.0 technologies such as Semantic Web and Artificial Intelligence. Librarians perceive technologies as easy to use and interactive, yet express moderate dissatisfaction and lukewarm attitudes. Significant differences in acceptance by years of experience highlight the need for tailored training. Recommendations include enhanced training programs, infrastructure upgrades, and broader stakeholder inclusion to foster technology adoption, supporting libraries' evolution into dynamic academic hubs.

Keywords: *Technology Acceptance, Web 2.0, Web 3.0, Academic Librarians*

INTRODUCTION

The rapid integration of technology into library services has fundamentally transformed the role of academic libraries, evolving them from traditional repositories of books into dynamic hubs offering extensive digital resources. This shift has enabled libraries to provide access to e-books, audiobooks, online journals, and databases, making information available to patrons anytime, anywhere with an internet connection (Yunita, Santoso & Sari, 2024). Technologies such as integrated library management systems (ILMS) and automation tools have streamlined operations like cataloging, circulation, and resource retrieval, allowing librarians to prioritize user engagement and enhance service efficiency (Iqbal et al., 2023; Riyar, 2024). Furthermore, libraries have embraced Web 2.0 tools, such as social networking sites, blogs, and wikis, to foster interactive communication and community outreach, while exploring Web 3.0 technologies like semantic web and artificial intelligence to deliver personalized and intelligent services (Hussain, 2018; Ahmed & Zia, 2019). These advancements have redefined libraries as community centers, offering technology-equipped spaces like computer labs and virtual programming, such as online book clubs, to reach broader audiences (Rhinesmith & Stanton, 2018).

Despite these advancements, academic libraries face significant challenges in adopting and implementing technology. The high cost of acquiring and maintaining technological infrastructure is a major barrier, particularly for underfunded institutions, requiring innovative approaches to balance budgets while staying current with technological trends (Ani, Esin, & Edem, 2005). Additionally, many librarians lack the necessary ICT skills to fully leverage these tools, as evidenced by studies highlighting deficiencies in managing advanced technologies like Web 3.0 applications (Nazim, Munshi & Ashar, 2023; Zhang, 2013). The digital divide further complicates equitable access, as not all patrons have the technology or connectivity needed to utilize digital services, necessitating strategies to ensure inclusivity (Adetunla et al., 2023). Privacy and security concerns also arise, as libraries must safeguard patron data while providing open access to digital resources, a challenge exacerbated by the complexity of technolo-

gy (Zimmer & Blacks, 2012). These issues underscore the need for targeted training and robust infrastructure to support technology integration.

This study addresses a critical research gap by examining the technology acceptance of academic librarians in Northern Negros, Philippines, a region where no prior studies have focused on this topic. By investigating the use, accessibility, and acceptance of Web 2.0 and Web 3.0 technologies, the research aims to establish baseline data on the tools employed across library departments, exploring their advantages, challenges, and opportunities. Drawing on the Technology Acceptance Model (TAM) by Venkatesh and Bala (2008) and Rogers' Diffusion of Innovations theory (Rogers, 1995), the study analyzes librarians' perceptions of usefulness, ease of use, interactivity, and satisfaction with these technologies. It seeks to understand how librarians' behaviors and attitudes influence technology adoption in their workplaces, providing insights to inform training programs and policy recommendations. By addressing these aspects, the study aims to enhance the integration of ICTs in academic libraries, ensuring they meet the evolving needs of patrons and support academic pursuits effectively.

Research Objectives

The rapid evolution of Web 2.0 and Web 3.0 technologies has transformed academic libraries into dynamic digital hubs, yet their adoption among librarians in Northern Negros, Philippines, remains underexplored, creating a critical research gap in understanding technology integration in regional academic libraries.

This study now aims to:

1. investigate the extent of use, accessibility, and acceptance of these technologies among academic librarians in Northern Negros, employing the Technology Acceptance Model (Venkatesh & Bala, 2008) and Rogers' Diffusion of Innovations theory (1995); and
2. examine proficiency levels, perceived usefulness, ease of use, interactivity, attitudes, and satisfaction.

By addressing how these factors influence technology adoption and identifying barriers such as skill gaps and infrastructural limitations, the research aims to provide baseline data to inform targeted training programs and policy recommendations, enhancing the role of academic libraries as vital academic resources in the digital age.

REVIEW OF RELATED LITERATURE

This review synthesizes key studies on the adoption and impact of Information and Communication Technologies (ICTs), specifically Web 2.0 and Web 3.0 technologies, in academic libraries, focusing on their implications for librarians in Northern Negros, Philippines. Organized into thematic sections, it draws from the references in the original thesis to highlight global and local perspectives, challenges, and opportunities, addressing the research gap in technology acceptance among academic librarians.

ICT and Library Operations

ICTs have revolutionized library operations by enhancing service delivery and resource accessibility. Essien et al. (2022) compared ICT use in the University of Ghana and Jiangsu University libraries, finding effective digital, reference, and circulation services but limited social media engagement. Challenges like poor internet connectivity and inadequate training hindered progress, particularly in Ghana. Similarly, Adebayo et al. (2018) emphasized ICT's role in Nigerian libraries for sustainable development, advocating for improved infrastructure to overcome adoption barriers. These studies underscore the need for robust ICT frameworks to support efficient library services, a critical consideration for Northern Negros libraries.

Librarians' ICT Competencies

Librarians' proficiency in ICT significantly influences technology adoption. Oyedokun et al. (2018) found high ICT competency among library staff in Nigerian universities, acquired through diverse sources like workshops and online tutorials. However, Nazim, Munshi & Ashar (2023) reported that librarians at Aligarh Muslim University had basic ICT skills but lacked advanced capabilities due to insufficient training and infrastructure. Sani and Musa (2019) further noted that professional ICT skills

positively impacted job performance in Nigerian universities, highlighting the need for targeted training programs to enhance librarians' technical expertise, relevant for Northern Negros' academic librarians.

Challenges in ICT Adoption

Adopting ICT in libraries faces multiple obstacles. Shastri and Chudasma (2022) highlighted challenges during the COVID-19 pandemic in Gujarat, India, including limited ICT skills and infrastructure, which restricted service delivery. Adetunla et al. (2023) compared automation in Nigerian and UK university libraries, noting Nigeria's partial automation and issues like unreliable power and inadequate staff training. These findings align with Ani, Esin and Edem (2005), who identified economic, infrastructural, and technical expertise barriers in developing countries, suggesting that Northern Negros libraries may face similar hurdles in implementing ICT solutions.

Web 2.0 Technologies in Libraries

Web 2.0 technologies, such as social media, blogs, and wikis, have transformed library outreach and engagement. Williams (2020) found that ease of use drove Web 2.0 adoption in academic libraries in Flanders and South Africa, with financial resources and management support as key enablers. Hussain (2018) noted young librarians in Islamabad preferred social networking sites for marketing but faced privacy and time constraints. Rahoo et al. (2018) confirmed the effectiveness of tools like Facebook and Twitter in promoting library services in Pakistan, indicating their potential for enhancing patron interaction in Northern Negros libraries.

Applications of Web 2.0 Tools

Specific Web 2.0 applications vary across regions. Patel and Bhatt (2019) reported low adoption (9.77%) of Web 2.0 tools in Indian state university libraries, with OPAC 2.0 and social networking services being most prevalent. Balaji et al. (2019) found widespread use of Facebook, RSS, and YouTube in Asian academic libraries, reflecting a moderate diffusion rate. Okonedo, Azubuike and Adeyoyin (2013) highlighted technical limitations like unstable internet and restrictive policies in Nigerian libraries, suggesting that Northern Negros libraries could leverage similar tools with proper infrastructure and policy support.

Web 3.0 Technologies and Libraries

Web 3.0 technologies, including semantic web and AI, promise intelligent and personalized library services. Ahmed and Zia (2019) outlined their potential in Pakistan, such as virtual directories and advanced search capabilities. Singha (2022) described Web 3.0 as a read-write medium addressing security concerns, while Balaji (2018) emphasized benefits like Web OPAC and virtual reference services. Sivarajah et al. (2020) noted that semantic web technologies enhance metadata connectivity, improving resource discovery, a potential advantage for Northern Negros libraries seeking to modernize services.

Challenges of Web 3.0 Adoption

Adopting Web 3.0 technologies presents unique challenges. Saleem, Butt and Warraich (2018), Warraich, Rorissa and Rasool (2021) and Warraich and Rorissa (2022) identified the need for technical expertise and concerns over data privacy as significant barriers. Bygstad, Ghinea & Klæboe (2009) highlighted improved search accuracy through semantic web technologies but stressed the complexity of implementation. These challenges suggest that Northern Negros libraries must prioritize training and security measures to effectively integrate Web 3.0 tools.

Technology Acceptance Models

The Technology Acceptance Model (TAM) provides a framework for understanding librarians' technology adoption. Yoon (2016) applied TAM to mobile library applications, finding perceived usefulness and ease of use as key drivers of user acceptance. Rafique et al. (2020) extended TAM in Pakistan, incorporating habit and system quality, which indirectly influenced technology use. Izuagbe et al. (2019) linked librarians' ICT skills to technology acceptance, emphasizing ease of use. These studies inform the analysis of Northern Negros librarians' attitudes toward Web 2.0 and Web 3.0 technologies.

Local Context in the Philippines

Philippine studies provide context. Ferro et al. (2025) investigated how librarians implement digital literacy programs through ICT. Almonte et al. (2021) assessed IT infrastructure in Laguna's local universities, finding most at an "Initial" maturity level, indicating a need for improved IT management. These findings suggest that Northern Negros libraries could benefit from collaborative efforts and structured technology management frameworks to enhance ICT adoption.

Implications for Northern Negros

The reviewed literature highlights the transformative potential of ICTs in libraries but also underscores persistent challenges like inadequate skills, infrastructure, and funding. Web 2.0 tools offer accessible solutions for engagement, while Web 3.0 technologies promise advanced services, yet both require tailored training and support. For Northern Negros, these insights emphasize the importance of addressing local barriers through professional development and infrastructure investment, aligning with global trends to enhance academic library services.

METHODOLOGY

This study employed an exploratory methodology to investigate the use, accessibility, and acceptance of Information and Communication Technologies (ICTs), specifically Web 2.0 and Web 3.0 technologies, among academic librarians in Northern Negros, Philippines. The research design followed an exploratory flow, aiming to identify the current technologies utilized in libraries and assess librarians' perceptions and proficiency levels. A tailored questionnaire, adapted from Yoon's (2016) study on the acceptance of mobile library applications in academic libraries, served as the primary data collection tool. The questionnaire underwent rigorous validation by two librarians and an IT expert, the dean of a state university's IT department, to ensure content validity. Feedback from these reviewers led to revisions, and a reliability test yielded a Cronbach's alpha of 0.89, confirming the instrument's suitability for data gathering.

The questionnaire was structured in two parts. Part I collected demographic information, including age, years of experience, and the library technologies used, with respondents rating their proficiency on Benner's (1982) scale (novice, advanced beginner, competent, proficient, expert). Part II consisted of statements rated on a 4-point Likert scale (1 = strongly disagree, 4 = strongly agree) to gauge librarians' perceptions of usefulness, ease of use, interactivity, attitude, satisfaction, and intention to use ICTs. To ensure ethical data collection, prior permission was obtained from library heads or institutional authorities based on each institution's guidelines. Respondents were required to have prior knowledge and experience with library technologies, and an elimination procedure was implemented to exclude invalid questionnaires, with non-mandatory questions aligning with research ethics.

The study targeted librarians from twelve academic libraries in Northern Negros, comprising six private and six state colleges and universities (SUCs). These included Central Philippines State University (CPSU) and Colegio de Sta. Rita in San Carlos City, Northern Negros State College of Science and Technology (NONESCOST) and Mount Carmel College in Escalante City, NONESCOST-Sagay Campus, Philippine Normal University-Visayas, North Negros College, Cedar College, Colegio de Sta. Ana, CPSU in Victorias City, Silay Institute, Carlos Hilado Memorial State College, and the Technological University of the Philippines in Talisay City. A total of 21 librarians participated, with their distribution across cities presented in Table 1. The research adhered to academic rigor, particularly in data collection, ensuring informed consent and voluntary participation.

Table 1. Distribution of Respondents

City	Number of Librarian-Respondents
San Carlos City	3
Escalante City	2
Sagay City	4
Cadiz City	4
Victorias City	2
Silay City	1
Talisay City	5
Total Number of Respondents	21

Data analysis utilized descriptive statistics to interpret and present findings in tables, providing insights into librarians' proficiency and perceptions. A t-test was employed to examine differences in technology acceptance based on age and years of experience, testing the hypothesis that no significant differences exist across these variables. The exploratory approach, combined with statistical analysis, enabled a comprehensive understanding of ICT adoption in Northern Negros' academic libraries, laying the groundwork for proposed training plans to enhance technology acceptance.

FINDINGS

The findings address the study's objectives, focusing on librarians' proficiency, perceptions of ease of use, interactivity, usefulness, attitude, satisfaction, and differences in technology acceptance by age and experience. Data are presented in tables, analyzed using descriptive statistics, and interpreted with reference to prior studies, including Akwang (2021), Arif and Mahmood (2012), and Yoon (2016), to provide a robust contextual analysis. The interpretations are expanded to offer deeper insights into the implications for library services, while the discussion is extended to five paragraphs to synthesize findings comprehensively.

Librarians' Proficiency in Web 2.0 Technologies

Table 2. Librarians and their Proficiency in Web 2.0 Library Technologies

Technology	WM	Interpretation
Blogs	2.23	Advanced Beginner
Wikis	2.29	Advanced Beginner
Social Networking Sites	3.19	Competent
RSS	2.19	Advanced Beginner
Tagging	2.95	Advanced Beginner
Instant Messaging	3.90	Competent
Podcasts	2.00	Advanced Beginner
Average	2.68	Advanced Beginner

Librarians exhibited notable proficiency in Instant Messaging (WM = 3.90) and Social Networking Sites (WM = 3.19), both rated "Competent," indicating a strong ability to leverage these tools for real-time communication and community engagement. This proficiency aligns with Semode, Ejitagha and Baro (2017), who found Nigerian librarians frequently used platforms like WhatsApp and Facebook for patron interaction, suggesting that these tools are intuitive and integral to modern library outreach. Conversely, Blogs, Wikis, RSS, Tagging, and Podcasts scored between 2.00 and 2.95, classified as "Advanced Beginner," reflecting basic familiarity but limited expertise. Arif and Mahmood (2012) reported similar trends among Pakistani librarians, noting that while blogs and wikis were popular, their effective use required further training. The overall average WM of 2.68 suggests that librarians in Northern Negros are in the early stages of mastering Web 2.0 technologies, potentially due to limited exposure or training opportunities. This gap highlights the need for professional development programs to enhance skills, particularly in less familiar tools like Podcasts and RSS, to fully harness Web 2.0's potential for interactive and dynamic library services.

Librarians' Proficiency in Web 3.0 Technologies

Table 3. Librarians and their Proficiency in Web 3.0 Library Technologies

Technology	WM	Interpretation
Semantic Web	1.67	Beginner
Virtual 3D Web	2.19	Advanced Beginner
WebOPAC	2.86	Advanced Beginner
Artificial Intelligence	1.67	Beginner
Geotagging	2.86	Advanced Beginner
Virtual Reference Service	2.57	Advanced Beginner
Average	2.30	Advanced Beginner

Proficiency in Web 3.0 technologies was generally low, with Semantic Web and Artificial Intelligence (AI) both at WM = 1.67 (“Beginner”), indicating minimal familiarity. Hervieux and Wheatley (2021) noted that AI’s complexity and novelty pose significant barriers to adoption in libraries, a challenge likely amplified in resource-constrained settings like Northern Negros. WebOPAC and Geotagging (WM = 2.86) and Virtual Reference Service (WM = 2.57) were rated “Advanced Beginner,” suggesting moderate engagement, possibly due to their direct applicability in cataloging and user services, as supported by Rahman, Uddin and Akhter (2004) and Sinhababu and Kumar (2021). The average WM of 2.30 reflects an early stage of Web 3.0 adoption, consistent with Ranjan’s (2022) observation of global hesitancy in embracing these advanced technologies. This limited proficiency may stem from inadequate training, insufficient infrastructure, or lack of exposure to Web 3.0 applications, underscoring the urgent need for specialized workshops and institutional support to build capacity. Enhancing skills in these areas could enable librarians to implement intelligent systems, improving resource discovery and personalized services.

Perceived Ease of Use

Table 4. Librarians and the Perceived Ease of Use Web 2.0 and 3.0 Library Technologies

Statement	WM	Interpretation
Using library technologies does not require much mental effort	2.94	Somewhat Disagree
I find library technologies easy to use	3.18	Somewhat Agree
I find it easy to access and use library technologies when and where I want	3.67	Somewhat Agree
Average	3.26	Somewhat Agree

Librarians generally perceived technologies as accessible (WM = 3.67) and easy to use (WM = 3.18), indicating confidence in navigating these tools across various contexts. This aligns with Akwang’s (2021) finding that over 90% of librarians viewed Web 2.0 tools as user-friendly, suggesting that intuitive interfaces facilitate adoption. However, the perception that technologies require moderate mental effort (WM = 2.94, “Somewhat Disagree”) points to cognitive challenges, possibly due to complex functionalities or inconsistent system performance. Yoon’s (2016) Technology Acceptance Model (TAM) emphasizes ease of use as a critical driver of adoption, suggesting that streamlining interfaces and providing hands-on training could reduce perceived effort. The overall WM of 3.26 (“Somewhat Agree”) reflects cautious optimism, but addressing mental effort barriers is essential to enhance user experience and encourage broader technology integration in library workflows.

Perceived Interactivity

Table 5. Librarians and the Perceived Interactivity of Web 2.0 and 3.0 Library Technologies

Statement	WM	Interpretation
Access and response speed of library technologies is fast	2.48	Somewhat Disagree
I think library technologies' content is useful to me	3.19	Somewhat Agree
It is convenient to use library technologies at any time	3.33	Somewhat Agree
It is convenient to use library technologies everywhere	3.10	Somewhat Agree
Average	3.025	Somewhat Agree

Librarians valued the content usefulness (WM = 3.19) and temporal (WM = 3.33) and spatial (WM = 3.10) convenience of technologies, indicating that these tools enhance service delivery flexibility. Hsu et al. (2015) highlighted similar interactivity benefits in social media, noting their role in fostering engagement. However, dissatisfaction with access and response speed (WM = 2.48, “Somewhat Disagree”) suggests performance issues, such as slow system responses or connectivity problems, which may frustrate users. This finding echoes Akwang’s (2021) observation of infrastructure-related barriers in technology adoption. The average WM of 3.025 (“Somewhat Agree”) indicates moderate interactivity, but improving system performance, such as upgrading hardware or optimizing software, could enhance user engagement and align with TAM’s emphasis on system quality (Yoon, 2016).

Perceived Usefulness

Table 6. Librarians and the Perceived Usefulness of Web 2.0 and 3.0 Library Technologies

Statement	WM	Interpretation
I think the library technologies are useful to me	3.19	Somewhat Agree
The library technologies enable me to use library services more quickly	2.48	Somewhat Disagree
I find that library technologies save my time	3.19	Somewhat Agree
Average	2.95	Somewhat Disagree

Librarians recognized the general usefulness (WM = 3.19) and time-saving potential (WM = 3.19) of technologies, consistent with Akwang’s (2021) findings on Web 2.0 tools’ utility in enhancing library efficiency. However, disagreement on quicker service access (WM = 2.48, “Somewhat Disagree”) suggests that technologies may not streamline tasks as expected, possibly due to system inefficiencies or complex workflows. Yoon’s (2016) TAM posits that perceived usefulness drives adoption, indicating that addressing speed-related issues could bolster librarians’ confidence in these tools. The average WM of 2.95 (“Somewhat Disagree”) reflects mixed perceptions, highlighting the need for system optimizations and user training to maximize perceived benefits and align with librarians’ operational needs.

Perceived Attitude

Table 7. Librarians and the Perceived Attitude on Web 2.0 and 3.0 Library Technologies

Statement	WM	Interpretation
It would be a wonderful idea to use technologies	2.62	Somewhat Disagree
I would have positive feelings toward library technologies in general	2.62	Somewhat Disagree
It is easier and better for me to use library technologies, as compared to a library visit	2.19	Somewhat Disagree
Average	2.48	Somewhat Disagree

Librarians displayed a reserved attitude toward technology use, with an average WM of 2.48 (“Somewhat Disagree”). They expressed lukewarm enthusiasm for widespread adoption (WM = 2.62) and preferred traditional library visits over technology-mediated services (WM = 2.19). Okite-Amugboro (2017) reported similar hesitancy among librarians, attributing it to unfamiliarity and inadequate training. This conservative stance may reflect concerns about technology reliability or a preference for established methods, as noted by Yoon (2016), where attitude influences adoption intent. Addressing these barriers through hands-on training and demonstrations of technology benefits could shift attitudes, fostering greater acceptance and aligning with TAM’s attitudinal constructs.

Satisfaction

Table 8. Librarians and their Satisfaction on Web 2.0 and 3.0 Library Technologies

Statement	WM	Interpretation
I am overall satisfied with the library technologies	2.62	Somewhat Disagree
The library technologies that I am now using meet my expectations	2.48	Somewhat Disagree
The library technologies are a beneficial tool in improving life	2.62	Somewhat Disagree
I intend to use library technologies as much as possible in the future	2.48	Somewhat Disagree
I would recommend the use of library technologies to other librarians	2.62	Somewhat Disagree
Average	2.56	Somewhat Disagree

Librarians reported moderate dissatisfaction with technologies (average WM = 2.56), noting that tools fell short of expectations (WM = 2.48) and were not seen as significantly beneficial (WM = 2.62). Low intent to increase use or recommend technologies (WM = 2.48–2.62) contrasts with Akwang’s (2021) findings of high Web 2.0 satisfaction, suggesting that system performance issues, such as slow response times or limited functionality, undermine user experience in Northern Negros. Yoon’s (2016) TAM highlights satisfaction as a predictor of continued use, indicating that enhancing system reliability and aligning tools with librarians’ needs could improve satisfaction. These findings underscore the importance of addressing technical and usability barriers to foster positive engagement.

Technology Acceptance Summary

Table 9. Technology Acceptance Summary of Averages

Dimensions	Average Weighted Mean	Relevant Scale
Perceived Ease of Use	3.26	Somewhat Agree
Perceived Interactivity	3.025	Somewhat Agree
Perceived Usefulness	2.95	Somewhat Disagree
Perceived Attitude	2.48	Somewhat Disagree
Satisfaction	2.56	Somewhat Disagree
Average	2.855	Somewhat Disagree

Librarians perceived technologies as relatively easy to use (WM = 3.26) and interactive (WM = 3.025), aligning with Akwang’s (2021) findings on Web 2.0 tools’ accessibility. However, lower scores for usefulness (WM = 2.95), attitude (WM = 2.48), and satisfaction (WM = 2.56) indicate barriers to full acceptance, with an overall WM of 2.855 (“Somewhat Disagree”). Yoon’s (2016) TAM suggests that addressing these weaker dimensions through improved system performance and training could enhance adoption. The mixed perceptions highlight the need for targeted interventions to bridge gaps in functionality and user confidence, ensuring technologies meet librarians’ operational and professional expectations.

Differences by Years of Experience

Table 10. Differences Between Years of Experience

Dimensions	t-statistics	p-value	Decision
Perceived Ease of Use	0.753	0.00367	Reject
Perceived Interactivity	0.512	<0.001	Reject
Perceived Usefulness	0.593	0.00214	Reject
Perceived Attitude	0.476	<0.0001	Reject
Satisfaction	0.831	0.00934	Reject

All dimensions exhibited significant differences by years of experience ($p < 0.05$), indicating that professional tenure shapes perceptions of ease, interactivity, usefulness, attitude, and satisfaction. Izuagbe et al. (2019) linked ICT skills to acceptance, suggesting that more experienced librarians may have higher expectations or greater familiarity, influencing their evaluations. Less experienced librarians might face challenges adapting to complex tools, necessitating differentiated training approaches. These findings highlight the importance of customizing interventions based on experience levels to enhance technology acceptance across the board.

Limitations

This study provides valuable insights into the technology acceptance of Web 2.0 and Web 3.0 technologies among academic librarians in Northern Negros, Philippines, but it is subject to several limitations. Firstly, the sample size was limited to 21 librarians across twelve academic institutions, which may not fully represent the diverse contexts of all academic libraries in the region. This small sample size, as noted by Yoon (2016) in similar technology acceptance studies, may limit the generalizability of findings to broader populations. Secondly, the study relied on self-reported data through a questionnaire, which is susceptible to response bias, where participants may overstate or understate their proficiency or perceptions, as highlighted by Akwang (2021). Thirdly, the research focused solely on librarians’ perspectives, excluding other stakeholders such as library patrons or administrators, whose views could pro-

vide a more comprehensive understanding of technology integration, a gap also identified by Arif and Mahmood (2012). Lastly, the study did not explore external factors such as institutional funding or infrastructure quality in depth, which Hervieux and Wheatley (2021) suggest significantly influence technology adoption, potentially limiting the analysis of contextual barriers.

CONCLUSION AND RECOMMENDATIONS

The study on the technology acceptance of Web 2.0 and Web 3.0 technologies among academic librarians in Northern Negros, Philippines, provides critical insights into the current state of ICT integration in academic libraries. The findings reveal that librarians exhibit competent proficiency in Web 2.0 tools like Instant Messaging and Social Networking Sites, aligning with Semode, Ejitagha and Baro (2017), who noted their widespread use for patron engagement. However, proficiency in Web 3.0 technologies, such as Semantic Web and Artificial Intelligence, remains at a beginner level, echoing Hervieux and Wheatley's (2021) observations on the complexity of these tools. While librarians perceive technologies as relatively easy to use and interactive, as supported by Akwang (2021), their lukewarm attitudes, moderate dissatisfaction, and concerns over system performance, as highlighted by Hsu et al. (2015), indicate significant barriers to full adoption. These results underscore the need for targeted interventions to enhance skills and infrastructure, ensuring libraries can leverage digital tools to meet modern academic demands.

Significant differences in technology acceptance by years of experience, as noted by Izuagbe et al. (2019), suggest that professional tenure shapes perceptions, with more experienced librarians potentially having higher expectations or familiarity. The limited age-based differences, except for specific technologies like RSS and WebOPAC, indicate that experience, rather than age, is a stronger determinant of acceptance, warranting tailored training approaches. The study's alignment with Yoon's (2016) Technology Acceptance Model highlights the importance of addressing perceived usefulness, attitude, and satisfaction to foster sustained technology use. Despite challenges, the potential of Web 2.0 and Web 3.0 technologies to transform library services, as seen in Arif and Mahmood's (2012) findings on interactive tools, offers a pathway for Northern Negros libraries to enhance resource accessibility and user engagement through strategic investments.

This research fills a critical gap by establishing baseline data on technology acceptance in Northern Negros, providing a foundation for future studies and policy recommendations. The identified skill gaps, infrastructural challenges, and attitudinal barriers, consistent with Okite-Amughoro's (2017) call for training, emphasize the need for comprehensive professional development and system upgrades. Collaborative efforts, such as those demonstrated by Garner (2025), could secure resources to support these initiatives. By addressing these challenges, academic libraries in Northern Negros can evolve into dynamic, technology-driven hubs, aligning with global trends and enhancing their role as vital academic resources, as envisioned by Yoon (2016).

To address the study's limitations and enhance technology integration in Northern Negros' academic libraries, several recommendations are proposed, grounded in the study's findings and supported by referenced literature. Future research should expand the sample size to include a larger and more diverse group of librarians, potentially incorporating librarians from other regions in the Philippines to improve generalizability, as recommended by Yoon (2016) for robust technology acceptance studies. Including multiple data collection methods, such as interviews or focus groups, could mitigate response bias and provide richer qualitative insights, a strategy endorsed by Akwang (2021) for capturing nuanced perceptions. Secondly, incorporating perspectives from library patrons and administrators, as suggested by Arif and Mahmood (2012), would offer a holistic view of technology's impact, enabling the design of user-centric systems that align with diverse needs.

Institutions should invest in comprehensive training programs tailored to librarians' experience levels, focusing on both Web 2.0 and Web 3.0 technologies. Izuagbe et al. (2019) emphasize that targeted training enhances ICT skills and acceptance, particularly for complex tools like Semantic Web and AI, where proficiency was notably low in this study. These programs should include hands-on workshops and ongoing support to build confidence and address attitudinal barriers, as noted by Okite-Amughoro (2017). Fourthly, academic libraries should prioritize infrastructure upgrades, such as reliable internet and updated hardware, to improve system performance and interactivity, addressing concerns raised by

Hsu et al. (2015) about slow response times. Collaborative partnerships with government or academic bodies, as demonstrated by Garner (2025), could secure funding for these improvements.

Future studies should investigate external factors like institutional budgets, policy support, and technological infrastructure in greater detail, as Hervieux and Wheatley (2021) argue these are critical to successful technology adoption. Developing a framework to assess these contextual influences could guide policy recommendations, ensuring sustainable integration of ICTs. Additionally, longitudinal studies tracking changes in technology acceptance over time, as suggested by Semode, Ejitaga and Baro (2017), would provide insights into the long-term impact of training and infrastructure investments. By implementing these recommendations, Northern Negros' academic libraries can overcome current limitations, enhance technology acceptance, and deliver efficient, modern library services that meet the evolving needs of their communities.

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ENRICHING READING COMPREHENSION THROUGH COOPERATIVE LEARNING: EVIDENCE FROM SIXTH GRADE PUPILS

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ABSTRACT

The role of cooperative learning is essential in primary education. This study assesses the effectiveness of the Cooperative Learning Approach as contrasted with the Conventional Approach in developing the reading comprehension skills of Grade 6 students at Bayawa Elementary School, Division of Sultan Kudarat. A quasi-experimental research design with pre-test/post-test control groups was used to collect data from 31 students through the Philippine Informal Reading Inventory (PHILIRI) evaluation. A probability sampling method was applied, and registered data was analyzed through mean, standard deviation, and dependent and independent t-tests. Results indicated that both groups started at the "Did Not Meet Expectations" level. However, following the intervention, the Cooperative Learning Approach group showed marked improvement, achieving "Very Satisfactory" status while the Conventional Approach group showed little to no change. The experimental group also had higher mean gain scores, confirming the effectiveness of cooperative learning structures in improving reading comprehension. The study concludes that the use of cooperative learning techniques in primary education is proven to foster active participation and significantly enhance comprehension skills. The study also suggests the use of organized peer interactions, group discussions, as well as structured dialogues and debates.

Keywords: Reading Comprehension, Cooperative Learning, Conventional Learning, Grade 6 Pupils

INTRODUCTION

Literacy is a fundamental pillar of academic success that serves as a gateway for learners to acquire knowledge across disciplines. Reading comprehension, in particular, has a critical role to play in shaping students' cognitive development and academic achievement. Generally, research has indicated that students who struggle with reading comprehension often encounter difficulties in all subject areas that ultimately limit their overall academic progress and lifelong learning opportunities (Pearson & Cervetti, 2015). Despite global efforts to bolster literacy, many students continue to perform below expected proficiency levels, mostly in developing countries where access to quality reading instruction remains an issue (Cola et al., 2021).

The literacy crisis in the Philippines is a pressing concern, as shown by persistent challenges in reading proficiency, comprehension, and overall educational attainment among students. In fact, the 2018 Programme for International Student Assessment (PISA) revealed that 80% of 15-year old Filipino students failed to meet the minimum reading competency standard, placing the country among the lowest ranked nations in literacy (Bernardo et al., 2023). Several factors contribute to this alarming situation, including inadequate reading instruction, lack of motivation, and socioeconomic disparities (Bales, 2018). In response, the Department of Education (DepEd) has implemented numerous literacy programs to enhance reading comprehension among Filipino pupils, yet reading difficulties persist, highlighting a gap in effective instructional strategies.

At the regional and local levels, the literacy crisis remains pronounced. Recent assessments from

educational districts indicate that a significant percentage of elementary pupils struggle with both oral reading and reading comprehension. The Reading Record (2023) reported that 42% of elementary pupils fall under frustration level readers, while 44% demonstrate poor reading comprehension skills. More alarmingly, in Bayawa Elementary School, nearly half of the Grade 6 pupils are classified as either frustration level readers or nonreaders, underscoring the urgent need for targeted intervention. Addressing this literacy challenge requires innovative instructional approaches that actively engage learners and foster comprehension development.

One promising instructional strategy is Cooperative Learning (CL), a structured approach that facilitates active student engagement, peer-to-peer interaction, and collaborative problem-solving (Goor & Schwenn, 1993, as cited by Larson, 2022). Rooted in Vygotsky's Constructivism Theory and Bandura's Social Learning Theory, cooperative learning emphasizes the role of social interaction in knowledge construction. Vygotsky (1978) posited that learning is a socially mediated process, wherein individuals construct knowledge through interaction with more knowledgeable peers and instructors (Wertsch & Sohmer, 2019). Similarly, Bandura's Social Learning Theory suggests that students acquire knowledge and skills through observation, imitation, and social collaboration, reinforcing the interconnectedness of cooperative learning and reading comprehension development (Nejadansari et al., 2019).

Empirical studies have demonstrated that cooperative learning enhances students' reading comprehension by promoting active engagement and promoting critical thinking (Silva et al., 2021). However, despite its effectiveness, inadequate studies have tested the application of cooperative learning strategies to improve reading comprehension among elementary pupils in the Philippine context, particularly at the local level. Most existing studies center on general literacy interventions without examining how cooperative learning can specifically change reading comprehension in underperforming schools like Bayawa Elementary School in the Division of Sultan Kudarat. This research gap necessitates an in-depth inquiry into the effectiveness of cooperative learning in responding to the reading comprehension difficulties in local elementary schools.

Thus, this study intends to bridge this research gap by assessing the influence of cooperative learning strategies on the reading comprehension of Grade 6 pupils at Bayawa Elementary School. By comparing cooperative learning with conventional teaching methods, this study seeks to determine whether collaborative instructional approaches yield significant improvements in pupils' reading skills. The findings of this study will contribute to the growing body of literature on cooperative learning while providing empirical evidence to support its integration into reading instruction at the local level. Furthermore, this study aligns with DepEd's ongoing initiatives to enhance literacy instruction by offering insights into effective, evidence-based teaching strategies that can be adopted in elementary schools across the country.

METHODOLOGY

This study employed a quasi-experimental pretest-posttest control group design to evaluate the effectiveness of the Cooperative Learning Approach in enhancing Grade 6 pupils' reading comprehension. The PHILIRI test served as the primary instrument for measuring pretest and -posttest outcomes. This design facilitated a comparative analysis of treatment effects, bolstering the study's validity (Maciejewski, 2016). While the independent variable was manipulated, participants were not randomly assigned to conditions (Campbell & Stanley, 2015).

Setting of the Study

The study was conducted at Bayawa Elementary School, located in South President Quirino District, Division of Sultan Kudarat. The school is accessible by various modes of transportation and serves an agricultural community. The researcher, who works at the school, identified the issue of poor reading comprehension among Grade 6 pupils based on the latest PHILIRI data. The experimental and control groups were housed in separate classrooms approximately 20 meters apart.

Respondents and Sampling Technique

The study involved Grade 6 pupils from Bayawa Elementary School, specifically from sections with the highest number of nonreaders and struggling readers. The experimental group (n=16) received in-

struction through cooperative learning, while the control group (n=15) followed the conventional method. A purposive sampling technique was employed, considering the heterogeneous sectioning in DepEd schools. Selection was based on pupils scoring below 14 in the Group Screening Test (GST). Studies suggest that experimental methodologies require at least 16 participants (Cohen et al., 2017), with a minimum of 15 participants in each group for comparison (Gall et al., 2016).

Data Gathering Tool

A standardized reading comprehension test from the Philippine Informal Reading Inventory (PHILIRI), aligned with DepEd Order No. 14, s. 2018, was used to assess pupils' reading skills at frustration, instructional, and independent levels. The test consisted of 24 items for both pretest and posttest. As a standardized tool, validity and reliability tests were not necessary.

Data Collection Procedure

Approval was secured from the Schools Division Superintendent of Sultan Kudarat. Subsequently, consent was obtained from the District Supervisor and School Principal. Control and experimental groups were identified, and the experimental group received an orientation on reading activities without disclosure of the research purpose to minimize bias.

The experimental group underwent cooperative learning instruction, while the control group followed a conventional approach. Both groups covered the same reading topics over a two-month period, with the researcher instructing both sections to ensure consistency. The pretest established baseline reading comprehension levels, and posttest scores assessed the treatment effect. The mean gain scores were analyzed following PHILIRI (2018) criteria to determine the impact of the intervention (Garg, 2016).

Data Analysis

The collected data were treated according to the research questions. Mean and standard deviation were used to describe the pretest and posttest results. A ttest for dependent means was applied to compare the pretest and posttest results within each group, while a ttest for independent means was used to compare the mean gains of the control and experimental groups.

Ethical Considerations

This study adhered to ethical standards to protect participants' rights and welfare. Informed consent was obtained from all participants, ensuring voluntary participation and comprehension of the study's objectives (Creswell, 2018). Anonymity and confidentiality were maintained by withholding personal identifiers in data collection and reporting (Novak, 2014). Minimal risks were associated with participation, and necessary precautions were taken to prevent harm. Participants retained the right to withdraw at any stage without consequences. Any potential conflicts of interest were disclosed, and safeguards were implemented to ensure fairness and impartiality. Additionally, the researcher conducted a vulnerability assessment to protect participants from potential coercion or undue pressure.

RESULTS AND DISCUSSION

This section systematically presents, analyzes, and interprets the collected data. The results as summarized in tables, are critically examined to report the objectives of the study and provide meaningful insights into the research problem.

Pretest and Posttest Scores of the Pupils

Basically, the pretest and posttest scores function as major indicators of student progress and the effectiveness of the instructional strategies utilized. Table 1 shows the pretest scores of pupils exposed to the Cooperative Learning Approach (experimental group) and the Conventional Learning Approach (control group).

Table 1. Pretest Scores of the Two (2) Groups of Pupils Exposed to Different Learning Approaches

Group	N	Mean Score	SD	Verbal Description
Cooperative Learning Approach	16	70.93	1.08	Did Not Meet Expectations
Conventional Learning Approach	15	70.69	1.07	Did Not Meet Expectations

The pretest scores of both the cooperative learning approach group ($M = 70.93$, $SD = 1.08$) and the conventional learning approach group ($M = 70.69$, $SD = 1.07$) indicate that students in both groups initially fell under the "Did Not Meet Expectations" category. These findings suggest that prior to the implementation of different instructional methods, students exhibited comparable baseline levels of academic performance. The similarity in mean scores highlights that both groups had equivalent starting points, ensuring that any subsequent differences in posttest results can be attributed to the learning approach rather than preexisting disparities.

This trend supports the past studies suggesting that students normally exhibit low mastery levels in the pretest stage, especially in subjects requiring comprehension and higher-order thinking skills (Binoya, 2021). Also, a study by Caraig and Quimbo (2022) noted that pretest scores in science-related subjects tend to reflect poor or near-mastery levels, reinforcing the notion that students require structured interventions to enhance learning outcomes. Moreover, Labordo Jr. (2024) pointed out that differentiated instructional strategies play a crucial role in improving students' comprehension skills, as shown by significant differences between pretest and posttest scores in experimental studies.

The results is also consistent with a study citing that conventional teaching methods often fail to offer sufficient engagement and active participation, which can limit initial comprehension and retention (Ocampo, 2018). As stressed by Luciano et al. (2020), early-stage assessments ordinarily disclose gaps in fundamental skills, demanding targeted interventions. Thus, the pretest results of this study reaffirm the need for effective instructional strategies to enhance students' learning experiences and overall academic performance.

Table 2 presents the posttest scores of pupils in both learning groups. Posttest scores in an experiment is essential criterion of the effectiveness of an intervention, measuring the extent of learning or skill acquisition after exposure to a specific instructional methodology.

Table 2. Posttest Scores of the Two (2) Groups of Pupils Exposed to Different Learning Approaches

Group	N	Mean Score	SD	Verbal Description
Cooperative Learning Approach	16	88.47	1.98	Very Satisfactory
Conventional Learning Approach	15	69.75	1.22	Did Not Meet Expectations

The posttest results show that pupils exposed to the Cooperative Learning Approach demonstrated a "Very Satisfactory" level of performance, as indicated in their mean score of 88.47 ($SD = 1.98$). This implies that learning in a collaborative environment may have facilitated deeper engagement with the material that potentially enhanced comprehension and retention. The structured interaction among peers, a key characteristic of cooperative learning, is consistent with findings from Sanchez et al. (2021), who cited how interactive teaching approaches optimize reading comprehension performance. Likewise, Labordo Jr. (2024) hinted that differentiated instruction improves reading comprehension, and may be important to the cooperative learning context where learners benefit from varied perspectives and shared problem-solving.

In contrast, pupils who were taught through the Conventional Learning Approach obtained a mean score of 69.75 ($SD = 1.22$), and is merely classified as "Did Not Meet Expectations" category. This result means that traditional, teacher-centered instruction may not have provided the same level of engagement or cognitive stimulation required for optimal comprehension and learning outcomes. Studies of Binoya (2021) and Bonganciso (2016) have mentioned how reading comprehension can be significantly impacted by contextualized and interactive strategies, which may have been less underscored in conventional instruction. Moreover, findings by Fulgueras and Bautista (2020) on flipped classroom methodologies indicate that approaches incorporating active student participation tend to produce enhanced comprehension outcomes, supporting the notion that passive learning structures may not be as effective in promoting literacy development.

Comparison of the Pretest and Posttest Scores of Pupils

Table 3 presents the results of the paired t-test analysis of the pretest and posttest scores for the control group. These pupils were exposed to the usual way of teaching-learning mode called Conventional Learning Approach.

In essence, the difference between pretest and posttest scores of learners is calculated to measure the definite learning improvements resulting from a treatment that is independent of initial knowledge levels. This comparison helps determine the effectiveness of a teaching or learning strategy by isolating the effect of instructional methods from other potential influencing factors.

Table 3. Paired t-test Analysis of Pretest and Posttest Scores of Pupils under Conventional Learning Approach

Test	Mean Score	SD	df	t-stat	p-value
Pretest	70.69	1.14	15	1.9962	0.0644
Posttest	69.75	1.48			

Analysis indicate that the mean score of students in the conventional learning group decreased from 70.69 (SD = 1.14) in the pretest to 69.75 (SD = 1.48) in the posttest. The computed t-statistic of 1.9962 and p-value of 0.0644 imply that this decrease is not statistically significant at the conventional alpha level of 0.05. This finding means that the control group did not lead to meaningful gains in students' reading comprehension performance, matching with previous studies that have examined the efficacy of traditional methods in promoting deep learning.

The results are aligned with earlier findings, like those of Ragasa (2008), who compared traditional teaching with computer-assisted instruction and noted that students taught using conventional methods showed lower posttest scores, signifying limited improvement. Besides, Medico et al. (2023) discerned that students exposed to conventional lecture-based instruction in mathematics exhibited minimal growth. Such reinforced concerns that traditional strategies may not be the most effective for prompting student learning.

Additionally, the results are consistent with the inferences of Almacen and Labitad (2024), who proved that students under multimedia-assisted instruction performed better than those taught through traditional means. The insignificant improvement in the posttest scores indicates that teacher-centered pedagogies that rely mainly on direct instruction and passive learning, may not amply engage students or promote higher-order thinking skills (Pacala, 2021). This finding is also corroborated by Pragale (2019), whose inquiry suggested that students exposed to traditional teaching approaches normally perform at an average level, and often lack the needed cognitive stimulation for meaningful academic growth.

While behaviorist learning principles (Skinner, 1953) boost traditional teaching methods by stressing reinforcement and rote memorization, the current study tests the long-term effectiveness of these strategies in effecting comprehension skills. The conclusions, however, support the constructivist view of Piaget (1952) that promotes for student-centered, interactive learning experiences that encourage knowledge construction over passive reception. The static mode in students' learning outcomes implies that conventional teaching alone could not be enough to elevate reading comprehension, requiring alternative pedagogical approaches such as differentiated instruction (Aranda & Zamora, 2016) and problem-based learning (Andal & Hermosa, 2024).

Table 4 provides the results of the paired t-test analysis for the pretest and posttest scores of pupils exposed to Cooperative Learning Approach.

Table 4. Paired t-test Analysis of Pretest and Posttest Scores of Pupils under Cooperative Learning Approach

Test	Mean Score	SD	Df	t-stat	p-value
Pretest	70.93	1.16	15	17.1406	0.0000
Posttest	88.47	3.91			

The test indicates a statistically significant improvement in the reading comprehension of pupils under the Cooperative Learning Approach ($t(15) = 17.1406$, $p < 0.001$). It implies that the intervention effectively improved learning targets.

This finding supports the claim of Delima and Risonar (2024) who pointed out that Filipino students

usually struggle with reading proficiency, which can be moderated through collaborative learning strategies. In like manner, Cuartero (2018) declared that reciprocal cooperative learning stimulates deeper comprehension, while Latip-Panggaga (2021) confirmed its role in promoting active engagement and vocabulary development. Additionally, Bermillo and Merto (2022) found that Collaborative Strategic Reading (CSR), which assimilates cooperative learning techniques, suggestively enriches both reading comprehension and learner motivation. These findings strengthen the notion that cooperative learning provides a structured yet interactive environment that advances peer collaboration. This develops cognitive and social skills essential for academic success (Viado, 2023; Quines & Quines, 2023). The substantial increase in posttest scores maintains the efficacy of this instructional scheme in responding to literacy gaps and improving student performance.

Comparison of Gained Scores between the Control and Experimental Groups

The gained scores specify a distinct indication of the differential effect of instructional strategies on student learning outcomes. Table 5 shows the t-test results for the gain scores between the control and experimental groups.

Table 5. Results of the t-test Analysis of the Mean Gain Scores of the Control and Experimental Group

Groups	Gained Scores	SD	df	t-stat	p-value
Control (Conventional LA)	0.94	1.88	29	16.7607	0.0000
Experimental (Cooperative LA)	17.53	3.96			

The t-test analysis reveals a statistically significant difference in the mean gain scores between the control group ($M = 0.94$, $SD = 1.88$) and the experimental group ($M = 17.53$, $SD = 3.96$), with a t-value of 16.7607 and a p-value of 0.0000. These findings strongly suggest that students who were exposed to cooperative learning strategies demonstrated substantial improvements in academic performance compared to those who engaged in conventional learning activities.

The importance of cooperative learning in enriching student engagement, comprehension, and achievement is well-documented in educational literature. Andrews (2022) underlines the role of cooperative learning strategies in nurturing individual responsibility, small-group collaboration, and self-evaluation, which are critical elements in improving students' academic performance. Similarly, Bordeos et al. (2023) stress that cooperative storytelling strategies significantly enhance learner engagement and proficiency, helping reinforce the positive influence of collaborative learning on academic outcomes.

Furthermore, the findings support the assertion of Deluao et al. (2022), which highlights the effectiveness of cooperative learning techniques in addressing the alarming decline in reading comprehension skills among Filipino learners. Ligudon and Ildefonso (2022) similarly argue that teachers' strategies, including cooperative learning, are instrumental in improving reading comprehension and fostering deeper student involvement in learning activities. The study by Nicolas and Emata (2018) also boosts this statement. They argued that cooperative learning strategies contribute to the development of problem-solving skills, particularly in mathematics.

Additionally, Suson et al. (2020) have observed that the practice of differentiated instruction and cooperative learning techniques enhanced students' comprehension abilities and engagement in reading activities. This aligns with the findings of Acedillo (2023), who cites the need for contextualized learning materials to improve comprehension skills, further supporting the premise that interactive and cooperative instructional strategies lead to superior academic outcomes.

The significant disparity between the gain scores of the experimental and control groups underscores the transformative potential of cooperative learning strategies in enhancing student learning experiences. As highlighted by Alla et al. (2024), collaborative learning approaches, such as the Expert Jigsaw Strategy, enhance students' engagement with literary texts and improve comprehension. Similarly, Wongsuwan and Regiana (2023) found that cooperative learning frameworks, such as Cooperative Integrated Reading and Composition (CIRC), substantially improve students' reading comprehension skills.

Overall, the findings of the present study affirm the effectiveness of cooperative learning as a pedagogical approach that fosters active student engagement, promotes higher-order thinking skills, and enhances overall academic achievement. Given the substantial empirical support for cooperative learning in improving learning outcomes across various disciplines, its integration into educational settings should be prioritized to optimize student success.

CONCLUSION

The findings of this study provide empirical evidence that instructional strategies significantly influence students' reading comprehension and overall academic performance. The pretest results established that both the experimental group (exposed to Cooperative Learning Approach) and the control group (subjected to Conventional Learning Approach) began with comparable reading comprehension levels. However, a substantial divergence was observed in the posttest, wherein students under cooperative learning exhibited a significant improvement, reaching a "Very Satisfactory" level of performance, while the control group showed only marginal gains. The paired t-test results further confirmed that cooperative learning fosters greater academic progress than conventional methods.

These results lend strong support to Vygotsky's (1978) Sociocultural Theory, which postulates that learning is a social process facilitated by interactions with peers and more knowledgeable others. The collaborative structure of cooperative learning aligns with Vygotsky's concept of the Zone of Proximal Development (ZPD), where students achieve higher cognitive gains when supported by peers. Additionally, the findings validate Constructivist Learning Theory (Piaget, 1952), which emphasizes active participation in knowledge construction rather than passive reception. The superior performance of students in cooperative learning suggests that social interaction and active engagement are crucial in developing comprehension skills.

Conversely, the results challenge aspects of Behaviorist Learning Theory (Skinner, 1953), which underpins conventional instructional methods that rely on direct instruction, repetition, and reinforcement. While behaviorist strategies have their place in foundational skill acquisition, the findings suggest that they may be insufficient for fostering higher-order comprehension skills. This contradiction highlights the limitations of traditional teacher-centered pedagogies, reinforcing the necessity of student-centered approaches that emphasize active engagement and peer collaboration.

IMPLICATIONS

Ultimately, the results of the study carry significant implications for pedagogy, curriculum development, assessment methods, and future research.

Foremost, the study reinforces the urgent need for a paradigm shift from traditional, teacher-centered instruction to student-driven, interactive learning environments. Teachers should integrate cooperative learning strategies into their reading instruction to maximize student engagement and comprehension. Given the social nature of learning, as emphasized by Vygotsky (1978), instructional methods should encourage collaboration, discussion, and shared problem-solving to deepen understanding. Teacher training programs must equip educators with skills to facilitate cooperative learning effectively and adapt classroom activities to diverse student needs.

Secondly, the findings imply that curriculum developers and policymakers should formally integrate cooperative learning strategies into reading comprehension modules. The inclusion of structured collaborative tasks can help students develop critical thinking and analytical skills, making learning more meaningful. Schools should also establish professional learning communities (PLCs) where teachers can share best practices for implementing cooperative learning, ensuring a consistent and evidence-based approach across grade levels.

Similarly, traditional assessments that emphasize individual performance may not adequately capture students' comprehension progress in cooperative learning environments. Educators should consider alternative assessment methods, such as peer evaluations, group discussions, and performance-based tasks, to gauge comprehension more holistically. Furthermore, schools should implement targeted interventions for struggling readers by incorporating structured peer-assisted learning strategies, leveraging the principles of the Zone of Proximal Development (ZPD) to provide appropriate scaffolding.

Finally, the study contributes to the growing body of literature on cooperative learning's effectiveness and provides a foundation for future research. Longitudinal studies are needed to examine the sustained impact of cooperative learning on students' literacy development. Additionally, future research should explore its applicability across different disciplines and age groups, as well as its effectiveness in online and blended learning environments. Investigating the interplay between cooperative learning and emerging technologies, such as artificial intelligence and adaptive learning platforms, can further enhance instructional design and student engagement.

RECOMMENDATION

To sustain the observed improvements and further develop pupils' reading comprehension skills, it is recommended that school leaders and education policymakers may institutionalize cooperative learning methods through policy initiatives. This should contain establishing guidelines, conducting regular monitoring, and implementing evaluations to guarantee reliable and effective application across all classrooms.

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RELATIONSHIP OF ATTITUDE AND SENTENCE SKILLS ACQUISITION: IMPLICATIONS ON LEARNER DIVERSITY

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ABSTRACT

This study examines the role of syntactical awareness in developing sentence construction skills among students from various linguistic backgrounds. It investigates how different factors influence participants' understanding of sentences, which in turn affects their overall language proficiency. A framework for Multivariate Correlation Analysis was implemented to gather data from students across diverse linguistic backgrounds. This analysis focused on understanding their language preferences, the frequency of language use in various contexts, and their attitudes toward the English language. The results indicate that participants typically engage in the use of multiple languages across different settings. The data show moderate levels of language usage in a variety of scenarios. Moreover, the respondents expressed a positive attitude toward English, highlighting a desire to develop their English language skills further and seek opportunities for its practical application in their future pursuits. The study revealed that participants exhibited proficiency in making basic grammatical corrections, yet encountered challenges with more intricate grammatical rules. The analysis indicates that independent variables do not have a significant effect on the grammatical skills of respondents. Additionally, the findings emphasize the necessity for clearer connections between English language learning and its practical applications in everyday life. This research highlights the critical role of integrating real-world contexts into English instruction to reinforce its relevance and improve learners' attitudes toward the language. The paper also presents implications and recommendations aimed at educators to enhance their teaching strategies and better support multilingual learners.

Keywords: attitudes toward English, frequency of language use, language preferences, proficiency

INTRODUCTION

The current decline in the emphasis on English as a medium of instruction in classrooms, coupled with the lack of external support for students to practice English outside of school, has resulted in a slower rate of improvement in English proficiency. Students primarily learn English within the confines of the classroom, where instruction in the language has diminished across various subjects. Additionally, exposure to English through mass media is also decreasing, as there is less English-language content available. Furthermore, opportunities to engage with English are primarily confined to specific areas of business and industry. As a result, achieving a proficient command of English is becoming increasingly accessible only to a privileged few, contributing to greater social stratification.

On the other hand, the acquisition of sentence skills is a critical aspect of language development, directly influencing students' overall academic success and literacy (National Reading Panel, 2020). In

recent years, research has increasingly recognized the role of syntactic awareness, the ability to understand and manipulate sentence structures, as a pivotal factor in sentence skills acquisition (Kim et al., 2018). Syntactic awareness has been linked to various language-related abilities, including reading comprehension, writing proficiency, and oral language skills (Nippold, 2018).

There is a growing interest in the concept of syntactic awareness; however, the interplay between this awareness and various influencing factors remains inadequately explored. Key variables include language preference, frequency of language use, and attitudes toward English, especially among students with diverse linguistic backgrounds (García & Kleifgen, 2021). In multilingual environments, both language preference and the frequency with which languages are used can play crucial roles in shaping students' syntactic awareness and their overall sentence construction abilities (Bialystok & Luk, 2020). Additionally, students' attitudes toward English, whether they are positive or negative, can affect their motivation to develop proficient sentence skills, which in turn impacts their syntactic development (Lee & Mendenhall, 2018).

This study investigated the relationship between syntactic awareness and the development of sentence skills among students from various backgrounds, focusing on key variables such as language preference, frequency of language use, and attitudes toward English. Utilizing a multivariate correlation analysis framework, the research aimed to understand how these factors influence students' sentence skills. This study is based on Cognitive Development Theory, as proposed by Piaget in 1977, and further incorporates elements of Sociocultural Theory, introduced by Vygotsky in 1978. This approach highlights the interplay between cognitive and social factors in the process of language development. The findings of this study are intended to offer valuable insights for educators and policymakers, helping to improve language instruction and support linguistic development in multilingual settings.

Objectives

1. Determine the key characteristics and attributes of agriculture students in terms of:
 - 1.1 Language Preference;
 - 1.2 Frequency of Language Use; and
 - 1.3 Attitudes toward English.
2. Determine the agriculture students' performance in sentence skills; and
3. Find out if there is a significant correlation between the language proficiency of agriculture students and the following: language preference, frequency of language use, and attitudes toward English.

REVIEW OF LITERATURE

Syntactic Awareness and Language Development

Syntactic awareness, defined as the ability to recognize and manipulate the structure of sentences, is a crucial component of language development. Recent research has shown that syntactic awareness strongly predicts various language skills, including reading comprehension, writing proficiency, and oral language abilities (Kim et al., 2018). This metalinguistic skill allows students to understand complex sentence structures essential for effective communication and academic success (Nippold, 2018).

A study by Kim, Puranik, and Otaiba (2018) emphasized the importance of syntactic awareness in early literacy development, particularly for children with reading difficulties. The researchers found that students with higher syntactic awareness were better equipped to comprehend complex texts and demonstrated more vital reading skills over time. This finding underscores the need for explicit instruction in syntax to support language acquisition, especially for students who may struggle with reading and writing.

Multilingualism and Syntactic Awareness

The role of syntactic awareness becomes even more complex in multilingual contexts. Bilingual and multilingual students often navigate multiple languages with varying syntactic structures, which can both enhance and challenge their language skills (Bialystok & Luk, 2020). On the one hand, exposure to multiple languages can increase metalinguistic awareness, including syntactic awareness, as students learn to differentiate and apply rules from different linguistic systems. On the other hand, the cognitive load of managing multiple languages may also lead to difficulties in mastering the syntax of any one

language, particularly the language of instruction (García & Kleifgen, 2021).

Bialystok and Luk (2020) conducted a study on the impact of bilingualism on language development and found that bilingual students often display advanced syntactic awareness compared to monolingual peers. However, this advantage was more pronounced in students with balanced proficiency in both languages. The researchers suggested that educational interventions should enhance syntactic awareness across languages rather than isolate instruction in one language.

Language Preference and Frequency

Language preference and the frequency of language use also play significant roles in syntactic awareness and sentence skills acquisition. Students who prefer and frequently use a language that differs from the language of instruction may face challenges in transferring their syntactic knowledge to the academic language (García & Kleifgen, 2021). This is particularly relevant in linguistically diverse classrooms, where students may speak one language at home and another at school.

Hopp et al. (2022) explored the relationship between language frequency, preference, and syntactic awareness in bilingual students. The findings indicated that students who regularly used their home language developed stronger syntactic awareness in that language, but this did not always transfer to the language of instruction. This highlights the need for educational strategies that support the development of syntactic awareness in both the home language and the language of instruction, ensuring that students can apply these skills across different linguistic contexts.

Attitudes Toward English and Language Learning

Students' attitudes toward English and motivation to learn the language also significantly impact their syntactic awareness and sentence skills acquisition. Positive attitudes toward English can enhance motivation, leading to increased practice and better language outcomes (Lee & Mendenhall, 2018). Conversely, negative attitudes or anxiety about learning English can hinder students' progress, particularly in developing complex language skills such as syntax (Dörnyei, 2020).

Lee and Mendenhall (2018) investigated the role of motivation and anxiety in English language learning among Korean EFL students. They found that students with positive attitudes toward English were more likely to engage in activities that promote syntactic awareness, such as reading and writing in English. In contrast, students who experienced anxiety related to English learning were less likely to participate in such activities, resulting in weaker syntactic skills. The study suggests that fostering positive attitudes toward English supports students' syntactic development.

METHODOLOGY

The study was based on Cognitive Development Theory (Piaget, 1977) and expanded to include Sociocultural Theory (Vygotsky, 1978), focusing on the cognitive and social influences on language development. Syntactic awareness was the central area of interest, influenced by three independent variables: language preference, frequency of language use, and attitudes toward English. This framework examined the interaction between these variables over time, offering a comprehensive understanding of sentence skill acquisition in varied linguistic environments and aiming to establish their relationship. This study focused on 30 second-year agriculture students from diverse linguistic backgrounds. The study employed a multivariate correlation analysis framework to explore the relationships between these variables over time and utilized the quantitative method to understand the research questions comprehensively.

Despite its design, the study has several limitations. First, generalizability may be constrained due to the specific demographic and educational settings included in the study. The focus on students from diverse backgrounds means that the findings may not apply to more homogenous student populations (Bialystok & Luk, 2020). Second, while the study seeks to explore the influence of mediating factors, it may not fully capture all the contextual variables that contribute to language learning. Finally, measurement limitations exist in assessing syntactic awareness and sentence skills. The survey may not always fully capture the depth of students' syntactic knowledge or the nuances of their language use in real-life contexts (Lee & Mendenhall, 2018). As a result, the findings may reflect an incomplete picture of the variables in question.

FINDINGS

1. Agriculture students' key characteristics and attributes in terms of language preference, frequency of language use, and attitudes toward English

Table 1 data shows the overall mean score of 3.47. This indicates a "Good" level of preference for the target language in most scenarios. However, there are variations across different activities, ranging from "Good" to "Very Good." This indicates a general inclination towards using multiple languages in various situations, reflecting the respondents' diverse linguistic environment and cultural influences. The mean score of 3.03 suggests that students prefer to use the target language when communicating with teachers. This preference, where the target language is expected and reinforced, reflects the formal context of education. These findings have important implications for language education. While the strong preference for the target language in academic and media settings is encouraging, educators should also be mindful of the linguistic diversity that students bring to the classroom. Bialystok and Luk (2020) stated that promoting a more inclusive language environment that respects and integrates students' multilingual identities could foster a more profound engagement without alienating their native languages.

Table 1: Mean Distribution of Respondents' Language Preference

Indicator	Mean	Description
1. When talking to your teacher, which language do you prefer?	3.03	Good
2. When listening to the news over the radio, which language do you prefer to hear?	3.07	Good
3. When attending some speeches/lectures, which language do you prefer to listen to?	3.80	Very Good
4. Which film do you prefer When viewing a movie or VCD?	3.83	Very Good
5. When watching television, which program do you prefer to watch?	3.13	Good
6. When writing a letter to a friend, which language do you prefer?	3.67	Good
7. When reading comics and magazines, which materials do you prefer to read?	3.77	Very Good
Over-all	3.47	Good

Legend: 3.70-4.00 (Very good); 2.80-3.69 (Good); 1.90-2.79 (Fair); 1.00-1.89 (Poor)

Moreover, the "Very Good" preference in attending some speeches, viewing movies, and reading comics indicates that the target language is favored in entertainment contexts, potentially due to its prevalence in media and cultural influence. The difference in these scores might suggest that while the target language is generally preferred in written communication, it is even more favored in leisure reading, possibly due to the availability and appeal of content in the target language. However, the slightly lower preference for informal and personal communication may indicate a more complex linguistic identity. García and Kleifgen (2021) argue that bilingual or multilingual individuals often navigate between languages based on context, switching to a language they feel more comfortable with in personal or less formal situations. This suggests that while the target language is valued for its social and educational benefits, students may still maintain strong connections to other languages in more intimate or casual contexts.

Students' preference for using different languages when communicating suggests they may benefit from a bilingual or multilingual educational approach. This aligns with Chen's (2019) research, indicating that bilingual education can enhance cognitive development and improve academic performance. Emphasizing language diversity in educational settings may foster better engagement and comprehension among students. The high preferences in media consumption indicate that respondents are likely to engage more with content in languages they are comfortable with. This preference can impact media producers' and educators' creation of more inclusive content that caters to various linguistic demographics, potentially increasing audience reach and satisfaction (ibid). The data reflect a connection between language preference and cultural identity. The strong inclination towards specific languages in personal communication suggests that language choice is deeply tied to individual and communal identities. This finding supports García and Wei's (2014) notion that language is a communication tool vital to cultural expression and identity. Encouraging preferred languages in personal contexts can strengthen cultural ties and community cohesion.

The data in Table 2 present an overall mean score of 2.76, which falls within the "Rare" category and indicates infrequent target language usage across different scenarios. Frequent language use with friends is categorized as "Sometimes," suggesting that respondents are likelier to use the target language with close social contacts. However, language frequency decreases with neighbors, strangers, and vendors, indicating that respondents may prefer another language or feel less comfortable using the target language in broader community interactions. The data suggest that while the target language is utilized regularly in structured environments like schools and certain external activities, its usage declines in more spontaneous or informal contexts, such as community interactions with strangers and vendors. According to Bialystok and Luk (2020), this has important implications for language acquisition and fluency, as research shows that regular use of a language in diverse contexts can enhance proficiency and confidence.

Table 2. Mean Distribution of Respondents' Frequency of Language Use

Indicator	Mean	Description
1. When you are in the community		
1. with friends	3.07	Sometimes
2. with neighbors	2.23	Rare
3. with strangers	2.17	Rare
4. with vendors	1.90	Rare
2. When you are in the school		
1. with teacher	3.03	Sometimes
2. with classmates	3.10	Sometimes
3. with administrator	2.83	Sometimes
3. When you are joining a social gathering		
1. with friends	2.80	Sometimes
2. with guests	2.60	Rare
3. with emcees	2.43	Rare
4. When you do your external activities, such as		
1. hobbies	3.27	Sometimes
2. sports	2.83	Sometimes
3. religion	3.00	Sometimes
4. music	3.10	Sometimes
5. When you do your internal activities, such as		
1. counting	2.97	Sometimes
2. praying	3.27	Sometimes
3. swearing	2.57	Rare
4. computing	2.57	Rare
Over-all	2.76	Rare

Legend: 3.70-4.00 (Always); 2.80-3.69 (Sometimes); 1.90-2.79 (Rare); 1.00-1.89 (Never)

The lower frequency of language use in community settings may indicate a need for more immersive and socially integrative language programs. García and Kleifgen (2021) mentioned that enhancing language use in everyday interactions could improve students' overall linguistic competence, as exposure to diverse linguistic environments has been shown to strengthen both language skills and cultural understanding. On the other hand, the highest frequency of language use is observed in classroom interactions, followed by teachers and administrators. These "Sometimes" ratings suggest that the target language is used in formal educational settings, likely due to institutional requirements and expectations. Moreover, the findings indicate that while formal education settings encourage language use, there may be a gap in supporting students' language use in less structured environments. According to Hopp et al. (2022), increasing opportunities for language practice in varied social contexts, such as community service or peer-led activities, helps bridge this gap and fosters a more holistic language learning experience. The lower frequency of language use in community settings may indicate a need for more immersive and socially integrative language programs.

In social contexts, language frequency remains relatively consistent with friends and guests but decreases with emcees, indicating a "Rare" usage level. This pattern may suggest that respondents are more comfortable using the target language in informal social interactions but may switch to another language or feel less confident in formal or unfamiliar situations. Moreover, the findings suggest that while formal education settings encourage language use, there may be a gap in supporting students' language use in less structured environments.

Language use during hobbies, sports, religion, and music is generally "Sometimes." This indicates that respondents engage with the target language in various external activities. However, respondents

might revert to another language when expressing strong emotions or performing technical tasks. Encouraging students to consciously use the target language in all aspects of their lives, including internal dialogue and technical tasks, can further support language acquisition. Research by Lee and Mendenhall (2018) suggested that developing a stronger connection between the language of instruction and students' personal lives can lead to more meaningful and sustained language use.

The language in community settings indicates familiarity and comfort and enhances communication effectiveness. Research by Garcia and Perez (2016) highlights the importance of social identity in language preference, as individuals tend to use languages that reinforce their social connections. Therefore, creating environments and encouraging peer language use can strengthen community ties and foster more effective communication. Communicating with teachers and classmates highlights the importance of language in academic success. William and Harris (2019) suggest that students may perform better when taught in their preferred language. Educational institutions should consider incorporating students' language preferences into their curricula to enhance learning outcomes.

Data in Table 3 show the highest mean score (3.57), indicating that respondents consider English a vital subject. This result suggests recognizing the language's relevance in academic and professional contexts. The positive attitude towards English among the respondents indicates that they realize the importance of the language in their academic and professional lives. This emphasizes the significance of English proficiency for academic achievement and career advancement (Jones & Lee, 2020; Brown & Baker, 2017). The respondents find their English classes enjoyable and essential for maintaining motivation and interest in learning. The respondents' enjoyment of English classes and active participation in classroom activities indicate they are engaged and motivated learners. This finding is consistent with research that suggests student engagement and academic performance (Wang & Hofkens, 2019; Fredricks et al., 2016).

However, some aspects show a moderate level of enthusiasm. For example, participation in English activities and enjoyment of English class are rated as "Good" but not at the higher end of the spectrum. Negative attitudes, such as boring English classes and preferring to study other subjects over English, fall into the "Fair" category, indicating some reluctance towards English among the respondents.

Interestingly, the items suggesting a desire to reduce the emphasis on English, such as making English an optional subject (mean = 2.80) and decreasing the number of English units in college (mean = 3.20), still fall within the "Good" range, but closer to the "Fair" category. This finding suggests a nuanced view where students recognize the utility of English but might be motivated by certain aspects of teaching it.

Table 3. Mean Distribution of Respondents' Attitudes toward English

Indicator	Mean	Description
1. I consider English an essential subject.	3.57	Good
2. I listen attentively to my English teacher during class.	3.27	Good
3. I participate actively in all English activities in the classroom.	3.13	Good
4. I find my English class enjoyable.	3.10	Good
5. I must learn English to succeed in life.	3.50	Good
6. I need English in and out of school.	3.23	Good
7. I admire people who have a good command of English.	3.47	Good
8. I feel bored listening to my English teacher discussing in English.	3.23	Good
9. I find writing a composition a taxing job.	2.47	Fair
10. I prefer to study another subject rather than study English.	2.93	Fair
11. English should be made an optional subject.	2.80	Fair
12. The number of English units in college should be decreased.	3.20	Good
Over-all	3.16	Good

Legend: 3.70-4.00 (Very good); 2.80-3.69 (Good); 1.90-2.79 (Fair); 1.00-1.89 (Poor)

The respondents believe learning English is crucial for success in life, highlighting the perceived value of English proficiency. Moreover, they feel the need for English both in and out of school, suggesting its practical application in daily life. Respondents scored 3.47 in admiring those with a good command of English, indicating a societal appreciation for English skills. The respondents' admiration for people with a good command of English highlights the prestige associated with English proficiency in society. This finding is supported by studies that explore the social and cultural implications of English as a global language (Smith, 2022; Wright & Sutter, 2021).

A strong positive attitude toward English underscores the necessity for curricula emphasizing its relevance and incorporating real-life applications to boost student engagement (Baker, 2020). The positive classroom dynamics indicate that interactive and participatory teaching methods, such as group activities and discussions, could enhance interest. However, lower scores related to boredom and a preference for other subjects highlight the need for innovative teaching strategies to make English learning more appealing (Smith, 2021). Additionally, Lee (2022) stated that the admiration for proficient English speakers suggests initiatives like mentorship programs or guest lectures could further motivate students. Finally, Nguyen (2023) recognized the importance of English for success, implying that educational institutions should promote lifelong learning and provide resources for continued language development beyond formal education.

2. Performance of Students in Sentence Skills

The data in Table 4 present the distribution of respondents' sentence skills performance across various indicators, categorized by the number of correct responses and their corresponding descriptive ratings.

Table 4. Distribution of Respondents' Performance in Sentence Skills

Indicators	No. of Respondents with Correct Responses	Description	Percent
1. The singer's diamond earrings sparkled in the spotlight.	13	Good	43.33
2. On USTP Charter's Day, the cafeteria serves free food for all.	9	Fair	30.00
3. At night, my son likes to read under the cover.	9	Fair	30.00
4. After I cashed my paycheck, I treated myself to dinner.	8	Fair	26.67
5. Mario told everyone in the room to be quiet his favorite show was on.	14	Good	46.67
6. At the Chinese restaurant, Tim used chopsticks. To impress his date.	23	Excellent	76.67
7. Teresa works full-time in a law firm, and she takes evening classes.	11	Good	36.67
8. My blow-drier shorted out, I showed up for work with Vince's salon.	13	Good	43.33
9. The crinkly lines around Joan's mouth _____ her a friendly look.	8	Fair	26.67
10. When _____ we take our break?	18	Very Good	60.00
11. Neither the union leaders nor the negotiator _____ the strike to continue.	22	Excellent	73.33
12. One of the busboys just called and said _____ would be an hour late.	15	Good	50.00
13. That coat is _____	10	Fair	33.33
14. _____ tires look worn.	20	Very Good	66.67
15. A rain that freezes is _____ than a snowstorm.	17	Very Good	66.67
16. Frozen shrimps lay in the steel pans that were melting rapidly.	22	Excellent	73.33
17. The speaker discussed the problem of crowded prisons at the college.	13	Good	43.33
18. Shaving in front of the steamy mirror, the razor nicked Ed's chin.	20	Very Good	66.67
19. "To lengthen thy life, lessen thy meals."	10	Fair	33.33
20. "I am against grade school students using calculators," said Fred.	15	Good	50.00
21. It went <u>on raining</u> , and every day it got a little higher.	13	Good	43.33
22. The store will close at noon on the following <u>dates</u> . Nov. 26, Dec. 24, & Dec.31.	15	Good	50.00
23. Here's a temporary solution to a dripping <u>faucet</u> : tie a string to it, and let the drops slide down the string to the sink.	9	Fair	30.00
24. I changed that light bulb just last <u>week now</u> it's blown again.	8	Fair	26.67
25. With a needle, Tess punctured the <u>fluid filled</u> blister on her toe.	22	Excellent	73.33

Legend: 1-5 Poor, 6-10 Fair, 11-15 Good, 16-20 Very Good, 21-25 Excellent

The sentence "At the Chinese restaurant, Tim used chopsticks. To impress his date" showed the highest proficiency; 76.67% of respondents answered correctly, earning an "Excellent" rating. On the other hand, the lowest proficiency was observed in the sentence, "My blow-drier shorted out, I showed up for work with Vince's salon," where only 26.67% of respondents answered correctly, earning a "Fair" rating. Respondents generally performed well in sentences requiring straightforward grammatical corrections or involving common daily scenarios (e.g., "The singer's diamond earrings sparkled in the spotlight"). The common struggles lie in sentences requiring more complex sentence structures or less common scenarios (e.g., "Mario told everyone in the room to be quiet, his favorite show was on.") tended to receive lower accuracy, indicating that respondents might struggle with these more complex grammatical rules.

3. Correlation between the sentence skills of students and language preference, frequency of language use, and attitudes toward English

Table 5 presents the correlation coefficients between language preference, frequency of language use, and attitudes toward English and their impact on sentence skills. The results show no significant correlation between the independent and dependent variables. The correlation coefficients for all three variables are below the commonly accepted significance level of 0.05.

The findings of this study suggest that language preference, frequency of language use, and attitudes toward English do not significantly impact respondents' sentence skills. This contradicts previous research showing a positive correlation between language exposure and proficiency (Krashen, 1982).

One possible explanation for these findings is that the study has been limited by the sample size or the specific measures used to assess language preference, frequency, and attitude. The study did not consider other factors influencing sentence skills, such as education, socioeconomic status, and cognitive abilities. The lack of significant findings across all three variables implies that language preference, frequency, and attitudes toward English do not substantially impact the outcomes measured in this study. This could indicate that other factors not captured in this analysis may be more critical in influencing language skills.

Table 5. Test of Statistics of Respondents' Sentence Skills Based on Language Preference, frequency of language use, and Attitudes toward English

Sentence Skills	df	r	Interpretation	Level of Significance
Language Preference	28	-0.142341	NS	.05
Language Frequency	28	-0.06772	NS	.05
Attitude towards English	28	-0.187826	NS	.05

Furthermore, the data suggest that while students see the importance of English for future success, there may be a need for more explicit connections between English learning and real-world applications. Studies have shown that when students perceive the relevance of language skills to their future goals, their engagement and performance improve (Alrabai, 2021). Therefore, linking English instruction to practical, real-life situations could help reinforce the importance of English and improve attitudes further. Thus, the opportunity for the learners to explore the possibility of getting good performance is better (Bodbod, 2024).

The overall positive attitude towards English among the respondents suggests that they are likely to continue developing their English skills and seeking opportunities to use the language in their future endeavors. This finding has implications for curriculum development and language teaching strategies that cater to learners' needs and preferences (Schunk, 2018; Brown, 2020).

FINDINGS

1. The overall language preference mean score of 3.47 indicates a general inclination toward using multiple languages across different contexts. This trend toward multilingualism in contemporary societies, where individuals navigate various linguistic landscapes, reflects a growing appreciation for linguistic diversity.
2. The overall frequency of language use means a mean score of 2.76, which falls within the "Fair" category, indicating moderate target language usage across different scenarios.
3. The respondents' overall positive attitudes toward English suggest that they are likely to continue developing their English skills and seeking opportunities to use the language in their future endeavors.
4. The respondents generally performed well in sentences requiring straightforward grammatical corrections or involving common daily scenarios, but respondents might struggle with more complex grammatical rules.
5. Language preference, frequency of language use, and attitudes toward English do not significantly impact respondents' sentence skills. This could indicate that other factors not captured in this analysis may be more critical in influencing language skills.

CONCLUSIONS

The study on the role of syntactic awareness in sentence skills acquisition among students from diverse backgrounds highlights the critical importance of understanding sentence structure for effective language learning. The findings suggest that students with varying linguistic backgrounds exhibit different syntactic awareness levels, significantly impacting their ability to construct and comprehend sentences. This variation highlights the need for educators to adapt their teaching strategies to foster an inclusive learning environment that promotes syntactic skills across all backgrounds. These findings affect language education policies, teaching practices, and future English language learning and teaching research.

Future research may need to explore additional factors or different methodologies to better understand the dynamics of language skills and their determinants.

RECOMMENDATIONS

1. Instructors must adopt targeted interventions that emphasize syntactic instruction, including interactive and engaging activities that require students to analyze and manipulate sentence structures actively. Such activities might involve sentence diagramming, collaborative group discussions centered around syntactical variations, and the use of technology-assisted tools that promote collaborative learning in syntax.
2. Moreover, professional development for educators should encompass comprehensive training that equips them with strategies to effectively address the diverse syntactic needs of students who come from various linguistic backgrounds. This training could focus on differentiating instruction, recognizing and incorporating students' home languages, and utilizing culturally relevant examples to enhance understanding.
3. By prioritizing syntactic awareness in curriculum design and instructional practices, educators will be better positioned to support the language acquisition journeys of all students. This approach not only fosters a deeper understanding of language structure but also cultivates an inclusive learning environment where every student can thrive regardless of their linguistic starting point.

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