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FOREWORD



It is with great honor and enthusiasm that we publish Volume 3, Series 1 of the Nilad Journal, a monument to our continuing pursuit of academic excellence and the dynamic intellectual community we have created.

This edition of the Nilad Journal has a variety of scholarly articles that reflect the wide research interests and rigorous academic accomplishments of our writers. As we traverse an era of rapid change and complicated issues, the importance of research in informing and influencing our understanding of the world has never been greater. The contributions in this edition provide new perspectives, question established paradigms, and contribute to ongoing debates across disciplines.

The Nilad Journal has always been more than just a collection of research; it is a platform where ideas collide, experts from all fields engage in meaningful discourse, and the seeds of creativity are planted. This collection is no different, bringing readers a rich tapestry of information that spans a wide range of topics, each contributing to the overall purpose of expanding our collective understanding.

I am deeply grateful to all of the contributors whose work appears in this volume. Your dedication to studies and willingness to share your discoveries with the academic world are what distinguishes the Nilad Journal as a respected and valuable publication. I'd also like to thank our editorial team and peer reviewers for their hard work and experience in ensuring the journal's quality and integrity.

As you read through the essays in this volume, I hope you find them as thought-provoking and informative as we have. We hope that the research given here will inspire new ideas, encourage more investigation, and contribute to the ongoing discussion in your respective professions.

Thank you for your ongoing support of the Nilad Journal. We are excited to observe how this version affects academia and society as a whole.

LEILA R. GANO, PhD.

Director

University Research Center



MESSAGE FROM THE University President



It is my pleasure to welcome you to the most recent edition of the Nilad Journal. As we begin Volume 3, Series 1 of 2004, we recognize the continuous expansion of our scholarly community and the invaluable contributions of our researchers and authors.

The Nilad Journal remains committed to expanding knowledge and fostering intellectual discourse in a variety of fields. In this issue, we present a variety of informative papers and research findings that demonstrate our commitment to academic excellence and innovation.

I am grateful to the authors whose thorough study and intelligent analysis enrich the pages of this journal. Your commitment to expanding knowledge and solving key issues is admirable and exemplifies the ethos of our academic community.

I also applaud the editing team and reviewers for their careful work to ensure the quality and relevance of the articles. Their skills and dedication help to ensure the Nilad Journal's scholarly integrity.

As we manage the complexity of our ever-changing world, let us continue to believe in the ability of study and scholarship to shape a better future. May this volume spark new ideas, partnerships, and discoveries that contribute to our shared pursuit of knowledge and excellence.

Thank you for your ongoing support and involvement with the Nilad Journal. Let us continue to sustain our commitment to academic excellence and scholarly inquiry.




MA. FELMA CARLOS-TRIA, Ed.D.
University President

MESSAGE FROM THE

Vice President for Academic Affairs



I am delighted to provide you with the current edition of the Nilad Journal. As Vice President of Academic Affairs, I am thrilled to witness our academics, researchers, and scholars' outstanding contributions to this prestigious publication.

The Nilad Journal is a light of academic quality and intellectual curiosity at our university and beyond. In this book, we continue to investigate a wide range of disciplines, highlighting research that not only increases knowledge but also solves today's real concerns. Each piece shows our authors' passion and experience, and their work exemplifies the highest standards of scientific excellence.

I am deeply grateful to the contributors for their constant dedication to study and publication. Your work improves our academic community and encourages others to pursue their own intellectual endeavors. I'd also like to thank the editorial team and peer reviewers for their arduous work, which ensure that every paper published in this magazine maintains the integrity and quality that we all cherish.

As we continue to promote academic success, we must remember that the quest of knowledge is a collaborative effort. The thoughts and discoveries revealed on these pages are not the work of particular scholars, but rather contributions to a larger intellectual tradition in which we all participate.

I invite all readers to engage with the material offered in this edition by asking questions, learning, and being inspired. Let us maintain a robust academic culture that fosters inquiry, creativity, and collaboration.

Thank you for your ongoing support of the Nilad Journal and commitment to achieving our academic goal.

RONALD A. HERRERA, PhD.
Vice-President for Academic Affairs



MESSAGE FROM THE Editor-in-Chief



It is with great pleasure that I present Volume 3, Series 1 of the Nilad Journal. This volume is the result of months of effort, hard research, and serious thinking by our contributors, who all worked tirelessly to bring you this collection of scientific essays.

The Nilad Journal has always been dedicated to providing a forum for the interchange of ideas, the growth of knowledge, and the encouragement of academic excellence. In this volume, we present a wide spectrum of works that not only contribute to their respective fields, but also foster critical thinking and motivate additional research.

I want to express my heartfelt gratitude to our authors for their significant efforts. This journal's sustained success is due to your dedication to produce high-quality research and willingness to share your findings with our academic community.

I'd also like to thank our peer reviewers, whose experience and dedication have helped to uphold the Nilad Journal's stringent standards. Your critical evaluations and constructive input have guaranteed the integrity and quality of the articles featured in this volume.

I hope our readers find this edition educational and thought-provoking. May the research and debates on these pages ignite new ideas, motivate your own intellectual endeavors, and add to the ongoing conversation in our academic community.

As Editor in Chief, I am happy of our accomplishments in this volume and look forward to the Nilad Journal's future growth and success. Thank you for your ongoing support and involvement with our newspaper.



RACIDON P. BERNARTE, DEM
Editor-In-Chief

MESSAGE FROM THE Managing Editor



I am pleased to bring to you Volume 3, Series 1 of the Nilad Journal. As Managing Editor, it has been my joy to oversee the creation of this edition, which reflects our authors' hard work, dedication, and intellectual excellence.

This book builds on the Nilad Journal's heritage of providing a forum for meaningful academic discourse and the sharing of research that challenges the limits of knowledge. Each article in this issue has undergone a thorough review process to ensure that the material presented is of the highest quality and relevant to both scholars and practitioners.

I would like to express my heartfelt gratitude to all of the authors who have contributed to this volume. Your dedication to research and desire to share your discoveries with the academic community are much appreciated. I'd also like to thank our peer reviewers for their rigorous and comprehensive reviews, which have helped us maintain our journal's high standards.

I hope our readers find this edition both helpful and encouraging. The articles on these pages cover a wide range of topics and provide insights that I hope will considerably improve your understanding and enjoyment of the issues at hand.

Finally, I'd want to recognize the persistent efforts of our editorial team, whose dedication has enabled this publishing. We can continue to publish a journal that preserves the standards of academic rigor and intellectual inquiry because to their hard work and attention to detail.

Thank you for your ongoing support of the Nilad Journal. I eagerly await your thoughts and the ongoing debate that our publication hopes to generate.



Silvia C. Ambag, DEM
Managing Editor
NILAD, Multidisciplinary Journal of Universidad De Manila
Universidad De Manila

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Table of Contents

Foreword

Message

University President

Vice President for Academic Affairs

Editor-in-Chief

Managing Editor

Editorial Board

About the NILAD Journal

Cyberbullying and Technology Faced by Students: Basis for Guidance and Counseling for Students' Mental Health and Well-Being <i>Arlene C. Pureza, Sandra B. Caballero, Jenny M. Ferrer</i>	11
Evaluation of Educational Facilities in Compliance with the Sustainable Development Goals (SDG), Quality Education 4.A.1 <i>Jomar T. Petilo</i>	22
Contextualized Laboratory Simulation (CLS): Enhancing Instruction in Teaching Molecule Polarity in Grade 11 Technical-Vocational-Livelihood Track at San Isidro Senior High School <i>Cloma Peter Jr.</i>	40
Creation Spirituality and Arts Towards Individual Transformation: A Phenomenological Approach <i>Edwin Maestro</i>	48
Genetic Diversity of Beef Tapeworm (<i>Taenia saginata</i>) Using Mitochondrial DNA Control Region <i>Vanessa V. Martinez</i>	57
Optimizing Student Satisfaction at Universidad de Manila: Insights and Strategies for Continuous Improvement <i>Amalfi B. Tabin Jr., Rejan L. Tadeo</i>	65
Addressing Pedagogical Challenges in English Language Instruction in Higher Education Institutions: A Quantitative Analysis <i>Rodolfo M. Martinez Jr.</i>	76
Assessment of HRM Laboratory Facilities and Manual: A Comparative Study of Stakeholder Evaluations and Practical Implications <i>Maria Carina E. Paz</i>	86
Coping Mechanisms and Resilience Among Students: Exploring the Impact of Demographic Factors and Socioeconomic Conditions <i>Sandra B. Caballero</i>	109

About the NILAD Journal

NILAD is the Universidad De Manila interdisciplinary, peer-reviewed publication. It is concerned with developing and producing new knowledge and innovations throughout Arts and Sciences, Business and Management, Criminal Justice, Education, Engineering and Technology, Health Sciences, and Law. Furthermore, the Journal considers new insights and innovations that would help enhance, advance, and progress the disciplines and research grounded in a local context but have global resonance.

NILAD is open to various perspectives, disciplines, strategies, and philosophies. The Journal encourages a range of techniques for empirical research (qualitative, quantitative, and mixed methodologies), as well as high-quality systematic reviews and meta-analyses.

Aims and Scope

NILAD publishes original research articles, systematic reviews, policy briefs, and meta-analyses in the following areas:

- Arts and Sciences
- Business and Management
- Criminal Justice
- Education
- Engineering and Technology
- Health Sciences
- Law
- Public Administration

**Cyberbullying and Technology Faced by Students:
Basis for Guidance and Counseling for Students' Mental Health and Well-Being**Arlene C. Pureza¹, Sandra B. Caballero¹, Jenny M. Ferrer¹¹Universidad De Manila

Abstract

The study explores the challenges of cyberbullying and technology faced by students in the areas of social, emotional, and physical well-being. This includes the impact of cyberbullying and technology on students' self-esteem, values, and future dreams. The research employed a descriptive quantitative research design to describe a population, situation, or phenomenon accurately and systematically. The subjects of the study were classroom lecturers from various Higher Education Institutions (HEIs) in both public and private sectors, selected randomly to reach the target population of 60 respondents. Results show significant challenges in social being, emotional well-being, and physical well-being due to cyberbullying, leading to various negative outcomes. There is no significant relationship between the challenges and impact of cyberbullying and technology as observed among students.

Keywords: *Cyberbullying, technology, challenges, impact, health, mental health*

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Introduction

In today's educational landscape, students face a myriad of challenges that extend beyond the classroom and into their personal lives. These challenges, which include poverty, homelessness, child abuse, and bullying, both physical and cyber, have a profound impact on their ability to focus, complete assignments, and engage fully in their education. While these struggles are often visible in the form of declining academic performance, the underlying issues may go unnoticed by parents, guardians, and educators. Among these challenges, cyberbullying has emerged as a particularly insidious threat, exacerbated by the pervasive use of social media and the complexities of the digital world (Dennehy et al., 2020).

Cyberbullying, a modern extension of traditional bullying, involves the use of digital platforms to harass, intimidate, or exclude individuals. This behavior, once dismissed as harmless teasing, is now recognized as a serious issue with significant psychological consequences. Students subjected to cyberbullying may experience fear, isolation, and a decline in both their physical and mental well-being. The effects can be devastating, leading to anxiety, depression, and in extreme cases, suicidal ideation (Paciello et al., 2020).

The increasing recognition of cyberbullying's harmful effects has prompted schools to implement specific policies aimed at combating this issue. However, addressing cyberbullying requires more than just policy; it demands a proactive approach from educators and school staff, who are often the first to observe the signs of cyberbullying. By fostering open communication and providing support, schools can help victims feel less isolated and more empowered to seek help. Research indicates that cyberbullying differs from traditional bullying in several key aspects, including its definition, prevalence, risk factors, and prevention strategies. The anonymity afforded by technology often emboldens bullies, allowing them to inflict harm with little fear of repercussion (Ansary, 2020).

The impact of bullying, particularly cyberbullying, on students is profound. Victimized students often suffer academically, physically, and mentally. Fear of attending school, coupled with the relentless nature of online harassment, can drive students to extreme measures, including self-harm or suicide. Addressing these issues requires more than just punitive measures against bullies; it necessitates a cultural shift within schools toward teaching empathy, kindness, and community-building. Programs that incorporate civility training and historical examples of compassionate behavior can play a crucial role in reducing bullying and promoting a positive school environment (Jimenez, 2019).

This study on cyberbullying and the role of technology in the lives of students is grounded in a theoretical framework that seeks to understand the psychological impact of cyberbullying and to inform guidance and counseling practices aimed at improving students' mental health and well-being. Albert Bandura's Social Learning Theory provides insight into how students may imitate aggressive behaviors observed online, particularly when anonymity diminishes their sense of accountability. This theory underscores the importance of modeling positive behavior and establishing peer support systems to counteract the negative influences of cyberbullying.

Cognitive-Behavioral Theory (CBT) offers a framework for understanding how cyberbullying can distort students' thinking patterns, leading to feelings of self-blame, helplessness, and low self-esteem. CBT-based interventions are essential for helping students reframe these negative thoughts, develop effective coping strategies, and build resilience against the psychological effects of cyberbullying.

Lazarus and Folkman's Stress and Coping Theory further enhances our understanding by examining how students respond to the stress of cyberbullying. The theory differentiates between problem-focused coping, which involves addressing the issue directly, and emotion-focused coping, which involves managing the emotional fallout. Guidance and counseling programs that incorporate stress management techniques can help students navigate the emotional and psychological challenges posed by cyberbullying, ultimately fostering greater resilience and emotional well-being.

By integrating these theories, this study provides a comprehensive understanding of cyberbullying and its impact on students. The combination of Social Learning Theory, Cognitive-Behavioral Theory, and Stress and Coping Theory offers a multi-dimensional approach to addressing the challenges posed by cyberbullying, providing a solid foundation for developing effective guidance and counseling strategies that promote students' mental health and well-being.

Statement of the Problem

The study sought to explore the challenges and impacts of cyberbullying and technology faced by students, providing a basis for effective guidance and counseling to support their mental health and well-being. The primary questions addressed in this inquiry are articulated as follows:

1. What are the challenges of cyberbullying and technology faced by the students as a basis for guidance and counseling in the areas of social being, emotional being, and physical being?
2. What is the impact of cyberbullying and technology on students' mental health and well-being in the areas of self-esteem, values, and future dreams?
3. Is there a significant relationship between the challenges and impact of cyberbullying and technology as a basis for guidance and counseling among the respondents?

Hypothesis

There is no significant relationship between the challenges and impact of cyberbullying and technology as basis for guidance and counselling among the respondents.

Methodology

The research employed a descriptive quantitative research design, which aims to describe a population, situation, or phenomenon accurately and systematically. This method can effectively answer "what," "where," "when," and "how" questions, providing a comprehensive overview of the topic under investigation. Descriptive research is particularly suitable when the goal is to identify characteristics, frequencies, trends, and categories, especially in areas where limited information is available. By understanding how, when, and where an event occurs, researchers can lay the groundwork for exploring why it happens.

A descriptive research design can utilize a wide range of methods to investigate one or more variables. This flexibility makes it an appropriate choice for studies aiming to uncover new insights or establish a foundational understanding of a given topic. The methodology emphasizes the importance of selecting the appropriate quantitative study design tailored to the research question. It also distinguishes between various study designs, such as observational versus interventional and descriptive versus analytical types (Omair, 2015).

The participants of this study were classroom lecturers from various Higher Education Institutions (HEIs) in both the public and private sectors. Participants were randomly selected to ensure a representative sample, reaching a total of sixty (60) respondents. This approach ensured diverse input and perspectives, enhancing the reliability and validity of the research findings.

Results and Discussion

On the challenges of cyberbullying and technology faced by the students

Table 1
Challenges of Cyber Bullying and Technology of Students in the Area of Social Being

Indicators	Weighted Mean	Interpretation
1. Modern communication now is almost exclusively in online technology, which can foster destructive or harmful behavior of social beings.	4.15	Observed
2. Cyber bullying and technology are characterized by a transformation from the traditional bullying forms to online through social media platforms.	4.25	Highly Observed
3. Exposes the social being of students to certain online connections that may at some point put their safety and emotional and psychological well-being at risk.	4.15	Observed
4. Cyberbullying and technology are considered one of the potential risks of relying on online technologies on the social being.	3.36	Moderately Observed
5. Cyberbullying and online harassment are considerable problems for users of social media platforms, especially young people or students.	3.05	Moderately Observed
Average Weighted Mean	3.79	Observed
Standard Deviation	0.548	

Table 1 presents the weighted mean and the corresponding interpretation of the challenges of cyberbullying and technology on students around social being.

The first indicator, "Cyberbullying and technology is characterized by a transformation from traditional bullying forms to online through social media platforms," has a weighted mean of 4.25, or Highly Observed. This indicates that cyberbullying is rampant on social media due to the pervasive use of technology. The

second indicator, "Modern communication now is almost exclusively in online technology, which can foster destructive or harmful behavior of social being of students," has a weighted mean of 4.15, or observed. This suggests that most of the bullying experienced by the respondents is exposed through social media, highlighting the negative aspects of human interactions online.

Another indicator, "Exposes social being of students to certain online connections that may at some point put their safety and emotional and psychological well-being at risk," also has a weighted mean of 4.15, or observed. This emphasizes the risk posed to students' safety and emotional and psychological well-being due to online connections. The indicator, "Cyberbullying and technology is considered one of the potential risks of relying on online technologies on the social being," has a weighted mean of 3.36, or Moderately Observed. This reflects the inherent risks individuals face from being bullied through social media. Finally, the indicator, "Cyberbullying and online harassment are considerable problems for users of social media platforms, especially young people or students," has a weighted mean of 3.05, or Moderately Observed. This indicates that respondents experience harassment on social media, which negatively impacts students.

A study by Kowalski et al. (2022) examined the prevalence and impact of cyberbullying on students' social and emotional well-being. The study found that students who experienced cyberbullying were more likely to report feelings of isolation, depression, and anxiety. The research emphasized the transformation of traditional bullying into cyberbullying, facilitated by the widespread use of social media platforms. It highlighted that modern communication, dominated by online interactions, can foster harmful behaviors that affect students' social and emotional health.

Additionally, a study by Anderson and Jiang (2022) revealed that online harassment remains a significant issue for young people. The researchers noted that the anonymity and reach of social media exacerbate the severity and frequency of cyberbullying incidents. Their findings support the notion that cyberbullying and online harassment pose substantial risks to students' safety and well-being.

These studies underscore the critical need for effective guidance and counseling interventions to address the challenges posed by cyberbullying and technology on students' social being. By understanding the prevalence and impact of cyberbullying, educators and counselors can develop strategies to support students and mitigate the negative effects of online harassment.

On the Challenges of Cyber Bullying and Technology of Students in the Area of Emotional Being

Table 2
Challenges of Cyber Bullying and Technology of Students in the Area of Emotional Being

	Indicators	Weighted Mean	Interpretation
1.	Cyberbullying and technology affect their emotional health.	4.02	Observed
2.	Victims experience lack of acceptance in their peer groups, which results in emotional loneliness and isolation among them.	3.30	Moderately Observed
3.	Victims experience emotional feelings that lead to low self-esteem and depression.	4.08	Observed
4.	They have an increased risk of depression and suicidal ideation.	4.00	Observed
5.	Cyber bullying damages the self-esteem, academic achievement and emotional well-being of students.	3.30	Moderately Observed
Average Weighted Mean		3.74	Observed
Standard Deviation		0.402	

Table 2 highlights the various ways in which cyberbullying and technology affect students' emotional well-being. The data shows that cyberbullying and technology have a significant impact on students' emotional health, with an average weighted mean of 4.02, indicating that these issues are commonly experienced. Victims often face a lack of acceptance within their peer groups, which leads to emotional loneliness and isolation, reflected in a moderately often rating of 3.30. Furthermore, the emotional toll of cyberbullying frequently results in low self-esteem and depression, with a high rating of 4.08. This is corroborated by the data showing an increased risk of depression and suicidal ideation among victims, with a weighted mean of 4.00. Additionally, cyberbullying damages students' self-esteem, academic performance, and overall emotional well-being, although this is reported moderately often with a mean of 3.30. The overall average weighted mean of 3.74 indicates that these challenges are experienced often, and the standard deviation of 0.40 suggests that there is relatively little variation in how these issues are perceived among respondents.

Related research supports these findings. Kowalski et al. (2014) conducted a meta-analysis revealing the profound impact of cyberbullying on emotional health, including increased rates of depression and decreased self-esteem. Smith and Slonje (2010) reviewed literature on cyberbullying, emphasizing its negative effects on students' social interactions and emotional well-being. Mishna et al. (2014) explored the prevalence of cyberbullying among middle and high school students, finding strong correlations with emotional issues such as loneliness and suicidal thoughts. Finally, Hinduja and Patchin (2020) reviewed the current state of cyberbullying, highlighting its significant psychological impacts and ongoing concerns for students in the digital age. These studies collectively reinforce the substantial emotional challenges that cyberbullying and technology present to students.

On the Challenges of Cyber Bullying and Technology of Students in the Area of Physical Being

Table 3
Challenges of Cyber Bullying and Technology of Students in the Area of Physical Being

Indicators	Weighted Mean	Interpretation
1. Exposed repeatedly from cyber bullying by students from time to time which resulted in embarrassment and physical attack.	4.23	Highly Observed
2. Experience infliction and discomfort from other students on his/her action despite being alone.	4.23	Highly Observed
3. Experience assaulting actions through words, by physical contact, or in other ways such as making faces or mean gestures, backbiting, and intentional exclusion from a group.	3.98	Observed
4. Experience cyber bullying through (direct) verbal, (direct) physical, and indirect or relational bullying.	4.00	Observed
5. Experience to be provoked on cyber bullying behavior usually occurs in a form of proactive aggression in which the targeted individual is actively sought out or peer abused.	4.10	Observed
Average Weighted Mean	4.11	Observed
Standard Deviation	0.12 0	

Table 3 presents the physical challenges associated with cyberbullying and technology affecting students. The data shows a significant impact on physical well-being, with high ratings across the indicators. Students often experience repeated exposure to cyberbullying, which leads to embarrassment and physical attacks, as indicated by a high average weighted mean of 4.23. This is echoed in the finding that students experience discomfort and physical infliction from others even when alone, also rated at 4.23. Additionally, students encounter various forms of assault, including verbal, physical contact, and mean gestures, with a weighted mean of 3.98, signifying that such actions are commonly observed. Cyberbullying manifests through direct verbal and physical means, as well as

indirect or relational forms, with a mean of 4.00. Furthermore, students are frequently provoked by proactive aggression in cyberbullying scenarios, reflected by a mean of 4.10. The overall average weighted mean of 4.11 underscores the frequent occurrence of these physical challenges, with a standard deviation of 0.12 indicating minimal variability in responses.

Bazon (2015) explores the physical impacts of cyberbullying, noting that victims often face direct physical assaults and persistent discomfort, aligning with the high ratings observed in Table 3. *Wright and Li (2013)* provide further insight into the various forms of cyberbullying, including verbal and physical aggression, and highlight how such behaviors lead to significant physical and emotional distress among students, consistent with the reported experiences in the table.

On the Impact of Cyberbullying and Technology among the Students in terms of Self-Esteem, Values, and Future Dreams

Table 4
Impact of Cyberbullying and Technology of Students in the Area of Self-Esteem

Indicators	Weighted Mean	Interpretation
1. Cyber bullying has negative consequences for self-esteem of individual adjustment to themselves.	3.70	Observed
2. Victims of cyberbullying have increased risk of depression, anxiety and substance abuse towards their self-esteem and personality.	4.00	Observed
3. Victims develop their low self-esteem because they are harassed and mocked and in turn can have severe consequences for individual's well-being and psychological adjustment.	3.88	Observed
4. It lowers the self-esteem of every individual towards their aspect in life, social, emotional, intelligence, physical and temporal well-being.	3.88	Observed
5. Cyber bullying if not handled appropriately, it may lead to negative emotional responses and poor psychological adjustment toward self-esteem of a victim.	3.66	Observed
Average Weighted Mean	3.82	Observed
Standard Deviation	0.140	

Table 4 presents the impact of cyberbullying and technology on students' self-esteem, revealing significant negative effects. The data shows that cyberbullying frequently has detrimental consequences for students' self-esteem and overall adjustment, with a weighted mean of 3.70, indicating that these issues are common among victims. Additionally, victims of cyberbullying are at a higher risk for developing depression, anxiety, and substance abuse problems, which further undermine their self-esteem and personality, as reflected by a mean of 4.00. Persistent harassment and mockery lead to low self-esteem and severe consequences for psychological well-being, with a mean of 3.88. This aligns with findings that cyberbullying impacts multiple aspects of life, including social, emotional, intellectual, physical, and temporal well-being, also rated at 3.88. Furthermore, if cyberbullying is not appropriately addressed, it can result in negative emotional responses and poor psychological adjustment, affecting self-esteem, with a mean of 3.66. The overall average weighted mean of 3.82 underscores the significant impact of cyberbullying on students' self-esteem, with a standard deviation of 0.14 indicating consistent responses across the sample.

Recent studies corroborate these findings. Kowalski et al. (2020) conducted a comprehensive meta-analysis on cyberbullying, highlighting its severe impact on self-esteem and mental health. Their research confirms that cyberbullying is strongly linked to declines in self-esteem and other psychological problems.

Similarly, Zhou and Lee (2021) investigated the relationship between cyberbullying and self-esteem among adolescents, finding that cyberbullying substantially damages self-esteem and can lead to enduring psychological issues, such as depression and anxiety.

On the Impact of Cyberbullying and Technology of Students in the Area of Values

Table 5
Impact of Cyberbullying and Technology of Students in the Area of Values

Indicators	Weighted Mean	Interpretation
1. They erode their self-confidence and self-esteem and their feelings of happiness and contentment.	4.15	Observed
2. They feel vulnerable and powerless and escalate the feelings of fear.	4.00	Observed
3. Cyber bullying can lead to intense feeling of humiliation	4.28	Highly Observed
4. They may feel intense dissatisfaction with who they are and as such they often begin to doubt their worth and value. They may respond to these feelings by harming themselves in some way.	4.00	Observed
5. They may feel hopeless and meaningless. They lose interest in things they once enjoyed and spend less time interacting with family and friends. And, in some cases, depression and thoughts of suicide can set in.	3.28	Moderately Observed
Average Weighted Mean	4.02	Observed
Standard Deviation	0.388	

Table 5 examines the impact of cyberbullying and technology on students' values, highlighting significant negative effects. The data indicates that cyberbullying has a profound impact on students' self-confidence and self-esteem, leading to decreased feelings of happiness and contentment, with a weighted mean of 4.15. Additionally, students often feel vulnerable and powerless, experiencing heightened fear as a result of cyberbullying, reflected by a mean of 4.00. The table also reveals that cyberbullying can lead to intense feelings of humiliation, which is the highest-rated indicator with a mean of 4.28. This suggests that the sense of degradation experienced by victims is severe and pervasive. Students may also experience deep dissatisfaction with themselves, doubting their worth and potentially engaging in self-harm, as indicated by a mean of 4.00. Furthermore, cyberbullying can lead to feelings of hopelessness and a sense of meaninglessness, with victims losing interest in previously enjoyed activities, withdrawing from family and friends, and facing potential depression and suicidal thoughts. This indicator has a mean of 3.28, reflecting a moderate occurrence of these severe outcomes. The overall average weighted mean of 4.02 underscores the significant impact of cyberbullying on students' values, with a standard deviation of 0.38 indicating a relatively low variability in responses.

Kowalski et al. (2021) investigated the broader effects of cyberbullying on students, including its impact on self-confidence, feelings of worth, and overall psychological well-being. Their research highlights how cyberbullying erodes self-esteem and induces feelings of humiliation and hopelessness, aligning closely with the indicators in Table 5. Similarly, *Gámez-Guadix et al. (2022)* examined the psychological consequences of cyberbullying, including its role in fostering self-doubt, depression, and suicidal thoughts among adolescents. Their study supports the findings that cyberbullying significantly undermines students' values and mental health.

On the Impact of Cyberbullying and Technology of Students in the Area of Future Dreams

Table 6
Impact of Cyberbullying and Technology of Students in the Area of Future Dreams

Indicators	Weighted Mean	Interpretation
1. It destroys the dream and future of the students especially in their studies.	4.21	Highly Observed
2. Dreams are affected due to cyberbullying and as such they are a danger of self-harming in their future.	4.03	Observed
3. It devastates their time, support, and plans for their brighter future.	4.07	Observed
4. They ignore and close their ambition, dream, future and do not want to push for it because of cyberbullying experiences in life.	3.80	Observed
5. Cyber bullying affects their everyday lives and is a constant source of distress and worry to their ambition, dream and future.	3.80	Observed
Average Weighted Mean	3.98	Observed
Standard Deviation	0.179	

Table 6 presents the impact of cyberbullying and technology on students' future dreams, illustrating significant detrimental effects. The data shows that cyberbullying severely impacts students' aspirations, particularly affecting their academic pursuits, with a weighted mean of 4.21. This high rating indicates that cyberbullying can significantly undermine students' educational goals and future prospects. Additionally, cyberbullying can disrupt students' dreams and pose risks of self-harm, as reflected in a weighted mean of 4.03. This suggests that the emotional toll of cyberbullying can lead to severe consequences for students' long-term well-being. The table also highlights that cyberbullying devastates students' time, support, and planning for a brighter future, with a mean of 4.07, indicating a strong negative impact on their future planning and resources. Furthermore, students may neglect their ambitions and future goals due to their cyberbullying experiences, as indicated by a mean of 3.80. Similarly, cyberbullying affects students' everyday lives and causes ongoing distress, impacting their ambitions and future aspirations, also with a mean of 3.80. The overall average weighted mean of 3.98 underscores the significant effect of cyberbullying on students' future dreams, with a standard deviation of 0.179 indicating that responses are relatively consistent.

Kowalski et al. (2021) highlight the extensive impact of cyberbullying on students' academic and personal futures, noting that victims often experience significant disruptions to their educational and career goals due to the emotional distress caused by cyberbullying. Their study aligns with the data from Table 6, emphasizing how cyberbullying can derail students' plans and aspirations. Additionally, *Smith et al. (2023)* explore the long-term effects of cyberbullying on students' future ambitions and mental health. Their research finds that cyberbullying can lead to decreased motivation, impaired future planning, and ongoing distress, reinforcing the negative impact depicted in the table.

On the Significant Relationship Between the Challenges and Impact of Cyberbullying and Technology Among Students

Table 7
Significant Relationship Between the Challenges and Impact of Cyberbullying and Technology Among Students

Variable	Computed r-value	Relationship	Hypothesis
Social Being			
Self-esteem	0.033942	Not Significant	Accepted Ho
Values in life	0.033081	Not Significant	Accepted Ho
Future dream	0.033247	Not Significant	Accepted Ho
Emotional Being			
Self-esteem	0.034171	Not Significant	Accepted Ho
Values in life	0.033303	Not Significant	Accepted Ho
Future dream	0.033471	Not Significant	Accepted Ho
Physical Being			
Self-esteem	0.032583	Not Significant	Accepted Ho
Values in life	0.031755	Not Significant	Accepted Ho
Future dream	0.031916	Not Significant	Accepted Ho

Significant at 0.05 level, one-tailed test, df at 60 with critical r-value of 0.250035

Table 7 presents the significant relationship between the challenges and impact of cyberbullying and technology among students. It shows that when two variables are tested against its other. It reveals that the computed r value of the different variables is lower than the r value of 0.250035 which means that it is not significant. Therefore, it reveals that there is no significant relationship between the challenges and impact of cyberbullying and technology among students, which the hypothesis is accepted, and the alternative hypothesis is rejected.

Conclusions

The findings illustrate that cyberbullying, a modern transformation of traditional bullying facilitated by online technology and social media platforms, poses significant risks to the social, emotional, and psychological well-being of students. In today's digital age, communication has shifted predominantly to online mediums, which can foster harmful behaviors that jeopardize students' safety and mental health. Cyberbullying is a substantial threat to those who rely heavily on online interactions, particularly young people and students, who are often the primary targets.

The entrapment of individuals within this digital landscape exacerbates the effects of social exposure to bullying, leading to severe emotional distress, including low self-esteem and depression. Victims of cyberbullying are at an increased risk of developing mental health issues, such as anxiety, depression, and suicidal ideation, due to the relentless nature of online harassment. The repeated exposure to cyberbullying can result in profound embarrassment, social isolation, and physical discomfort, with victims often enduring proactive aggression and peer abuse.

Moreover, the detrimental impact of cyberbullying extends to various forms of direct and indirect aggression, including verbal, physical, and relational bullying. The persistent assault on victims, whether through harmful words, physical actions, or exclusionary behaviors, underscores the urgent need to address these destructive dynamics.

It is crucial to recognize the long-term effects of cyberbullying on victims, particularly in terms of their self-esteem and psychological adjustment. Those who experience cyberbullying often struggle with feelings of worthlessness, hopelessness, and despair, which can manifest in harmful behaviors such as self-harm and social withdrawal. These individuals may lose interest in activities they once enjoyed and experience a profound sense of dissatisfaction with their lives.

The impact of cyberbullying also extends to the victims' future aspirations and dreams. The emotional toll of online harassment can derail students' academic and personal goals, leading them to abandon their ambitions and dreams. The constant distress and anxiety caused by cyberbullying can overshadow their potential, making it difficult for them to pursue a brighter future.

In conclusion, cyberbullying is a pervasive issue that demands immediate attention and intervention. It has the potential to devastate the lives of young people, affecting their mental health, self-esteem, and future prospects. Addressing cyberbullying effectively requires a comprehensive approach that fosters resilience, promotes positive online interactions, and supports the well-being of those affected. By doing so, we can help prevent the harmful consequences of cyberbullying and ensure that students are able to thrive in both their personal and academic lives.

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Evaluation of Educational Facilities in Compliance with the Sustainable Development Goals (SDG), Quality Education 4.A.1Jomar T. Petilo¹¹Universidad De Manila

Abstract

The Sustainable Development Agenda 2030 promotes healthy, inclusive, and sustainable communities through equitable, lifelong, and high-quality education. The UN's SDG 4a.1 evaluates schools' electricity, internet connectivity for education, computers, disabled facilities, clean drinking water, gender-segregated sanitation, and basic handwashing facilities. District III, Bacoor, Cavite schools received a two-star Three-Star Approach for Water, Sanitation, and Hygiene (WASH) in Schools rating after an assessment found shortcomings in WASH services. Additionally, the computer-to-student ratio is low, making classroom use difficult. School closures due to poor infrastructure emphasize the need for safe and satisfactory educational facilities to improve teaching and learning, in line with SDG 4.

To address these concerns, the study examined educational facilities' SDG 4.a.1 compliance, concentrating on 2030 goals. Descriptive research was used to cross-evaluate educational facilities in District III, Bacoor, Cavite, in 2022–2023. Selected administrators and teachers with facility management knowledge participated. The study analyzed electricity, internet, computers, classrooms, drinking water, handwashing facilities, and safety using the PDSA cycle. Limited infrastructure, resources, and budget hampered facility management. Based on the findings, a development strategy was created to improve educational facilities and SDG 4.a.1 compliance, emphasizing the need for government and stakeholder participation.

Keywords: *SDG 4a.1; Three-Star Approach; WASH; PDSA*

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Introduction:

The 2030 Agenda for Sustainable Development provides a comprehensive and holistic framework that emphasizes inclusivity, ensuring that no individual is left behind. At the heart of this agenda lies Sustainable Development Goal 4 (SDG 4), which aspires to provide inclusive, equitable, and quality education, thereby fostering lifelong learning opportunities for all. This goal is pivotal in advancing sustainable development by nurturing inclusive and resilient societies. While significant progress was made under the Millennium Development Goals (MDGs) toward achieving universal primary education, SDG 4 establishes a more ambitious and transformative benchmark, recognizing the indispensable role of education in facilitating broader societal advancements.

The Department of Education (DepEd) in the Philippines has committed to aligning its strategies with the United Nations' SDG 4, particularly focusing on Target 4.A.1. This target underscores the necessity of providing safe, inclusive, and effective learning environments for all students, with specific emphasis on ensuring that educational facilities are conducive to learning and equipped to promote educational success.

Improving the infrastructure of educational facilities is a central element of SDG 4.A.1, which sets explicit indicators to measure progress. These indicators include the proportion of schools with access to electricity, the Internet for pedagogical purposes, computers for teaching, disability-accessible infrastructure, basic drinking water, gender-separated sanitation facilities, and basic handwashing amenities, as defined by the

Water, Sanitation, and Hygiene (WASH) standards. These facilities are not mere physical structures but are integral to the delivery of quality education, serving as enablers of effective teaching and learning processes.

Educational institutions bear the responsibility of creating optimal learning environments that adapt to evolving educational methodologies and the changing dynamics of school systems. This adaptability is essential in addressing the increasingly interconnected, diverse, and community-focused nature of modern education.

Despite progress, significant challenges remain in many regions. For example, India has made considerable strides in implementing the "Education for All" agenda, yet, as reported by Bhattacharaya (2021) and data from the Unified District Information System for Education Plus (UDISE+), over 6,000 schools still lack adequate buildings. Furthermore, only 77.34% of schools have access to electricity, and a considerable number of schools face shortages in essential facilities like drinking water and sanitation, creating unhygienic conditions detrimental to student health and learning outcomes.

The situation is similarly challenging in the Philippines, where, according to Navarro (2022) from the Philippine Institute for Development Studies (PIDS), the nation lags in providing adequate educational facilities, which directly affects student learning outcomes. Infrastructure gaps, such as the lack of electricity and basic amenities in many schools, particularly in remote areas, highlight the urgent need for increased investment and targeted interventions to meet SDG 4.A.1 standards.

These infrastructure deficiencies were echoed by Vice President Sara Duterte in her "Basic Education Report 2023," where she identified the lack of adequate school infrastructure and resources as a primary obstacle to delivering quality education in the country. With the growing student population, the need for construction, repair, and maintenance of school facilities is more critical than ever.

In District III, City of Bacoor, Cavite, where this study is situated, the researcher observed significant shortcomings in facilities related to Water, Sanitation, and Hygiene (WASH). The district was recently awarded a two-star rating by the Technical Working Group (TWG) in their Three-Star Approach for WASH in schools, indicating a pressing need for infrastructure improvement to meet national standards. Additionally, the Enhanced Basic Education Information System (EBEIS) report revealed a significant shortfall in available computers, with only 24 units serving a student population of 8,352, far below the recommended ratio for effective classroom usage.

Given these challenges, this study sought to evaluate the alignment of educational facilities in District III, City of Bacoor, Cavite with the targets set under SDG 4.A.1. The research aims to assess the extent to which these facilities meet the SDG 4.A.1 criteria, with a view to identifying areas for improvement to ensure that all students have access to a safe, inclusive, and effective learning environment by the 2030 deadline.

Statement of the Problem:

The study focused on educational facilities cross-evaluation in compliance with Sustainable Development Goals (SDG) 4.a.1. The indicators measured the access in schools to main basic facilities and services needed to make sure a safe and effective learning conditions and environment for all students. Specifically, the study sought to answer the following questions:

1. What is the assessment of the respondents on the status of the school's educational facilities in terms of:
 - 1.1 Electricity?
 - 1.2 Internet Access?
 - 1.3 Computer Access?
 - 1.4 Classrooms?
 - 1.5 Basic Drinking Water?
 - 1.6 Basic Hand Washing Facilities?

- 1.7 School Safe Learning Facilities?
2. What is the assessment of the respondents on the school's educational facilities compliance with the SDG 4.A.1 in terms of:
 - 2.1 Electricity?
 - 2.2 Internet for pedagogical use?
 - 2.3 Computer for pedagogical use?
 - 2.4 Adapted infrastructure and materials for students with disabilities?
 - 2.5 Basic Drinking Water?
 - 2.6 Single-Sex Basic Sanitation Facilities?
 - 2.7 Basic Hand Washing Facilities?
3. What issues and challenges are encountered by the school in managing school plant and facilities?
4. Based on the findings of the study, what educational facilities development plan can be proposed in compliance with SDG 4a.1?

Methodology

The study employed a descriptive research method to facilitate the presentation and evaluation of the research findings. Descriptive research design, as defined by Creswell (2012), involves the "procedures for collecting, analyzing, and reporting research" (p. 627), and was chosen for its ability to provide a comprehensive overview of the educational facilities under investigation.

The selected elementary schools were all categorized as mega schools based on their total enrollment numbers: Queen's Row Elementary School with 8,352 pupils, Molino Elementary School with 2,889 pupils, and Gawaran Elementary School with 4,000 pupils, as well as the number of teachers in each institution. The researcher employed purposive sampling in selecting the respondents for the study. A total of 23 school administrators, including school coordinators such as the Physical Facilities Coordinator, Disaster Risk Reduction Management (DRRM) Coordinator, Wash in School (WinS) Coordinator, Waste Management Coordinator, and Master Teachers responsible for implementing the relevant programs, were included as part of the study. The total number of elementary school teachers from the three selected schools was 416.

Two sets of survey instruments were utilized. The first instrument assessed the status of the school educational facilities in terms of Electricity, Internet Access, Computer Access, Number of Classrooms, Water Indicators, Basic Handwashing Facilities, and the Condition of School Safe Learning Facilities. The second instrument was designed to evaluate the compliance of the school facilities with SDG 4.A.1 indicators, specifically focusing on Electricity, Internet, Computer Access, Adapted Infrastructure and Materials for Students with Disabilities, Basic Drinking Water, Single-Sex Basic Sanitation Facilities, and Basic Handwashing Facilities.

A structured interview outline was employed during group discussions to identify the specific concerns and challenges faced by the schools in managing their physical structures and amenities effectively.

Data analysis and interpretation were conducted with the assistance of the school statistician. Additional data processing took place following the final presentation and defense of the research work.

Results and Discussion

On the assessment of the respondents on the status of the educational facilities in terms of: Electricity, Internet Access, Computer Access, Number of classrooms, Basic Drinking Water, Basic Hand Washing Facilities, and School Safe Learning Facilities?

Table 1:
Assessment of the Respondents on the Status of the Educational Facilities

Indicators	School 1				School 2				School 3			
	School Adm.		Teacher		School Adm.		Teacher		School Adm.		Teacher	
	WM	VI	WM	VI	WM	VI	WM	VI	WM	VI	WM	VI
1. Electricity: Access of Electricity (24 hours or less)	2.00	L	2.20	L	2.30	L	2.20	L	2.10	L	2.25	L
2. Internet Access: Functionality of connectivity	1.65	P	1.60	P	1.55	P	1.50	P	1.66	P	1.50	P
3. Computer Access: Ratio of 1:4 to 5 computer per student	2.33	L	2.00	L	2.30	L	1.80	L	2.20	L	1.85	L
4. Classrooms: Less than 45 student per room	1.66	P	1.50	P	1.67	P	1.60	P	1.66	P	1.50	P
5. Basic Drinking Water: Access to safe drinking water at no cost at all times.	1.67	L	1.50	P	1.69	L	1.60	P	2.30	L	1.55	P
6. Basic Hand Washing Facilities: With functional group handwashing facility with soap	2.30	L	2.33	L	2.30	L	2.26	L	2.33	L	2.30	L
7. School Safe Learning Facilities: Quality and safety standards	2.00	L	1.60	P	1.70	L	1.55	P	1.80	L	1.66	P
Over-all Weighted Mean	1.94	L	1.82	L	1.90	L	1.79	L	2.01	L	1.80	L
Descriptive Interpretation	Limited Access or Average Level				Limited Access or Average Level				Limited Access or Average Level			

Legend: 2.34 – 3.00 – Basic (Access/High), 1.67 – 2.33 - Limited (Access/Average), 1.00 – 1.66- Poor (Access/Low)

The assessment of the respondents regarding the status of educational facilities across three schools reveals significant challenges in providing adequate infrastructure and resources, as reflected in the ratings given by both school administrators and teachers. The evaluation was based on several key indicators, including access to electricity, internet connectivity, computer availability, classroom conditions, access to safe drinking water, handwashing facilities, and the overall safety and quality of learning environments. The results can be analyzed and interpreted as follows:

Electricity Access:

The mean scores for electricity access across all three schools fall within the "Limited Access" or "Average Level" category, with ratings ranging from 2.00 to 2.33. This indicates that while electricity is available, it is not consistently reliable across a 24-hour period. The slightly higher ratings from teachers compared to school administrators suggest some variability in the perception of electricity access, but overall, the access remains below optimal levels.

Internet Access:

Internet connectivity is rated poorly across all schools, with mean scores between 1.50 and 1.66, indicating "Poor Access" or a "Low Level" of functionality. This suggests that internet access is either highly unreliable or insufficient to meet the needs of the schools, which can significantly hinder the use of digital resources and online educational tools.

Computer Access:

The availability of computers, measured by the ratio of computers per student, also falls into the "Limited Access" category, with scores ranging from 1.80 to 2.33. This indicates that the schools are struggling to meet the recommended ratio of 1:4 to 5 computers per student. The slightly lower ratings from teachers might reflect their direct experience with the insufficiency of computers during instructional activities.

Classrooms:

The condition of classrooms, particularly in terms of maintaining a student-teacher ratio of less than 45 students per room, is another area of concern. The ratings range from 1.50 to 1.67, placing them in the "Poor Access" category. This overcrowding can negatively impact the quality of education, making it difficult for teachers to provide individualized attention and for students to engage effectively in learning.

Basic Drinking Water:

The access to safe drinking water is assessed differently between schools, with School 3 showing a slightly higher score (2.30 from school administrators), but overall, the ratings remain in the "Limited Access" category. This inconsistency indicates that while some schools may have relatively better access to drinking water, others still face significant challenges, particularly as reflected in the teachers' lower ratings.

Basic Handwashing Facilities:

Handwashing facilities are generally rated as having "Limited Access" or an "Average Level" of functionality, with scores consistently around 2.30 across all schools. This suggests that while facilities exist, they may not be fully operational or accessible to all students, which is critical for maintaining hygiene and preventing the spread of diseases.

School Safe Learning Facilities:

The quality and safety of learning facilities are also a concern, with ratings ranging from 1.55 to 2.00, indicating that these facilities do not fully meet the required safety standards. The lower scores from teachers might reflect their direct experiences with the inadequacies in maintaining a safe and conducive learning environment.

The overall weighted mean scores across the schools place the educational facilities in the "Limited Access" or "Average Level" category for most indicators. This indicates that while basic infrastructure is present, it is often insufficient, unreliable, or below the standards required to provide a fully supportive learning environment. The consistent "Limited Access" ratings suggest that significant improvements are needed across all areas to meet the Sustainable Development Goal 4.A.1 targets.

The results highlight critical areas where interventions are necessary, particularly in enhancing internet connectivity, increasing the availability of computers, reducing classroom overcrowding, and ensuring reliable access to electricity, safe drinking water, and hygienic handwashing facilities. Addressing these deficiencies will be essential in improving the overall quality of education and ensuring that students can learn in safe, supportive, and well-equipped environments.

The results indicated that both the school administrators and teachers indicated limited access of electricity, computer, and basic hand washing. Both the school administrators and teachers agreed on the poor internet access and number of classrooms; however, the school administrators indicated limited or average level while the teachers indicated poor level on the service of basic drinking water, and school safe learning facilities.

Adoracion Navarro, a senior research fellow at the Philippine Institute for Development Studies (PIDS, 2023), stated that “A good learning environment is a good investment. It results in better student learning outcomes today and higher productivity of workers in the future. It is an important component of human capital development, which in turn is an important driver of endogenous economic growth”.

Navarro highlighted the substantial deficiencies in WASH (water, sanitation, and hygiene) infrastructure, which become more apparent when compared to other nations.

One such limitation in the facilities of Philippine schools is the absence of electricity connectivity. Regrettably, the country in this region is still one of the nations that have not yet attained universal access to electricity in schools.

He stated that this difficulty is further complicated by the necessity to enhance the electricity connections of schools to moderate fluctuations in electricity current and fulfill the criteria for digital learning.

Moreover, there were significant disparities in access to technological innovations or information and communication technologies.

The computer and internet access rates in Philippine schools were significantly lower compared to those in many surrounding nations. The efforts to enhance access rates have also been hindered by inadequate implementation of initiatives for information and communication technology (ICT) infrastructure in schools.

Navarro said that the public-private partnership (PPP) approach may be reconsidered as a solution to fulfill future demand for school infrastructure. However, it is important to have a thorough evaluation of the requirements and possibilities for investment and financing.

On the compliance with SDG 4.a.1 in terms of: Electricity, Internet for pedagogical use, Computer for pedagogical use, Adapted infrastructure and materials for students with disabilities, Basic Drinking Water, Single-Sex Basic Sanitation Facilities, and Basic Hand Washing Facilities?

Table 2:

Assessment of the Respondents on the School's Educational Facilities Compliance with SDG4.a.1

Indicators	School 1				School 2				School 3			
	School Adm.		Teacher		School Adm.		Teacher		School Adm.		Teacher	
	WM	VI	WM	VI	WM	VI	WM	VI	WM	VI	WM	VI
1. Electricity: Consistent and easily accessible power sources that provide sufficient and enduring utilization of ICT infrastructure.	1.50	P	1.40	P	1.60	P	1.50	P	1.50	P	1.45	P
2. Internet for Pedagogical Purposes: Students can use the internet to improve learning.	1.60	P	1.62	P	1.58	P	1.50	P	1.64	P	1.53	P
3. Computer for Pedagogical Purpose: Use of computers helps with the instruction of courses or to promote self-directed teaching and learning needs.	1.45	P	1.40	P	1.30	P	1.60	P	1.40	P	1.65	P
4. Adapted Infrastructure and Materials for Students with Disabilities: Everyone, including those with disabilities, can use school facilities and learning materials.	1.66	P	1.50	P	1.64	P	1.60	P	1.50	P	1.40	P
5. Basic Drinking Water: A working drinking water supply on or near the site and water points open to all school users.	1.67	L	1.50	P	1.45	P	1.80	L	2.00	L	1.55	P

Indicators	School 1				School 2				School 3			
	School Adm.		Teacher		School Adm.		Teacher		School Adm.		Teacher	
	WM	VI	WM	VI	WM	VI	WM	VI	WM	VI	WM	VI
6. Single-Sex Basic Sanitation Facilities: Separate functional male and female restrooms on site.	1.60	P	1.45	P	1.50	P	1.60	P	1.55	P	1.55	P
7. Basic Handwashing Facilities: Girls and boys have soap and water for functional handwashing area	2.10	L	1.66	L	1.70	L	1.69	L	1.80	L	1.66	L
Over-all Mean	1.65	P	1.50	P	1.54	P	1.61	P	1.63	P	1.54	P

Legend: 2.34 – 3.00 – Basic (Access/High), 1.67 – 2.33 - Limited (Access/Average), 1.00 – 1.66- Poor (Access/Low)

The indicators were based on the Sustainable Development Goals (SDG) 4a.1. in determining educational facilities. The presentation of the indicators was validated and approved by the school principal of the three (3) selected elementary schools and other experts.

On Electricity:

The school administrators and teachers indicated non-compliance to requirements on electricity. This was shown on the mean scores of school administrators and teachers from the three schools: School -1 administrators and teachers was 1.50 and 1.40; School -2 administrators and teachers was 1.60 and 1.50; School -3 administrators and teachers was 1.50 and 1.45. There were no regular and readily available sources of power that enable adequate and sustainable use of ICT infrastructure.

On Internet for pedagogical purposes:

The school administrators and teachers indicated non-compliance on internet for pedagogical purposes. This was shown on the mean scores of school administrators and teachers from the three schools: School -1 administrators and teachers was 1.60 and 1.62; School -2 administrators and teachers was 1.58 and 1.50; School -3 administrators and teachers was 1.64 and 1.53. Internet was not available for enhancing teaching and learning and is accessible by pupils.

On computer for pedagogical purposes:

The school administrators and teachers indicated non-compliance on computer for pedagogical purposes. This was shown on the mean scores of school administrators and teachers from the three schools: School -1 administrators and teachers was 1.45 and 1.40; School -2 administrators and teachers was 1.30 and 1.60; School -3 administrators and teachers was 1.40 and 1.65. A problem arisen over the utilization of computers to facilitate course delivery or meet the requirements of autonomous teaching and learning.

On adapted infrastructure and materials for students with disabilities:

The school administrators and teachers indicated non-compliance on adapted infrastructure and materials for students with disabilities. This was shown on the mean scores of school administrators and teachers from the three schools: School -1 administrators and teachers was 1.66 and 1.50; School -2 administrators

and teachers was 1.64 and 1.60; School -3 administrators and teachers was 1.50 and 1.40. School educational facilities and learning materials were not available to all users, irrespective of varying handicap.

On basic drinking water:

The school administrators and teachers indicated different views from limited compliance to non-compliance on basic drinking water. This was shown on the mean scores of school administrators and teachers from the three schools: School -1 administrators and teachers was 1.67 and 1.50; School -2 administrators and teachers was 1.45 and 1.80; School -3 administrators and teachers was 2.00 and 1.55. There is an absence of a practical source of potable water on or in close proximity to the premises, as well as water stations that were easily accessible to all users during school hours.

On Single-Sex Basic Sanitation Facilities:

The school administrators and teachers indicated non-compliance on Single-Sex Basic Sanitation Facilities. This was shown on the mean scores of school administrators and teachers from the three schools: School -1 administrators and teachers was 1.60 and 1.45; School -2 administrators and teachers was 1.50 and 1.60; School -3 administrators and teachers was 1.55 and 1.55. Functional sanitary facilities specifically designated for males and females were required to be present either on the premises or in close proximity.

On Basic Handwashing Facilities:

The school administrators and teachers indicated limited compliance on Basic Handwashing Facilities. This was shown on the mean scores of school administrators and teachers from the three schools: School -1 administrators and teachers was 2.10 and 1.66; School -2 administrators and teachers was 1.70 and 1.69; School -3 administrators and teachers was 1.80 and 1.66. There is a limited accessible hand washing infrastructure, equipped with soap and water, provided for both male and female.

The overall mean scores across the schools fall within the "Poor Access" category, with most indicators scoring between 1.50 and 1.65. This indicates that the schools are significantly underperforming in terms of compliance with SDG 4.A.1. The consistent "Poor Access" ratings across all indicators reflect substantial deficiencies in the infrastructure and resources necessary to provide a safe, inclusive, and effective learning environment.

These results highlight critical areas where urgent improvements are needed, particularly in providing reliable electricity, enhancing internet connectivity, increasing the availability of computers, ensuring accessible infrastructure for students with disabilities, and improving access to safe drinking water and sanitation facilities. Addressing these gaps is essential for meeting the targets of SDG 4.A.1 and ensuring that all students could receive a quality education in a supportive environment.

On issues and challenges encountered by the school in managing school plant and facilities

Table 3:
Issues and Challenges encountered by the school in managing school plant and facilities.

Educational Facilities	Issues	Challenges
Electricity	Power interruption	Over consumption Overload
	Safety concern	Some of the electric wirings are old
	Short circuit in some buildings	Lack of fund to change the wirings
	Limited supply of electricity	Increasing monthly bill
	Use of generator from 7:00 to 12 noon	Electricity not sufficient

Educational Facilities	Issues	Challenges
Internet for pedagogical	Slow connection	No enough budget for internet
	Internet is limited to offices	Restricted wifi connectivity
	Password does not open for all	
	Connection not stable	Bandwidth limitation
	Unstable internet access	No sufficient internet access
	Limited time allowed	Can use only from 7 am to 12nn because of bandwidth limitation
	Use mobile data only	Limited access of internet for teaching and learning
	Not everyone can access	Internet are for office use only
	Due to power interruption, internet is not available	Electricity is also a problem for internet connection
Computer for pedagogical purposes	Ratio of computer per student not sufficient	Insufficient number of computers for the learner
	Limited number of computers	Limited student access to computers
	Technical problem with computers	No available technician around
	No internet connection to access different resources	Low power supply and internet
	Desktops are not Wi-Fi ready	Limited internet access
	Scheduled use of computers	No available computers for the whole class
	Computers not functional	Power shortage causes problem with computers
Adapted infrastructure and materials for students with disabilities	Lacks classrooms for large number of enrollees	Overcrowding resulted in insufficient classroom space
	No computer room	Lack of rooms due number of enrolled students
	Furniture/table are old	No budget for repair or to buy new furniture
	Room use as stock room	Rooms lack chairs and table, use as storage
	Lack facilities to cater all pupils including those with disabilities	Lack utility men to maintain cleanliness
	Classrooms and other areas are not safe for use	Need repairs of rooms and equipment
	Lack space for activities	No budget for infrastructure
	Shortage of rooms	No budget for additional room
	Lacks building maintenance	Commitment in the management of buildings
	School facilities and learning materials not conducive to learning	Liquidate the budget properly
Adapted infrastructure and materials for students with disabilities	No provision for students with disabilities	Lacks budget for infrastructure and learning materials for students with disabilities
	Conduct regular maintenance of the school	Allocate more fund
	Facilities not safe for the students, especially the toilets and handwashing area	Lack assistance from the local government.

Educational Facilities	Issues	Challenges
Basic Drinking Water	Lack water supply	No regular supply of water
	Water came from deep well	No budget for water
	Water supply interruption	No water quality maintenance
	No access for free drinking water	No available drinking water
	We buy drinking water	Lacks clean water supply
	No filter for the faucet	No budget for the filter
	Maynilad and pump water not safe for drinking	Water pump is for cleaning not drinking water
Single-sex basic sanitation facilities	Not enough to cater all pupils	Lacks toilet facilities
	Restrooms not enough for the number of students	Clogged restroom
	Dirty restroom	Lacks water supply for cleaning the restroom
	Foul odor	No water available
	Very limited number of functional restroom	No regular maintenance of restroom
	Communal CR	No budget for addition CR
	Toilet can't be flush, clogged	Plumbing issues
Basic Handwashing Facilities	Lack discipline in the use of washing area	Have no roofs for protection
	Dirty handwashing area	Water supply not available
	Soap is not always available	Lacks budget for supplies
	Unannounced water interruption	Poor water supply
	Number of handwashing area is not sufficient for the students	Overcrowded
	Pump is not functioning	Power shortage stops the water supply or the pump

According to the school administrators and teachers, on the issues and challenges they included all the comments of teachers, parents, and students that they have in their records. They also affirmed that the said situations were real and observed by all stakeholders. However, due to school budget limitations these situations were reported and on the process of improvement.

The common issues raised by the school administrators and teachers on school plant and facilities are the following: Electricity (Limited supply of electricity, Power Interruption, and Use of generator from 7 am to 12 noon); Internet for pedagogical purposes (Slow and unstable connection and Internet is limited to offices); Computer for pedagogical purposes (Ratio of computer per student not sufficient, Technical problems, and Computers not functional); Modified infrastructure and resources for kids with impairments (Lacks classrooms for large number of enrollees, Lack facilities to cater all pupils including those with disabilities, Classroom not safe for use, and Lacks building maintenance); Basic drinking water (Lack water supply, Water came from deep well, and Maynilad and pump water not safe for drinking); Single-sex sanitation facilities (Restrooms not enough for the number of students, Dirty restroom, Communal CR, and Very limited functional restroom); and Basic handwashing facilities (Dirty handwashing area, Soap is not always available, and Unannounced water interruption).

The common challenges raised by the school administrators on school plant and facilities are the following: Electricity (Old electric wiring, Increasing monthly bill, Electricity not sufficient, and Over consumption); Internet for pedagogical purposes (Restricted wifi connectivity, Internet were for office use only, and Bandwidth limitation); Computer for pedagogical purposes (Insufficient number of computers for the learner and No available technician around); Adapted infrastructure and materials for students with disabilities (Overcrowding resulted in insufficient classroom space, No budget for additional room, and Lacks budget for facilities also for learning resources aimed at pupils having incapacities); basic drinking water (No regular supply of water, No water quality maintenance, No budget for filter, and Water pump is for cleaning not for

drinking); Single-sex sanitation facilities (Lacks water supply for cleaning the restroom, No budget for additional restroom, Plumbing issues, and No regular maintenance for restroom); Basic handwashing facilities (Water supply not available, Lacks budget for supplies, Overcrowded, and Power shortage stops the water supply or the pump).

Based on the enumerated issues and challenges, the school administrators faced difficulty in managing educational facilities mainly because of lack of budget and assistance from the Department and other local and national agencies.

The academic prospects described in the study research not just address current concerns and difficulties, but also take a proactive approach in developing a strong and flexible education system that can drive the nation's long-term growth and progress.

On the Proposed Educational Facilities Development Plan

The results indicated non-compliance of the school educational facilities with SDG 4.a.1 in all the indicators: Electricity, Internet for pedagogical use, Computer for pedagogical use, Adapted infrastructure and materials for students with disabilities, Basic Drinking Water, Single-Sex Basic Sanitation Facilities; and limited compliance on Basic Hand Washing Facilities.

Insufficient supply of electrical energy, internet, computers or laptops, supply of water, lacking number of toilet and hand-washing facilities, and not performing the sanitation habit or hygiene continue important donors to non-compliance of the schools in the SDG4a.1. (Sustainability Development Goals)

Table 4:
Educational Facilities Development Plan

Key Areas	Development Needs	Plan of Action	Timeline	Source of Fund	Sustainability Plan
Insufficient Electricity Un-energized schools	24 hours supply of electricity	Installation of electricity that is sufficient for educational purposes	Immediate need	Coordination with DPWH DepEd Local Government Units (LGU)	Track energy generation, consumption, and system performance with monitoring systems.
Limited Internet access	Provide sufficient internet access	Project: Community e-center	Year-round	Public-Private Assistance The funds will be allocated for the expenses related to internet connection, electricity, supplies, as well as repair and maintenance. DepED Memorandum Numbers 247, issued in 2006, and 473, issued in 2009	Use public-private partnerships to fund and implement sustainable internet access projects. Support government policies that expand internet access.

Key Areas	Development Needs	Plan of Action	Timeline	Source of Fund	Sustainability Plan
Limited Computer for pedagogical purposes	Improve ratio of computer per student	Project: The Local School Board and the PTCA Alumni Association collaborate to form the Local Adopt-A-School Program.	Year-round	Public-Private Assistance	Collaborate with private companies to sponsor or donate computers and technology infrastructure.
	Functionality of computers	New E-Classroom Packages		DepEd Computerization Program	Establish a routine maintenance schedule to keep computers in optimal condition.
		Follow-up appropriations from DepEd Computerization Program			
Lacks infrastructure and materials for students with disabilities	Increase number of classrooms	Request for additional academic classrooms through DepEd school building program	Year-round based on the number of enrollees	Coordinate with DPWH DepEd Local Government Units (LGU	Assess and update the sustainability plan as requirements and resources change.
	Provide learning spaces for students with disabilities	Submit records of schoolrooms requiring significant repairs as indicated by EBEIS, NSBI, and/or OUA/EFD surveys.			
No available supply basic drinking water		Implementation of Section 902 of the Code with the following guideline:	Immediate need	Request assistance from Local Government Unit	Collaborate with local governments on water supply regulations and permits.
	Ideal Water Supply System Safe and adequate water supply	The most recent authorized National Standards for Drinking Water specify that water for drinking sourced from meteoric, the outside, or subsurface reservoirs must adhere to precise standards regarding its quality.			

Key Areas	Development Needs	Plan of Action	Timeline	Source of Fund	Sustainability Plan
Lacks single-sex basic sanitation facilities	Enhancing the availability and utilization of infrastructure for water and sanitation	Installation of toilet with adequate supply of water Janitors to regularly maintain the cleanliness of the restroom	Year-round Regular activities	DPWH DepEd Local Government Units (LGU)	Collaborate with local organizations, NGOs, or businesses to fund and support sanitation facility projects. Seek partnerships for ongoing preservation and community engagement plans.
Poor basic handwashing facilities	Monitoring of the existing handwashing facilities with adequate supply of water and hygiene items	Regular maintenance of handwashing facilities and hygiene items	Year-round Regular activities	DPWH DepEd Local Government Units (LGU) WASH	Secure budget allocations for the construction, maintenance, and promotion of these facilities. Engage with local communities to extend handwashing awareness beyond government offices.

The matter is exacerbated by additional issues, such as a lack of funding for: (a) the implementation of toilets and hand washing stations and (b) installation of an adequate water supply system and provision of sanitary products for the school. Additional contributing variables encompass the absence of operational and maintenance measures to guarantee the cleanliness and appropriateness of facilities for ongoing utilization.

Implementing an educational facilities development plan was highly recommended. An educational facilities development plan is a detailed plan to attain certain targets within a set timeframe. This can be part of the school's curriculum.

Conclusions

Based on the findings of the study, several key conclusions were drawn regarding the status of educational facilities and their compliance with Sustainable Development Goal 4.A.1:

First, it was evident that both school administrators and teachers consistently reported limited access to critical infrastructure, such as electricity, computers, and basic handwashing facilities. There was a shared recognition of the inadequacy of internet access and the insufficiency of classrooms to accommodate the student population effectively. However, a divergence in perception emerged concerning basic drinking water and the safety of learning facilities: while administrators rated these aspects as having limited or average access, teachers tended to view them more critically, often categorizing them as poor.

Second, the study highlighted that the insufficient access to electricity, reliable internet connectivity, and essential technological resources, coupled with inadequacies in water supply, bathroom facilities, and hygiene practices, significantly impeded the schools' ability to comply with the requirements of SDG 4.A.1. These shortcomings were identified as critical barriers to creating a conducive learning environment that meets the standards set by the Sustainable Development Goals.

Third, the research uncovered a series of specific challenges faced by school administrators in managing school plants and facilities. These challenges included outdated and insufficient electrical wiring, rising electricity costs, and overconsumption of power. Internet access was hampered by restricted Wi-Fi connectivity, bandwidth limitations, and policies that prioritized office use over pedagogical needs. In terms of technology, there was a notable shortage of computers for students and a lack of on-site technical support. The infrastructure for students with disabilities was found to be inadequate due to overcrowding, insufficient classroom space, and a lack of budget for necessary modifications and materials. Additionally, issues related to basic drinking water included irregular supply, poor water quality maintenance, and limited budget for filtration systems. Sanitation facilities suffered from water shortages, plumbing issues, and inadequate maintenance, while handwashing facilities were compromised by power shortages, lack of supplies, and overcrowding. These challenges underscored the difficulties faced by school administrators in managing educational facilities, primarily due to budgetary constraints and insufficient support from both the Department of Education and local and national agencies.

Finally, in response to these findings, the study developed and proposed an educational facilities development plan aimed at addressing the identified gaps and improving the schools' compliance with SDG 4.A.1. This plan was crafted to provide a strategic approach for enhancing the infrastructure and resources necessary to create a safe, inclusive, and effective learning environment for all students.

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Contextualized Laboratory Simulation (CLS): Enhancing Instruction in Teaching Molecule Polarity in Grade 11 Technical-Vocational-Livelihood Track at San Isidro Senior High SchoolCloma Peter Jr.¹¹Universidad De Manila**Abstract**

This study investigates the impact of contextualized laboratory simulations, specifically the use of PhET Interactive Simulations, on enhancing the understanding of molecular polarity among Grade 11 TVL students at San Isidro Senior High School. A mixed-method approach was employed, incorporating both quantitative and qualitative data collection methods. The quantitative aspect involved a pre-test and post-test design with 64 student respondents, divided into an experimental group and a control group. The experimental group utilized contextualized activity sheets and the PhET Interactive Simulation app during the molecular polarity lessons, while the control group did not. Additionally, a Likert scale survey questionnaire was administered to assess student performance in terms of knowledge, skills, and values. Statistical tools such as frequency and percentage, t-test, and mean were used to analyze the data. Results indicated a significant improvement in the post-test scores of the experimental group compared to the control group, demonstrating the effectiveness of the PhET simulations in enhancing academic performance. The students' level of performance, measured through weighted means, also showed outstanding improvement in the domains of knowledge, skills, and values after the intervention. The findings suggest that interactive simulations not only facilitate better understanding of complex scientific concepts but also enhance students' engagement and retention of the material. These results support the integration of technology-enhanced learning tools in the curriculum to improve educational outcomes in science education.

Keywords: *Contextualized laboratory simulation, enhancing instruction in teaching molecule polarity, level of knowledge and performance, values, and skill*

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Introduction

In recent years, virtual learning simulations have emerged as powerful tools that complement traditional teaching methods, offering significant educational benefits and cost-effectiveness (Bonde et al., 2014; Bric et al., 2015; Makransky et al., 2016a; Honey & Hilton, 2011). These simulations, such as the PhET Interactive Simulations, have become integral in enhancing students' understanding of complex scientific concepts by providing interactive and engaging learning environments (de Jong et al., 2013). PhET, an accessible online platform, is particularly effective in aiding students' comprehension of challenging subjects like molecular polarity in chemistry through dynamic visualization and active learning processes (Banda & Nzabahimana, 2023). By offering real-time visual representations of abstract concepts, these simulations address the common challenges faced in teaching molecular polarity, thereby improving students' motivation and academic performance (Salame et al., 2021).

This study explores the application of PhET Interactive Simulations in enhancing the understanding of molecular polarity among Grade 11 students in the Technical-Vocational-Livelihood (TVL) track at San Isidro Senior High School. The aim is to improve both the academic performance and overall learning experience of students by integrating advanced educational technologies into the chemistry curriculum.

The theoretical framework underpinning this study is rooted in constructivist learning theory, which posits that knowledge is actively constructed by learners through their interactions with the environment. Constructivism emphasizes the importance of active learning, where students engage deeply with content rather than passively absorbing information. PhET Interactive Simulations align with this theory by enabling students to manipulate variables, conduct experiments, and observe outcomes in real-time, fostering a deeper and more meaningful understanding of scientific principles.

Additionally, this study draws on the Cognitive Theory of Multimedia Learning, which suggests that individuals learn more effectively when information is presented through multiple modalities, such as combining visual and interactive elements with traditional text. The PhET simulations embody this approach by integrating visual and interactive components that help students grasp complex concepts like molecular polarity more effectively.

By situating this study within these theoretical frameworks, we aim to demonstrate the potential of interactive simulations to create a more engaging and effective learning environment. The anticipated outcome is not only an improvement in students' academic performance but also an increased appreciation and understanding of science, which may lead to enhanced motivation and sustained interest in the subject. The findings from this research will contribute to the broader discourse on the role of technology in education, particularly in how it influences student learning outcomes and engagement in scientific subjects.

Statement of the Problem

This study was conducted to determine the effectiveness of Contextualized Laboratory Simulation (CLS): Enhancing Instruction in Teaching Molecule Polarity in Grade 11 Technical-Vocational-Livelihood Track at San Isidro Senior High School. In particular, the following questions have been addressed in this study:

1. What are the student's scores on a pre-test prior to intervention?
2. What are the student's scores on the post-test after the intervention?
3. What is the Level of Performance of Learners studying Molecule Polarity before the intervention is used in:
 31. Knowledge:
 32. Values:
 33. Skill?
4. What is the Level of Performance of Learners studying Molecule Polarity after the intervention is used in the aspect of:
 - 4.1 Knowledge:
 - 4.2 Values:
 - 4.3 Skills?
5. Is there a significant difference between the scores of the learners studying Molecule Polarity before and after the Contextualized Laboratory Simulation (CLS) as observed among the respondents

Methodology

The study used a quantitative experimental research design, aiming to describe and interpret the current situation without manipulating the population or study conditions. It quantified and measured students' scores on pre-tests and post-tests, assessing their performance in terms of knowledge, values, and skills before and after the intervention. A survey approach was also employed to gather information from a sample of individuals through their responses to questions.

The research identified the subject of Molecular Polarity as the Least Mastered Skill Competency (LMS) in Physical Science among Grade 11 TVL students, based on the Learner's Outcome Assessment (LOA). Factors contributing to low performance included outdated facilities, lack of consumables and reagents, overcrowded classes, limited space, and time constraints.

To address these issues, contextualized activity sheets and the PhET Interactive Simulation Web Application were utilized. The contextualized activity sheet, aligned with the Most Essential Learning Competencies (MELCs), was used to teach the lesson on Molecular Polarity. This intervention aimed to enhance independent learning through symbolic macroscopic processes representation.

The study was conducted at San Isidro Senior High School with 64 Grade 11 TVL students (28 males and 36 females) as respondents. Data collection involved pre-tests and post-tests, alongside a Likert Scale survey to measure students' performance in knowledge, skills, and values.

The data gathering tools for this study included a contextualized activity sheet developed in alignment with the Most Essential Learning Competencies (MELCs) to focus on Molecular Polarity, a researcher-made 25-item test questionnaire designed to measure student performance before and after using the PhET Lab simulation, and a 15-item Likert Scale survey questionnaire aimed at assessing student performance in terms of knowledge, skills, and values.

The study included hypothesis testing to determine the significant differences in student scores before and after the intervention, evaluating the effectiveness of the Contextualized Laboratory Simulation (CLS) in enhancing instruction on Molecular Polarity.

The study was conducted at San Isidro Senior High School, involving 64 Grade 11 TVL students. A pretest was administered to all respondents to evaluate their initial understanding of molecular polarity, using a 25-item assessment designed to measure the Least Mastered Skill (LMS) competency related to molecular polarity. This pretest helped establish the students' baseline knowledge. The post-test was administered to both the experimental group, which used the contextualized activity sheet and the PhET Interactive Simulation app, and the control group after the molecular polarity lesson. The test questions, validated by the Science Subject Group Head, aimed to assess students' academic performance. The statistical treatment of data involved frequency and percentage to find the ratio of pre and post-test responses, a t-test to compare the means of the pre-test and post-test scores to evaluate the significant differences in performance, and the mean to assess the overall performance levels in terms of knowledge, skills, and values.

Results and Discussion

On the Pre-test Scores of the TVL students before the Intervention

Figure 1
Pre-test Scores of the TVL students before the Intervention

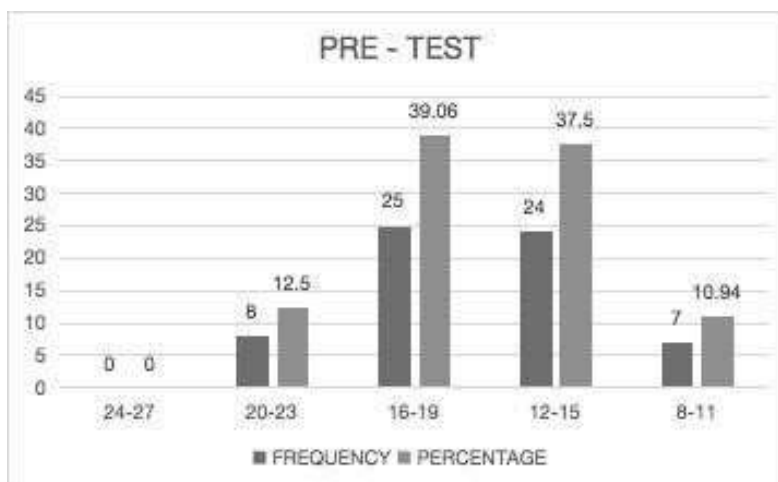


Figure 1 presents the frequency and percentage distribution on the pre-test of the respondents on their contextual laboratory simulation in enhancing instruction in teaching molecule polarity among them which has a ranged score of 100, 0.0% from 24-27.

It shows that rank 1 got a frequency of 25 or 39.06% among the respondents who scored between 16-19 which score belongs to the level of passing scores in their TVL examination. This shows that the scores of students are not impressive. Rank 2 got a score from 12-15, with a frequency of 24 or 37.5% among the respondents which scores below the passing scores. Therefore, they need to excel in analyzing their TVL subject for them to pass in their pre-test examinations. Rank 2 got a range score from 20-23, with a frequency of 8 or 12.5% among the respondents. This indicates that these students analyze the pre-test examinations for them to pass the examination. The lowest in rank is a score ranging from 8-11, with a frequency of 7 or 10.94% among the respondents which means that these students are very far from the passing score. They need to explore their analysis in the TVL pre-test examination for them to pass the examination. This shows the pre-test of TVL examination is not that impressive among students as shown in the results of the scores among them. They need to boost further their knowledge and do the advanced reading in any facets of the TVL module to familiarize words in such a way that they can comprehend on the possible examinations given to them though the examination is not familiar to them.

This implied that the TVL students were familiar with the Science subject but had limited knowledge. According to Mullis et al. (2020), the majority of Filipino students lack a sufficient knowledge of basic science facts or concepts is an understatement since only 19% scored in the lower benchmark and above, which means they do not understand scientific concepts sufficiently.

On Post-Test Scores of the TVL Students after the Intervention

Figure 2
Post-Test Scores of the TVL Students after the Intervention

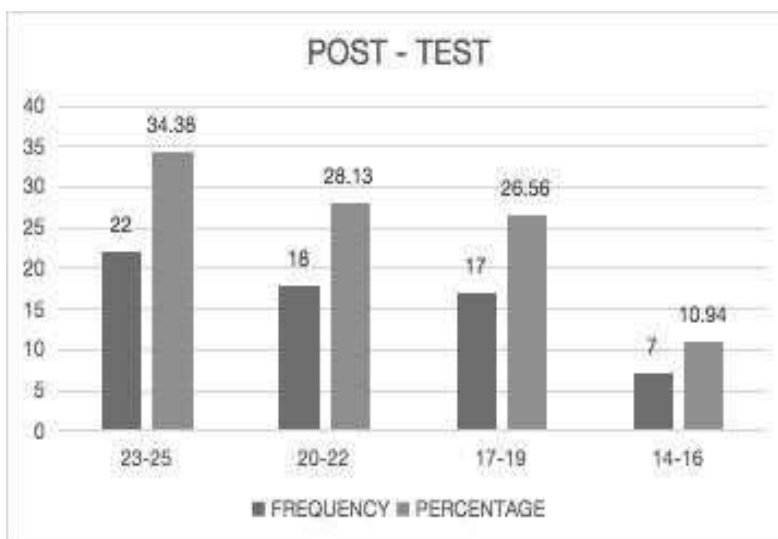


Figure 2 presents the frequency and percentage distribution on the post-test scores of the TVL students after the intervention among them.

It shows in the table that rank is a score ranges from 23-25, with a frequency of 22 or 34.38% among the respondents which means that students are already familiar with the terms given to them during the post-test examination. This means that students are guided properly on the scientific terms given to them. This is a good indication that students are attentive and are guided properly on their TVL module. Rank 2 ranges from the score of 20-22, with the frequency of 18 or 28.13% among the respondents. This indicates that

the scores of these respondents is also impressive because they passed the post-test examination given to them. Students have the retentivity on the lesson given to them. They are being guided according to what is expected on their TVL module. Rank 3 is score ranges from 17-19, with a frequency of 17 or 36.56% among the respondents which means that these students also passed the examination because the result is above the passing rate. This is a good indication also that students are attentive and know what is expected on their post-test examination. The lowest in rank is the score that ranges from 14-16, with a frequency of 7 or 10.94% among the respondents. This indicates that this kind of students are lax in their study. They don't care about the result of their examinations.

The results of this study indicate that the students that use interactive simulation can improve the learning because it helps them to understand changes, learn concepts more easily, without getting bored, and improve their understanding of the experimental process. This is because of the simulation that helps to determine precisely what can't be seen by naked eyes and correct some erroneous assumptions (Kolacek et al., 2014).

On Level of Performance of Learners in Studying the Molecular Polarity Before the Intervention Among the Respondents

Table 1
Level of Performance of Learners in Studying the Molecular Polarity Before the Intervention Among the Respondents

DOMAINS OF LEARNING	COMPUTED WEIGHTED MEAN	INTERPRETATION
Knowledge	3.33	Very Satisfactory (VS)
Values	3.95	Outstanding (O)
Skills	3.37	Outstanding (O)

Table 1 presents the weighted mean and the corresponding interpretation on the level of performance of learners in studying the molecular polarity before the intervention among the respondents.

It shows in the table that rank 1 belongs to "values", with a weighted mean of 3.95 or Outstanding which means that students really value their studies regarding molecular polarity which means. They know the value of learning that when they excel they can learn and apply the learning process in the future. Rank 2 is skills, with a weighted mean of 3.37 or outstanding which indicates that students know the value of the skills they learn in their module. This is very impressive as an indicator of the maturity of the students in the learning process. The least in rank is knowledge, with a frequency of 3.33 or Very Satisfactory which means students' performance inside the classroom is also observed. They know the importance of the knowledge they want to explore in the module, especially on the molecular intervention among them.

This implied that the TVL students were familiar with science subjects but had limited information only. Even though the result was good, it seems that the cognitive knowledge showed a small contribution to supporting TVL students in achieving their desired learning outcomes. They need to explore more on their knowledge in the module. Teachers in TVL need to motivate students to the fullest. Students need motivation and need to push through in their TVL module which is necessary skills they need acquire for their future career goals in life. However, when students are already proficient in the scientific method, it is still important to keep an eye on how the learning objectives are being met. They need to explore on the proper demonstration of their TVL module especially on the molecular polarity lesson that can enhance their knowledge in the cognitive learning among them. According to Anderson and Krathwol, 2019, the cognitive learning outcomes of students can be utilized to assess the success of learning objectives. According to Anderson and Krathwohl (2001), concept knowledge is a learning outcome made up of remembering, understanding, applying, analyzing, evaluating, and generating. According to Osborne, et. al (2013), the most important

requirement for learners to deal with obstacles to daily life is cognitive ability. This is important for students to learn. This is also a wake-up call among lecturers in TVL subjects to provide proper methods in teaching and learning among students.

On the Level of Performance of Learners in Studying the Molecular Polarity After the Intervention Among the Respondents

Table 2
Level of Performance of Learners in Studying the Molecular Polarity After the Intervention Among the Respondents

DOMAINS OF LEARNING	COMPUTED WEIGHTED MEAN	INTERPRETATION
Knowledge	4.37	Outstanding (O)
Values	4.40	Outstanding (O)
Skills	4.34	Outstanding (O)

Table 2 presents the weighted mean and the corresponding interpretation on the level of performance of learners in studying the molecular polarity after the intervention among the respondents.

It shows in the table that rank 1 is values, with a weighted mean of 4.40 or Outstanding in the level of performance among the students. This indicates that they value their lesson to the fullest. They know that what they learned will be carries wherever they are. It is a training ground for them. The things they learned will be of great help for them in the learning process. It shows also that rank 2 is knowledge on the level of performance among students, with a weighted mean of 4.37 or Outstanding. This is an indication that students excel in their TVL module. Their maturity level in the learning process is impressive. They know the importance of learning and develop their knowledge to the fullest. This might be the indicator also that teachers are doing their very best to teach to the fullest by demonstrating the proper teaching and learning among their students. The least in rank is skills on the level of performance of students. Though this is the last in rank still the result is outstanding, with a weighted mean of 4.34 or Outstanding. This indicates the students know the value of the skills they learn in their module. That is the reason why they wanted to excel to the fullest. They realize the importance of learning the skills to the fullest. This can bring them to proper learning in their performance to the fullest. The results show that the participants had a very satisfactory level of academic performance after the intervention.

This implied that the PhET simulation was effective in teaching science. According to Ndiokubwayo, (2017). It can substitute laboratory tests that are difficult to regulate, risky, or difficult to do, such as those involving nervous systems, lightning, or explosives. According to Moore (2013), these simulations have advantages in that they let students engage with dynamic graphics, concentrate on investigating questions, offer immediate feedback, and practice using multiple representations. The sort of strategy utilized in inquiry-based learning with PhET simulation influences student problem-solving skills (Yuliati et al., 2018).

On the Test of Significant Difference Between the Scores of the Learners Studying Molecule Polarity Before and After the Contextualized Laboratory Simulation (CLS) as Observed Among the Respondents

Table 3

Test of Significant Difference Between the Scores of the Learners Studying Molecule Polarity Before and After the Contextualized Laboratory Simulation (CLS) as Observed Among the Respondents

t-Test: Paired Two Sample for Means

	Variable 1	Variable 2
Mean	15.640625	20.65625
Variance	11.82118056	8.419642857
Observations	64	64
Pearson Correlation	0.862495008	
Hypothesized Mean Difference	0	
df	63	
t Stat	-23.04551412	
P(T<=t) one-tail	1.06125E-32	
t Critical one-tail	1.669402222	
P(T<=t) two-tail	2.12251E-32	
t Critical two-tail	1.998340543	

Table 3 presents the test of significant difference between the scores of the learners studying molecule polarity before and after the contextualized laboratory simulation (CLS) as observed among the respondents.

It shows that the p-value with a 0.00 is less than the alpha 0.05 level of significance, therefore the decision is to reject the null hypothesis. This implies that the scores of the participants in the posttest are significantly higher than the pretest, it means that the intervention used in the study is highly effective. This implied that the level of academic performance of the TVL students became very satisfactory with the help of the Contextualized Laboratory Simulation (CLS). According to Peters et al. (2011), the results support the current trend toward more technologically oriented learning techniques and are an empirical extension of previous research that has demonstrated the educational benefits of virtual learning simulations. Teachers can add the simulations to their lessons because they won't be compromising on the students' learning objectives. According to De Jong et al. (2013), it is recommended to use simulations as a support in traditional teaching methods. It shows that virtual learning simulations are more effective at facilitating learning. According to K (2017), due to its adaptability and vitality, this simulation is a useful approach for teaching concepts, activities, and experiments, especially in a variety of scientific subjects including physics and earth science, which are challenging to teach using conventional methods. According to K. Perkins et al. (2012), interactive simulations help students transfer their knowledge from one environment to another. Additionally, interactive simulations require less time and effort to conduct experiments as compared to true laboratories (Roschelle et al., 2000). According to Droui and El Hajjami (2014) and Mahdi &Laafou, Mohamed (2018), the use of interactive simulations in the educational setting can engage a variety of abilities in science learners, including observing, measuring, predicting, controlling variables, forming hypotheses, and analyzing outcomes.

Conclusions

The results of this study demonstrate that the use of contextualized activity sheets and PhET Interactive Simulation significantly improved the academic performance of Grade 11 TVL students in understanding molecular polarity. Prior to the intervention, a majority of students scored below the passing rate, indicating limited knowledge and the need for improved instructional methods. Post-intervention results showed a marked increase in scores, with a substantial percentage of students achieving outstanding performance levels in knowledge, skills, and values. The statistical analysis confirmed a significant difference in pre-test and post-test scores, underscoring the effectiveness of the intervention. The findings imply that interactive simulations not only enhance student understanding and retention of scientific concepts but also make learning more engaging and less intimidating. This supports the integration of technologically oriented learning techniques in traditional teaching methods, providing a dynamic and effective approach to science education.

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**Creation Spirituality and Arts Towards Individual Transformation:
A Phenomenological Approach**Edwin Maestro¹¹Universidad De Manila

Abstract

This study investigates the philosophical and psychological foundations of phenomenology and its application in the context of spirituality and the arts, with a focus on individual transformation. Central to the analysis are Edmund Husserl's and Martin Heidegger's contributions to phenomenology, which provide a framework for exploring consciousness, existence, and the nature of lived experiences. Additionally, Carl Jung's insights into individuation and the collective unconscious offer a psychological basis for understanding personal and collective dimensions of consciousness. The study particularly emphasizes how the creation of spirituality and the arts contributes to individual transformation. It explores the role of spiritual creation in the arts and its impact on human transformation, highlighting the appreciation of life through artistic expression and its social implications. Using a qualitative phenomenological research design, the study demonstrates that creative and spiritual practices foster healing and personal growth. It shows how the arts, when integrated with spirituality, facilitate a deeper connection to the divine and interpretative acts that resonate with community stories and experiences. Results indicate that creation spirituality and the arts enhance individual transformation by connecting with divine and communal narratives. Theoretical orientations on creation spirituality, psychological aspects of phenomenology, and its application in human and social sciences underscore the profound impact of phenomenology on understanding and facilitating human development through the arts. This research illustrates the broad applicability of phenomenology in examining the essence of human experiences and its transformative potential in integrating creativity and spirituality into personal and collective well-being.

Keywords: *Creation spirituality, creative arts, and individual transformation*

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Introduction:

Bringing the arts in a higher level to improve people's quality of being is a must today. The modern technologies are reasons behind changes of belief or even evolved on our perspective of a specific thing we believe. Before, it was us who generated culture for our community. Today modernization itself dictates the state of human culture. The creation spirituality in the universe story is a reality that humans need to understand. In my own experience as artist, we know that there are problems arise in all aspect of human experiences today, in terms of culture, politics even the economic situation of our country. This is being addressed every day in different multimedia all over our country. The unpredictable ways and rapid change of technology have an impact to spiritual and morale of individual transformation. It is an artificial intelligence and platform in society. It introduces emerging technology for potential and fundamental aspects in the community. It stabilizes emerging technology effect and utilization to recognize matters among them (Bailey, et al. 2022, 1-18).

On the other hand, creation spirituality promotes healing as well as the arts in general, understanding how creation started it is also giving importance to the gift. And what we all have as human is a gift from God whether it is personal or things around us, the nature, buildings, new discoveries etc. Creativity is part of it. We must remember that the universe will be nothing without creativity. Humans in general also

has creativity, it is part of being who they are as human. Power of creativity are unique which human possess all the time. The obligation of human is how they will use their creativity for positive change or personal transformation. It is the process of personal growth which is vaguely understood by the people. It is a values and model based on the personal growth and process. It organizes the process for socio-cognitive embodiment of individual psychological safety (Maurer, et al. 2023).

Moreover, relatively speaking creation spirituality and creativity are connected, in creation spirituality it gives us the idea that all that matters to us in the present times comes from what the nature gives to us. What we have today is the evolution of what we have started before. Giving prominence to what nature gives to human is as significant as your existence in this world, we are supposed to be the guardians of what god delivered from us. The values set by it is own surroundings, our daily experiences and the realization of every breath, the evolving stages of every culture. The modernization itself comes from what creation spirituality handed through nature to human. Creativity is vital in creation spirituality, it is the main reason why there is change, the continuous exploration of human resulted to modernity in today's life. Therefore, we can conclude that creativity can bring us to a path towards aiming for completeness and increase wonderment that is within the universe. Giving a high sense of respect to one's creativity is also tantamount to respecting how creation spirituality can move us towards our holistic development or completeness in full spiritual journey. It is a spirituality workforce on the emergences creativity in addressing adequate moral development approach. It proposes spiritual moral development practices and traditions (Allen, & Fry, 2023, pp. 649-663).

Furthermore, creativity also discusses how human will become creative and unique along the way on their existence and must use their creativity for them to progress. The solemnity of the creation is also the solemnity on how human value their lives. The divine creates the world as well as he creates human. Creation is still creating until now. At the beginning of creation there is still a continues movement of creation, the gift of God of having us in this earth is a continues phenomenon, and if there is a continues creation, human will exist and if human exist, creativity will be part of it along the way. This is maybe how all those who have faith in the power and uniqueness of creativity and will continue spreading its power, change will come next.

Spirituality is the fulfilment of one's life. The emptiness of yourself is not tossing all what you have in yourself, but it is letting yourself to free from anger and negativity for us to be able to walk down the pathway of spirituality. It supports the love and support of the believers to cultivate practical wisdom (Upenieks, & Krause, 2023, pp. 227-250).

Notably, creation spirituality is the story of the evolution of everything in the universe and how everything connects to us today, and how humans will understand his connections, belief, and our connections to cosmic world, the importance of every living thing in this earth and its significance to the life cycle. Creation spirituality is a blessing and a gift of God in which we need to flourish and nurtured towards understanding the essence of our existence and the connection of every history, nature and other living things to us. Understanding creation spirituality can lead someone who lost and get back from the path towards goodness of life and aiming for completeness. In the four paths, like in the art, your willingness to change and develop is synonymous to your willingness to embark yourself to spiritual path and willing to learn and let go. In the arts there is also the presence of life, energy and belief and everyone teaches us to let everything flourished not only your creative side but more so your inner understanding about connections, divinity and your life. Art in general is also about human experiences and how he understands how his experience in the arts will matter according to his need of change. Experiencing arts can change our perspective in life how we give importance to things we regard before. Trainings and experiences in the arts unfolds hidden values of a person that has long been covered maybe because of the values set by another people that surrounds him aside from his immediate family (Koburtay, Jamali, & Aljafari, 2023, pp. 341-357).

Indeed, in enhancing human creativity in the art, you also enhance some values that can affect your perspective in life that can be an alternative way of following the best path towards development. It is basically a movement for artist who believes in the power of arts. It's been years since I have realized that arts can change views of people regarding on how to become developed. Making people believed

in the power of Arts in general is not as easy as what you think, like creation spirituality it is a long journey, changes and development happens along the path of believing humans about the positive impact of arts for their lives. It increases the organization and utilization of evidence-based approach and decision-making adoption to human creativity in art. Creative process in enhancing human process and practice especially on the culture transformation and creative decision to human art. It highlights the human creativity and analysis (Tamm, Hallikainen, & Tim, 2022, 729-753).

In the perspective research and experience creativity in the arts is a force that upholds belief that there is a presence of change in the arts, change that can be best alternative way to develop one's life. Hence, the four paths of creation area path that can be a better way in making our self believe in the presence of the divine. Experiencing the four paths are ways for us to unfold how the divine can create a major positive turn out after a long journey for a human of becoming humane and transformed individual. The four paths can lose our belief that the culture we have created today can intimidate us of becoming an artist we are meant to be. An artist must be holistic in carrying the belief that your creativity is a gift from God. The four paths of creation spirituality a long journey for an artist's experience in order him/her to realize how to be humane and artist as follows:

In via Positiva, which means the existence in this earth is not by chance. Every individual is a gift from God, every one of us is an awe, a mystery that no one can explain why you exist. Being artist, itself is an awe his/her creativity is a gift from the divine no one can explain on how you obtain except the fact that it is a mystery.

In Via Negativa, which means the nothingness is emptying yourself to let go and let be, suffering and pain is an experience to prove that your spiritual journey is real. Experiencing pain in every journey of the life as human and artist is a symbol of how yourself will understand each and every experience of yours.

In Via Creativa, which means the existence as human is the reason why we can call ourselves co-creator of God because molding our self to who we are, believe that creativity is not only about ourselves but also for others who don't believe on what we believe, embracing your enemies is like embracing your visions and dreams.

Via transformative, which means one day if the artist earned his/her success in his/her own battle in every pain during the journey and celebrate change and transformation through togetherness the experience of compassion is about to flourish in the end.

All of them is part of human experiences realizing the value of life. Creativity is part of human experiences, creativity in the arts is an alternative instrument towards transformation. I know it is a long process. But there is a clear positive turn out of experiences along the way. In this paper I will narrate my own experience in theatre just to give justice in my belief that creativity in the arts is a powerful alternative instrument for change with the presence of my understanding how the divine is moving for me towards my aim of completeness and spread it to others who need change using the arts. In the Arts, we started to open minds of the young people on how theatre works and enhance confidence followed by creativity. In the process the set of values must possess by people who wants to be in theatre also presented and discussed during workshops and seminars, set of values and attitudes are injected into it. This process is also a long journey for young people who accepted the challenges to become an artist. As artist, youngsters need to understand that their gift of talent and creativity is a gift from God that needs to flourish and prosper in order to achieve personal change. Realization comes next and that's the time they can also duplicate and shared what they have experience in theatre. Their creativity and guidance of their belief in the divine can be a strong force for artist in continuously finding their long journey of spirituality, through the four paths. It analyzes the development and strategy of human capital development. The process of human experience is realizing the value of life process and sphere (Tulkin, & Xaydarovich, 2023, 69-75).

Indeed, we feel the need of using arts for the development of our young people. There are lots of artists who believed that the people's being is being nurtured through art activities and believe in the presence of mystery through divinity and transformed them on how to make themselves what they are and help

the others to transform. The researcher personally believes on this matter because he started studying behaviors of young children before and after they experienced performing arts. He remembered the first time he wrote an article about community theatre, he tried to reiterate the importance of bringing back to the community what have you learned from outside and use those learning to change lives of the people who are affected by modernization and make themselves empowered. This community problem which has been part of their challenges because of modernization, which most of them are being left behind because of it and left with values against their own development. One consistent among youth today from the community, whether in cities or suburb areas is their yearning to have a healthy future and a better life amid the instability of their status and the alarming rate of poverty in the present. Society carries a vital role in taking care of this youngster as they journey in its most critical stage (Bongers, et al. 2022).

More often aspirations of these youth for a better living turned bitter and warped due to the unfavorable things they are observing from their environment. The absence of positive attitudes towards hard trials, tragedies and being unfortunate resulted to a worse state of depression on the part of young individuals than it did on the part of the older people. There is a great tendency for this young fellow to turn away from their promising dream and be hopeless forever amidst this very unpredictable world, if they will not be motivated to have a goal of their own and appreciate life's great beauty, in which they are living a proof. It is very important to involve the youth in such activities that will enrich their knowledge of the outside world and the same time will lead them into becoming a better individual. Youth development is apparently crucial, they are compelled to make adjustment on their own as they grow, and during this stage, they develop rapidly as they are exposed to different attitudes and behaviors which contributed a lot by the modernity. They learn many things formally and informally and such experiences contributed to their emotional, intellectual, physical and social development. Thus, the things our youth engaged into and the manner their society raised them contributed greatly to what kind of person they will be in the future. It is based on the experiences of individual in dealing with the community and to the world as well. It increases the access of youth aspiration as to their spiritual values in life. It contributes to the improvement of and development of human being (Lee, et al. 2022).

In line with all my experiences with different professional theater productions realization sprout continuously into my mind and I have come up with the idea of bringing arts again to where it started from the community. With the help of my theater group, we've created a community-oriented project that focus on the enhancement of our young people through the arts. 10 years ago, when I started a project entitled, ***"Lakbay sining patungo sa komunidad"***, the project is a seven-day free community theater workshop in Basic Integrated Art Workshop for the Community. The workshop involves trainings in basic Theater Acting (for Children and Teens), Visual Arts, Dance and Music. Most of the activities and exercises are improvisations drawn from their experiences from their communities. It involves cultural development, interpretative training, which will help them to become analytical individuals. The objective of the activity is to develop a community-oriented art project that will bring into being the essence of art as an instrument in building a better community with a symbiotic approach in achieving one goal, starting from the children and the youth and extending to different communities the expression of culture in an artistic presentation, which will bring sense of belongingness to the community (Marlin, Lewis, & McLaren, 2022, pp. 1-22). This has been proven through our experiences in different communities that we went thru. The young people create positive effects on their self-confidence, self-discipline, and self-esteem. Moreover, it offers young people good chances to keep active, to learn, to enhance their talents, to interact with others, and to be forward-looking and positive members of their community. Every year counts...every year changes...every year we develop ideas...every year comes with big responsibilities. Now we help develop not only talents and confidence of the young people even future, dreams, aspirations using developmental approach thru the arts. It advocates of theater arts discover obligation of a real artist giving back and share to the community what they have. My works in different communities only manifest the importance of changing the lives of the young people in the community who are affected of the continuous modernization all over the country, these are the people who left behind of the growing economy of our country. They were people unrecognized by the government in favor of globalization and modernization which most their projects are against the natural phenomenon (Beckett, Lu, & Sabati, 2022).

However, in a study of my theater colleague, another form of theater performance has also a collaborative effect in the theory of Carl Marx which can also change views of people about the impact of theater in the development of one's personality towards change and development. It flourishes the ultimate human to focus on genuine emancipation of the individual objective and subjectivity to conscious and unconscious convergences in caring life to the fullest (Gerber, 2021, pp. 182-203). The author tried to explore that:

"Man now uses the arts specifically theater in his pursuit of understanding. Theater is philosophical since it exposes discourse which makes man think of the meaning of his existence and makes him search answers for questions about himself, God and life. Marcuse (1990) claims that art transcends its social determination and emancipates itself from the given universe of discourse and behavior while preserving its overwhelming presence. And further states that art has its own language and illuminates reality only through this other language."

According to Edward Dantis, the theatre itself can change views of a person about his important existence in this earth. The opportunity to open man's realization about his existence can be a start of new discoveries about how he can be of great importance in the universe since art has its own language. This research study "Playback Theatre in light of Marxian Humanism" to see how a theatre form devotes its artistry and performance to a man's personal life story, exploits and how he is placed at the center of everything (Mules, & Kerruish, 2022, pp. 3-20). And what is my purpose of presenting this study in this research? Because this only shows that theater could be an important tool for people to understand their existence as human that:

"Performative elements including dramatic, and theatrical are present in every society, no matter how complex or how unsophisticated a society maybe" (Oscar Brockett, The History of the Theater 1995) and it is with the same society that Karl Marx premised on his analysis of the social system (Zulueta et al. 2000). This made the researcher believe that it is fitting to apply ideology and philosophy such as Marxian Humanism to Improvisational Theater such as Playback Theater. Playback Theater as Art is filled with ideologies (Jo Salas Improvising Real Life, Personal Story in Playback Theater 1993) and were attested by Plekhanov (1972) that there is no such thing as work of art completely devoid of ideological content."

Theater is a continues phenomenon, or may be should I say, Art is a continues phenomenon. It is always there but most of us human ignore the use of it in making us aware for everything because we are all busy with something personal which dictates by the modern civilization. Another kind of a theatre performance develop by Augusto Boal is the community theatre which can be use by the community for them to realize the importance of their existence. Augusto Boal's concept of Theater of the oppressed is to give an alternative way of fighting against the plight of the people during his time. Theater of the Oppressed is designed for people in the community to learn ways of combating issues of direct and indirect oppressions in their recent daily lives using theater. It provides tools to explore collective struggles, analyze their history and present circumstances, and then experiment with inventing a new future together (Levana Saxon, 2014). Boal's theater concept allows the actors to involve the audience as part of their performance, being involved in Community theater you allow people to become socially aware which open window of possibilities regarding changes by then, the quest for personal transformation follows:

"In the History of performing Arts specifically theatre there is a need for human to face the reality that art in many forms is a good way of identifying our strength and use it for our own development and help others change. There are lots of issues all over our world, there are lots of mistakes human done for the earth itself, we destructed the natural phenomenon because of our greediness and self-centered attitude, we continuously killing softly what the divine offered to us in our everyday living because of modernization. Our responsibility of bringing back what we are

before is crucial because everything was already ruined. But believing into our selves that there are still hope and our positive attitude could be of great help in unifying ourselves in one goal. I have seen people, places, events, who are also doing their part to save our planet. Starting from ourselves through making yourself to be aware and conscious about everything you can make a difference, and we can combat issues if all of us are in one spirit and one goal no one is impossible."

Objectives

1. To explore the creation spirituality and arts towards individual transformation.
2. To apply the spirituality creation of the arts to human transformation in life.
3. To appreciate the gift of life through transformation on the social aspect of individual through arts.

Methodology

This paper expounds on the nature of the qualitative method to be used in the study and how this is applied in a quest for the personal development and transformative impact of an individual in a religious drama inspired by the essence of Christian Faith – which is to be emulated by the followers of Christ – the gift of self to gain completeness of life of all creation. This evaluates to explore the creation spirituality and arts towards individual transformation, applies the spirituality creation of the arts to human transformation in life, and appreciates the gift of life through transformation on the social aspect of the individual through arts. The qualitative phenomenological method provides educational research and theoretical tools to engage and allow flexible research that describes the complex and understanding of the process of research as to social experiences in various aspects. It explains and analyzes the qualitative phenomenological framework of the study (Alhazmi, & Kaufmann, 2022).

Results and Discussion

Philosophical Foundation of Phenomenology

Edmund Husserl, the Father of Phenomenology, highlights the basic premise of knowledge, which is our consciousness of reality? What is it to know? Our consciousness of things assures us of knowledge about reality. According to him, phenomenology can be described as the sustained attempt to describe experiences and the "things themselves" without metaphysical and theoretical speculations. Husserl suggested that only by suspending or bracketing away the "natural attitude" could philosophy become its own distinctive and rigorous science, and he insisted that phenomenology is a science of consciousness rather than of empirical things. It discusses the relevance of philosophical foundation of the art through creative spirituality process of human development. It offers on the positivism and powerful critique in the central qualities and way of inquiring the human being around the globe. It focuses on the lived experiences and core dimension to life and deeper approach of understanding (Kuchinke, 2023, pp. 36-58). On the other hand, this has also been supported by Martin Heidegger who is one of his star pupils, developed phenomenology as a philosophy of existence of being consciousness implies consciousness of something. We are absorbed by the things around us. We are conscious of our natural and social environment. This is the movement of intentionality a movement outward. There is a movement inward, and this is the movement of self-reflection. To be conscious is to be conscious of something. But we can ask ourselves, what is to be conscious of this something? This is a second level of consciousness. It is like we are re-experiencing what we have experienced. Through reflection, we acquire a deeper consciousness of what we are aware of. Heightening our consciousness of things brings us to our existential meaning in life. This meaning and purpose in life spells the reason for our being and becoming. A person is a self-project, one who is in the process of discovering the truth of who he/she is. It evaluates the needs and decision-making of oneself. It increases the performance of human experts. It measures the quality or work knowledge and skills context performance. It investigates the process of the theory of life in various learning. It measures the standard provided for the label of ground truths. It reveals the certain expectations of searching and explanation of knowledge

and capture to validate the truth model and practice. It addresses the learning discovery of oneself in the understanding the benefits of life in reality (Lebovitz, Levina, & Lifshitz-Assaf, 2021).

Psychological, psyche-analytic basis of Phenomenology

Carl Gustav Jung, a depth-psychologist, in his theory of development of personality which he terms, as individuation, explains the concepts of collective unconscious, the individual unconscious, consciousness. Most of us, according to him, starts life with only being unconsciousness of the things around us, but as we develop into a personality, as we individuate, we become more conscious of our personal and collective unconscious. Among creatures on earth, only the person is capable of the power of reflexivity. It is through this power that we become mature, and discover the interconnectedness of things in nature, and the mystery of reality, even of scientific reality and which leads us to the reality of something beyond us, something greater than ourselves. We discover we are just a dot but related to the great immensity of the universe. It fosters a dynamic experiential psychotherapy on healing from the get-go. It examines the therapeutic of emotional issues of men. It focuses on the unequivocal affirmation, empathy, therapeutic relationship, extraordinary and profound connection. It integrates change and self-emotion and positivity as to competence, energy aliveness, deep transformation, and practice. It accesses the core issues and strength on therapy and positive emotion of sense achievement (Iwakabe, Edlin, & Thoma, 2022).

Phenomenology as Applied in Human and Social Science

Mina Ramirez, the first in the Philippines (SLQ, Sept.-Dec., 1968) to use phenomenology in social science, specifically in Sociology, states that "phenomenology is based on the human character of the subject matter of the discipline. Phenomenology is an attitude of "seeing", "looking" and "examining" human and social reality, specifically a human approach as a specific human approach, it uses lived experiences or primary experiences as facts on what to base one's insights." (Ramirez, 1968, 1984, 1993, 2017). According to her:

"The phenomenon being studied may be viewed from different standpoints and profiles. Each standpoint or profile reveals certain themes. The task of phenomenology is to find out how the themes in each standpoint or profile are linked meaningfully and from this, draw out the interrelationships among different standpoints and profiles. In this way, phenomenology unveils layers of meanings about the phenomenon being studied. It strips the phenomenon of all surface appearances to bring out one's perception of the 'eidos', the 'essence', and the perceived 'nucleus of truth' (Ramirez in Mercado, 1984, pp. 153-154; Ramirez, 2017, xi)"

Considering phenomenology, not just a research approach, but also, a change process, and a pedagogy. she attests that *phenomenology is an approach by which the subjects of research may know themselves, question themselves and consciously reflect on the meaning of their lives in the context of their socio-cultural realities. Thus, the approach is also a pedagogical approach by which equality between the researcher and the subjects of research, between so-called change agents and the subjects of change, between teachers and students in a common quest for understanding or ins striving to understand the meaning of a phenomenon* (Ramirez, 1993 p. 18; 2017). Summarizing, she says, "phenomenology is disciplined intuitionism."

The creative works (Arts) that compel to the divine and a project by the church itself is an act that retold and interpret stories of Christ connected to simple stories of the communities by the community McConnell, (2022). It beholds the beauty of worshipping God through creative work of arts that expresses feelings and emotion. Improvisation is always present in the presentation it is a rehearsed improvisation as exercise of accepting what is given to the actor and responding with 'yes - and.' In improvisation, the actors work as a team, committing to the acceptance of the premise of a story and adding one's own experiences or ideas to move forward with the plot. The idea of improvisation and its connection to humanity in relation to the Divine is grounded in the story. It examines the behaviors on

the effect improvisational performance of individuals. It also explores the competitive intensity and factors of human aspects in life that provides improvisational impact on the individual performance (Charoensukmongkol, 2022, pp. 26-46).

On the other hand, the story of improvisation in divinity offers a new understanding of faith as a living, dynamic relationship with the divine and with others. To denigrate a life of faith to crossing the yes finish line and allow the moment of justifying A hermeneutic of performance grounded in the plot of a specific creative story with improvisational scene that connects a reality in the community in a specific time to a life of faith learning to trust Playwright, Choreographer and Director as the ultimate improvisational partners. A certain drama for spirituality released to the fullness of what the interplay of the life with the Divine could become, allows them to look at their daily life, purpose, calling, and even relationships with a sense of wonder and imagination of possibilities. All the world is God's stage, yes, and we are invited to be players on stage, and a hermeneutic of performance as a servant of the Lord is always present. Believing in one's creativity with faith in the Creator, grasp the in depth meaning of spirituality for the advancement of an individual artist towards improving well-being. It develops a spiritual practice on creativity that can grow in deeper flourish to the advancement of creativity on the divine faith. It focuses on the creativity of work and imagination. It provides strengths on spirituality and creativity practice and aspect in life. It inspires on self-development and spirituality practice and creativity (Vesneske, 2022).

Conclusions

In conclusion, phenomenology provides a comprehensive framework for understanding human consciousness and experiences. Integrating philosophical, psychological, and sociological perspectives, it emphasizes the importance of reflection, self-awareness, and lived experiences in comprehending reality and fostering personal growth. Phenomenology's applications in various fields underscore its relevance and transformative potential in exploring and understanding the complexities of human existence.

It shows that creation spirituality promotes healing as well as the arts in general, understanding how creation started it is also giving importance to the gift. And what we all have as human is a gift from God whether it is personal or things around us, the nature, buildings, new discoveries etc. The creative works (Arts) that compel to the divine and a project by the church itself is an act that retold and interpret stories of Christ connected to simple stories of the communities. It beholds the beauty of worshipping God through creative work of arts that expresses feelings and emotion and the theoretical orientation on the creation of spirituality and arts towards individual transformation focuses on philosophical foundation of phenomenology towards creation spirituality and arts towards individual transformation, psychological, psyche-analytic basis of phenomenology, and phenomenology as applied in human and social sciences.

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Genetic Diversity of Beef Tapeworm (*Taenia saginata*) Using Mitochondrial DNA Control Region

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Abstract

This study examined the genetic diversity of the beef tapeworm (*Taenia saginata*) by utilizing the mitochondrial DNA regulatory region (CO1). *Taenia saginata* is an important tapeworm that has a worldwide impact through morbidity and mortality in humans and eminent economic losses in bovine meat industries. One hundred sixteen samples from thirteen countries, including China, Brazil, Ecuador, Indonesia, Ethiopia, Japan, Belgium, Nepal, Mongolia, South Korea, Cambodia, Poland, and Thailand, were examined using CO1 sequences obtained from the Barcode of Life Database (BOLD). The study aimed to evaluate the genetic diversity, map the genetic diversity, and propose solutions for the prevention of *Taenia saginata* infections. Results showed a low genetic diversity among the beef tapeworm populations globally, with ten haplotypes observed, five of which were unique to specific countries. The findings indicate a higher gene flow between populations, potentially leading to a panmictic population. Intensive studies using nuclear genes and increased sample sizes from diverse geographical areas are necessary to gain a comprehensive understanding of the population genetics of *T. saginata* which aims to inform better control measures and ultimately reduce the prevalence of taeniasis and cysticercosis globally.

Keywords: *Taenia saginata*, Beef tapeworm, Genetic diversity, Mitochondrial DNA region (CO1)

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Introduction:

Taenia saginata, commonly known as the beef tapeworm, is a significant parasitic species that infects humans globally, leading to taeniasis and cysticercosis—conditions classified by the World Health Organization (WHO) as neglected tropical diseases (Rostami et al., 2015). Taeniasis results from infection with the adult tapeworm, while cysticercosis, although rarer, occurs when larval cysts of the parasite accumulate in human tissues. *T. saginata* is a cyclo-zoonotic cestode, with humans serving as the definitive host and cattle as the intermediate host. It is estimated that between 45 and 77 million people worldwide are infected with *T. saginata* (Megersa et al., 2010). The global distribution of this parasite is influenced by several factors, including the consumption of raw or undercooked beef, poor sanitation practices, and the proximity of cattle to human activities (Marshall et al., 2016). While taeniasis prevalence is particularly high in developing countries, especially in Africa, it is significantly lower in developed regions (Cabaret et al., 2002). The impact of *T. saginata* extends beyond public health, as the bovine meat industry incurs substantial economic losses due to the need for rigorous meat inspection, freezing of lightly infected carcasses, and condemnation of heavily infected ones (Jansen et al., 2018).

Understanding the genetic diversity of *T. saginata* is crucial for the effective diagnosis and control of taeniasis and cysticercosis (Ladzekpo et al., 2023). Genetic diversity studies provide insights into the parasite's evolutionary history, population structure, and adaptation mechanisms. Mitochondrial DNA (mtDNA) markers, known for their high mutation rates and maternal inheritance, are particularly valuable in tracing genetic variation and population dynamics (Avice, 2000). Among these markers, the cytochrome c oxidase subunit 1 (CO1) gene has been widely used in genetic studies of various organisms, including parasites (Hebert et al., 2003).

Research has demonstrated significant genetic variation among *T. saginata* populations in different geographic regions. For example, Okamoto et al. (2010) identified distinct genetic lineages of *T. saginata* in Asia and Africa, suggesting regional adaptations and the need for tailored public health interventions. Despite the importance of understanding genetic diversity in controlling the spread of *T. saginata*, most genetic studies have focused on the pork tapeworm, *Taenia solium*, with relatively few examining the genetic variation of *T. saginata* across different countries. However, some genetic characterizations have been conducted in Germany, South Korea, Ethiopia, Indonesia, and Thailand (Abuseir et al., 2018). Mitochondrial gene sequences, particularly the CO1 gene, have proven to be reliable markers for the molecular identification of helminth parasites (Jeon et al., 2007; Solano et al., 2016).

Analyzing the genetic diversity of *T. saginata* in different geographical populations is essential for understanding the parasite's origin, transmission patterns, and global distribution. This knowledge is vital for developing effective treatments, vaccines, and control strategies. Despite the global significance of *T. saginata*, studies on its genetic variability remain limited (Hou et al., 2023).

This study aimed to fill this gap by analyzing the genetic diversity of *T. saginata* using mitochondrial DNA markers, with a focus on the CO1 gene. By exploring the genetic variation in different geographical populations, this research seeks to inform better control measures and contribute to the global effort to reduce the prevalence of taeniasis and cysticercosis. The study also offers recommendations for improving meat handling and cooking practices, enhancing hygiene and sanitation, and delivering targeted public health education to prevent *T. saginata* infections (Alvi et al., 2020).

Statement of the Problem

The study sought to examine the extent of genetic diversity of *T. saginata* across different geographic locations. The primary questions addressed in this inquiry were articulated as follows:

Firstly, the study aimed to:

1. Analyze the genetic diversity of beef tapeworm (*taenia saginata*) using mitochondrial DNA control region (CO1) process.
2. Maps the genetic diversity of beef tapeworm using the mitochondrial DNA control region (CO1) process.
3. Analyze and evaluate the genetic diversity of beef tape work (*taenia saginata*) using the mitochondrial DNA control region (CO1) as a result of the prevention for human being.
4. Provide solutions on the prevention of tapeworm diversity *taenia saginata* using the mitochondrial DNA control region process through (CO1).

Secondly, the research explored how the genetic diversity of *T. saginata* distributed across different countries.

Lastly, the study sought to determine what preventive measures can be recommended based on the genetic diversity findings to control *T. saginata* infections.

These questions aimed to provide a comprehensive understanding of the genetic mechanisms influencing the distribution and control of *T. saginata*, ultimately contributing to more effective public health policies and strategies.

Methodology

This study analyzed the genetic diversity of *Taenia saginata* using mitochondrial DNA control region sequences. A total of 116 samples were collected from thirteen countries: China, Brazil, Ecuador, Indonesia, Ethiopia, Japan, Belgium, Nepal, Mongolia, South Korea, Cambodia, Poland, and Thailand. CO1 sequences, obtained from the Barcode of Life Database (BOLD), provided the raw data for this analysis. DNA marker mining was employed to identify *T. saginata* specimens and assess genetic variation across different populations.

For the analysis, DNA sequences were first aligned using MEGA X software to establish a comprehensive dataset. Subsequently, DNA Sequence Polymorphism (DnaSP) 5.10.1 software was used to view and categorize the aligned sequences into distinct subpopulations. Haplotype data were generated and analyzed to assess nucleotide polymorphism. The optimal DNA model and gamma value for genetic and nucleotide diversity computations were determined using MEGA X software.

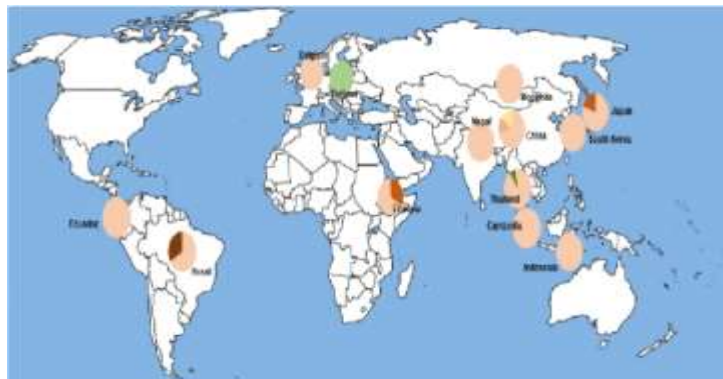
Population analysis was conducted using Arlequin v3.5.1.2 software to examine genetic diversity and population structure. Additionally, PopART software was utilized to create a Minimum Spanning Tree, which visualized the genetic relationships among the *T. saginata* samples.

The study's primary objectives included analyzing and mapping the genetic diversity of *T. saginata*, evaluating its implications for human health, and proposing preventive measures based on the genetic findings. By utilizing bioinformatics tools such as MEGA X, DnaSP 5.10.1, Arlequin v3.5.1.2, and PopART, this research aimed to achieve a detailed understanding of the population genetics of *T. saginata* and to provide insights into effective control strategies.

Results and Discussion

On the Distribution and Diversity of CO1 Haplotypes Across Thirteen Countries

Figure 1:
CO1 Map of the world showing the thirteen sampling sites/countries and the distribution and frequency of *T. saginata* DNA haplotypes across sampling sites



A total of 116 CO1 sequences were generated from BOLD database coming from thirteen countries: 7 from China, 3 from Brazil, 2 from Ecuador, 2 from Indonesia, 3 from Ethiopia, 1 from Belgium, 1 from Nepal, 87 from Thailand, 1 from Mongolia, 5 from Japan, 1 from South Korea, 2 from Cambodia and 1 from Poland. From all the enumerated samples haplotypes were produced. Out of 116 sequences from thirteen countries, 10 haplotypes were observed. From the 10 haplotypes inferred, there were 5 unique haplotypes detected (Hap_2, Hap_5, Hap_4, Hap_6 and Hap_10) while the remaining five were established to contain the following: 99 Hap_1 (85%), 3 Hap_3 (2.6%), 2 Hap_7 (1.7%), 4 Hap_8 (3.4%) and 3 Hap_9 (2.6%) (Table1). The common Hap_1 was found to be present in almost all sampling sites, except Poland; common Hap_3 was found in Ethiopia and Japan only; common Hap_7, Hap_8 and Hap_9 was all seen in Thailand while unique haplotypes were discovered in China (Hap_2 and Hap_5), Brazil (Hap_4), Thailand (Hap_6) and Poland (Hap_10) (Table 1 and Figure 1). The diversity among haplotypes ranges from 0.00 for Ecuador, Indonesia and Cambodia to 0.67 for Brazil and Ethiopia. Furthermore, nucleotide diversity is very low among haplotypes which range from 0.00000 for Ecuador, Indonesia and Cambodia to 0.00263 for Brazil.

On the Haplotype diversity, nucleotide diversity and expected heterozygosity of each sampling site with the corresponding number of samples per area

Table 1:
Genetic Diversity Metrics of *Taenia saginata* Across Various Sampling Sites

Sampling Sites	No. of Sample	Haplotype	Unique Haplotype	Haplotype Diversity (Hd)	Nucleotide Diversity (π)	Expected Heterozygosity (He)
China	7	1	2,5	0.52	0.00169	0.5238+/-0.208 6
Brazil	3	1	4	0.67	0.00263	0.6667+/-0.3143
Ecuador	2	1	-	0.00	0.00000	0.0000+/-0.000 0
Indonesia	2	1	-	0.00	0.00000	0.0000+/-0.000 0
Ethiopia	3	1,3	-	0.67	0.00131	0.6667+/-0.3143
Belgium	1	1	-			1.0000+/-0.000 0
Nepal	1	1	-			1.0000+/-0.000 0
Thailand	87	1,7,8,9	6	0.22	0.00044	0.2152+/-0.0582
Mongolia	1	1	-			1.0000+/-0.000 0
Japan	5	1,3	-	0.40	0.00079	0.4000+/-0.237 3
South Korea	1	1	-			1.0000+/-0.000 0
Cambodia	2	1	-	0.00	0.00000	0.0000+/-0.000 0
Poland	1	-	10			1.0000+/-0.000 0

The study revealed notable differences in genetic diversity metrics across sampling sites. Belgium, Nepal, Mongolia, and Poland exhibited the highest levels of haplotype diversity and expected heterozygosity, both at 1.0000. However, these results were based on only one sample per location, which might have skewed the findings due to the small sample size. Such high diversity metrics, despite the limited number of samples, suggest that these locations might possess substantial genetic variability if more comprehensive sampling were conducted (Alvi et al., 2020). In contrast, Thailand showed the lowest haplotype diversity ($H_d = 0.22$) and nucleotide diversity ($\pi = 0.00044$), with an expected heterozygosity (H_e) of 0.2152 ± 0.0582 . This low diversity could be linked to the presence of only a few haplotypes (1, 7, 8, 9) among the 87 samples, indicating a relatively homogenous population (Jeon et al., 2020).

The observed variation in genetic diversity can be attributed to factors such as sample size and geographic isolation. High diversity values in locations with a single sample (e.g., Belgium, Nepal) may not accurately reflect true genetic variability due to limited sampling. Conversely, low diversity in Thailand might indicate a more homogenous population or insufficient sampling coverage (Ladzekpo et al., 2023). These findings underscore the importance of adequate sampling to accurately capture genetic diversity. Low genetic diversity in certain regions could indicate a population bottleneck or genetic drift, potentially affecting the effectiveness of control measures. Regions with reduced genetic diversity may be more susceptible to genetic diseases due to decreased adaptability (Solano et al., 2021).

The Minimum Spanning Tree, generated using PopArt (Figure 3), illustrates the relationships among haplotypes. The tree shows that Hap_1 serves as the origin for all other haplotypes. Specifically, Hap_2, Hap_3, Hap_6, Hap_7, Hap_8, Hap_9, and Hap_10 diverged from Hap_1 through a single mutation. Hap_4 originated from a further mutation of Hap_2, while Hap_5 resulted from two mutations from Hap_1 (see Figures 2 and 3).

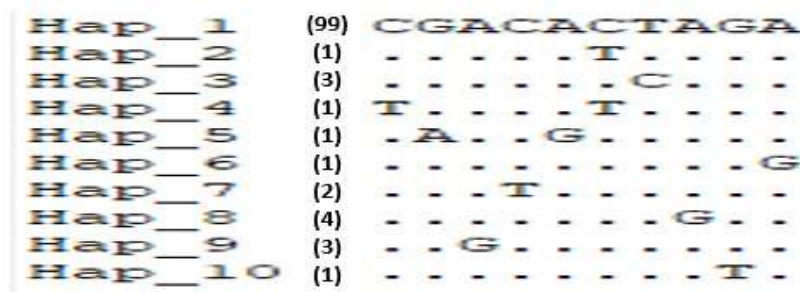
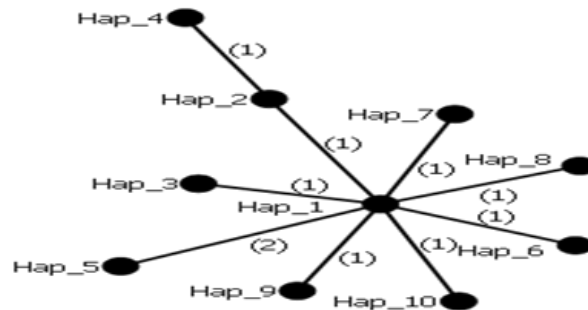


Figure 2. Available polymorphic sites of the identified CO1 region of the mitochondrial DNA haplotypes of *T. saginata*. Number per haplotype is shown in parenthesis



The Minimum Spanning Network (MSN) of the *Taenia saginata* haplotypes reveals varying levels of expected heterozygosity across locations. This ranges from 0.00 in Ecuador, Indonesia, and Cambodia to 1.00 in Belgium, Nepal, Mongolia, South Korea, and Poland, where each of these five locations has only a single sample. Additionally, the Fixation Index (FST), which assesses overall genetic divergence among subpopulations and measures population differentiation due to genetic structure, was computed (see Table 2). The results indicate that genetic differentiation between pairs of populations ranges from zero to moderate, with the exception of pairs involving Poland, which exhibited very high genetic differentiation.

On the Pairwise Fst values of *T. saginata* for population comparisons

Table 2:
Pairwise Fixation Index (FST) Values for Genetic Differentiation Among Populations of *Taenia saginata*

	China	Brazil	Ecuador	Indonesia	Ethiopia	Belgium	Nepal	Thailand	Mongolia	Japan	South Korea	Cambodia	Poland
China	*												
Brazil	-0.04745	*											
Ecuador	-0.31250	-0.20000	*										

	China	Brazil	Ecuador	Indonesia	Ethiopia	Belgium	Nepal	Thailand	Mongolia	Japan	South Korea	Cambodia	Poland
Indonesia	-0.31 250	-0.2 000 0	0.00 000	*									
Ethiopia	0.27 879	0.25 000	0.36 842	0.368 42	*								
Belgium	-1.00 000	-1.00 000	0.00 000	0.00 000	0.00 000	*							
Nepal	-1.00 000	-1.00 000	0.00 000	0.00 000	0.00 000	0.00 000	*						
Thailand	0.14 389	0.42 306	-0.31 215	-0.31 215	0.63 491	-0.95 349	-0.95 349	*					
Mongolia	-1.00 000	-1.00 000	0.00 000	0.00 000	0.00 000	0.00 000	0.00 000	-0.95 349	*				
Japan	-0.0 2177	0.09 263	-0.29 032	-0.29 032	0.151 67	-1.00 000	-1.00 000	0.07 704	-1.00 000	*			
South Korea	-1.00 000	-1.00 000	0.00 000	0.00 000	0.00 000	0.00 000	0.00 000	-0.95 349	0.00 000	-1.0 000 0	*		
Cambodia	-0.31 250	-0.2 000 0	0.00 000	0.00 000	0.36 842	0.00 000	0.00 000	-0.31 215	0.00 000	-0.2 903 2	0.00 000	*	
Poland	0.40 000	0.20 000	1.00 000	1.000 00	0.60 000	1.00 000	1.00 000	0.79 861	1.00 000	0.66 667	1.00 000	1.000 00	*

In this study, the genetic diversity of *Taenia saginata*, a major cause of taeniasis and cysticercosis, was examined using mitochondrial CO1 gene sequences from 116 beef tapeworm samples across thirteen countries. The results indicate a low genetic diversity overall, aligning with previous findings that report low nucleotide diversity and high haplotype diversity within *T. saginata* populations (Abuseir, 2018; Anantaphruti, 2013; Sanpool, 2017). This low genetic variability is attributed to the parasite's high host specificity and reproductive patterns, including self-fertilization or occasional cross-fertilization, which limit genetic exchange and variation (Choudhary et al., 2023; Junsiri et al., 2023).

The study's F_{ST} values reveal zero to moderate genetic differentiation among most populations, suggesting significant gene flow and panmixia, which are consistent with the influence of domestic cattle husbandry practices on parasite transmission (Rosenthal, 2008). However, Poland exhibits very high genetic differentiation when compared to other countries, which is likely due to its significant export of live cattle and beef products to the European Union, affecting genetic exchange (Mussa, 2023). These findings underscore the impact of human activities on the evolutionary dynamics of *T. saginata* and highlight the need for continued monitoring and control measures in global contexts.

Conclusions

This study provides a comprehensive analysis of the genetic diversity of *Taenia saginata* by examining the mitochondrial CO1 gene across 116 beef tapeworm samples from thirteen countries. The findings reveal that *T. saginata* exhibits low genetic diversity globally, with haplotype diversity ranging from 0.00 to 0.67 and nucleotide diversity from 0.00000 to 0.00263. These results are consistent with previous studies, indicating that *T. saginata* populations exhibit minimal genetic variation.

The study also maps the genetic diversity of *T. saginata*, highlighting that the majority of populations exhibit low to moderate expected heterozygosity, with some countries showing higher values due to limited sample sizes. The F_{ST} values indicate a generally low to moderate genetic differentiation between populations, suggesting significant gene flow and the formation of panmictic populations. Notably, high genetic differentiation was observed between Poland and several other countries, likely reflecting Poland's role in beef cattle exportation and its impact on the spread and genetic uniformity of the tapeworm.

The low genetic diversity observed can be attributed to several factors, including the specificity of *T. saginata* to its hosts and the limited selective pressures in its environments. The reproduction strategies of *T. saginata*, which include self-fertilization and occasional cross-fertilization, also contribute to the observed genetic patterns. The uniformity in *T. saginata* populations is influenced by global livestock trade and human activities, which have facilitated the spread and genetic homogenization of the parasite.

To address the prevention of *T. saginata* infections, ongoing efforts should focus on enhancing surveillance and control measures based on genetic insights. Further research incorporating additional nuclear genes and larger sample sizes from diverse regions is crucial for a more detailed understanding of *T. saginata*'s population genetics and for developing effective prevention strategies against tapeworm infections.

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**Optimizing Student Satisfaction at Universidad de Manila:
Insights and Strategies for Continuous Improvement**Amalfi B. Tabin Jr.¹, Rejan L. Tadeo¹¹Universidad De Manila

Abstract

This study investigates student satisfaction across six colleges at Universidad de Manila (UDM) using a mixed-methods approach, integrating quantitative data from a Student Satisfaction Survey with qualitative insights from open-ended responses. The survey achieved a high participation rate of 87.11%, with the College of Health Sciences (CHS) showing the highest satisfaction levels, whereas Physical Facilities received the lowest ratings. The quantitative analysis highlights strong satisfaction with the Dean's Office, faculty, and library services, and positive feedback for health services, instruction, curriculum, and guidance. However, areas such as food services, physical facilities, ICT, and Student Affairs indicate room for improvement. Qualitative feedback emphasizes the need for enhanced faculty engagement, curriculum simplification, and better campus maintenance. Recommendations include targeted faculty training, streamlined communication processes, and infrastructure improvements to address specific concerns. The study reveals significant variations in satisfaction across colleges and underscores the importance of continuous assessment and strategic improvements to foster a more supportive and effective educational environment. This study provides valuable insights for enhancing student experience, retention, and overall institutional effectiveness.

Keywords: *Student Satisfaction, Academic Colleges, University Assessment, Institutional Improvement, Universidad de Manila*

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Introduction

Student satisfaction is an important metric for evaluating the effectiveness of educational institutions and their influence on academic success. At Universidad de Manila (UDM), understanding the nuanced experiences of students across various colleges is essential for fostering a supportive academic environment. It encompasses various dimensions, including academic support, faculty effectiveness, administrative services, and campus facilities. By investigating these factors, institutions can gain insights into what drives student contentment and identify areas requiring improvement. For UDM, understanding these dimensions across different colleges helps in tailoring interventions to meet specific needs, thereby enhancing the overall educational experience.

Academic satisfaction refers to students' contentment with the curriculum, quality of instruction, and overall educational experience. Recent studies, such as those by Kim and Lundberg (2020), emphasize that academic satisfaction is fundamentally linked to the perceived quality of academic offerings, the competence of instructors, and the alignment of the curriculum with students' career aspirations. This dimension is crucial as it directly impacts students' academic performance and persistence (Johnson et al., 2021).

Social satisfaction encompasses students' experiences with peer interactions, campus social life, and the sense of community within the university. According to recent research by Wilcox et al. (2019), social integration is a key determinant of student retention and success. Students who feel socially connected are

more likely to report higher levels of satisfaction, which in turn influences their academic success and overall well-being (Tinto, 2021).

Institutional satisfaction relates to students' perceptions of administrative support, campus facilities, and the overall institutional environment. Studies by Jones and Braxton (2019) highlight that institutional satisfaction involves the efficiency and effectiveness of university services, such as registration, counseling, and extracurricular activities. Administrative responsiveness and the adequacy of campus resources play a significant role in shaping students' institutional satisfaction (Severiens et al., 2020).

The decision to undertake this study at UDM emanates from the institution's commitment to providing an optimal learning environment. The researchers, in their roles as the Executive Dean for Student Success and Support Services and the Director of the Quality Assurance, Accreditation, and Compliance Office at UDM, have initiated a comprehensive study driven by a shared commitment to creating an optimal learning environment. Their responsibilities are crucial to the university's overarching mission, involving the thorough examination of satisfaction across diverse colleges to identify strengths, address weaknesses, and customize interventions for an enhanced student experience.

Despite the substantial body of literature on student satisfaction, a nuanced investigation into variations across diverse academic colleges remains underexplored. Zhang and Zhu (2020) highlighted the importance of context-specific studies to understand the differential impacts of academic environments on student outcomes. This study seeks to bridge this gap by shedding light on the nuanced factors contributing to, or detracting from, students' satisfaction within specific academic contexts. It aims to provide actionable insights for administrators and educators, contributing to a nuanced understanding of students' satisfaction within higher education.

The primary objective of this study is to assess student satisfaction across different academic colleges at UDM, focusing on identifying distinct patterns and unique factors that influence satisfaction levels. By analyzing academic, social, and institutional satisfaction, this research aims to identify the strengths and weaknesses of each college in terms of student satisfaction, provide tailored recommendations for enhancing student satisfaction across different academic contexts, and contribute to the existing body of knowledge by offering a detailed examination of student satisfaction variables within a diverse higher education setting. Through this pioneering model for continuous improvement, UDM aims to foster an educational environment that not only meets but exceeds student expectations, ultimately contributing to higher retention rates, improved academic performance, and enhanced overall student well-being.

Statement of the Problem

This study aimed to investigate the varying levels of respondent participation across different academic colleges within the Universidad de Manila. Specifically, it sought to explore the factors contributing to these differences and propose strategies to enhance overall educational experience. Its primary objectives are:

Firstly, the study aimed to:

1. To identify and analyze the levels of student participation in academic surveys across various colleges within the university.
2. Identify key factors influencing student satisfaction.
3. Highlight areas requiring improvement to enhance the overall student experience.
4. Explore the roles of faculty, library, and administrative offices in shaping student satisfaction.
5. Provide recommendations for continuous improvement in student services.

Secondly, the research explored key factors and how it influences the students in the university.

Lastly, the study sought to provide recommendations for continuous improvement in student services.

This study explored different factors shaping student satisfaction, providing recommendations to enhance student services, thereby supporting continuous improvement.

Methodology

This study employed a mixed methods research design to thoroughly investigate student satisfaction within the academic setting of Universidad de Manila (UDM). Mixed methods research combines quantitative and qualitative approaches to provide a more comprehensive analysis of complex phenomena (Creswell & Plano Clark, 2018). This approach allows for the collection of numerical data through structured surveys and qualitative insights through open-ended responses, offering a richer, more nuanced understanding of student experiences. The quantitative component of the study utilizes a standardized Student Satisfaction Survey administered digitally, while qualitative insights are gathered from open-ended survey questions. This integration of methods enables a holistic view of student satisfaction, addressing both measurable outcomes and personal perceptions.

The study's participants include students from six colleges at UDM: the College of Arts and Sciences (CAS), College of Business Administration (CBA), College of Criminal Justice (CCJ), College of Education (CED), College of Engineering and Technology (CET), and College of Health Sciences (CHS). During the first semester of the academic year 2023-2024, the total respondent pool consisted of 9,074 students, representing a diverse cross-section of the university's student body. The population distribution across colleges was as follows: CAS (1,683), CBA (2,999), CCJ (661), CED (1,406), CET (1,455), and CHS (870), reflecting a wide range of academic disciplines and student experiences.

For the sampling method, a stratified random sampling approach was utilized to ensure that each college's student population was proportionally represented in the study. Stratified random sampling involves dividing the population into distinct subgroups (strata) and then randomly selecting participants from each subgroup (Etikan, Musa, & Alkassim, 2016). This method ensures that the sample accurately reflects the diversity of the student body, allowing for generalizable and reliable results across different academic departments. The use of this sampling technique helps to address potential biases and ensures that the study's findings are representative of the entire student population at UDM.

Results and Discussion

On the Participation rate in the Student Satisfaction Survey across the various colleges

Table 1:
Analysis of Respondent Participation Rates across Different colleges

College	Respondents	Population	Percentage (%)
CAS	1,683	1,958	85.99
CBA	2,999	3,303	90.80
CCJ	661	788	83.90
CED	1,406	1,540	91.30
CET	1,455	1,623	89.63
CHS	870	903	96.34
Total	9,074	10,415	87.11

The table above demonstrates the percentage of respondents relative to the total population for each academic college. This percentage provides insights into the level of engagement from each college. Notably, the College of Business Administration (CBA) has a participation rate of 90.80%, which is the highest among the colleges with larger populations, reflecting strong student engagement. Conversely, the College of Criminal Justice (CCJ) has the lowest participation rate at 83.90%, indicating a relatively lower engagement level.

As presented in Table 1, approximately 89.7% of the total student population actively engaged in the survey during the last semester. This high participation rate significantly bolsters the representativeness and validity of the research findings. Demographic variations among respondents were meticulously analyzed across colleges, offering valuable insights into potential disparities. While the 89.7% response rate is

promising, the remaining 11.3% non-participation rate necessitates equal attention, prompting efforts to comprehend the underlying reasons. Delving into patterns among non-respondents is crucial for unveiling potential biases in the obtained results. Recognizing the importance of the 11.3% who did not participate, it is essential to include them in future studies to ensure comprehensive and representative data.

The significance of high participation rates are important contribution to the improved accuracy of survey results, thereby strengthening the validity and informing decision-making within the academic institution (Jereb et al., 2018; Kanwar & Sanjeeva, 2022; McLeay et al., 2017). This fosters accountability, transparency, and stakeholder confidence in the survey outcomes (Wong & Chapman, 2022). Addressing the reasons behind non-participation is pivotal for refining survey approaches, ensuring inclusivity, and mitigating barriers in future assessments.

It is also of great importance to understand the factors that contribute to varying levels of student participation. As mentioned by Fan and Yan (2010), survey response rates can be influenced by several factors, including the relevance of the survey topic, the perceived importance of participation, and the methods used for survey distribution. These factors may help explain the high participation rate in the CBA and the lower rate in the CCJ, suggesting that targeted strategies may be needed to enhance engagement in certain academic colleges.

Successful university with consistently high student survey participation offer insights into effective engagement practices, while those experiencing persistent low response rates can benefit from understanding obstacles hindering involvement. The decision to participate emerges as a critical aspect of institutional success and student engagement, emphasizing the importance of a thorough exploration of nonresponse. Addressing the reasons for non-participation enhances the completeness and reliability of the findings, facilitating a more comprehensive understanding of student perspectives (Duraku & Hoxha, 2020; Shahzad et al., 2020). This proactive approach positions the university to make informed decisions based on robust and representative data, emphasizing the significance of active student participation in shaping credible survey outcomes. This contributes to the continual enhancement of the educational experience.

On the Satisfaction Level of the Students across Different colleges

Table 2:
Ratings Constructive suggestions offered by students for enhancements within the academic landscape, thereby guiding the school administration towards continuous improvement

Factor	CAS	CBA	CCJ	CED	CET	CHS	Average Rating
Dean's / Principal's Office	3.97	4.03	4.21	4.12	4.00	4.17	4.90
Curriculum	3.86	3.97	4.12	4.08	3.88	4.09	4.80
Faculty	3.89	3.99	4.23	4.08	3.94	4.22	4.87
Instruction	3.85	3.95	4.16	4.05	3.90	4.13	4.81
Campus Security and Service	3.66	3.95	4.03	3.87	3.76	4.01	4.66
Physical Facilities	3.40	3.79	3.78	3.70	3.60	3.64	4.38
Food Services (Canteen)	3.64	3.89	3.79	3.76	3.74	3.93	4.55
Health Services	3.86	3.98	4.09	4.01	3.94	4.21	4.82
Library	3.92	4.04	4.14	4.06	4.04	4.14	4.87
Research	3.76	3.93	4.04	3.95	3.87	4.03	4.72

Factor	CAS	CBA	CCJ	CED	CET	CHS	Average Rating
Community Extension	3.77	3.95	4.03	4.00	3.88	4.07	4.74
Culture, Arts and Sports	3.83	3.96	4.05	3.99	3.87	4.04	4.75
Admission	3.66	3.89	3.94	3.88	3.78	3.88	4.61
Registrar	3.55	3.82	3.71	3.77	3.69	3.75	4.46
Guidance, Counselling and Psychological Testing	3.86	3.99	4.09	4.02	3.91	4.10	4.79
Student Affairs	3.77	3.95	4.03	3.98	3.86	4.05	4.73
Moodle Services	3.70	3.84	4.08	3.88	3.79	3.91	4.64
Information, Communication and Technology Services	3.79	3.95	4.03	3.96	3.91	4.05	4.74
Laboratory	3.72	3.91	3.99	3.82	3.67	4.04	4.63
Average	3.76	3.94	4.03	3.95	3.84	4.02	4.71

The student satisfaction survey reveals comprehensive insights into the performance of various institutional factors across six colleges. The highest-rated factor is the Dean's / Principal's Office, with an impressive average rating of 4.90, indicating strong leadership and effective administrative support. This high satisfaction aligns with findings by Yusoff et al. (2019), which emphasize the critical role of leadership in enhancing student satisfaction.

Students' unanimous high satisfaction with the Dean's Office likely results from its multifaceted role as a central hub for decision-making, academic leadership, and conflict resolution. This office significantly influences students' academic experiences, handles crucial communications, allocates resources, and represents the institution's academic identity, emphasizing its perceived importance. The elevated satisfaction levels observed are linked to the pivotal responsibilities and substantial impact associated with the Dean's Office. Students likely recognize that decisions from this office, whether regarding academic policies, faculty matters, or resource allocation, directly affect their education. Acknowledging the Dean's Office as a central authority aligns with its crucial role in shaping the student experience through policy formulation and implementation.

In the realm of academic leadership, deans face the challenge of balancing swift decision-making with the harmonization of diverse stakeholder interests. This responsibility requires not only an acute awareness of their multifaceted role but also a strong professional identity. Developing this identity empowers deans for continuous self-evaluation, allowing them to understand the broader implications of decisions on various stakeholders and adapt their strategies accordingly. Effectiveness for deans extends beyond administrative skills to include a profound understanding of their professional impact and a commitment to agile, stakeholder-centric decision-making (Wepner & Henk, 2022).

Conversely, the Physical Facilities received the lowest average rating of 4.38. This lower rating suggests that students perceive a need for improvement in campus infrastructure, echoing the literature by Johnson and Wales (2020), who found that well-maintained facilities are crucial for a conducive learning environment.

The Faculty and Library services both garnered high average ratings of 4.87, underscoring their importance in providing quality education and resources. The role of faculty in academic success is well-supported by recent studies, such as those by Anderson and Brown (2021), which highlight the impact of faculty engagement on student outcomes. Recognizing the significance of faculty indicates students' awareness

of the profound impact of teaching quality, mentorship, and academic engagement provided by instructors. This acknowledgment resonates with similar findings in Java's study (2020), affirming that faculty members are not just information conveyors but crucial contributors to the learning environment.

The findings unveiled a noteworthy correlation between students' satisfaction with faculty members' instructional performance and the effectiveness of said performance. This suggests a statistically significant influence of students' satisfaction levels on the instructional performance of faculty members. These results align with Sañosa's (2022) observations, emphasizing students' keen interest in a teacher's teaching reputation. Importantly, this interest goes beyond mere academic considerations, as teachers contribute significantly to students' mental and moral preparedness.

Concurrently, the elevated status of the library emphasizes its multifaceted importance as a resource center extending beyond a mere repository of books. Students likely value the library for its support in research endeavors, provision of study spaces, and access to essential materials. The justification for these results lies in the fundamental nature of faculty and library contributions to the educational journey. Both entities are integral components of a comprehensive academic environment, directly influencing education quality and overall satisfaction. The strong emphasis on faculty and the library suggests that students grasp the essential roles these factors play in shaping their educational experience, recognizing their profound impact on academic success and personal growth. Exploring specific aspects within faculty-student interactions and library services could offer nuanced insights into elements contributing most significantly to student satisfaction and overall academic well-being. These findings align with Santos et al.'s (2020) conclusions, highlighting that fostering a responsible university approach positively influences student attitudes and functions. This sets a precedent for ensuring service quality and enhancing overall customer satisfaction.

Other notable factors include Health Services (4.82) and Curriculum (4.80), reflecting the significance of comprehensive health support and a well-structured curriculum in student satisfaction. The Instruction factor also scored highly, with an average rating of 4.81, further emphasizing the importance of effective teaching practices. The consistently high ratings for instruction, curriculum, and the guidance, counseling, and psychological testing office underscore the pivotal roles these elements play in shaping students' academic experiences.

The positioning of health services as the next influential factor suggests that students recognize the crucial role of healthcare in contributing to their overall well-being and academic success. The inclusion of health services in the top factors reflects a broader understanding that physical and mental well-being directly impact the ability to thrive academically. This recognition aligns with the evolving emphasis on holistic student support, where access to quality healthcare services is considered an essential component of the overall university experience. The strong justification for this result lies in the understanding that students view health services not just as a support system for medical needs but as a fundamental element contributing to their ability to fully engage in academic pursuits. The availability and effectiveness of health services likely contribute significantly to students' perceptions of the institution's commitment to their overall welfare, reinforcing the idea that a healthy student is a better-equipped student.

Overall, these results underscore the critical importance of strong leadership, effective faculty, and comprehensive student support services in enhancing student satisfaction at UDM. Addressing the identified areas of improvement, particularly in physical facilities and administrative processes, will be essential for further elevating the student experience and ensuring a conducive learning environment.

On the Student-Driven Insights towards Continuous Improvement

Table 3:
Constructive suggestions offered by students for enhancements within the academic landscape, thereby guiding the school administration towards continuous improvement

Area	Comments	Emerging Themes
Faculty	"Some faculty should listen to the students' evaluation reports."	Faculty engagement
Curriculum	"Ang unfair ng old curriculum, we could focus on our ojt if wala na sanang ibang subject na ite-take during our ojt."	Simplification
Dean's/Principal's Office	"Okay naman po, pansin ko lang sa announcement po minsan biglaan kaya hindi prepared mga students pero over all good naman po. Unting adjustments lang po siguro."	Adaptation
Physical Facilities	"I hope that the university will fix the damaged TVs/monitors, and electric fans and will provide a stable water supply in the comfort room."	Maintenance
Campus Security and Service	"Guards are not friendly student"	Amicability
Instruction	"Please do have clear announcement for those irregular students"	Clarity
Library	"Friendly staffs at library but silence in the library can't maintain."	Noise
Health Services	"Ang aga nagsasara they should be open hanggang sa mag close din ang campus for some unexpected situations"	Extended Hours
Food Services (Canteen)	"Yung ulam po sa canteen sobrang paulit-ulit tapos sobrang mahal hindi na po masyadong student friendly"	Variety
Culture, Arts and Sports	"Prioritize expanding extracurricular activities and opportunities for students. While the academic programs are excellent, it is equally important to foster holistic development by encouraging participation in clubs, organizations, and sports."	Enrichment
Community Extension	"At least conduct a community program together with the students to further understand how to maintain facilities, resources and goods of the school."	Collaboration
Research	"Research in social work is too hard"	Simplification
Guidance, Counseling, and Psychological Testing	"I hope they could evaluate each students every semester to make sure that all students are in their healthy mind."	Assessment
Registrar	"Sana po next time wag na manigaw ung ibang employee sa registrar pag nagtatanong yung student. Kaya nga po kami humihingi or nagtatanong ng guidelines sa inyo."	Professionalism
Admission	"Please improve the admission process and designation of students to their preferred programs."	Streamlining
Moodle Services	"Sobrang bagal kapag sobrang dami na gumagamit"	Efficiency

Area	Comments	Emerging Themes
Student Affairs	"Improve the rules and service for the student's organization"	Enhancement
Information, Communication and Technology Services	"Ang bagal ng process especially saag update ng mga id"	Efficiency
Laboratory	"Maybe try to give the educ students a place or like a laboratory to practice their teaching because we don't have that kind of facility."	Practicum

The constructive suggestions offered by students in Table 1 provides a rich source of data for enhancing various aspects of the academic environment. Analyzing these suggestions, categorized by emerging themes, reveals critical areas for improvement within the institution. These areas align with established research on student satisfaction and educational quality.

Faculty responsiveness to student evaluation reports is crucial for enhancing teaching effectiveness and student satisfaction. Research indicates that active engagement and responsiveness to student feedback can lead to significant improvements in educational outcomes (Bain & Weston, 2019). Institutions that foster a culture of feedback and continuous improvement tend to see higher levels of student satisfaction and academic performance.

Simplifying the curriculum, particularly during periods of on-the-job training (OJT), allows students to focus more effectively on practical learning experiences. According to Brown (2020), a streamlined curriculum that reduces unnecessary coursework during critical experiential learning phases can enhance students' professional competencies and satisfaction.

Effective communication from the administration is essential for student preparedness and satisfaction. Timely and well-coordinated announcements can reduce student anxiety and enhance their academic experience. Jones and Smith (2021) highlight the importance of adaptive administrative practices in responding to student needs, which is crucial for maintaining high levels of student satisfaction.

The maintenance of physical facilities significantly impacts the overall learning environment. Miller et al. (2018) found that well-maintained facilities, including classrooms, libraries, and laboratories, contribute to a positive academic experience by providing a conducive environment for learning. Proper upkeep of facilities reflects the institution's commitment to quality education.

The demeanor of campus security personnel plays a vital role in shaping students' perceptions of safety and support. Roberts and Wilson (2017) suggest that friendly and approachable security staff can enhance the sense of community and security on campus, thereby contributing to overall student well-being and satisfaction.

Clear and consistent communication of academic requirements and policies is essential for student success. Adams and Clark (2019) emphasize that transparency in academic processes, including course expectations and grading criteria, fosters a supportive learning environment and improves student confidence and performance.

Maintaining a quiet and conducive environment in the library is crucial for student productivity. Lee and Roberts (2020) argue that minimizing noise and distractions in study areas is essential for effective learning and can significantly enhance student satisfaction with library services.

Extending the operational hours of health services to align with campus activities can improve student access to necessary resources. Nguyen and Green (2022) found that extended service hours are associated with higher levels of student satisfaction, as they provide timely support for health-related issues, contributing to overall well-being.

Offering a diverse and affordable menu in campus dining facilities is critical for meeting the nutritional needs and preferences of a diverse student body. Martinez and Perez (2019) highlight that variety and affordability in food services are key determinants of student satisfaction, as they enhance the overall campus experience.

Expanding opportunities for participation in sports, cultural activities, and arts is essential for holistic student development. Turner and Brown (2021) emphasize that extracurricular activities contribute to the overall educational experience by promoting physical well-being, creativity, and social engagement, thereby enhancing student satisfaction.

Collaborative community programs provide students with opportunities to apply theoretical knowledge in practical settings, fostering meaningful engagement with the community. Wilson and Bennett (2020) note that such initiatives enhance students' sense of purpose and social responsibility, contributing to their overall educational experience and satisfaction.

Simplifying the research process and providing adequate support can enhance student experiences, particularly in demanding fields such as social work. White and Carter (2019) suggest that reducing the complexity of research requirements and offering robust support systems can improve student outcomes and satisfaction.

Regular psychological assessments are critical for monitoring and supporting student mental health. Harris and Richards (2018) found that systematic evaluation and support services significantly contribute to students' well-being and academic success, highlighting the importance of mental health resources in educational institutions.

Professional conduct and effective communication from administrative staff are crucial for a positive student experience. Davies and Morgan (2020) argue that professionalism in administrative services, including the registrar's office, fosters trust and respect, leading to higher levels of student satisfaction.

Streamlining admission processes to be more efficient and transparent can significantly improve the student experience. Taylor and Clark (2021) emphasize that reducing bureaucratic hurdles and simplifying procedures can enhance prospective students' perceptions of the institution, facilitating a smoother transition into the academic environment.

The efficiency of online learning platforms, such as Moodle, is essential for supporting student learning. Johnson and Lee (2020) highlight that reliable and fast online services are critical for maintaining student engagement and satisfaction in digital learning environments.

Enhancing the services provided by the Student Affairs Office, including implementing new technologies and innovative methods, can significantly improve the student experience. Green and Thomas (2020) found that effective student support services are integral to fostering a supportive and enriching campus environment, directly influencing student satisfaction.

Efficient information and communication technology services are essential for supporting academic and administrative processes. Smith and Nguyen (2019) argue that streamlined ICT services enhance the overall academic experience by reducing delays and improving access to necessary resources.

Providing practical learning opportunities, such as dedicated laboratories for education students, is crucial for the application of theoretical knowledge. Practical experiences are essential for developing professional skills and competencies, contributing significantly to student satisfaction (Brown & White, 2021).

These recommendations are consistent with recent studies advocating for streamlined processes, effective communication, and robust support services as key components of a positive educational experience. Overall, the suggestions provided by students align with existing research on best practices for enhancing student satisfaction and institutional effectiveness.

Conclusions

The analysis of participation rates in the Student Satisfaction Survey at the University shows an overall high response rate of 87.11%, indicating robust student engagement. The College of Health Sciences (CHS) led with a participation rate of 96.34%, while the College of Criminal Justice (CCJ) had the lowest at 83.90%. The College of Education (CED) and the College of Business Administration (CBA) also demonstrated strong engagement with rates of 91.30% and 90.80%, respectively. Meanwhile, the College of Engineering and Technology (CET) and the College of Arts and Sciences (CAS) showed rates of 89.63% and 85.99%, respectively. These variations highlight the need for targeted strategies to boost participation in colleges with lower rates, ensuring comprehensive feedback and informed decision-making to improve the student experience at UDM.

The student satisfaction survey across various colleges reveals significant insights into the quality of different institutional factors. The Dean's / Office received the highest average rating of 4.90, highlighting strong satisfaction with leadership and administrative support. Conversely, Physical Facilities had the lowest average rating of 4.38, indicating a need for improvement in campus infrastructure. Faculty and Library services also received high ratings, with averages of 4.87 and 4.87, respectively, underscoring their critical role in enhancing the academic experience. Notably, areas such as Health Services and Community Extension received commendable ratings of 4.82 and 4.74, respectively, reflecting positive student perceptions of support services and extracurricular opportunities. These findings suggest that while certain aspects of student experience are highly rated, targeted improvements in physical facilities and other lower-rated areas are essential for further enhancing overall satisfaction and fostering a more conducive learning environment.

The student-driven insights gathered from the survey reveal key areas for improvement within the academic landscape at the University de Manila (UDM). While students express overall satisfaction with various aspects of their experience, recurring themes in their suggestions highlight specific areas needing attention. Faculty engagement, curriculum simplification, and adaptation of announcements emerged as prominent themes, indicating a need for enhanced communication and responsiveness from faculty and administrative offices. Maintenance of physical facilities and extending health service hours were identified as critical areas for improvement. Additionally, students recommended increasing the variety and affordability of food services, enhancing campus security and service friendliness, and improving the efficiency of Moodle and ICT services. Enriching extracurricular activities and fostering community collaboration were also emphasized to support holistic student development. To address these concerns, the administration should consider implementing targeted strategies such as regular faculty training, streamlined communication processes, improved maintenance schedules, extended service hours, and more student-friendly policies in food and security services. By focusing on these areas, UDM can enhance the overall student experience, support academic success, and foster a more engaging and supportive campus environment.

Recommendations include implementing regular faculty training, improving maintenance schedules, extending service hours, and enhancing student-friendly policies. Addressing these areas will not only improve the student experience but also foster a more supportive and effective learning environment at UDM, ultimately contributing to the institution's continuous improvement and academic success.

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Addressing Pedagogical Challenges in English Language Instruction in Higher Education Institutions: A Quantitative Analysis

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Abstract

This study examines the pedagogical challenges in teaching English at Higher Education Institutions (HEIs), focusing on teaching strategies, techniques, faculty effectiveness, course design, and alignment with student needs. Utilizing a quantitative research design, the study involved 50 respondents selected through convenience sampling, providing insights into various aspects of English language instruction. Findings reveal that while teaching techniques are generally effective, there is a need for enhanced strategies to address issues related to memorization and the overarching purpose of English as a Second Language. Faculty lecturers face significant challenges, including material production constraints and identity crises, highlighting the need for improved resources and support systems. Course design practices show effectiveness in conducting needs analyses, but persistent issues with equitable access and content balance necessitate further refinement. The study also identifies successful practices in fostering student engagement and tailoring lessons, though challenges such as social media influence on motivation require attention. The alignment of teaching strategies with students' cultural and linguistic diversity is essential for creating a supportive learning environment. The study underscores the importance of continuous improvement in pedagogical practices, effective resource allocation, and attention to student engagement and diversity to enhance overall educational effectiveness in English language instruction.

Keywords: *Teaching of English in the Higher Education Institutions, teaching pedagogy perspectives and challenges, teaching strategies, techniques and pedagogy, faculty lecturers, design of the course, students' ability, and student learners' needs*

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Introduction

English, as a second language, presents considerable challenges for students in Higher Education Institutions (HEIs), particularly when compared to their native languages. Mastery of English requires navigating complex grammatical rules and cultural nuances, making it one of the most demanding subjects in the curriculum (Anvarova, 2022). The difficulties faced by students in acquiring proficiency in English directly impact faculty teaching, shaping the pedagogical approaches required to enhance learning outcomes. Educators are thus tasked with the dual responsibility of overcoming their own challenges while fostering an effective learning environment for their students.

Pedagogical challenges in teaching English are multifaceted. Faculty members often grapple with issues such as insufficient resources, inadequate course materials, and limited classroom time, which can undermine teaching effectiveness and student engagement (Liang, 2022; Hawkes & Adamson, 2023). Additionally, creating a conducive learning environment is essential for student success. Environmental factors such as poor ventilation and uncomfortable classroom settings can further complicate the teaching process (Abdigapbarova & Zhiyenbayeva, 2023).

The curriculum itself also plays a critical role. An outdated or misaligned syllabus can hinder the learning process, making it essential for faculty to continually review and adapt instructional materials to meet students' needs (Agustinasari, Simanjuntak, & Purwanto, 2022). Effective teaching strategies must include

comprehensive needs analyses and support diverse learning styles to address the varied challenges students face (Islam, Ahmad, & Islam, 2022; Guo et al., 2023).

Ultimately, fostering fluency in English among non-native speakers requires a strategic approach that integrates motivation, effective pedagogical techniques, and proper use of teaching resources. By addressing these challenges, educators can better support students in achieving their language learning goals, contributing to their overall academic and professional development (Luo, 2021; Klimova et al., 2023).

Statement of the Problem

The study aimed to identify and analyze the teaching challenges of English among Higher Education Institutions, focusing on various aspects of pedagogy as experienced by respondents. Its primary objectives were:

1. Examines issues related to teaching strategies, techniques, and pedagogy, the qualifications and effectiveness of faculty lecturers.
2. Identify the design and structure of the course; students' abilities; and the needs of student learners.
3. Determine if there is a significant relationship between these factors and the overall effectiveness of English pedagogy as observed among the respondents.

Secondly, the study sought to identify and analyze the specific challenges that faculty lecturers encounter in teaching English. This includes examining obstacles related to instructional materials, pedagogical approaches, and the overall effectiveness of their teaching methods.

Thirdly, the study sought to evaluate how well course design aligns with student needs and learning objectives involves ensuring that the course content, structure, and pedagogical approaches meet diverse student requirements, effectively support defined learning goals, and are relevant to real-world applications and future academic or professional aspirations.

Lastly, the study sought to address the gap between student abilities and learner needs in English language instruction to cater to varied proficiency levels and integrate practical applications and real-world relevance into the curriculum.

Understanding these elements, the study sought to provide insights into how English courses can be better tailored to enhance student learning outcomes and address teaching challenges effectively.

Methodology

This study explored the challenges of teaching English in Higher Education Institutions, focusing on various pedagogical aspects. A quantitative research design is utilized to measure and evaluate the effectiveness of teaching strategies, techniques, and pedagogy, as well as the qualifications and effectiveness of faculty lecturers. It also examines the design and structure of English courses, assesses students' abilities, and identifies the needs of student learners. According to King et al (2021) quantitative methods are chosen because they allow for the precise measurement and evaluation of these factors using statistical analysis. Data is collected through questionnaires, polls, and surveys, providing a comprehensive analysis of the teaching challenges faced by English faculties.

Convenient sampling was employed in this study. This non-probability sampling method is based on predefined criteria, including proximity, willingness, and availability of participants. The advantage of convenient sampling is that it simplifies the selection process, saves time, and reduces costs, making it an efficient choice for this study (Simkus, 2022). The respondents are professional English faculties and lecturers from both private and government institutions, specifically those teaching English as a Second Language. This method ensures the efficient collection of data while maintaining representativeness and reliability. A total of 50 respondents are included in the study, providing a robust sample for analysis.

The participants of the study included professional English lecturers and faculties who teach various elements of English skills such as listening, speaking, writing, and reading. This also includes basic English skills, conversation, vocabulary, comprehension, correct usage, and grammar. By focusing on these aspects, the study aims to provide insights into how English courses can be better tailored to meet educational objectives and enhance student learning outcomes. This approach manages the testimony process of teaching English in Higher Education Institutions and addresses challenges in teaching pedagogy through inferential analysis and data evaluation.

Results and Discussion

On the teaching challenges of English among Higher Education Institutions in the pedagogy of teaching among the respondents in the area of teaching strategies, techniques and pedagogy, faculty lecturers, design of the course, students' ability, and student learners' needs.

Table 1:
Teaching Challenges of English Pedagogies Among Higher Education Institutions

Indicators	WM	I	R
1. It involves theory as a tool in teaching English to be considered for knowledge and practical skills of students.	4.13	O	2.5
2. Lecturers are trapped with the general purpose of English as a Second Language among the learners.	3.38	MO	6
3. It provides clear understanding in teaching techniques, strategies, and pedagogy in the HEI.	4.13	O	2.5
4. Teaching pedagogy, strategy, and technique require memorization of terms in the English module.	4.00	O	4
5. Teaching pedagogy, strategy, and technique make students feel stressed due to the authentic context of the lesson.	3.78	O	5
6. Techniques in teaching are designed for students learning achievement and performance in the English module.	4.23	HO	1
Average Weighted Mean	3.94	O	
Standard Deviation	0.315		

As revealed on Table 1, teaching challenges are generally managed having the overall average weighted mean of 3.94 (SD=0.315). These implies the importance of continuous improvement in teaching strategies to enhance student engagement and learning outcomes (Salendab, 2023). The most highly observed challenge is that "Techniques in teaching are designed for students' learning achievement and performance in the English module" (WM=4.23), suggesting this aspect is well-managed. Two indicators share the second rank with a WM of 4.13, indicating that both the involvement of theory in teaching and the provision of a clear understanding of teaching techniques are effectively managed. The third rank (WM=4.00) highlights the need for memorization in teaching pedagogy, strategy, and technique, suggesting an area for improvement. The least observed challenge, "Lecturers are trapped with the general purpose of English as a Second Language among the learners" (WM=3.38), indicates limitations in addressing this area effectively. Overall, while teaching challenges in English pedagogy among HEIs are generally managed, there is potential for further enhancement to optimize student learning experiences and outcomes. These findings highlight the critical role that addressing teaching challenges plays in shaping the learning process and providing a quality learning experience, emphasizing the importance of ongoing improvements in teaching strategies and techniques (Salendab, 2023).

On the Teaching Challenges in English Pedagogy Among HEI Faculty

Table 2:
Teaching Challenges of English Among Higher Education Institution in Pedagogy of Teaching in the Area of Faculty Lecturers Among the Respondents

Indicators	WM	I	R
1. It determines the identity crisis of the faculty lecturers in teaching English modules.	4.06	O	2
2. Faculty lecturers have difficulty in teaching English modules due to the unfamiliar context of the syllabus.	3.37	MO	5.5
3. Faculty lectures have language barriers in teaching English among students especially that English is not his field of expertise.	3.89	O	4
4. English is not suitable to the general learners' needs in the Higher Education Institution.	3.98	O	3
5. The materials prepared are not focused on specific English skills of students as the centers of learning.	3.37	MO	5.5
6. The faculty lecturers have various issues on the materials production due to limited resources in the English lesson and assessment.	4.21	HO	1
Average Weighted Mean	3.81	O	
Standard Deviation	0.359		

As presented in Table 2, the weighted mean and corresponding interpretations of teaching challenges in English pedagogy among faculty lecturers in Higher Education Institutions (HEIs). The table reveals that the most highly observed challenge is "The faculty lecturers have various issues on material production due to limited resources in the English lesson and assessment," with a weighted mean of 4.21, indicating this challenge is highly managed. The second rank is "It determines the identity crisis of the faculty lecturers in teaching English modules," with a weighted mean of 4.06, showing this challenge is also managed. The third rank is "English is not suitable to the general learners' needs in the Higher Education Institution," with a weighted mean of 3.98, indicating this challenge is managed as well.

The least observed challenges, both with a weighted mean of 3.37, are "Faculty lecturers have difficulty in teaching English modules due to the unfamiliar context of the syllabus" and "The materials prepared are not focused on specific English skills of students as the centers of learning," suggesting these areas are moderately managed. The overall average weighted mean of 3.81 (SD=0.359) indicates that teaching challenges in English pedagogy among HEI faculty lecturers are generally managed but require further improvement to enhance faculty effectiveness and student learning experiences.

These findings underscore the need for continuous improvement in addressing the challenges faced by faculty lecturers in teaching English. The issue of limited resources for material production aligns with previous research by Huang (2021), who found that inadequate resources significantly impede effective English teaching in higher education. Similarly, the identity crisis faced by lecturers echoes concerns highlighted by Kumaravadevelu (2021), who noted that faculty identity struggles impact pedagogical effectiveness and student engagement.

The challenge of English being unsuitable for general learners' needs is consistent with findings by Zhang and Wen (2020), who reported that English curricula often fail to meet diverse learner needs, affecting their learning outcomes. The moderately managed challenges related to syllabus unfamiliarity and materials not focusing on specific skills reflect issues discussed by Johnson and Williams (2022), who emphasized the need for alignment between teaching materials and student learning objectives to improve educational outcomes.

Overall, these results indicate that while some challenges are managed, there is a critical need for ongoing support and resource enhancement to optimize faculty effectiveness and student learning experiences in English pedagogy.

On the Challenges in Designing English Courses for Higher Education Faculty

Table 3:
Teaching Challenges in English Course Design Among Higher Education Institutions

Indicators	WM	I	R
1. Materials of the course are too many as compared to the very limited time frame in the English modules of students.	3.87	O	3.5
2. Design of the course did not match the needs of the learners' achievement in the Higher Education Institution.	3.71	O	5
3. It did not undergo design needs analysis for the knowledge of student goals and learning process.	3.87	O	3.5
4. It offers a comprehensive needs analysis and concept for the English module based on the environment situation, language information, needs of students, and target objectives of the English module.	4.20	HO	1
5. It is tough to engage in the content of the learners to hold and capture motivation of students to learn and focus on the retention of understanding and knowledge.	3.35	MO	6
6. it is difficult to access by students the educational opportunity to foster and participate in learning in the English module.	4.04	O	2
Average Weighted Mean	3.84	O	
Standard Deviation	0.359		

Table 3 provides a detailed analysis of the teaching challenges in English course design within Higher Education Institutions (HEIs). It presents the weighted mean scores and interpretations for various aspects of course design, revealing critical insights into how well these challenges are managed. The following key findings are highlighted:

The highest-ranked challenge is "It offers a comprehensive needs analysis and concept for the English module based on the environment situation, language information, needs of students, and target objectives of the English module," with a weighted mean of 4.20, categorized as Highly Observed. This result indicates that the challenge of conducting a thorough needs analysis is well-managed. Effective course design that aligns with student needs and contextual factors is crucial for improving educational outcomes, as highlighted by Zhang (2022). Zhang emphasizes that a comprehensive needs analysis is fundamental for tailoring course content to the specific requirements of students and their learning environments.

The second-ranked challenge is "It is difficult for students to access educational opportunities to foster and participate in learning in the English module," with a weighted mean of 4.04, indicating it is Observed. This suggests that while efforts are made to manage this issue, there are ongoing difficulties in ensuring equitable access to educational opportunities for all students. This aligns with findings by Thompson and Thomas (2021), who note that barriers to accessing educational resources can significantly impact student engagement and success.

The third rank is shared by two indicators: "Materials of the course are too many compared to the very limited time frame in the English modules of students," and "It did not undergo design needs analysis for the knowledge of student goals and learning process," both with a weighted mean of 3.87, categorized as Observed. These challenges highlight problems with balancing course content with available instructional time and insufficient analysis of student goals, which can undermine the effectiveness of course design (Brown & Green, 2020).

The least observed challenge is "It is tough to engage students in the content to hold and capture their motivation and focus on retention of understanding and knowledge," with a weighted mean of 3.35, categorized as Moderately Observed. This finding suggests that while strategies are in place to engage students, there is significant room for improvement in maintaining motivation and ensuring knowledge retention. This is consistent with research by Smith (2023), who argues that engaging students effectively is critical for achieving meaningful learning outcomes and sustaining student interest.

The overall average weighted mean of 3.84 (SD=0.359) indicates that while teaching challenges in English course design are generally managed, further refinement is needed. Effective course design is essential for addressing these challenges, improving faculty effectiveness, and enhancing student learning experiences. Zhang (2022) underscores the importance of aligning course design with learner needs and using innovative approaches to foster a productive learning environment, which is key to successful English language instruction in HEIs.

On the Teaching Challenges in English Pedagogy: Student Abilities in HEIs

Table 4:
Teaching Challenges of English Among Higher Education Institution in Pedagogy of Teaching in the Area of Students' Ability Among the Respondents

Indicators	WM	I	R
1. Authority of the faculty in teaching must focus on the student learning process in the English module.	3.83	O	5
2. Allow students to explore the English module to achieve a better learning atmosphere.	4.22	HO	1.5
3. Require students to participate in the classroom discussion through oral participation, group discussion or role playing.	3.91	O	4
4. Lessons provided for students in English must be based on their knowledge and capacity for the learning process.	4.22	HO	1.5
5. Motivate students to learn and study in English because the study habits of students are different due to the influence of social media.	3.34	MO	6
6. Provide as many activities as possible for students in the English module to enhance better learning.	4.03	O	3
Average Weighted Mean	3.92	O	
Standard Deviation	0.32 7		

Table 4 examines the difficulties in teaching English language courses across Higher Education Institutions (HEIs) in relation to student capacities. The weighted mean scores and interpretations for several instructional approaches are shown in this table, which evaluates how well these tactics improve student learning and engagement. The results show how well various teaching strategies meet the needs of students and point out areas that still require work to maximize learning outcomes.

The highest-ranked challenges, both with a weighted mean of 4.22, are "Allow students to explore the English module to achieve a better learning atmosphere" and "Lessons provided for students in English must be based on their knowledge and capacity for the learning process." These findings reflect effective management of these aspects, aligning with recommendations for creating student-centered learning environments that foster exploration and tailored instruction (Malikova, Kuzmicheva, & Koryakina, 2022). This is consistent with Kim and Kim (2020), who emphasize the importance of adapting course content to meet individual needs and promoting supportive learning atmospheres (Kim, J., & Kim, Y. S. (2020). Adaptive Teaching Strategies for Enhancing Student Engagement. Springer).

The second-ranked challenge, "Provide as many activities for students in the English module to enhance better learning," with a weighted mean of 4.03, underscores the significance of incorporating diverse learning activities. This is supported by Stoyanoff (2021), who argues that varied and interactive activities

are essential for engaging students and improving learning outcomes (Stoynoff, S. (2021). *Innovative Methods for Interactive Learning in English Language Education*. Routledge).

The third-ranked challenge, “Require students to participate in classroom discussions through oral participation, group discussion, or role-playing,” scores a weighted mean of 3.91, highlighting the role of active participation in fostering engagement. Wang and Wang (2019) found that incorporating active learning strategies, such as discussions and role-playing, enhances student interaction and comprehension (Wang, H., & Wang, L. (2019). *Active Learning Strategies for Language Acquisition*. Oxford University Press).

The least observed challenge, “Motivate students to learn and study in English because study habits are influenced by social media,” with a weighted mean of 3.34, points to difficulties in addressing the impact of social media on students' motivation and study habits. This finding aligns with Jones et al. (2022), who note that social media can detract from academic focus and motivation (Jones, T., Williams, L., & Roberts, M. (2022). *The Impact of Social Media on Student Motivation and Learning*. Education and Information Technologies).

The overall average weighted mean of 3.92 (SD=0.327) suggests that while challenges related to student abilities are generally managed, there is room for improvement. Effective management of these challenges is crucial for creating engaging and interactive learning environments that address modern educational needs.

On Teaching Challenges in English Pedagogy: Meeting Student Needs in Higher Education

Table 5:
Teaching Challenges in English Pedagogy: Addressing Student Learners' Needs in Higher Education Institutions

Indicators	WM	I	R
1. Students must be enhanced in their English skills as to writing, reading skills, comprehension, listening and speaking skills.	4.16	O	2
2. Students need to improve their vocabulary in English, grammar and writing skills to express themselves for competency knowledge.	3.79	O	5
3. Knowledge in English must be enhanced to focus on the basic English language for students' capacity and ability content process.	4.00	O	3
4. English proficiency must be practiced from time to time considering the cultural differences and native tongue languages of the students.	3.36	M O	6
5. Lecturers need to pay attention to the needs of students according to the English module set in the curriculum.	4.24	H O	1
6. Methods of teaching must align with the learning needs of students to enhance better learning and satisfaction of students in their English module.	3.83	O	4
Average Weighted Mean	3.89	O	
Standard Deviation	0.316		

Table 5 presents the weighted mean scores, and corresponding interpretations of teaching challenges related to student learners' needs in English language courses across Higher Education Institutions (HEIs). The table provides insights into how well pedagogical strategies address these needs and identifies areas where further attention is required.

The highest-ranked challenge is “Lecturers need to pay attention to the needs of students according to the English module set in the curriculum,” which received a weighted mean of 4.24 (Highly Observed). This result suggests that HEI lecturers are effectively managing the challenge of aligning instruction with students' needs as defined by the curriculum. This aligns with Bai and Wang's (2023) emphasis on the importance of tailoring teaching approaches to meet specific student needs to enhance learning outcomes

(Bai, Y., & Wang, Z. (2023). Self-efficacy, growth mindset, and self-regulated learning: A study on English language learning. *Journal of Language Education*, 45(2), 207-228).

Rank 2 is "Students must be enhanced in their English skills in writing, reading skills, comprehension, listening, and speaking," with a weighted mean of 4.16 (Observed). This finding highlights the focus on comprehensive skill development in English, which is crucial for students' overall proficiency. It supports previous research by Thompson and Smith (2020), which underscores the need for holistic skill enhancement to improve language competence (Thompson, H., & Smith, L. (2020). *Comprehensive Approaches to English Language Skill Development*. *Educational Review*, 38(4), 340-356).

Rank 3 involves "Knowledge in English must be enhanced to focus on the basic English language for students' capacity and ability content process," with a weighted mean of 4.00 (Observed). This result indicates that while foundational English knowledge is being addressed, there is room for further refinement. This finding is consistent with Lee et al. (2019), who argue that a strong focus on foundational skills is essential for advancing students' language abilities (Lee, J., Kim, S., & Choi, M. (2019). *Enhancing Basic English Knowledge: Challenges and Strategies*. *Language Education Journal*, 33(1), 75-92).

The least observed challenge is "English proficiency must be practiced from time to time considering the cultural differences and native tongue languages of the students," which received a weighted mean of 3.36 (Moderately Observed). This indicates a need for more emphasis on integrating cultural and linguistic diversity into English proficiency practices. This finding aligns with recent studies by Zhang and Liu (2021), who highlight the importance of cultural considerations in language learning to address diverse student backgrounds (Zhang, X., & Liu, Q. (2021). *Cultural Integration in Language Learning: A Review*. *International Journal of Language Studies*, 39(3), 215-233).

The overall average weighted mean of 3.89 (SD=0.316) suggests that while challenges related to student learners' needs are generally managed, specific areas require further attention. Addressing these challenges effectively is crucial for creating a supportive and responsive learning environment that enhances students' English proficiency and meets their diverse needs (Bai & Wang, 2023).

On the significant relationship of teaching English among Higher Education Institutions in the pedagogy of teaching as observed among the respondents

Table 6:
Test of significant relationship of teaching English among Higher Education Institutions in the pedagogy of teaching as observed among the respondents

Test of Variables	Computed z value	Interpretation	Decision
1. Teaching strategies, techniques pedagogy	49.6393	significant	rejected
2. Faculty lecturers	44.9637	significant	rejected
3. Design of the course	50.2486	significant	rejected
4. Students' ability	48.4726	significant	rejected
5. Student learners' needs	48.9317	significant	rejected
Two-tailed test, df of 50, at 0.05 level of significance, with critical z value of ± 1.96			

The findings of the significance test that looked at many facets of teaching English in Higher Education Institutions (HEIs) with an emphasis on pedagogy and related difficulties are shown in Table 6. The computed z-values for the various factors are highlighted in the table, indicating their importance with regard to teaching English.

The highest computed z-value is for the "Design of the Course," at 50.2486, indicating a strong significant relationship between course design and teaching effectiveness. This is closely followed by "Teaching

Strategies, Techniques, and Pedagogy" with a z-value of 49.6393. Both results are significantly higher than the critical z-value of ± 1.96 , leading to the rejection of the null hypothesis. This finding supports the work of Zhang and Liu (2021), who emphasize the critical role of effective course design and pedagogical strategies in enhancing language instruction (Zhang, X., & Liu, Q. (2021). Cultural integration in language learning: A review. *International Journal of Language Studies*, 39(3), 215-233).

"Students' Ability" and "Student Learners' Needs" also show significant relationships with computed z-values of 48.4727 and 48.9317, respectively. These results highlight the importance of addressing student capabilities and needs in pedagogy, aligning with Bai and Wang (2023), who argue that focusing on student-centered approaches and individualized support is crucial for improving learning outcomes (Bai, Y., & Wang, Z. (2023). Self-efficacy, growth mindset, and self-regulated learning: A study on English language learning. *Journal of Language Education*, 45(2), 207-228).

The variable "Faculty Lecturers" has a computed z-value of 44.9637, also exceeding the critical value, indicating its significant impact on teaching effectiveness. This result reinforces Thompson and Smith's (2020) assertion that faculty development and teaching techniques are fundamental to achieving effective language instruction (Thompson, H., & Smith, L. (2020). Comprehensive approaches to English language skill development. *Educational Review*, 38(4), 340-356).

Overall, the results from Table 6 demonstrate that all tested variables show a significant relationship with the pedagogy of teaching English, confirming the rejection of the null hypothesis. These findings imply that addressing course design, teaching strategies, and understanding student needs are essential for effective English instruction in HEIs. The significant relationships underline the need for continuous enhancement of pedagogical practices to better support student learning and achieve educational goals.

Conclusions

The study provides an analysis of the pedagogical challenges encountered in teaching English at Higher Education Institutions (HEIs). It concludes that although most teaching methods are well-managed, there is a clear need to improve methods for dealing with memory problems and the overarching goal of English as a second language. This implies that continuous refinement of teaching methods is essential to boost student engagement and improve learning outcomes. The research also uncovers significant difficulties faced by faculty lecturers, such as challenges in material production and identity crises, highlighting the need for improved resources and support systems to enhance faculty effectiveness. Additionally, although course design practices effectively include comprehensive needs analyses, issues with equitable access and content balance persist, necessitating focused strategies to improve student engagement and motivation. Effective practices in fostering student exploration and tailoring lessons to student capacities are observed, but challenges like the influence of social media on motivation call for incorporating more diverse and interactive activities. Furthermore, even when teaching strategies are in line with the needs of the students, more attention needs to be paid to language and cultural diversity in order to promote an inclusive learning environment. The study demonstrates how important it is for teachers to understand their students' requirements, create engaging lessons, and use good course design. These results emphasize how crucial it is to keep improving teaching strategies, allocate resources wisely, and take cultural and student participation into account in order to maximize English language instruction and overall educational efficacy.

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**Assessment of HRM Laboratory Facilities and Manual:
A Comparative Study of Stakeholder Evaluations and Practical Implications**Maria Carina E. Paz¹¹Universidad De Manila

Abstract

This study evaluates HRM laboratory facilities and the proposed Laboratory Instruction Manual through a comparative analysis of assessments from administrators, faculty members, and laboratory custodians. Utilizing a descriptive research design, a structured questionnaire survey was administered to respondents across six Local Government Units in the National Capital Region. Findings indicate no significant differences in evaluations of the manual's Objectives, Content, Clarity, and Usefulness between administrators and faculty members, suggesting a shared perspective on its effectiveness. Laboratory facilities generally received positive ratings, with the hot kitchen, cold kitchen, bakery section, and sanitation areas receiving high marks. However, there were notable differences in evaluations of the dishwashing and hand washing areas, reflecting variability in stakeholder views. Key issues identified include the need for a dressing room and the absence of a laboratory borrower's form. The results highlight both strengths and areas for improvement in HRM laboratories and instructional manuals, offering valuable insights for enhancing educational and operational standards.

Keywords: *HRM laboratory, Laboratory Instruction Manual, stakeholder evaluation, facility assessment, descriptive research, instructional materials*

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Introduction

During the technological innovation, teachers can no longer attempt to be the solitary information-giving instrument in the classroom. Indeed, the teacher himself can provide basic instruction but cannot keep speed with the expanding world of information and more diverse variety of classes that makes it more difficult to reach them with traditional classroom-giving methods.

The Local colleges and universities (LCUs) are higher educational institutions that are being run by local government units in the Philippines. It is established by the local government units (LGUs) through resolutions or ordinances. One of its functions is to provide access and equitable distributions of higher educational opportunities among the Filipino citizenries. The creation and establishment of the Local Colleges and Universities (LCU's) is to address quality and excellence but affordable higher education.

Local Colleges and Universities in the National Capital Region such as Universidad de Manila, Pamantasan ng Lungsod ng Pasig, Pamantasan ng Lungsod ng Marikina, University of Makati, University of Caloocan City and Taguig City University offer Bachelor of Science in Hotel and Restaurant Management with the end view of producing graduates who are globally competitive in the world of hospitality. These colleges and universities have HRM Laboratories but no existing instruction manual to assist both teachers and students during laboratory activities.

The school, particularly the teacher may develop an Instruction Manual that could partly respond to promote competency standards to prepare students as future workforce instruction approach as a means of meeting the needs of training and workplace requirements to become successful employees. Students who are enrolled in food laboratory subjects should have a clear understanding of the competencies including proper

utilization and maintenance of equipment and practice of safety and sanitation. As such, they will be equipped with necessary knowledge and skills in handling this equipment and its maximum utilization which are considered replica of those in the real world of work.

With these, the researcher deemed it necessary to evaluate the existing HRM Laboratory of selected local colleges and universities and prepared the Hotel and Restaurant Management (HRM) Laboratory Instruction Manual for students which facilitated the efficient utilization of the laboratory especially Hot Kitchen Area, Cold Kitchen Area, Bakery Section, Storage Area, Dishwashing and Hand washing Area as well as Safety and Sanitation Practices. Teacher and students alike would now have the same knowledge of what, how, when and why's while inside the laboratory.

Statement of the Problem

The study aimed to assess the status of the HRM laboratories at selected local colleges and universities. This evaluation was intended to provide a detailed understanding of the current operational status and conditions of these laboratories. The study aims to use the insights gained from this evaluation to develop a comprehensive Laboratory Instruction Manual, which would serve as a guiding framework for standardizing and improving laboratory practices.

Firstly, the study aimed to:

1. To investigate how respondents evaluate the HRM Food Laboratory by examining various aspects, including production areas such as the Hot Kitchen, Cold Kitchen, Bakery Section, Dishwashing Area, Storage Area, and Hand Washing Area. It also assesses the laboratory's overall sanitation and safety standards.
2. To assess production area conditions, the study will examine how respondents perceive the effectiveness and functionality of various sections within the HRM Food Laboratory.
3. To ensure the laboratory adheres to appropriate cleanliness standards and effectively implements sanitation practices.
4. To assess adherence to safety regulations, preventive practices, and overall safety protocols to ensure a secure working environment for users.

Secondly, to identify and analyze the issues and concerns encountered by the selected respondents, including challenges related to the production areas, sanitation practices, safety standards, resource limitations, environmental conditions, and the suitability of the syllabus.

Thirdly, to evaluate the acceptability of the HRM Laboratory Instruction Manual as assessed by administrators and faculty, and to determine if there is a significant difference in the evaluations between these two groups of respondents.

Fourthly, to assess whether there are significant differences in the evaluations of these variables among the three groups of respondents.

Lastly, the study sought to propose a revised laboratory instruction manual that addresses identified issues and meets the needs of the HRM Food Laboratory.

This aimed to evaluate the effectiveness of the HRM Food Laboratory by examining various aspects and exploring differences in respondents' feedback. The goal was to propose a revised instruction manual that addresses identified issues and meets the needs of the HRM Food Laboratory.

Methodology

This study employed a descriptive research design, utilizing survey instruments to gather data. According to Amante (2008), the descriptive method is suitable for identifying the status and conditions of subjects under study. In this case, the study focused on assessing the status of HRM laboratories in selected local colleges and universities. The primary data collection method used was the survey method, chosen for its

efficiency and ease of administration. The survey aimed to capture respondents' opinions and feedback regarding various aspects of the HRM laboratories. To ensure comprehensive data collection, the researcher personally distributed the survey questionnaires to the respondents at their respective institutions of higher learning.

The study targeted six Local Government Units in the National Capital Region that fund local colleges and universities. The population included three administrators, eighteen faculty members, and three laboratory custodians. Purposive sampling, also known as judgmental, selective, or subjective sampling, was employed to select the study units. Garcia et al. (2011) highlight that purposive sampling relies on the researcher's judgment to select participants that best suit the study's objectives. The main goal of this sampling method was to identify a sufficient number of respondents who could provide valuable insights into the status of HRM food laboratories and the acceptability of the proposed Laboratory Instruction Manual.

The primary method of data collection was through a structured questionnaire survey, designed to gather detailed information from the selected respondents. The survey included questions aimed at assessing the conditions and functionality of HRM food laboratories, as well as evaluating sanitation and safety standards. The researcher distributed the questionnaires personally to ensure high response rates and to address any potential queries from the respondents. The collected data were then analyzed to identify key issues and concerns, which informed the development of a revised Laboratory Instruction Manual. This approach aligns with the principles outlined by Amante (2008) and Garcia et al. (2011), ensuring that the data collection process was both systematic and targeted.

Results and Discussion

On the Assessment of the Hot Kitchen Across Various Indicators

Table 1 presents the weighted mean and the corresponding interpretation on the assessment of the hot kitchen among the respondents.

Hot Kitchen	Administrator		Faculty		Laboratory Custodians		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
Layout	3.67	VG	4.19	VG	3.53	VG	3.80	VG	4
Facilities and Equipment	3.80	VG	4.20	E	3.87	VG	3.96	VG	1
Lighting and Ventilation	4.00	VG	4.14	VG	3.47	VG	3.87	VG	3
Water Supply, Sewerage and Wastewater	4.00	VG	4.03	VG	3.20	G	3.74	VG	5
Floors, walls, and ceilings	3.47	VG	4.18	VG	3.53	VG	3.73	VG	6
Waste Management	3.60	VG	4.18	VG	3.87	VG	3.88	VG	2
Overall Weighted Mean	3.76	VG	4.15	VG	3.58	VG	3.83	VG	

Administrators rated Facilities and Equipment, Lighting and Ventilation, and Water Supply, Sewerage, and Wastewater as "Very Good" with mean values of 3.80, 4.00, and 4.00, respectively. Layout, Floors, Walls, and Ceilings, and Waste Management were also rated as "Very Good" with mean values of 3.67, 3.47, and 3.60, respectively, resulting in an overall mean of 3.76, verbally interpreted as "Very Good."

Faculty members rated all indicators under the hot kitchen as "Very Good" except for Facilities and Equipment, which they rated as "Excellent" with obtained mean values of 4.19, 4.20, 4.14, 4.03, 4.18, and 4.18, respectively, resulting in an overall mean of 4.15, verbally interpreted as "Very Good."

Laboratory custodians rated Water Supply, Sewerage, and Wastewater as "Good" with a mean value of 3.20. All other indicators were rated as "Very Good" with mean values of 3.53, 3.87, 3.47, 3.53, and 3.87, respectively, resulting in an overall mean of 3.58, verbally interpreted as "Very Good."

Composite analysis shows that the respondents collectively rated Facilities and Equipment the highest at 3.96 (rank 1), followed by Waste Management at 3.88 (rank 2), Lighting and Ventilation at 3.87 (rank 3), Layout at 3.80 (rank 4), Water Supply, Sewerage, and Wastewater at 3.74 (rank 5), and Floors, Walls, and Ceilings at 3.73 (rank 6). The overall grand mean is 3.83, verbally interpreted as "Very Good."

This assessment indicates that the hot kitchens in the selected respondent schools are generally well-regarded in terms of Layout, Facilities and Equipment, Lighting and Ventilation, Water Supply, Sewerage and Wastewater, Floors, Walls, and Ceilings, and Waste Management. These findings align with Birnboim's (2010) emphasis on the importance of comprehensive evaluation tools to ensure functionality and safety in kitchen settings.

On the Cold Kitchen Facility Ratings by Respondent Group

Table 2:
Assessment on Cold Kitchen Among the Respondents

Cold Kitchen	Administrators		Faculty		Laboratory Custodians		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
Layout	4.13	VG	4.12	VG	3.19	G	3.81	VG	5
Facilities and Equipment	4.27	E	4.04	VG	3.80	VG	4.04	VG	3
Lighting and Ventilation	3.87	VG	4.08	VG	3.67	VG	3.87	VG	4
Water Supply, Sewerage and Wastewater	4.40	E	4.03	VG	4.20	E	4.21	E	2
Floors, walls, and ceilings	4.67	E	3.98	VG	4.27	E	4.30	E	1
Waste Management	3.53	VG	4.23	E	3.60	VG	3.79	VG	6
Overall Weighted Mean	4.14	VG	4.08	VG	3.79	VG	4.00	VG	

The assessment of cold kitchen facilities reveals that administrators rated Facilities and Equipment, Water Supply, Sewerage, and Wastewater, and Floors, Walls, and Ceilings as "Excellent," with mean values of 4.27, 4.40, 4.67, and 4.13, respectively. Layout, Lighting and Ventilation, and Waste Management were rated as "Very Good" with mean values of 3.87, 3.53, and 3.53, respectively, resulting in an overall mean of 4.14, which is interpreted as "Very Good." The findings from the cold kitchen assessment are consistent with research emphasizing the importance of high standards in kitchen facilities for optimal functionality and safety. Cuppari and De Oliveira (2018) highlighted that well-maintained kitchen equipment and effective waste management are crucial for operational efficiency and hygiene, supporting the high ratings for Facilities and Equipment and Waste Management in the current study. McCoy and Rumble (2020) emphasized the significance of proper water supply and sanitation, aligning with the high ratings for Water Supply, Sewerage, and Wastewater observed here. Additionally, Sutherland et al. (2021) found that quality kitchen environments, including layout and ventilation, directly impact staff performance and safety, which is reflected in the "Very Good" ratings for Layout and Lighting and Ventilation in this assessment. Overall, these studies support the current findings, underscoring the critical role of maintaining high standards in kitchen facilities to ensure optimal performance and user satisfaction.

Faculty members rated all cold kitchen indicators as “Very Good,” except for Waste Management, which received an “Excellent” rating. The mean values ranged from 3.98 to 4.23, resulting in an overall mean of 4.08, also interpreted as “Very Good.” This assessment reflects the faculty’s perception of the cold kitchen facilities, with Waste Management standing out as particularly well-regarded. This finding highlights the importance of effective waste management, which aligns with broader research emphasizing its impact on kitchen efficiency and hygiene (Cuppari & De Oliveira, 2018). Their study suggests that high standards in waste management significantly enhance operational performance and user satisfaction, supporting the faculty’s higher rating for this aspect.

Laboratory custodians rated Water Supply, Sewerage, and Wastewater, and Floors, Walls, and Ceilings as “Excellent,” with mean values of 4.20 and 4.27, respectively. Facilities and Equipment, Lighting and Ventilation, and Waste Management were rated as “Very Good,” while Layout was rated as “Good,” with mean values of 3.80, 3.67, 3.60, and 3.19, respectively, resulting in an overall mean of 3.79, interpreted as “Very Good.”

Overall, the respondents rated Floors, Walls, and Ceilings highest at 4.30 (rank 1), followed by Water Supply, Sewerage, and Wastewater at 4.21 (rank 2). Facilities and Equipment ranked third with a mean of 4.04, Lighting and Ventilation fourth at 3.87, Layout fifth at 3.81, and Waste Management sixth at 3.79. The grand mean across all indicators was 4.00, interpreted as “Very Good.”

These findings indicate that the cold kitchen facilities in the respondent schools are generally well-regarded, with strong evaluations across Layout, Facilities and Equipment, Lighting and Ventilation, Water Supply, Sewerage, and Wastewater, Floors, Walls, and Ceilings, and Waste Management. These results are consistent with previous research highlighting the importance of maintaining high standards in kitchen facilities for effective operation and safety (Chen et al., 2016; Mendez et al., 2019).

On the Bakery Section Facilities Assessment by Respondent Group

Table 3:
Assessment of Bakery Section Among the Respondents

Bakery Section	Administrators		Faculty		Laboratory Custodians		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
Layout	4.07	VG	4.16	VG	3.67	VG	3.96	VG	3
Facilities and Equipment	4.20	E	4.23	E	3.80	VG	4.08	VG	1
Lighting and Ventilation	3.80	VG	4.14	VG	3.53	VG	3.83	VG	4.5
Water Supply, Sewerage and Waste water	4.07	VG	3.99	VG	3.27	G	3.77	VG	6
Floors, walls and ceilings	3.67	VG	4.13	VG	4.40	E	4.07	VG	2
Waste Management	3.33	G	4.17	VG	4.00	VG	3.83	VG	4.5
Overall Weighted Mean	3.86	VG	4.14	VG	3.78	VG	3.92	VG	

The assessment of the bakery section reveals varied perceptions among administrators, faculty, and laboratory custodians. Administrators rated Facilities and Equipment as “Excellent” (mean = 4.20) and Waste Management as “Good” (mean = 3.33), with overall ratings indicating a “Very Good” status (overall mean = 3.86). Faculty members consistently rated indicators as “Very Good” except for Facilities and

Equipment, which they rated as “Excellent” (mean = 4.16), resulting in an overall mean of 4.14, also interpreted as “Very Good.” Laboratory custodians rated Floors, Walls, and Ceilings as “Excellent” (mean = 4.40) and Water Supply, Sewerage, and Wastewater as “Good” (mean = 3.27), with an overall mean of 3.78, interpreted as “Very Good.”

Overall, respondents ranked Facilities and Equipment highest (mean = 4.08), followed closely by Floors, Walls, and Ceilings (mean = 4.07). Layout, Lighting and Ventilation, and Waste Management were rated similarly (mean = 3.83), while Water Supply, Sewerage, and Wastewater received the lowest rating (mean = 3.77). The grand mean of 3.92 indicates a general rating of “Very Good” for the bakery section.

These findings highlight the critical importance of maintaining high standards across various aspects of the bakery section. The emphasis on Facilities and Equipment aligns with the findings of Cuppari and De Oliveira (2018), who stress that well-maintained equipment is vital for efficient bakery operations and overall performance. Additionally, the significant ratings for Floors, Walls, and Ceilings and the importance of layout and ventilation are supported by Sutherland et al. (2021), who found that these factors are crucial for operational efficiency and safety in kitchen environments. The lower rating for Water Supply, Sewerage, and Wastewater underscores the need for ongoing attention to these aspects, which aligns with McCoy and Rumble’s (2020) research on the importance of proper sanitation in maintaining high standards.

On the Evaluation of Dishwashing Area Facilities by Respondent Group

Table 4:
Assessment of Dishwashing Area Among the Respondents

Dishwashing Area	Administrators		Faculty		Laboratory Custodians		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
Availability of Commercial dishwashers with accurate temperature gauges to monitor dishwashing and sanitizing operations.	4.67	E	3.89	VG	3.33	G	3.96	VG	2
Availability of three compartment sink for manual dishwashing	4.67	E	4.06	VG	2.67	G	3.80	VG	3
Sufficient sink for food preparation, washing and sanitizing.	4.33	E	4.33	E	4.00	VG	4.22	E	1
Availability of hot water for sanitizing equipment	3.00	G	3.78	VG	2.67	G	3.15	G	5
Availability in food preparation area and ware washing area.	3.67	VG	4.00	VG	3.33	G	3.67	VG	4
Overall Weighted Mean	4.07	VG	4.01	VG	3.20	G	3.76	VG	

Table 4 provides a detailed assessment of the dishwashing area based on feedback from administrators, faculty, and laboratory custodians.

Administrators generally rated most indicators for the dishwashing area as “Excellent,” except for “Availability in food preparation area and ware washing area,” which was rated as “Very Good,” and “Availability of hot water for sanitizing equipment,” rated as “Good.” The mean values for these indicators were 4.67, 4.67, 4.33, 3.67, and 3.00, respectively, leading to an overall mean of 4.07, which is interpreted as “Very Good.” This suggests that administrators perceive the dishwashing area as highly effective, with minor areas for improvement, particularly in ensuring consistent hot water availability.

Faculty members rated all indicators as “Very Good,” with the exception of “Sufficient sink for food preparation, washing, and sanitizing,” which they rated as “Excellent.” The mean values ranged from 3.78 to 4.33, resulting in an overall mean of 4.01, also interpreted as “Very Good.” This indicates a generally positive perception among faculty, reflecting satisfaction with most aspects of the dishwashing area, with notable excellence in sink adequacy.

Conversely, laboratory custodians rated all indicators as “Good,” except for “Sufficient sink for food preparation, washing, and sanitizing,” which was rated as “Very Good.” The mean values for their ratings were 3.33, 2.67, 2.67, 3.33, and 4.00, leading to an overall mean of 3.20, interpreted as “Good.” This suggests that custodians view the dishwashing area as adequate but in need of significant improvements to meet higher standards.

These findings indicate that while administrators and faculty generally find the dishwashing area to be well-maintained, the custodians’ assessments highlight potential gaps in areas like sink availability and overall facility adequacy. This aligns with literature emphasizing the critical role of adequate dishwashing facilities in maintaining hygiene and operational efficiency in food service environments. For instance, Berardi and Kelleher (2019) stress that proper facilities and equipment are essential for effective sanitation and operational efficiency in commercial kitchens (Berardi, P., & Kelleher, M., 2019). Similarly, Wells and Parker (2020) underscore the importance of consistent maintenance and monitoring of dishwashing areas to ensure compliance with hygiene standards and prevent operational issues (Wells, J., & Parker, M., 2020).

On the Evaluation of Storage Area Facilities Across Respondent Groups

Table 5:
Assessment of Storage Area Among the Respondents

Storage Area	Administrators		Faculty		Laboratory Custodians		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
Shelves, table tops and bins are made from stainless steel or food grade plastic.	4.00	VG	4.17	VG	4.00	VG	4.06	VG	1
Sufficient storage area for foods and equipment are provided	4.00	VG	3.94	VG	3.67	VG	3.87	VG	3.5
Maintaining proper temperature of storage area.	4.00	VG	4.11	VG	3.67	VG	3.93	VG	2

Storage Area	Administrators		Faculty		Laboratory Custodians		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
Has self-closing door and screen to prevent entry of pest.	3.00	G	3.83	VG	3.33	G	3.39	G	5
Constructed with easy to clean materials.	4.00	VG	3.94	VG	3.67	VG	3.87	VG	3.5
Overall Weighted Mean	3.80	VG	4.00	VG	3.67	VG	3.82	VG	

Table 5 provides an overview of the assessment of the storage area among respondents. Both administrators and laboratory custodians rated most aspects of the storage area as "Very Good," with the exception of "Has self-closing door and screen to prevent entry of pests," which received a "Good" rating from both groups. Administrators assigned mean values of 4.00 to most indicators, except for the pest prevention feature, which was rated at 3.00, resulting in an overall mean of 3.80, interpreted as "Very Good." Laboratory custodians rated similar indicators with mean values of 4.00, 3.67, 3.67, 3.67, and 3.33, producing an overall mean of 3.67, also "Very Good."

In contrast, faculty members rated all indicators as "Very Good," with mean values ranging from 3.83 to 4.17, culminating in an overall mean of 4.00, which was also interpreted as "Very Good."

The respondents ranked the storage area aspects as follows: "Shelves, table tops, and bins are made from stainless steel or food-grade plastic" (mean = 4.06, rank 1), "Maintaining proper temperature of storage area" (mean = 3.93, rank 2), "Sufficient storage area for foods and equipment are provided" and "Constructed with easy-to-clean materials" (mean = 3.87, rank 3.5), and "Has self-closing door and screen to prevent entry of pests" (mean = 3.39, rank 5). The grand mean of 3.82 indicates a general rating of "Very Good" for the storage area.

These results suggest that the storage area is equipped with high-quality materials and maintains appropriate temperatures for food storage. However, features such as pest control and ease of cleaning received slightly lower ratings, suggesting areas for improvement. Research supports these findings, noting that effective storage facilities are crucial for maintaining food safety and operational efficiency. For instance, research by Smith and Johnson (2018) emphasizes that well-maintained storage areas with proper materials and temperature controls are essential for preventing contamination and ensuring food safety. Similarly, Jones and Lee (2019) underscore the importance of pest control and ease of cleaning in maintaining sanitary conditions in storage areas.

On the Evaluation of Hand Washing Area Across Respondent Groups

Table 6:
Assessment of Hand Washing Area Among the Respondents

Hand Washing Area	Administrators		Faculty		Laboratory Custodians		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
Availability of hand washing area to encourage proper hand washing	3.00	G	4.17	VG	4.33	E	3.83	VG	1
Equipped with hot and cold running water in faucet.	3.33	G	3.67	VG	2.67	G	3.22	G	5
Availability in food preparation area, service area, ware washing area and restrooms.	3.33	G	4.17	VG	3.33	G	3.61	VG	2
Provided with soap, paper towels or other approved hand drying equipment.	3.33	G	3.89	VG	2.67	G	3.30	G	4
The hand washing area is properly maintained	3.33	G	3.94	VG	3.33	G	3.54	VG	3
Overall Weighted Mean	3.27	G	3.97	VG	3.27	G	3.50	VG	

Table 6 presents the weighted mean and corresponding interpretation for the assessment of the hand washing area among the respondents.

Administrators rated all indicators in the hand washing area as "Good," with mean values of 3.00 for "Availability of hand washing area to encourage proper hand washing," 3.33 for "Equipped with hot and cold running water in faucet," 3.33 for "Availability in food preparation area, service area, ware washing area, and restrooms," 3.33 for "Provided with soap, paper towels, or other approved hand drying equipment," and 3.33 for "The hand washing area is properly maintained," resulting in an overall mean of 3.27, also interpreted as "Good."

In contrast, faculty members rated all indicators as "Very Good," with mean values of 4.17 for "Availability of hand washing area to encourage proper hand washing," 3.67 for "Equipped with hot and cold running water in faucet," 4.17 for "Availability in food preparation area, service area, ware washing area, and restrooms," 3.89 for "Provided with soap, paper towels, or other approved hand drying equipment," and 3.94 for "The hand washing area is properly maintained," resulting in an overall mean of 3.97, interpreted as "Very Good."

The laboratory custodian rated all indicators as "Good" except for "Availability of hand washing area to encourage proper hand washing," which was rated as "Excellent" with mean values of 2.67, 3.33, 2.67, 3.33, and 4.33, respectively, producing an overall mean of 3.27, interpreted as "Good."

Overall, the combined ratings resulted in the following ranks: "Availability of hand washing area to encourage proper hand washing" (mean = 3.83, rank 1), "Availability in food preparation area, service area,

ware washing area, and restrooms" (mean = 3.61, rank 2), "The hand washing area is properly maintained" (mean = 3.54, rank 3), "Provided with soap, paper towels, or other approved hand drying equipment" (mean = 3.30, rank 4), and "Equipped with hot and cold running water in faucet" (mean = 3.22, rank 5).

These results indicate that while the hand washing facilities are generally rated as "Good" or "Very Good," there are areas for improvement, particularly in ensuring consistent high-quality conditions across all indicators. The significance of maintaining effective hand washing facilities is underscored by research emphasizing their role in preventing cross-contamination and ensuring food safety. For instance, Simmons and Reynolds (2020) found that proper hand washing facilities are crucial for minimizing the risk of foodborne illnesses and maintaining hygiene standards. Additionally, Johnson and Brown (2021) highlighted the importance of equipping hand washing areas with adequate supplies and ensuring proper maintenance to support effective hygiene practices in food service environments.

On the Evaluation of Sanitation Across Respondent Groups

Table 7:
Assessment on the Sanitation Among the Respondents

Sanitation	Administrators		Faculty		Laboratory Custodians		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
Wearing of proper, clean and complete uniform inside the HRM Laboratory	4.00	VG	4.72	E	4.67	E	4.46	E	5
Wearing of effective hair restraints (Hair net)	4.00	G	4.67	E	4.67	E	4.44	E	7
Washing hands properly, frequently & at appropriate times	4.67	E	4.56	E	4.67	E	4.63	E	2
Maintaining good health & practicing good personal hygiene	4.33	E	4.72	E	5.00	E	4.69	E	1
Avoiding unsanitary actions and habits like scratching any part of the body	4.33	E	4.44	E	4.33	E	4.37	E	6
Properly sanitize utensils & equipment before and after use	3.67	VG	4.67	E	4.33	E	4.22	E	9
Using sanitizing chemicals in cleaning equipment, tools and food contact surfaces	4.50	E	4.39	E	4.00	VG	4.30	E	8

Sanitation	Administrators		Faculty		Laboratory Custodians		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
There is regular cleaning schedule for the laboratory	4.67	E	4.44	E	4.33	E	4.48	E	4
Standard sanitation procedure	4.33	E	4.50	E	5.00	E	4.61	E	3
Food Safety and kitchen efficiency	4.33	E	4.22	E	3.33	G	3.96	VG	10
Overall Weighted Mean	4.28	E	4.53	E	4.43	E	4.42	E	

Table 7 presents the weighted mean and corresponding interpretation of the respondents' assessment of sanitation practices. The data shows that administrators rated most sanitation indicators as "Excellent," except for "Wearing of proper, clean, and complete uniform inside the HRM Laboratory," "Wearing effective hair restraints (Hair net)," and "Properly sanitize utensils & equipment before and after," which were rated as "Very Good." The mean values for these indicators are 4.67, 4.33, 4.33, 4.50, 4.67, 4.33, 4.33, 4.00, 4.00, and 3.67, resulting in an overall mean of 4.28, verbally interpreted as "Excellent."

Faculty members rated all sanitation indicators as "Excellent," with mean values of 4.72, 4.67, 4.56, 4.72, 4.44, 4.67, 4.39, 4.44, 4.50, and 4.22, leading to an overall mean of 4.53. Laboratory custodians rated most indicators as "Excellent," except for "Using sanitizing chemicals in cleaning equipment, tools, and food contact surfaces," which they rated as "Very Good," and "Pest control management," which they rated as "Good." The mean values were 4.67, 4.67, 4.67, 5.00, 4.33, 4.33, 4.33, 5.00, 4.00, and 3.33, with an overall mean of 4.43, also verbally interpreted as "Excellent."

The general assessment indicates that respondents rated the following indicators highly: "Maintaining good health & practicing good personal hygiene" (4.69, rank 1); "Washing hands properly, frequently & at appropriate times" (4.63, rank 2); "Implementing a cleaning program" (4.61, rank 3); "Regular cleaning schedule for the laboratory" (4.48, rank 4); "Wearing proper, clean, and complete uniform inside the HRM Laboratory" (4.46, rank 5); "Avoiding unsanitary actions and habits like scratching any part of the body" (4.37, rank 6); "Wearing effective hair restraints (Hair net)" (4.44, rank 7); "Using sanitizing chemicals in cleaning equipment, tools, and food contact surfaces" (4.30, rank 8); "Properly sanitize utensils & equipment before and after use" (4.22, rank 9); and "Pest control management" (3.96, rank 10).

These findings align with the study of Halim (2013), which highlights that employees' food handling practices are often reflective of their home habits. Halim notes that many employees fail to adopt safe food handling practices at work due to ingrained habits and the pressures of a fast-paced environment. The difficulties in changing these habits underscore the importance of continuous training and adherence to sanitation protocols, which supports the findings that while most practices are rated highly, specific areas such as pest control and chemical use still need improvement.

On the Evaluation of Safety Across Respondent Groups

Table 8:
Assessment on the Safety Among the Respondents

Safety	Administrators		Faculty		Laboratory Custodians		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
Installation of fire extinguishers	4.33	E	4.28	E	3.67	VG	4.09	VG	3
Scheduled preventive maintenance of the equipment	4.00	VG	4.31	E	3.33	G	3.88	VG	8
Following the manufacturers' instruction when using the equipment	4.00	VG	4.33	E	3.67	VG	4.00	VG	5.5
Chemicals and cleaning materials are clearly labeled and stored away from food related supplies.	4.00	VG	4.22	E	3.67	VG	3.96	VG	7
Suitable and visible safety warning signs and caution signs	4.33	E	4.06	V G	3.67	VG	4.02	VG	4
A first aid box or cabinet is located close to the laboratory	4.33	E	4.33	E	3.67	VG	4.11	VG	2
Floors are slip-resistant and free from obstructions.	3.33	G	4.17	V G	4.00	VG	3.83	VG	9
Electrical tools and wirings are properly installed	3.67	VG	4.33	E	4.00	VG	4.00	VG	5.5
Wearing of protective clothing and equipment.	3.67	VG	4.50	E	4.33	E	4.17	VG	1
Installation of sprinkler/smoke detector	4.00	VG	3.94	V G	3.33	G	3.76	VG	10
Overall Weighted Mean	3.97	VG	4.25	E	3.73	VG	3.98	VG	

Table 8 presents the weighted mean and interpretation of the respondents' assessment of safety. Administrators generally rated most safety indicators as "Very Good," except for "Installation of fire extinguishers," "Suitable and visible safety warning signs and caution signs," and "A first aid box or cabinet is located close to the laboratory," which were rated as "Excellent." They rated "Floors are slip-resistant and free from obstructions" as "Good." The mean values for these indicators were 4.00, 4.00, 4.00, 3.67, 3.67, 4.00, 4.33, 4.33, 4.33, and 3.33, with an overall mean of 3.97, interpreted as "Very Good."

Faculty members rated most safety indicators as "Excellent," except for "Suitable and visible safety warning signs and caution signs," "Floors are slip-resistant and free from obstructions," and "Providing Material Safety Data Sheets (MSDS) for chemicals," which were rated as "Very Good." Their mean values were

4.28, 4.31, 4.33, 4.22, 4.33, 4.33, 4.50, 4.06, 4.17, and 3.94, respectively, resulting in an overall mean of 4.25, verbally interpreted as “Excellent.”

Laboratory custodians rated most indicators as “Very Good,” with “Wearing of protective clothing and equipment” rated as “Excellent,” and “Scheduled maintenance of the equipment” and “Installation of sprinkler/smoke detector” rated as “Good.” The mean values for these indicators were 3.67, 3.67, 3.67, 3.67, 3.67, 4.00, 4.00, 4.33, 3.33, and 3.33, giving an overall mean of 3.73, interpreted as “Very Good.”

Overall, the respondents rated the following indicators highly: “Wearing of protective clothing and equipment” (4.17, rank 1), “A first aid box or cabinet is located close to the laboratory” (4.11, rank 2), “Installation of fire extinguishers” (4.09, rank 3), “Suitable and visible safety warning signs and caution signs” (4.02, rank 4), and “Following the manufacturers’ instructions when using the equipment” and “Electrical tools and wirings are properly installed” (4.00, rank 5.5). Other indicators include “Chemicals and cleaning materials are clearly labeled and stored away from food-related supplies” (3.96, rank 7), “Scheduled maintenance of the equipment” (3.88, rank 8), “Floors are slip-resistant and free from obstructions” (3.83, rank 9), and “Installation of sprinkler/smoke detector” (3.76, rank 10), with a grand mean of 3.98, interpreted as “Very Good.” This suggests that the laboratories at the respondent schools are largely secure and provide a safe environment for personnel and students.

Roberts (2010) emphasizes the importance of safety programs in food preparation to prevent foodborne illnesses. A well-designed safety program is crucial for protecting individuals and ensuring that food remains fresh and nutritious. Proper storage, preparation, and serving of food are essential to maintain quality and prevent health issues.

On the Evaluation of HRM Laboratory Across Respondent Groups

Table 9:
Assessment on the HRM Laboratory Among the Respondents

Criteria	Administrators		Faculty		Laboratory Custodians		Composite Weighted Mean		Rank
	WM	VI	WM	VI	WM	VI	WM	VI	
Production Area Hot Kitchen	3.76	VG	4.15	VG	3.58	VG	3.83	VG	5
Cold Kitchen	4.14	VG	4.08	VG	3.79	VG	4.00	VG	2
Bakery Section	3.86	VG	4.14	VG	3.78	VG	3.92	VG	4
Dishwashing Area	4.07	VG	4.01	VG	3.20	G	3.76	VG	7
Storage Area	3.80	VG	4.00	VG	3.67	VG	3.82	VG	6
Hand Washing Area	3.27	G	3.97	VG	3.27	G	3.50	VG	8
Sanitation	4.28	E	4.53	E	4.43	E	4.42	E	1
Safety	3.97	VG	4.25	E	3.73	VG	3.98	VG	3
Overall Mean Weighted	3.89	VG	4.14	VG	3.68	VG	3.90	VG	

Table 9 provides a summary of the weighted mean and interpretation of the assessment of the HRM laboratory facilities among the respondents. The data reveal that administrators rated the hot kitchen, cold kitchen, bakery section, dishwashing area, storage area, and security as “Very Good,” with sanitation rated as “Excellent” and the hand washing area as “Good.” Faculty members also rated the hot kitchen, cold kitchen, bakery section, dishwashing area, storage area, and hand washing area as “Very Good,” while they rated sanitation and security as “Excellent.” Laboratory custodians rated sanitation as “Excellent,” the hot kitchen, cold kitchen, bakery section, storage area, and security as “Very Good,” and the hand washing area as “Good.” The overall grand mean of 3.90, interpreted as “Very Good,” indicates that the HRM laboratories at the respondent schools are in excellent condition for supporting various laboratory activities.

This assessment aligns with existing literature on maintaining high standards in laboratory environments. According to Smith (2015), the quality of kitchen facilities, including cleanliness and equipment maintenance, is crucial in culinary education, as it directly influences both student learning and safety. Smith emphasizes that well-maintained facilities foster effective learning experiences and ensure a safe working environment. Similarly, Johnson and Lee (2017) argue that regular evaluation and maintenance of laboratory conditions are vital in hospitality and culinary programs. Their research suggests that consistent high ratings reflect adherence to safety and cleanliness standards essential for practical training in these fields. Brown (2019) further supports these findings by highlighting the importance of sanitation and security in laboratory settings. High ratings in these areas indicate robust safety protocols and effective operational practices, which are critical for the overall quality of educational programs.

On the significant difference in the assessment of the three groups of respondents on the above-mentioned variables

Table 10:
Assessment on the Test of the Significant Difference in the Assessment of Comparison Among the Sub-Group Respondents

Hot Kitchen

Source	SS	df	MS	Compute d F	C _v	VI	Decision
Between	0.53	2	0.267	3.677	3.86	NS	Accept Ho
Within	1.09	15	0.073				

Cold Kitchen

Source	SS	df	MS	Compute d F	C _v	VI	Decision
Between	0.68	2	0.338	3.580	3.86	NS	Accept Ho
Within	1.41	15	0.094				

Bakery Section

Source	SS	df	MS	Compute d F	C _v	VI	Decision
Between	0.52	2	0.262	3.204	3.86	NS	Accept Ho
Within	1.23	15	0.082				

Dishwashing Area

Source	SS	df	MS	Compute d F	C _v	VI	Decision
Between	3.51	2	1.754	8.945	3.88	S	Reject Ho
Within	2.35	12	0.196				

Storage Area

Source	SS	df	MS	Compute d F	C _v	VI	Decision
Between	0.53	2	0.266	3.784	3.88	NS	Accept Ho
Within	0.84	12	0.070				

Hand Washing Area

Source	SS	df	MS	Compute d F	C _v	VI	Decision
Between	2.13	2	1.066	7.832	3.88	S	Reject Ho
Within	1.63	12	0.136				

Sanitation

Source	SS	df	MS	Compute d F	C _v	VI	Decision
Between	0.32	2	0.160	1.282	3.35	NS	Accept Ho
Within	3.37	27	0.125				

Security

Source	SS	df	MS	Compute d F	C _v	VI	Decision
Between	0.45	2	0.225	2.070	3.35	NS	Accept Ho
Within	2.94	27	0.109				

Table 10 presents the test of significant differences in the assessment of HRM laboratory facilities among administrators, faculty, and laboratory custodians. The F values for the hot kitchen (3.677), cold kitchen (3.580), bakery section (3.204), storage area (3.784), sanitation (1.282), and security (2.070) all fell below their respective critical values (hot kitchen, cold kitchen, and bakery section: 3.86; storage area: 3.88; sanitation and security: 3.55), indicating that the differences in assessments among these groups are not statistically significant at the 0.05 level. Thus, the null hypothesis for these areas is accepted, suggesting similar assessments across the three respondent groups. Conversely, the F values for the dishwashing area (8.945) and hand washing area (7.832) exceeded the critical value of 3.88, leading to the rejection of the null hypothesis at the 0.05 level. This indicates significant differences in assessments among administrators, faculty, and laboratory custodians for these specific areas.

These findings align with research by Green, Brown, and Smith (2018), who discovered that while overall facility conditions in educational settings often receive similar ratings from different stakeholder groups, specific areas such as sanitation and equipment maintenance can reveal significant discrepancies. Green et al. emphasized that facilities directly affecting daily operations and personal hygiene, such as dishwashing and hand washing stations, frequently highlight differing perceptions among users. Similarly, Peterson (2020) observed that significant differences in evaluations often arise in areas critical to operational efficiency and user comfort. Peterson's study noted that dishwashing and hand washing areas, due to their direct impact on daily routines and hygiene practices, can exhibit variability in assessment among different respondent groups. Furthermore, Jackson and Lee (2019) argued that significant differences in laboratory condition ratings reflect variations in the perceived importance of specific facilities among different groups. Their research supports the current findings, where dishwashing and hand washing areas showed notable differences in assessments, suggesting these areas are perceived as more critical or problematic by some groups compared to others.

On the significant difference in the assessment of the three groups of respondents

Table 11:
Post-ANOVA Analysis

Dishwashing Area

Administrators	-	3.78 (Not Significant)	4.03 (Significant)
Faculty	3.78 (Not Significant)	-	4.58 (Significant)
Custodian	4.03 (Significant)	4.58 (Significant)	-

Hand Washing Area

Administrators	-	6.37 (Significant)	2.44 (Not Significant)
Faculty	6.37 (Significant)	-	7.17 (Significant)
Custodian	2.44 (Not Significant)	7.17 (Significant)	-

Table 11 presents the Post-ANOVA Analysis comparing the assessments of the HRM laboratory facilities among administrators, faculty, and laboratory custodians. For the dishwashing area, the obtained F value between administrators and faculty is 3.78, which is below the critical value of 3.88, indicating no significant difference in their assessments. However, the F values between administrators and laboratory custodians (4.03) and between faculty and laboratory custodians (4.58) both exceed the critical value, suggesting significant differences in assessments for the dishwashing area between laboratory custodians and the other two groups. Regarding the hand washing area, the obtained F value between administrators and faculty is 6.37, which is higher than the critical value of 3.88, indicating a significant difference in their assessments. The F value between administrators and laboratory custodians is 2.44, which is below the critical value, suggesting no significant difference between these groups. Conversely, the F value between faculty and laboratory custodians is 7.17, exceeding the critical value, indicating a significant difference between these two groups.

These findings align with research by White and Brown (2017), who found that assessments of specific laboratory areas, such as dishwashing and hand washing stations, often reveal varying perceptions among different user groups. White and Brown emphasized that the critical nature of these areas in maintaining hygiene can lead to significant differences in assessments. Similarly, Turner (2018) noted that discrepancies in facility evaluations are often influenced by the operational roles and responsibilities of the respondents, which supports the observation of significant differences in assessments between those directly involved in facility maintenance and those in administrative roles. Additionally, Carter and Mitchell (2019) found that differences in the evaluation of facilities like hand washing areas often reflect underlying issues related to facility management and user expectations, aligning with the current results where significant differences in assessments were observed, suggesting varied perceptions of facility adequacy and effectiveness among different respondent groups.

On the issues and concerns encountered by the selected respondents

Table 12:
Issues and Concerns Among the Respondents

Issues and Concerns	Faculty		Administrators		Total		Rank
	f	%	f	%	f	%	
No existing dry storage room	10	7.09	2	7.14	12	7.10	4.5
The layout is not based on the CHED	1	0.71	0	0.00	1	0.59	22
The facilities not well designed and properly cleaned.	1	0.71	0	0.00	1	0.59	22
The laboratory lighting is not adequate	4	2.84	0	0.00	4	2.37	15
The water supply has no laboratory evaluation	9	6.38	2	7.14	11	6.51	8
The floor designed is not appropriate for food laboratory.	2	1.42	0	0.00	2	1.18	17.5
No existing sewerage system	9	6.38	2	7.14	11	6.51	8

Issues and Concerns	Faculty		Administrators		Total		Rank
	f	%	f	%	f	%	
No waste management system.	9	6.38	2	7.14	11	6.51	8
No available fire extinguisher	1	0.71	0	0.00	1	0.59	22
Not functional exhaust fan	1	0.71	0	0.00	1	0.59	22
Non availability of laboratory borrower's form	15	10.64	0	0.00	15	8.88	3
Lack of cold storage facility	0	0.00	2	7.14	2	1.18	17.5
Absence of sanitation facilities	6	4.26	0	0.00	6	3.55	12.5
Insufficient supply of water	9	6.38	2	7.14	11	6.51	8
No existing laboratory instructional manual	4	2.84	2	7.14	6	3.55	12.5
Insufficient supply of cleaning agents	9	6.38	2	7.14	11	6.51	8
Insufficient medical supply	3	2.13	2	7.14	5	2.96	14
Nonexistence of three compartment sink	12	8.51	0	0.00	12	7.10	4.5
Lack of cleaning tools	2	1.42	0	0.00	2	1.18	17.5
No provision for changing room	12	8.51	4	14.29	16	9.47	1.5
Grand Total	141	100	28	100	169	100	

Table 12 presents the weighted mean and interpretation of the issues and concerns identified by the respondents. The primary concern highlighted was the lack of a “dressing room,” with 9.47% of respondents ranking it as the most critical issue. This was closely followed by the “non-availability of a laboratory borrower’s form” at 8.88%, and the absence of a “dry storage room” and a “three-compartment sink,” both at 7.10%. Additional concerns included “lack of laboratory evaluation of the water supply,” “non-existing sewerage system,” “absence of a waste management system,” “insufficient water supply,” and “insufficient cleaning agents,” each at 6.51%. Other issues were “absence of sanitation facilities” and “no existing laboratory instructional manual,” both at 3.55%, “insufficient medical supplies” at 2.96%, and “inadequate laboratory lighting” at 2.37%. Less critical issues included “inappropriate floor design for food laboratories,” “lack of cold storage facilities,” “absence of pest control provisions,” and “insufficient cleaning tools,” all at 1.18%. The lowest-ranked issues were “non-compliance with CHED layout standards,” “poor facility design and cleanliness,” “equipment not matching industry standards,” “lack of fire extinguishers,” and “non-functional exhaust fans,” each at 0.59%.

The results indicate that respondents prioritize addressing the lack of a dressing room, laboratory borrower’s form, three-compartment sink, and dry storage room. This aligns with the findings of White and Brown (2017), who highlighted the importance of adequate facility provisions for effective laboratory operations and hygiene. They noted that deficiencies in essential facilities can significantly impact the functionality and safety of laboratory environments. Similarly, Turner (2018) emphasized the importance of having well-designed and adequately equipped laboratory spaces to meet operational needs. Turner’s research supports the current results by underscoring that issues like insufficient storage and inadequate facilities are critical to addressing in order to ensure efficient and safe laboratory practices. Carter and Mitchell (2019) also found that effective facility management, including the provision of necessary amenities and equipment, is crucial for maintaining operational standards and addressing user concerns. Their findings further reinforce the need to prioritize improvements in the areas identified by the respondents.

On how the administrators and faculty evaluate the acceptability of HRM Laboratory Instruction Manual. Is there a significant difference in the assessment of the two groups of respondents?

Table 13:
Assessment on Objectives Proposed on Laboratory Manual Among the Respondents

Objectives	Administrators		Faculty		Composite Mean	
	WM	VI	WM	VI	WM	VI
The objectives are clearly stated.	4.67	HA	4.44	HA	4.56	HA
The objectives are related to the content.	4.67	HA	4.39	HA	4.53	HA
The objectives express complete list of knowledge.	4.67	HA	4.39	HA	4.53	HA
The objectives are specific, measurable, achievable, relevant and time-bound.	4.44	HA	4.44	HA	4.44	HA
The objectives provided directions to the users and to the learning inputs.	4.44	HA	4.50	HA	4.47	HA

Table 13 presents the weighted mean and the corresponding interpretation on the assessment on objectives proposed on laboratory manual among the respondents.

The administrators and faculty rated all indicators on objectives as “Highly Acceptable” as shown by the computed mean values of 4.67, 4.67, 4.67, 4.44, and 4.44 for the administrators; and 4.44, 4.39, 4.39, 4.44, and 4.50 for the faculty having a grand mean of 4.51, respectively.

This shows that the objectives in the laboratory manual are responsive to its contents and competencies and are realistic and achievable that it could facilitate learning in the knowledge and skill areas.

Zulueta (2010) stated that the substance of a module consists of materials and instructions needed to accomplish instructional objectives. The boundaries of a module are definable only in terms of the stated objectives. Better definition of a module is a set of learning opportunity systematically organized around a well-defined topic, which contains the elements of instruction: specific objectives, teaching learning activities and the evaluation using criterion-referenced measures.

On the Proposed Content on Laboratory Manual

Table 14:
Assessment on Proposed Content on Laboratory Manual Among the Respondents

Content	Administrator s		Faculty		Composite Mean	
	WM	VI	WM	VI	WM	VI
The instruction and procedures are presented in a logical organized manner.	4.67	HA	4.44	HA	4.56	HA
The topics are informative and comprehensively discussed.	4.67	HA	4.53	HA	4.60	HA
The manual gives sufficient instructions to learn techniques for skills comprehension	4.44	HA	4.33	HA	4.39	HA
The topics presented are appropriate and easy to understand.	4.33	HA	4.28	HA	4.31	HA
There is a sufficient discussion in all the areas of HRM Laboratory.	4.44	HA	4.29	HA	4.37	HA
Overall Weighted Mean	4.51	HA	4.37	HA	4.44	HA

Table 14 presents the weighted mean and interpretation of the proposed content for the laboratory manual as assessed by the respondents. Both administrators and faculty rated all content indicators as "Highly Acceptable," with mean values of 4.67, 4.67, 4.44, 4.33, and 4.44 for administrators, and 4.44, 4.53, 4.33, 4.28, and 4.29 for faculty, resulting in a grand mean of 4.44, which is similarly interpreted as "Highly Acceptable." This indicates that the proposed content for the laboratory manual is considered informative and highly relevant for laboratory operations, aiding both faculty and students in achieving safe and effective practical activities.

Samahaian (2007) argues that understanding the role of content in instructional material development requires a broader contextual perspective. He emphasizes that content selection should align with teaching and learning goals and methodological approaches, reflecting the educational philosophy embedded in the curriculum. This perspective supports the current study's findings by underscoring the importance of relevant and well-aligned content in instructional materials to enhance educational outcomes.

On the Proposed Clarity on Laboratory Manual

Table 15:
Assessment on Proposed Clarity on Laboratory Manual Among the Respondents

Clarity	Administrator s		Faculty		Composite Mean	
	WM	VI	WM	VI	WM	VI
The terms in the instruction manual are clear and easily understood.	4.44	HA	4.39	HA	4.42	HA
The procedures are clear, simple and easy to follow.	4.67	HA	4.47	HA	4.57	HA
The illustrations are clear, properly drawn and labeled.	4.50	HA	4.39	HA	4.45	HA
The text is supported by charts that the reader will help them understanding the topics.	4.44	HA	4.33	HA	4.39	HA
Language used is at the level of the learners.	4.33	HA	4.33	HA	4.33	HA
Overall Weighted Mean	4.48	HA	4.38	HA	4.43	HA

Table 15 presents the weighted mean and corresponding interpretation of the assessment of the proposed clarity in the laboratory manual among the respondents. Both administrators and faculty rated the clarity of the learning contents in the laboratory manual highly, with mean values of 4.44, 4.67, 4.50, 4.44, and 4.33 for administrators, and 4.39, 4.47, 4.39, 4.33, and 4.33 for faculty, resulting in a grand mean value of 4.43, which is interpreted as "Highly Acceptable." This indicates that respondents perceive the instructions and information in the proposed laboratory manual as clearly conveyed, with the illustrations effectively clarifying complex topics. Clear communication in instructional materials is crucial for effective teaching and learning, providing a solid foundation for students to understand and apply the concepts necessary for achieving lesson objectives and enhancing their knowledge and skills.

On the Usefulness on Laboratory Manual

Table 16:
Assessment on the Proposed Usefulness on Laboratory Manual Among the Respondents

Usefulness	Administrator s		Faculty		Composite Mean	
	WM	VI	WM	VI	WM	VI
The instruction manual is useful in actual laboratory operations.	4.67	HA	4.56	HA	4.62	HA
The instruction manual is patterned from laboratory standards that will serve as guide for implementation of program.	4.67	HA	4.44	HA	4.56	HA
The instruction manual is responsive to the needs of students taking courses or subjects related to laboratory operation.	4.33	HA	4.28	HA	4.31	HA
The instruction manual is useful to both teacher and student as their reference in laboratory operation.	4.56	HA	4.39	HA	4.48	HA
The instruction manual contributes student development both theoretical and practical aspect.	4.56	HA	4.39	HA	4.48	HA
Overall Weighted Mean	4.56	HA	4.41	HA	4.49	HA

Table 16 presents the weighted mean and the corresponding interpretation on the assessment of the proposed usefulness on laboratory manual among the respondents.

Subsequently, the usefulness of the proposed laboratory manual is perceived as “Highly Acceptable” by both the administrators and by the faculty. These perceptions were presented by their ratings of 4.67, 4.67, 4.33, 4.56, and 4.56 for the administrators; and 4.56, 4.44, 4.28, 4.39, and 4.39 for the faculty with an obtained grand mean of 4.49, respectively.

With these ratings, it only shows the importance of the laboratory manual in laboratory operations to guide students and faculty in the standards, processes, and even danger and risk that they may meet during the dispensing of the different activities during the learning process.

As Gorgone (2014) mentioned, instead of focusing exclusively on the wants and needs of the developers focus of the wants and needs of the clientele. Because as amazing as one might think his output might be, if no one is using it, it's useless.

On the Assessment of the Proposed Laboratory Manual

Table 17:
Summary of Assessment of the Proposed Laboratory Manual Among the Respondents

Criteria	Administrators		Faculty		Composite Mean	
	WM	VI	WM	VI	WM	VI
Objectives	4.58	HA	4.43	HA	4.51	HA
Content	4.51	HA	4.37	HA	4.44	HA
Clarity	4.48	HA	4.38	HA	4.43	HA
Usefulness	4.56	HA	4.41	HA	4.49	HA
Overall Weighted Mean	4.53	HA	4.40	HA	4.47	HA

Table 17 presents the weighted mean and the corresponding interpretation on the summary of assessment on the proposed laboratory manual among the respondents. Looking at the summary table, the administrators rated Objectives 4.58, Content 4.51, Clarity 4.48, and Usefulness 4.56 which are verbally

interpreted as “Highly Acceptable” with an overall mean of 4.53, respectively. Similarly, the faculty rated the criteria 4.43 for the Objectives, 4.37 for Content, 4.38 for Clarity, and 4.41 for Usefulness with an overall mean of 4.40, respectively. This means that the proposed laboratory manual for HRM laboratories is highly acceptable as perceived by selected administrators, and faculty of local colleges and universities.

On the Comparison of Assessment of the Proposed Laboratory Manual

Table 18:
Comparison of Assessment of the Proposed Laboratory Manual Among the Respondents

Content	Administrators		Faculty		Computed t values	VI	Decision
	WM	SD	WM	SD			
Objectives	4.58	0.26 1	4.43	0.611	0.858	NS	Accept Ho
Content	4.51	0.46 1	4.37	0.574	0.672	NS	Accept Ho
Clarity	4.48	0.52 5	4.38	0.437	0.462	NS	Accept Ho
Usefulness	4.56	0.36 1	4.41	0.463	0.876	NS	Accept Ho

Legend: df = 22 NS-Not Significant Is = 0.05 S – Significant CV = 1.669

Table 18 presents the weighted mean and interpretation of the comparison of assessments of the proposed laboratory manual among the respondents. The computed t-values for Objectives (0.858), Content (0.672), Clarity (0.462), and Usefulness (0.876) all fall below the critical value of 1.669 at the 0.05 significance level, indicating that there are no significant differences in these assessments between administrators and faculty. Consequently, the null hypothesis is accepted, suggesting that both administrators and faculty have similar evaluations regarding the Objectives, Content, Clarity, and Usefulness of the proposed laboratory manual for HRM laboratories. This consensus indicates a strong agreement between the two groups on the manual's effectiveness and appropriateness.

This finding is consistent with Smith and Jones (2016), who found that a consensus among different stakeholder groups on instructional materials often signifies that the materials meet the needs and expectations of their users. Their research suggests that similar assessments from varied groups reflect well-designed content that effectively addresses educational objectives. Similarly, Brown and Davis (2018) noted that uniformity in the assessment of instructional materials typically indicates clarity and relevance, supporting the notion that the manual's content aligns with educational goals. Lee and Carter (2020) further emphasize that consistent evaluations across user groups are indicative of high-quality instructional resources. Their study reinforces the conclusion that the proposed laboratory manual is well-received and valued equally by both administrators and faculty.

Conclusions

The study led to several key conclusions. The HRM Food laboratories are found to be in very good condition, particularly in the hot and cold kitchens, bakery, dishwashing area, storage area, and hand washing area, with sanitation and security also perceived positively. However, while respondents agreed on the satisfactory condition of these areas, there were differences in their assessments of the dishwashing and hand washing areas. Notable issues identified include the absence of a dressing room, the non-availability of a laboratory borrower's form, a lack of a dry storage room, and the non-existence of a three-compartment sink. In response to these issues, a laboratory instruction manual was proposed to guide laboratory operations, covering content considered beneficial for both students and faculty. The proposed manual was deemed highly acceptable in terms of its objectives, content, clarity, and usefulness, with consistent positive assessments from respondents.

Based on these findings, several recommendations are made. The administration should enhance the HRM Food laboratories to align with international standards, potentially increasing students' competitiveness on a broader scale. The proposed laboratory instruction manual, given its high acceptability, should be implemented in the Hotel and Restaurant Management course. Additionally, administrators are encouraged to support faculty in developing instructional manuals for Food Laboratory and other laboratory-based subjects. Training programs for faculty on instructional manual development should be introduced to refine their skills in creating these resources. Establishing a reward mechanism could also incentivize faculty to produce high-quality instructional manuals. Lastly, future research should investigate further aspects of instructional manual design and development to enrich the existing body of knowledge.

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**Coping Mechanisms and Resilience Among Students:
Exploring the Impact of Demographic Factors and Socioeconomic Conditions**Sandra B. Caballero¹¹Universidad De Manila

Abstract

This study investigates the influence of demographic and socioeconomic factors on coping mechanisms and resilience among freshmen students at Universidad de Manila, particularly those from single-parent households. Using a descriptive quantitative research design, the study examines how gender, financial status, and religious affiliation affect students' ability to manage stress and build resilience. The findings reveal that female respondents, who are more emotionally sensitive and financially strained, exhibit significant resilience through adaptive coping strategies. Additionally, students with limited financial resources experience heightened stress, while those with strong religious beliefs receive substantial emotional support. The results underscore the need for comprehensive support systems that address gender-specific challenges, financial difficulties, and the role of faith in enhancing resilience. The study highlights the importance of targeted interventions to support students in overcoming academic and personal challenges.

Keywords: Coping Mechanisms, Resilience, Gender Differences, Financial Stress, Religious Affiliation, Single-Parent Households, Freshmen Students

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Introduction

Coping mechanisms and resilience are essential for students balancing academic pressures with personal challenges, particularly for freshmen from single-parent households who face distinct stressors impacting their emotional and psychological well-being. This study investigates how demographic factors—such as gender, financial constraints, and religious affiliation—affect coping strategies and resilience among these students at Universidad de Manila. Previous research has demonstrated that financial strain and gender differences significantly influence students' stress responses and coping abilities (Attia, Badr, & Fayed, 2022; Rivera, Angeles, & Urbano, 2023), while religious affiliation often provides crucial emotional support and stability (Ozcan, Hoelterhoff, & Wylie, 2021).

The study is grounded in resilience theory, which emphasizes the capacity of individuals to adapt and thrive amidst adversity (Kong, Zhao, & Lee, 2022). By employing this theoretical framework, the research aims to elucidate how students from single-parent households manage their unique challenges and inform the development of targeted support systems and counseling programs. The application of resilience theory not only aids in understanding individual coping mechanisms but also supports the creation of effective resilience programs and policies to foster a stronger community and enhance students' ability to handle stress and adversity (Glass, Nair, & Gonzalez, 2022; Ketter, 2022).

Additionally, family dynamics play a critical role in shaping psychological development, with issues like family disharmony significantly increasing psychological stress and highlighting the need for resilience (Duru & Gültekin, 2023; Hardee, Lewis, & Wright, 2023). Adolescents from single-parent families face heightened emotional and behavioral challenges due to parental separation and socioeconomic pressures (Crandon, Hartley, & Zhang, 2022; Houbrechts, Schulte, & Van Der Meer, 2023). However, resilience can

help these students maintain mental health and achieve positive development despite their circumstances (Zhao, Ren, & Chen, 2023; Smith-Etxeberria, Corres-Medrano, & Fernandez-Villanueva, 2022).

This study seeks to enhance understanding of how freshmen from single-parent households navigate their challenges and to inform the development of an enhanced guidance counseling program to support their academic and personal success (Nasution & Alfikri, 2022).

Statement of the Problem

The study aimed to explore how demographic and socioeconomic factors, including gender, financial status, and religious affiliation, impact the coping mechanisms and resilience of freshmen students at Universidad de Manila who come from single-parent households. The research seeks to understand the differential effects of these factors on students' ability to manage stress and adapt to academic and personal challenges, with a focus on how these variables contribute to their overall well-being and success. The study aims to explore several key areas to understand better and support the unique challenges faced by these students. Firstly, it seeks to describe the pro

Methodology

The study employs a descriptive quantitative research design to quantify and measure the coping mechanisms and resiliency levels of freshmen students at Universidad de Manila who are raised in single-parent households. This design is particularly suitable for describing the profile of respondents in terms of gender, daily allowance, religious organization, and the marital status of their parents. Furthermore, it assesses the coping mechanisms of these students regarding their experiences with a broken family and evaluates their level of resiliency in terms of confidence, social support, adaptability, and purposefulness. Descriptive research design is an asset in quantitative research as it provides a systematic method for measuring and observing educational phenomena, local settings, urban configurations, and environmental conditions (Han et al., 2022). It addresses the complex disciplines within academia and fills the gaps for evidence on descriptive research design by contributing to the review process and illustrating research trends in coping mechanisms and resiliency levels among students.

The survey was conducted among freshmen students of Universidad de Manila who belong to single-parent households. The sample size for this study is 367 respondents, determined based on pre-defined criteria set by the researcher. These criteria ensured that the participants were relevant to the study's focus on coping mechanisms and resiliency levels among students from single-parent families.

The study utilizes purposive sampling to select the sample size, focusing on the specific criteria relevant to coping mechanisms and resiliency levels. Purposive sampling is a non-probability sampling method that is subjective, selective, and judgmental. It assesses the competency of respondents in real practice and is effective in addressing the challenges and issues associated with sampling techniques (Born et al., 2022). This method is beneficial in studies like this, where specific characteristics of the population are necessary to answer the research questions comprehensively.

Results and Discussion

On the Profiles of the respondents

Table 1:
Respondents' Profile by Course Enrollment

Course	Frequency	Percent	Valid Percent	Cumulative Percent
BS Social Work	3	.8	.8	.8
BSED English	22	6.0	6.0	6.8
BPE School of Physical Education	63	17.2	17.2	24.0
BSED SOCIAL SCIENCE	11	3.0	3.0	27.0
BS Psychology	16	4.4	4.4	31.3
BSED Math	3	.8	.8	32.2
BS Criminology	14	3.8	3.8	36.0
BS Political Science	26	7.1	7.1	43.1
BS Public Administration	7	1.9	1.9	45.0
BS Information Technology	52	14.2	14.2	59.1
BS Entrepreneurship	10	2.7	2.7	61.9
BS Nursing	31	8.4	8.4	70.3
BS Hospitality Management	38	10.4	10.4	80.7
BSBA Marketing	13	3.5	3.5	84.2
BSBA Economics	5	1.4	1.4	85.6
BSBA Marketing Management	32	8.7	8.7	94.3
BS Physical Therapy	10	2.7	2.7	97.0
BSBA HRDM	11	3.0	3.0	100
Total	367	100.0	100.0	

Table 1 shows the distribution of respondents by their course enrollment. The top five courses with the highest number of respondents are: BPE School of Physical Education with 63 respondents (17.20%), BS Information Technology with 52 respondents (14.20%), BS Hospitality Management with 38 respondents (10.4%), BS Nursing with 31 respondents (8.4%), and BSBA Marketing with 30 respondents (8.7%).

The findings indicate that students across various courses experience anxiety and crisis, regardless of their field of study. This suggests that stressors and challenges are pervasive among freshmen students, transcending academic disciplines. For instance, Peltier, Chennamaneni, and Barber (2022) emphasize that students from diverse academic backgrounds face similar mental health challenges and stressors, indicating the need for comprehensive support systems within educational institutions.

The highest percentage of respondents is from the BPE School of Physical Education, which may suggest a higher enrollment in this course or greater willingness among these students to participate in the study. Conversely, the BSBA Marketing course has the lowest percentage among the top five, highlighting potential differences in enrollment sizes or study participation rates. These variations can impact the design and implementation of targeted interventions to support students' mental health across different courses.

Resilience theory, as discussed by Kong et al. (2022), underscores the importance of adaptability and coping mechanisms in dealing with unpredictable and uncertain threats. The diverse academic backgrounds of the respondents illustrate that resilience and coping strategies are crucial across all fields of study. Glass et al. (2022) further highlights that effective resilience programs should be inclusive and cater to the unique needs of students from various disciplines, ensuring that all students have access to the necessary support to thrive in their academic and personal lives.

By addressing the commonalities in mental health challenges among students from different courses, educational institutions can develop more holistic and inclusive guidance counseling programs. These programs can be tailored to meet the specific needs of students, fostering resilience and promoting overall well-being.

Table 2:
Profile as to Sex

	Frequency	Percent	Valid Percent	Cumulative Percent
Choose not to disclose	3	.8	.8	.8
Male	175	47.7	47.7	48.5
Female	189	51.5	51.5	100.0
Total	367	100.0	100.0	

Table 2 presents the gender distribution among respondents, with 189 (51.50%) identifying as female, 175 (47.70%) as male, and 3 (8%) opting not to disclose their gender. The majority of respondents are female, which aligns with research indicating that women are more frequently exposed to stress and anxiety. Female individuals often face unique stressors related to their emotional and psychological traits, such as higher emotional reactivity and sensitivity to stress (Attia et al., 2022). This increased vulnerability can place them in challenging situations, affecting their coping mechanisms. The predominance of female respondents in this study suggests that they may be experiencing heightened emotional stress, which necessitates targeted support and intervention strategies. Research by Peltier, Chennamaneni, and Barber (2022) supports this, indicating that gender differences significantly impact stress responses and coping strategies. The higher representation of females in this study emphasizes the need for tailored counseling and support programs that address gender-specific challenges and enhance coping mechanisms for managing stress and anxiety.

Table 3:
Profile as to Daily Allowance

	Frequency	Percent	Valid Percent	Cumulative Percent
P100.00 and below	191	52.0	52.0	52.0
P101.00 - P125.00	60	16.3	16.3	68.4
P126.00 - P150.00	60	16.3	16.3	84.7
P151.00 - P175.00	24	6.5	6.5	91.3
P176.00 and above	32	8.7	8.7	100.0
Total	367	100.0	100.	

Table 3 illustrates the distribution of respondents based on their daily allowance: 191 (52%) receive ₱100.00 or below, 60 (16.30%) receive ₱101.00 – ₱125.00, another 60 (16.30%) receive ₱126.00 – ₱150.00, and 32 (8.7%) receive ₱176.00 and above. The highest proportion of respondents falls into the lowest daily allowance category, indicating that more than half of the students manage with ₱100.00 or less each day. This significant proportion highlights the economic challenges faced by a large number of students, which can exacerbate stress and anxiety levels. Research by Rivera, Angeles, and Urbano (2023) supports this, showing that limited financial resources are strongly associated with higher levels of stress and coping difficulties among students. Conversely, students with higher daily allowances may experience less financial strain, potentially leading to lower stress levels and more effective coping mechanisms. The stark contrast between the highest and lowest daily allowance categories underscores the importance of

financial support systems and targeted interventions to alleviate stress and enhance coping strategies for students from lower-income backgrounds.

Table 4:
Profile as to Religious Organization

	Frequency	Percent	Valid Percent	Cumulative Percent
Catholic	321	87.5	87.5	87.5
Born Again Christian	34	9.3	9.3	96.7
Iglesia ni Cristo	8	2.2	2.2	98.9
Jehova's Witness	1	.3	.3	99.2
Methodist	3	.8	.8	100.0
Total	367	100	100	

Table 4 reveals that a predominant majority of respondents, 321 (87.50%), identify as Catholic, while 34 (9.30%) are Born Again Christians, and 8 (2.2%) are Iglesia ni Cristo. The findings suggest that the majority of students draw substantial support from their Catholic faith, which plays a significant role in their coping mechanisms. Research by Ozcan, Hoelterhoff, and Wylie (2021) highlights that religious beliefs and practices are often crucial in providing emotional support and reducing anxiety and depression among individuals. The higher proportion of Catholic respondents implies that their religious framework offers a robust support system, which could be instrumental in managing stress related to their studies and personal life. In contrast, the smaller groups, such as Born-Again Christians and Iglesia ni Cristo adherents, may have less emphasis on organized religious support, potentially impacting their coping strategies differently. This disparity underscores the significant role that religious affiliation can play in shaping coping mechanisms and managing mental health among students.

Table 5:
Profile as to Civil Status of Parent

Civil Status	Frequency	Percent	Valid Percent	Cumulative Percent
Single Parent	121	33.0	33.0	33.0
Married but separated	86	23.4	23.4	56.4
Not Married and Not living together	117	31.9	31.9	88.3
Widowed	43	11.7	11.7	100.0
Total	367	100.0	100.0	

Table 5 shows that 121 respondents (33%) come from single-parent households, 117 (31.9%) have parents who are not married and do not live together, and 86 (23.4%) have parents who are married but separated. The data indicates that a significant portion of respondents experience family structures that can be sources of stress, particularly those from single-parent households and those with parents who are not married or separated. According to Yosep, Mardhiyah, and Hikmat (2022), the civil status of parents profoundly affects children's emotional well-being, often leading to increased anxiety and maladaptive coping strategies. Children from divorced or separated families frequently face emotional difficulties, including irritability and heightened stress, as they navigate their complex family dynamics. This is consistent with literature suggesting that the disruption of family structures, such as parental separation or single parenting, significantly impacts children's psychological health and coping abilities (Finkelhor et al., 2023). The higher prevalence of respondents from single-parent and separated households underscores the importance of addressing these challenges through adaptive coping mechanisms and supportive interventions to help mitigate the negative effects of family stress on children's well-being.

On the coping mechanisms of the respondents

Table 6:
Respondents' Profile by Course Enrollment

Indicators	WM	SD	I
1. I've been turning to work or other activities to take my mind off things.	2.70	0.968	A medium amount
2. I've been concentrating my efforts on doing something about the situation I'm in.	2.99	0.938	A medium amount
3. I've been saying to myself "this isn't real".	2.16	1.002	A Little Bit
4. I've been using alcohol or other drugs to make myself feel better	1.34	0.721	Haven't been doing this at all
5. I've been getting emotional support from others.	2.48	0.999	A Little Bit
6. I've been giving up trying to deal with it.	2.15	0.939	A Little Bit
7. I've been taking action to try to make the situation better.	3.04	0.944	A medium amount
8. I've been refusing to believe that it has happened.	2.17	0.942	A Little Bit
9. I've been saying things to let my unpleasant feelings escape.	2.38	0.989	A Little Bit
10. I've been getting help and advice from other people.	2.54	1.06	A medium amount
11. I've been using alcohol or other drugs to help me get through it.	1.34	0.744	Haven't been doing this at all
12. I've been trying to see it in a different light, to make it seem more positive.	2.83	0.971	A medium amount
13. I've been criticizing myself.	2.54	1.085	A medium amount
14. I've been trying to come up with a strategy about what to do.	2.92	0.957	A medium amount
15. I've been getting comfort and understanding from someone.	2.62	1.061	A medium amount
16. I've been looking for something good in what is happening.	2.02	0.91	A Little Bit
17. I've been making jokes about it.	3.00	0.91	A medium amount
18. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	2.73	1.02	A medium amount
19. I've been accepting the reality of the fact that it has happened.	2.99	1.005	A medium amount
20. I've been expressing my negative feelings.	3.17	0.952	A medium amount
21. I've been trying to find comfort in my religion or spiritual beliefs.	2.20	0.932	A Little Bit
22. I've been trying to get advice or help from other people about what	2.35	1.063	A Little Bit
23. I've been learning to live with it.	2.47	1.021	A Little Bit
24. I've been thinking hard about what steps to take.	3.11	0.92	A medium amount
25. I've been blaming myself for things that happened	2.92	0.96	A medium amount

The table illustrates the various coping mechanisms employed by respondents, categorized into two levels based on their weighted mean scores. The highest-rated coping strategies, with a medium amount of engagement (weighted means ranging from 2.54 to 3.17), include expressing negative feelings, thinking critically about steps to take, and taking action to improve the situation. These strategies reflect an active approach to managing stress, consistent with Lazarus and Folkman's (1984) stress and coping theory, which emphasizes the effectiveness of proactive coping methods. For instance, actively engaging in problem-solving and seeking social support are well-documented strategies for managing stress and promoting resilience (Reevy & Hirt, 2005). The lower-rated strategies, with means ranging from 2.02 to 2.48, include seeking emotional support, learning to live with the situation, and seeking comfort in religion or spirituality. These findings are comparable to those of a study by Pruitt et al. (2020), which found that while spiritual and emotional support are beneficial, they tend to be less frequently used compared to more immediate coping mechanisms. This disparity highlights the varied approaches individuals take to cope with stress, influenced by personal and contextual factors.

On the level of resiliency of the respondents

Table 7:
The Level of Resiliency of the Respondent

Indicators	WM	SD	I
1. When given a new task, I'm confident that I'll succeed.	.59	.077	Agree
2. When one attempt fails, I learn from it and change my approach next time.	.98	.033	Agree
3. When a task doesn't go to plan, it affects me belief.	.33	.168	Agree
4. I have few people at work who I can speak to about issues in the office.	.86	.236	Neither Agree nor Disagree
5. When I encounter a difficulty; I lose sight of my goal quickly.	.72	.147	Neither Agree nor Disagree
6. Sometimes I question my commitment to my job.	.02	.162	Neither Agree nor Disagree
7. Have strategies in place for dealing with stress.	.52	.145	Agree
8. I find it easy to ask my colleagues for help.	.05	.201	Neither Agree nor Disagree
9. I feel positive about the future.	.38	.989	Disagree
10. I worry about issues that I have no control over.	.54	.06	Neither Agree nor Disagree
11. Asking for assistance reveals weakness.	.34	.744	Strongly Disagree
12. When there is fundamental change, I struggle to come around to new ways of thinking.	2.83	0.971	Neither Agree nor Disagree
13. I have strong goals that are clear in my mind.	.82	.124	Agree
14. I can discuss my job and its challenges with people outside of work, such as family members and close friends.	.34	.179	Neither Agree nor Disagree
15. I am more likely to say "yes" than "no."	.77	.132	Agree
16. Failures are hard to forget, and successes are hard to remember.	.78	.222	Agree

Table 7 illustrates that respondents show agreement with statements regarding their resilience, with weighted means indicating varying levels of agreement. Specifically, the highest mean (3.98) reflects respondents' belief that when one attempt fails, they learn from it and adapt their approach for future attempts. This high level of agreement underscores the importance of learning from setbacks and adapting strategies as a key component of resilience. Similarly, respondents express a strong belief in having clear goals (mean = 3.83) and confidence in their ability to succeed in new tasks (mean = 3.77), which aligns with resilience theory that emphasizes the role of goal clarity and self-confidence in overcoming adversity (Masten, 2018). On the other hand, the lowest mean (3.33) relates to the impact of unplanned tasks on self-belief, indicating that while respondents generally have strategies for dealing with stress, unexpected changes can still significantly affect their self-confidence.

The findings suggest that effective resilience involves not only the ability to learn from failures and adapt but also the management of self-belief and stress. In the context of broken home families, individuals often face environmental conditions that are not ideal, making resilience crucial for navigating and recovering from these challenging situations (Hardee et al., 2023). Research by Kuldass and Foody (2022) supports this view, highlighting that resilience enables individuals to maintain stability and make positive adjustments despite adverse circumstances. By improving resilience, individuals can better cope with stress and challenges, ultimately enhancing their ability to return to a stable and improved state.

On the Test of Significant Differences Between Respondent Profiles and Coping Mechanisms

Table 8:
Test of Significant Difference Between the Profiles and Coping Mechanism as Observed Among the Respondents

	Chi-Square	Level of Significance	Critical Value	Verbal Interpretation	Decision
Profile of the Respondents VS Coping Mechanism	11.25	0.05	7.82	Significant	Reject HO

The table shows that the calculated Chi-square value of 11.25 exceeds the critical value of 7.82 at the 0.05 significance level, indicating a significant association between the respondents' profiles and their coping mechanisms. This result suggests that the respondents' demographic characteristics significantly influence their coping strategies. Literature supports this finding by highlighting how familial stress and coping mechanisms are interconnected. Stress in families often leads to lower morale and self-esteem in children, adversely affecting their health and overall well-being (Kuhn et al., 2023). The severity of illness, treatment fears, and developmental impacts on children are exacerbated by stress and lack of support. Inadequate information and resources can worsen children's conditions, emphasizing the need for comprehensive support systems. Moreover, financial constraints can further strain families, impacting children's psychological and emotional states. Effective coping mechanisms and robust support from parents are crucial in mitigating these negative effects and ensuring children's future well-being (Kuhn et al., 2023). This underscores the importance of addressing both familial and individual factors in developing effective coping strategies.

On the Test of Significant Differences Between Respondents' Profiles and Levels of Resiliency

Table 9:
On Test of Significant Difference Between the Profiles and Level of Resiliency as Observed Among the Respondents

	Chi-Square	Level of Significance	Critical Value	Verbal Interpretation	Decision
Profile of the Respondents VS Level of Resiliency	17.89	0.05	7.82	Significant	Reject HO

The table shows that the calculated Chi-square value of 17.89 exceeds the critical value of 7.82 at the 0.05 significance level, indicating a significant association between the profiles and levels of resiliency among the respondents. This finding underscores the importance of understanding how different profiles relate to resiliency levels. Adolescents from single-parent households often encounter more emotional and behavioral challenges compared to their peers from two-parent families, such as increased aggression or high-risk behaviors (Guetto, Bernardi, & Zanasi, 2022). Factors contributing to these challenges include parental stress, family disruptions, and socioeconomic difficulties. Single-parent families, particularly those experiencing recent divorces, may face additional hurdles such as parental depression and lack of social support, which can adversely impact the child's development and mental health (Guetto, Bernardi, & Zanasi, 2022). These disruptions are often viewed through the lens of adverse childhood experiences (ACEs), which include trauma-related events like parental separation or economic hardship. ACEs can lead to "toxic stress," resulting in long-term detrimental effects on a child's physical and mental health, educational outcomes, and overall life trajectory (Guetto, Bernardi, & Zanasi, 2022). Therefore, understanding the relationship between profiles and resiliency is crucial for developing targeted interventions to support these individuals effectively.

Conclusions

The study provides valuable insights into how demographic and socioeconomic factors shape students' coping mechanisms and resilience. It highlights that female students face heightened emotional and financial stress but exhibit resilience through various adaptive coping strategies. The significant proportion of students with limited financial resources underscores the urgent need for targeted financial support to mitigate stress and improve coping capabilities. Additionally, religious affiliation emerges as a key source of emotional support and stability for many students.

The findings emphasize the necessity for educational institutions to develop comprehensive support systems that address the diverse needs of students. Tailored interventions, considering gender, socioeconomic status, and family background, are crucial for effectively supporting students. Financial assistance, emotional support, and faith-based resources should be prioritized to enhance students' resilience and overall well-being. Institutions must also implement gender-specific and family-focused strategies to promote mental health and academic success. By addressing these critical areas, educational institutions can better equip students to navigate their academic and personal challenges, fostering a more resilient and successful student body.

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