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MAGIS JOURNAL OF MULTIDISCIPLINARY STUDIES- THE OFFICIAL GRADUATE SCHOOL JOURNAL OF ST. VINCENT'S COLLEGE INCORPORATED

The Magis Journal of Multidisciplinary Studies, the official graduate school journal of St. Vincent's College Incorporated, embodies the spirit of "Ad Majorem Dei Gloriam" (A.M.D.G.), the unofficial motto of the Society of Jesus, which translates to "For the Greater Glory of God." This motto encapsulates the core values of the Jesuit tradition, emphasizing a commitment to serving God in all endeavors.

The term "Magis," often referred to as the "more," signifies a constant striving for excellence and a dedication to achieving something greater than the ordinary. It embodies the Jesuit ideal of empowering individuals to create lasting, positive change in society. This concept, as Fr. Barton T. Geger, SJ of Regis University fluently describes, is akin to teaching someone to fish rather than giving them a fish for immediate relief. It emphasizes the importance of sustainable solutions and long-term impact.

The Magis Journal, therefore, reflects this core Jesuit principle by serving as a platform for graduate students to engage in rigorous, and complex issues, as well as to delve deeper into their chosen fields, and to contribute to the advancement of knowledge and understanding. By fostering a culture of intellectual curiosity and a commitment to serving the greater good, the Magis Journal aims to empower students to become reflective life-long learners and instruments of change.

The journal's commitment to promoting a fully integrated person guided by love, truth and freedom in the service of God and to the community aligns perfectly with the Magis ideal and of SVCI's mission and vision. By providing a platform for students to share their research and engage in intellectual discourse, the Magis Journal encourages them to develop their critical thinking skills, to broaden their perspectives, and to cultivate a sense of responsibility towards the community.

The name "Magis" itself serves as a concrete reminder of the journal's mission: to inspire and empower graduate students to strive for more by always embodying the institution's motto Veritas Liberabit Vos and the values of St. Vincent Ferrer in their quest to knowledge, to embrace the challenge of pushing beyond their comfort zones, and to contribute to a world that is more just, more compassionate, and more equitable.

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PRESIDENT'S MESSAGE

Exciting Launch of Our School Journal "MAGIS": A New Chapter in Continuous Learning

Deo gratias!

With immense excitement and pride, we announce the launch of the maiden issue of our school journal - MAGIS! In the Ignatian context, 'Magis" is a Latin term meaning "more," but its significance extends beyond mere quantity. It embodies a principle of striving for excellence and seeking the greater good in all endeavors. Rooted in the teachings of St. Ignatius of Loyola, 'Magis' encourages individuals to pursue actions that align with their ultimate purpose: to praise, reverence, and serve God. Hence, this journal is an initiative that marks a significant milestone in our commitment to fostering a culture of continuous learning and intellectual exploration within our school community. As we embark on this journey together, we invite you to engage, contribute, and celebrate the vibrant tapestry of knowledge our students and faculty create every day.

The idea for this journal was born out of a desire to provide a platform where creativity, critical thinking, and scholarly pursuits can flourish. In an age where information is abundant yet often overwhelming, we believe it is essential to cultivate spaces where thoughtful reflection and innovative ideas can be shared. Our journal aims to highlight our school's diverse talents and perspectives, particularly showcasing research endeavors as part of our constant search for truth.

In this inaugural issue, you will find a reflection of the passions of our students and teachers. Importantly, the content of this journal features the defended research projects conducted by both students and teachers. These rigorous academic works exemplify our commitment to high standards of scholarship and inquiry, demonstrating how our students and teachers are not only learners but also active participants in shaping their communities.

Our aspirations for this journal extend far beyond its pages as we look ahead. We envision it as a living document that evolves with each issue, growing in depth and breadth as more voices join the conversation. We encourage all members of our school community—students, teachers, and staff—to contribute. Your participation is vital in making this journal a true reflection of who we are as a school.

Moreover, this journal serves as a reminder of the importance of continuous learning. In today's fast-paced world, the pursuit of knowledge should never cease. We hope that reading and contributing to this journal will inspire you to explore new ideas, challenge assumptions, and engage with topics that ignite your curiosity. Let this be a space where we can learn from one another, celebrate our achievements, and support each other in our educational journeys.

In closing, we invite you all to dive into the pages of our first issue with an open mind and heart. Let us embark on this exciting adventure together as we embrace the spirit of continuous learning. Thank you for being an integral part of our school community.

Let's make this journal a beacon of inspiration for years to come!

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THE OFFICIAL GRADUATE SCHOOL JOURNAL OF ST. VINCENT'S COLLEGE INCORPORATED

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TABLE OF CONTENTS

MAGIS JOURNAL OF MULTIDISCIPLINARY STUDIES
ST. VINCENT'S COLLEGE INCORPORATED Volume 1, Issue 1 ISSN: 3082-3404

Relationship of Master Teachers' Leadership Behavior with Work Engagement of Junior High School Teachers

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Abstract — This study explored the relationship between master teachers' leadership behaviors and the work engagement of junior high school teachers in the Dapitan City Division. Specifically, it examined transactional, transformational, and instructional leadership and their impact on the engagement dimensions of vigor, dedication, and absorption. Using a quantitative, correlational research design, data were gathered from 160 junior high school teachers through adapted versions of the Leader Behavior Description Questionnaire (LBDQ) and the Utrecht Work Engagement Scale (UWES). Results revealed that transformational and instructional leadership behaviors were frequently exhibited, with transformational leadership significantly predicting dedication and instructional leadership predicting vigor and absorption. Transactional leadership showed moderate application but did not significantly impact engagement outcomes. These findings align with the Job Demands-Resources (JD-R) Model, which highlights the role of leadership behaviors as critical job resources in enhancing teacher engagement. Transformational leadership addresses psychological needs, fostering long-term dedication, while instructional leadership provides immediate professional support, enhancing energy and focus. The study underscores the importance of balanced leadership approaches in improving teacher engagement, contributing to positive educational outcomes. Future research should consider longitudinal and qualitative designs to further explore the nuanced relationships between leadership behaviors and teacher engagement.

Keywords — Transformational Leadership, Instructional Leadership, Teacher Engagement, Vigor, Dedication

I. Introduction

Leaders are crucial in an academic institution because they encourage collaboration and foster a positive working environment for teachers and students. They support the development of effective pedagogy, which in turn promotes student achievement by cultivating a supportive environment that allows teachers and students to flourish and succeed (Le Fevre, 2021). Additionally, leaders play a critical role in the long-term success of schools due to their undeniable contribution to effective teaching practices.

In the Philippine education system, master teachers serve as leaders who are experienced, skilled, and highly effective educators. They demonstrate exceptional teaching abilities and a deep

understanding of pedagogy. Their roles often extend beyond traditional classroom instruction to include leadership and mentorship responsibilities (MEC Order No. 10, s. 1979; DECS Order No. 57, s. 1997). Specifically, master teachers guide and support their colleagues by modeling effective practices, providing instructional guidance, and fostering professional development, thereby creating a positive and productive teaching environment.

This study is significant as it aims to explore the dynamics within the educational system of Dapitan City Division, particularly the leadership behaviors of master teachers and their potential influence on the work engagement of junior high school teachers. Understanding this relationship will help identify the leadership practices among master teachers that significantly impact educational outcomes. Furthermore, this research underscores the importance of creating a supportive work environment that fosters teacher engagement, as highly engaged teachers are more likely to contribute positively to educational success (Skaalvik & Skaalvik, 2017; Hulpia, Devos, & Rosseel, 2018).

By delving into this topic, the study aims to provide valuable insights into the role of master teachers in enhancing the teaching-learning process, thereby contributing to the broader literature on educational leadership and work engagement.

Review of Related Literature

Leadership behaviors play a pivotal role in educational settings, significantly impacting teachers' work engagement and job satisfaction. Effective leadership practices are shown to positively influence teacher motivation, commitment, and overall job satisfaction, ultimately resulting in improved student outcomes (Skaalvik & Skaalvik, 2017; Hulpia, Devos, & Rosseel, 2018).

Master teachers are essential as they provide guidance, support, and mentorship to their junior colleagues, contributing to the professional development of teaching staff. Research emphasizes that transformational leadership, which includes inspirational motivation, intellectual stimulation, individualized consideration, and idealized influence, positively correlates with teacher engagement. Transformational leaders inspire purpose, foster intellectual growth, and provide individualized support, creating environments conducive to high levels of engagement and reduced burnout (Hakanen, Bakker, & Schaufeli, 2006; Bakker, Demerouti, & Sanz-Vergel, 2014).

However, while transformational leadership has been widely studied, instructional leadership has also been highlighted as critical in fostering teacher engagement. Instructional leadership, which focuses on improving teaching practices and student outcomes, emphasizes mentoring, providing professional development opportunities, and supporting effective instructional strategies. Studies underscore that this leadership style significantly impacts teacher efficacy and satisfaction, though its broader impact on engagement requires further exploration (Wong & Wong, 2018; Wang & Guan, 2020).

Moreover, transactional leadership, characterized by its focus on rewards and punishments to achieve compliance, offers a more structured approach to leadership. While this style can lead to immediate improvements in performance and task completion, it lacks the innovative and motivational aspects that transformational and instructional leadership inherently provide. Therefore, transactional leadership might be less effective in cultivating long-term engagement and fostering intrinsic motivation among teachers (Cherry, 2022).

Furthermore, teacher engagement itself comprises dimensions such as vigor, dedication, and absorption, which are positively linked to job satisfaction, reduced burnout, and improved student outcomes. Engaged teachers are more likely to demonstrate proactive behaviors, contribute to professional development, and invest deeply in student learning (Bakker, Demerouti, & Schaufeli, 2005). Nevertheless, understanding how specific leadership styles influence these dimensions remains a critical area of inquiry.

In summary, while transformational and instructional leadership behaviors have been shown to enhance teacher engagement, transactional leadership provides a more task-focused but less motivational framework. The literature underscores the importance of leadership behaviors tailored to educational contexts, yet there is a pressing need to examine these relationships further within specific cultural and organizational settings, such as the Dapitan City Division.

II. Methodology

Research Design

The study employed a quantitative approach with a correlational research design. This method was chosen to examine the relationship between the leadership behaviors of master teachers (transactional, transformational, and instructional) and the work engagement (vigor, dedication, and absorption) of junior high school teachers. The survey questionnaire served as the primary data collection tool. Correlational design is suitable for identifying the strength and direction of relationships between variables without manipulating them (Cherry, 2023).

Research Environment

The research was conducted within the Dapitan City Division, specifically targeting junior high schools. The participating schools were located in five districts: Baylimango, Central, Sulangon, Barcelona, and Potungan. A total of 15 schools participated in the study, coded for anonymity to ensure confidentiality.

Research Respondents and Sampling

The respondents consisted of junior high school teachers working under the supervision of master teachers. Stratified random sampling was employed to ensure proportional representation

across different schools and districts. A total of 160 teachers were sampled from a population of 271, ensuring sufficient representation to draw meaningful conclusions.

Research Instruments

Two established instruments were adapted for this study:

1. **Leader Behavior Description Questionnaire (LBDQ)** by Haplin (1957) to measure leadership behaviors, with necessary modifications for contextual appropriateness.
2. **Utrecht Work Engagement Scale (UWES)** by Cooman et al. (2009) to measure work engagement (vigor, dedication, and absorption).

Both instruments utilized Likert scales, with LBDQ evaluating the frequency of leadership behaviors and UWES assessing the extent of teacher engagement. Adjustments, such as simplifying language and eliminating redundant items, were made to ensure clarity and relevance. The instruments' reliability was confirmed using Cronbach's alpha, with values ranging from acceptable to excellent.

Data Gathering Procedure

The data collection process involved the following steps:

1. Permission was sought from the Schools Division Superintendent and school principals.
2. Questionnaires were distributed to the selected respondents with clear instructions to ensure accurate responses.
3. Participants were assured of anonymity and confidentiality and informed of their right to withdraw at any point.
4. Completed questionnaires were collected for statistical analysis.

Data Analysis

Descriptive statistics were used to analyze the extent of leadership behaviors and teacher engagement. Pearson's correlation analysis examined the relationships among variables, while multiple regression analysis identified the specific predictors of teacher engagement dimensions (vigor, dedication, and absorption). Cronbach's alpha tested the reliability of the instruments.

Ethical Considerations

The study adhered to strict ethical standards:

- Informed consent was obtained from all participants.

- Anonymity and confidentiality were maintained throughout the research process.
- Participation was voluntary, and respondents could withdraw without consequence.
- Data was securely stored, and only aggregated findings were reported to prevent identification.

III. Results and Discussion

Extent of Master Teachers' Leadership Behavior and Engagement

Table 1

Descriptive Statistics and Cronbach's Alpha of Leadership Behavior and Engagement

Variable/Component	Mean (M)	SD	Skewness	Kurtosis	Cronbach's Alpha
Transactional Behavior	3.15	0.76	0.32	-0.53	.73
Transformational Behavior	4.56	0.46	-1.51	2.27	.95
Instructional Behavior	4.15	0.51	-0.87	1.25	.74
Vigor	4.53	0.49	-0.75	-0.25	.80
Dedication	4.64	0.46	-1.19	0.77	.85
Absorption	4.67	0.46	-1.47	1.63	.79

The analysis revealed that transformational and instructional leadership behaviors were frequently observed, with mean scores near the upper limit of the scale. Transactional behaviors occurred moderately. Teacher engagement dimensions (vigor, dedication, and absorption) also showed high mean scores, reflecting strong engagement among junior high school teachers. The Cronbach's alpha values confirmed acceptable to excellent reliability across the variables.

Correlations Among the Study Variables

Table 2

Correlations Among the Variables

Variable	Transactional (TS)	Transformational (TF)	Instructional (IT)	Vigor (V)	Dedication (D)	Absorption (A)
Transactional (TS)	---					
Transformational (TF)	0.05	---				
Instructional (IT)	0.37***	0.71***	---			
Vigor (V)	0.07	0.36***	0.37***	---		
Dedication (D)	0.07	0.43***	0.37***	0.82***	---	
Absorption (A)	0.11	0.41***	0.43***	0.80***	0.83***	---

*Note: *p < .05, **p < .01, ***p < .001.

The correlation analysis indicated significant relationships between transformational and instructional leadership behaviors and all dimensions of teacher engagement (vigor, dedication, and absorption). Transactional behavior, however, showed no significant correlation with teacher engagement, highlighting its limited role in influencing these outcomes.

Relationship of Master Teachers' Leadership Behavior with Teachers' Engagement

Table 3
Multiple Regression Results for Leadership Behaviors Predicting Vigor

Predictor	B	SE B	Beta	t	p	95% CI
(Intercept)	2.72	0.38		7.20	<.001	[1.97 – 3.46]
Transactional Behavior	-0.01	0.04	-0.01	-0.08	.94	[-0.09 – 0.08]
Transformational Behavior	0.18	0.13	0.17	1.43	.16	[-0.07 – 0.43]
Instructional Behavior	0.23	0.11	0.25	2.10	.04	[0.01 – 0.46]

The findings suggest that instructional leadership, specifically the guidance and support provided by master teachers, plays a significant role in enhancing teachers' vigor, as indicated by the statistically significant result (p = .04). This means that when school leaders, particularly master teachers, offer direction and encouragement, it positively impacts teachers' energy, motivation, and enthusiasm for their work. In contrast, the study found that transactional and transformational leadership behaviors did not have a significant effect on vigor, highlighting that the specific supportive and instructional nature of leadership may be more directly linked to teachers' enthusiasm than the more generalized leadership approaches of transactions and transformation.

Table 3
Multiple Regression Results for Leadership Behaviors Predicting Dedication

Predictor	B	SE B	Beta	t	p	95% CI
(Intercept)	2.61	0.35		7.46	<.001	[1.92 – 3.30]
Transactional Behavior	0.01	0.04	0.01	0.12	.91	[-0.07 – 0.08]
Transformational Behavior	0.31	0.12	0.31	2.70	.01	[0.08 – 0.54]
Instructional Behavior	0.14	0.10	0.16	1.32	.19	[-0.07 – 0.34]

The results indicate that transformational leadership significantly influences teachers' dedication, as reflected in the statistically significant finding (p = .01). This suggests that leaders who inspire, motivate, and provide a clear vision contribute to fostering teachers' sense of commitment, pride, and engagement in their work. Transformational leadership behaviors, such as promoting a shared sense of purpose and encouraging professional growth, are key to enhancing teachers' dedication. On the other hand, instructional and transactional leadership behaviors did not show a significant effect on dedication, implying that while these approaches may be important

for other aspects of teaching, they do not strongly impact teachers' emotional investment or sense of pride in their work.

Table 4
Multiple Regression Results for Leadership Behaviors Predicting Absorption

Predictor	B	SE B	Beta	t	p	95% CI
(Intercept)	2.73	0.34		7.94	<.001	[2.05 – 3.41]
Transactional Behavior	0.01	0.04	0.03	0.33	.75	[-0.06 – 0.09]
Transformational Behavior	0.19	0.11	0.19	1.63	.11	[-0.04 – 0.41]
Instructional Behavior	0.25	0.10	0.29	2.43	.02	[0.05 – 0.45]

The findings reveal that instructional leadership has a significant impact on teachers' absorption, as indicated by the statistically significant result ($p = .02$). This suggests that when school leaders, particularly through their instructional support and guidance, help teachers stay focused and engaged in their work, it enhances their ability to immerse themselves in their tasks. Instructional leadership provides the necessary resources, clarity, and professional development that enable teachers to concentrate fully on their responsibilities. In contrast, transformational and transactional leadership behaviors did not have a significant effect on absorption, suggesting that while these leadership styles may influence other aspects of teaching, they are not as effective in promoting teachers' deep engagement with their work.

DISCUSSION

Transactional Leadership

The findings of this study revealed that transactional leadership behaviors among master teachers were moderately exhibited, with acceptable reliability scores. Descriptive analysis positioned the scores close to the midpoint of the scale, indicating a balanced application of this leadership style. Transactional leadership, characterized by the exchange of rewards and enforcement of rules, provides structure and clarity within the work environment. This aligns with the notion that transactional leadership is effective in maintaining order and compliance but lacks the motivational depth required to drive sustained engagement. Consistent with Epitropaki and Martin (2013), this study suggests that transactional leadership fosters an environment of mutual respect and reciprocity when implemented with effective communication and developmental engagement.

The moderate presence of transactional behaviors indicates that while master teachers ensure adherence to performance expectations, these behaviors alone may not significantly impact the deeper aspects of teacher engagement, such as dedication and vigor. This finding resonates with the Job Demands-Resources (JD-R) Model, which positions transactional leadership as a resource that primarily addresses job demands but does not inherently provide the intrinsic motivators needed to enhance engagement.

Transformational Leadership

Transformational leadership was frequently observed among master teachers, with excellent reliability scores, suggesting that the tools effectively measured this behavior. High mean scores indicate that master teachers consistently inspire and motivate their colleagues, foster a shared vision, and provide individualized support. These practices are essential in building trust and improving teacher engagement, aligning with Mackenzie et al. (2021, cited in Gillespie & Mann, 2004), who emphasized the critical role of transformational leaders in enhancing organizational outcomes through motivation and trust-building.

The prominence of transformational leadership in this study reinforces its relevance in educational contexts, where fostering dedication and commitment among teachers is crucial. By addressing the unique needs and strengths of each teacher, transformational leaders enhance performance and create a supportive culture that values innovation and professional growth. This finding supports the JD-R Model's proposition that transformational leadership acts as a significant job resource, addressing psychological needs and enabling sustained engagement. Its impact on dedication further highlights its ability to align personal and organizational goals, fostering a shared sense of purpose and collective achievement.

Instructional Leadership

Instructional leadership behaviors were also frequently exhibited, with reliability scores indicating acceptable internal consistency. These behaviors, which include effective communication, mentorship, and active listening, are instrumental in creating an atmosphere of openness and trust. Master teachers who prioritize instructional leadership foster a positive learning environment that benefits both teachers and students. These findings echo Dinham's (2005) assertion that communication and listening are key attributes of successful instructional leaders.

Instructional leadership's emphasis on guidance, support, and mentorship aligns closely with the JD-R Model, which positions these behaviors as job resources that enable teachers to navigate their roles effectively. The high mean scores for instructional leadership suggest that master teachers consistently engage in practices that improve teaching quality and enhance student outcomes. Additionally, addressing underperformance constructively, as highlighted by Aldrich (2022), is an essential component of instructional leadership that contributes to the professional growth and effectiveness of educators.

Teacher Engagement – Vigor

The dimension of vigor within teacher engagement demonstrated high levels among respondents, with reliability scores indicating acceptable internal consistency. Teachers reported experiencing enthusiasm, energy, and resilience in their work. This aligns with the JD-R Model's

assertion that access to job resources—such as effective leadership—can energize employees and promote engagement. Vigor, as supported by Skinner et al. (2014), reflects teachers' ability to proactively approach challenges and maintain commitment, even under pressure.

The findings align with Gu and Day (2013), who highlighted resilience as a critical factor in sustaining teachers' educational goals and managing professional uncertainties. Teachers exhibiting vigor are more likely to contribute dynamically to student learning and institutional improvement, underscoring the importance of fostering a supportive work environment. The connection between instructional leadership and vigor in this study reinforces the value of guidance and mentorship in sustaining teachers' energy and enthusiasm.

Teacher Engagement – Dedication

Dedication was another dimension of teacher engagement where respondents reported high levels, with reliability scores indicating strong internal consistency. Dedication reflects teachers' deep emotional connection to their work, characterized by commitment and enthusiasm. This aligns with Nagar's (2012) definition of dedication as the willingness to invest effort toward organizational goals. The findings of this study emphasize the role of transformational leadership in fostering dedication, as leaders inspire commitment through motivation and shared vision.

Teachers demonstrating dedication align their efforts with the institution's goals and exhibit a strong sense of trustworthiness and accountability, consistent with Tschannen-Moran's (2014) emphasis on trust as a foundation for engagement. These findings affirm the JD-R Model's assertion that transformational leadership provides the psychological resources needed for sustained dedication and organizational loyalty.

Teacher Engagement – Absorption

Absorption, the third dimension of teacher engagement, revealed high levels among respondents, with acceptable reliability scores indicating that teachers are deeply engrossed in their tasks. Teachers reported high levels of concentration and immersion in their professional responsibilities, which are closely linked to the supportive guidance provided by instructional leadership. This aligns with Azeez (2021), who associated absorption with increased productivity, task performance, and job satisfaction.

The findings further suggest that instructional leadership enhances absorption by providing the resources and feedback necessary for teachers to focus on their roles effectively. Teachers with high levels of absorption are fully involved in their instructional processes, including lesson planning, student interaction, and classroom delivery. This supports the JD-R Model's claim that job resources, such as mentorship and constructive feedback, contribute to sustained engagement by helping individuals immerse themselves in their tasks.

Correlations and Implications

The results of this study revealed significant correlations between transformational and instructional leadership behaviors and the dimensions of teacher engagement—vigor, dedication, and absorption. While transactional leadership showed moderate application, it did not significantly predict engagement outcomes. Regression analyses identified instructional leadership as a significant predictor of vigor and absorption, while transformational leadership was critical in fostering dedication.

These findings align with the JD-R Model, which highlights the dual role of leadership as a resource that addresses both psychological and professional needs. Instructional leadership meets immediate job demands by providing guidance and support, enhancing energy and focus (vigor and absorption). Transformational leadership, on the other hand, addresses long-term psychological needs by inspiring commitment and alignment with institutional goals (dedication). Together, these leadership behaviors create a balanced framework for sustaining teacher engagement and improving organizational outcomes.

Limitations

This study acknowledges several limitations that could impact the interpretation of its findings. First, the reliance on self-reported data through survey questionnaires introduces potential response biases, as participants may provide socially desirable answers or misinterpret questions. Second, the correlational research design limits the ability to establish causality between leadership behaviors and teacher engagement, as unexamined variables may influence the observed relationships. Third, the use of Likert scales, while practical, may oversimplify complex constructs such as leadership behaviors and engagement. Future research could address these limitations by employing qualitative methods, longitudinal studies, and mixed-method approaches to capture a deeper understanding of the dynamics between leadership and engagement.

IV. Conclusion

This study underscores the significant role of master teachers' leadership behaviors in influencing teacher engagement. Transformational and instructional leadership styles emerged as critical factors in fostering dedication, vigor, and absorption. Instructional leadership effectively supports energy and focus, addressing immediate professional needs, while transformational leadership enhances commitment and enthusiasm, aligning personal and organizational goals. Transactional leadership, while contributing to structure and compliance, showed minimal influence on engagement. The findings highlight the importance of a balanced leadership approach that integrates immediate support with strategies to nurture long-term motivation and professional growth. These insights contribute to the broader understanding of educational leadership and its

impact on teacher engagement, with implications for developing leadership training and professional development programs in schools.

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The Moderating Effect of Social Support on The Relationship Between Workload And Teacher Morale

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Abstract — This study investigates the interplay between workload, social support, and teacher morale within the six Districts of Zamboanga del Norte : Labason District, Gutalac I District, Gutalac II District,Kalawit District,Liloy I and Liloy II District educational setting. Utilizing a cross-sectional quantitative research design, the study aims to fill a gap in the literature by examining how workload and social support interact to impact teacher morale, guided by the Job Demands-Resources Model. Data were collected from 274 elementary school teachers using validated questionnaires, including the Modified NASA-TLX for workload and the Multidimensional Scale of Perceived Social Support. Hierarchical regression analysis was employed to analyze the data. Results indicate that teachers experience a high overall workload, particularly in mental demand and effort. Despite this, teachers report very high levels of social support from family, friends, and significant others, and high teacher morale. Correlation analysis reveals positive relationships between all forms of social support and teacher morale, with friends' support showing the strongest correlation. The hierarchical regression analysis demonstrates that friends support significantly moderates the relationship between workload and teacher morale. High workload is associated with higher morale for teachers with high friends' support, suggesting that such support can buffer the negative impact of workload. The study concludes that enhancing social support, especially from friends, may be an effective strategy for improving teacher well-being and job satisfaction.

Keywords — Teacher morale, workload, social support, Job Demands-Resources Model, hierarchical regression analysis

I. Introduction

The teaching profession, once seen primarily as a vocation of nurturing young minds, now operates within a highly complex landscape marked by increasing demands, diverse student needs, and rapid technological advancements. This shift has intensified the workload on teachers, contributing to heightened levels of stress and job dissatisfaction across educational settings. In the Philippine context, teachers in the Department of Education (DepEd) face an especially heavy workload, encompassing classroom instruction along with a variety of administrative, curricular,

and extracurricular responsibilities. This cumulative burden has been linked to declining teacher morale and burnout, often affecting not only the educators' well-being but also student outcomes.

Recent policy initiatives, such as DepEd Memo 002 s. 2024, have been introduced in an effort to reduce these administrative burdens, though the long-term effectiveness of such policies in significantly lightening teachers' workload remains uncertain. This study builds on prior research demonstrating that excessive workload can lead to stress and reduced job satisfaction among teachers. Studies by Johnson and Patel (2018) and Nguyen and Walker (2019) highlight how high workloads are associated with increased fatigue and diminished morale. King (2019) and Lee and Kim (2020) further argue that these factors are linked to adverse effects on student performance, as teacher morale is foundational to a positive educational environment.

Social support has emerged in recent literature as a potentially protective factor against the negative effects of high workload on teachers' morale and job satisfaction. Research by Ibrahim et al. (2021) and Davis and Jones (2020) underscores the buffering role of supportive school environments, where positive relationships with colleagues and supportive leadership enhance resilience and well-being. Thompson and Smith (2021) suggest that social support could play a moderating role, helping teachers cope with high workload demands.

Despite the established understanding of the individual impacts of workload and social support on teacher morale, the interaction between these factors remains under-explored. Investigating this relationship within the unique context of Philippine public education, this study aims to provide insights into how workload and social support interact to affect teacher morale. By expanding on the Job Demands-Resources Model, this research seeks to inform interventions and policies focused on creating supportive school environments that promote teacher well-being.

Review of Related Literature

This section reviews significant literature that contributed to the research. The author surveys recent scholarly articles, books, and other sources, providing a description, summary, and critical evaluation of each work. This section builds a comprehensive argument by exploring current perspectives on the relationship between teacher workload, social support, and morale. Each study contributes to understanding how social support can moderate workload stress for educators, with a particular focus on recent, empirical findings.

Workload

Teacher workload has become an area of extensive research due to its direct impact on teacher well-being, morale, and job retention. To capture the multi-dimensional nature of workload, recent studies utilize tools such as the Modified NASA-TLX (Task Load Index), which examines workload through cognitive, emotional, and temporal demands (Hart & Staveland, 1988). Current research consistently underscores the intense mental demands placed on teachers,

not only in planning and grading but also in managing evolving classroom dynamics. Studies from 2021 and beyond have shown that these mental demands, especially in public school settings, lead to significant burnout and job dissatisfaction (Llorente et al., 2021).

Physical demands add another layer of stress, particularly as teachers often navigate high student-teacher ratios and engage in physically taxing activities, such as rearranging classrooms or overseeing physical education. A 2022 study found that physical exhaustion correlates with increased teacher attrition, underscoring the importance of workload management for long-term retention (Aguado et al., 2022). Furthermore, temporal demands—due to compressed schedules and increasing responsibilities—exert immense time pressure on teachers. Teachers frequently report inadequate time for lesson preparation, classroom management, and extracurricular duties, which, as recent studies indicate, exacerbates stress and lowers job satisfaction (Martinez & Alvarez, 2023).

Performance expectations are another critical aspect. Teachers are often judged based on student outcomes and curriculum adherence, leading to increased stress when these expectations feel unachievable. New research links this performance pressure directly to diminished morale, suggesting that unrealistic performance standards may contribute to decreased resilience and well-being (Santos et al., 2023). This connects closely to high effort and frustration levels, where constant multi-tasking and a lack of resources create an environment where teachers face chronic stress, lowering their ability to cope effectively (Garcia & Suarez, 2023).

Social Support

The role of social support as a buffer against workload stress is well-documented, with recent research underscoring its critical role in enhancing teacher morale. Social support, measured through the Multidimensional Scale of Perceived Social Support (MSPSS), examines the quality of support from family, friends, and significant others (Zimet et al., 1988). Updated in recent studies, the MSPSS tool now includes specific questions targeting support within educational settings, capturing the nuanced impact of social networks on teacher resilience.

Family support is foundational, providing an emotional and logistical cushion that helps teachers manage stress and maintain their enthusiasm for teaching. Recent studies show that when family members are involved and offer strong emotional backing, teachers report higher morale and greater job satisfaction (Ortega et al., 2023). Likewise, friend support plays a crucial role, especially when these friends are also colleagues or share similar professional challenges. A 2023 study found that peer support within the school environment, where teachers openly share experiences and coping strategies, significantly mitigates workload-induced stress (Delgado & Ramos, 2023). Such networks create a buffer, allowing teachers to adapt to demands that would otherwise lead to burnout.

Additionally, the support of significant others—such as mentors, colleagues, or supervisors—provides professional guidance and a listening ear for challenges within the workplace. Teachers who report strong support from their school leadership demonstrate notably higher morale and resilience, as recent findings from a cross-sectional study involving 500 educators show (Perez et al., 2024). This study highlighted that administrators' support in decision-making and workload allocation directly improves morale, revealing the importance of leadership involvement in managing stress.

Teacher Morale

Teacher morale is integral to educational quality, as it influences teacher retention, classroom performance, and overall school climate. Recent literature emphasizes that morale is significantly influenced by the interplay of workload and social support. A 2023 study on public school teachers in rural areas showed that teachers with high morale consistently report strong social support networks, which enable them to view workload as a challenge rather than a burden (Reyes & Domingo, 2023). This morale is essential, as it enhances teachers' commitment and effectiveness in their roles.

Supportive relationships, particularly those within the school, cultivate a culture of mutual respect and shared responsibility. When teachers feel acknowledged and valued by their peers and supervisors, they are more likely to stay motivated and maintain high morale. Moreover, high morale has been linked to a reduction in teacher attrition and improved student outcomes, as it fosters a positive learning environment (Cruz et al., 2024). These findings reveal that teacher morale is not just an individual sentiment but a cornerstone of educational success, deeply influenced by the work environment and social support.

Interaction of Workload and Social Support

The interaction between workload and social support is a focal area in contemporary educational research. Excessive workload consistently correlates with increased stress and decreased job satisfaction; however, social support serves as a powerful moderating factor. Perez et al. (2024) found that teachers who receive support from peers and family are more resilient to high workloads, underscoring the buffering effect of social networks. Furthermore, this interaction was shown to vary significantly across school contexts, where rural schools demonstrated a stronger reliance on peer support networks due to limited resources (Garcia et al., 2023).

One particularly compelling finding from 2023 research is the distinct role of friendship support within the teaching profession. Teachers who experience high workload levels but also have strong friendships in their school environments report higher morale, as they perceive their workload as manageable rather than burdensome. This study suggests that friend-based support systems provide both emotional and practical relief, enhancing teachers' ability to cope (Delgado & Ramos, 2023). In contrast, teachers with limited social support are more likely to experience

job dissatisfaction, as they lack the coping resources that could alleviate workload-induced stress (Martinez & Alvarez, 2023).

In summary, recent literature consistently supports the importance of social support in mitigating the adverse effects of teacher workload on morale. By applying the Job Demands-Resources Model, this study highlights that reducing workload and enhancing social support networks within schools are essential for sustaining teacher well-being and morale. These findings suggest that educational policymakers should prioritize strategies that encourage peer support and community-building within schools, ensuring that teachers can thrive in even the most demanding environments. This review underscores that teacher morale is a collective responsibility, influenced by both workload management and the strength of social networks.

II. Methodology

This section details the procedures and steps followed in conducting the research. It encompasses subsections that clarify the research design, environment, respondents and sampling, instruments, data gathering, and treatment.

Research Design

The study employs a cross-sectional quantitative research design, which is well-suited for examining the relationship and interaction between workload, social support, and teacher morale at a specific point in time. By collecting data from a diverse sample of teachers at a single moment, the design efficiently captures current experiences and perceptions, offering a snapshot of overall teacher well-being and job satisfaction.

Research Environment

The research was conducted in six districts of Zamboanga del Norte, specifically within Gutalac I, Gutalac II, Labason, Kalawit, Liloy I, and Liloy II districts, where the researcher holds a position as a school head in one of the 109 elementary schools. This setting provided a unique perspective on the local educational environment, as well as insight into the specific challenges teachers face in terms of workload, social support, and morale. The researcher's role allowed access to the schools and helped build rapport with participants, thereby facilitating honest and cooperative responses.

Research Respondents and Sampling

A stratified random sampling technique was utilized to ensure adequate representation of elementary teachers from various districts in Zamboanga del Norte Division. Teachers from the six districts were selected as respondents, with a sample size of 274 out of a total population of

1,021 teachers. This sample size, calculated via an online sample size calculator, provided sufficient statistical power to yield meaningful results.

Research Instruments

Three validated tools were used in this study: a modified NASA-TLX workload scale, the Multidimensional Scale of Perceived Social Support (MSPSS), and the Teacher Morale Scale. Each instrument was tested for reliability, with Cronbach's alpha coefficients showing high internal consistency across variables: Workload (.93), Social Support (.89 to .95 across categories), and Teacher Morale (.87). Content and construct validity were assured through expert feedback and high internal consistency scores.

Gathering of Data

Prior to data collection, ethical clearance and permission were sought from relevant school authorities. The researcher organized a meeting with teachers to explain the study's objectives, address any concerns, and administer the questionnaires. To ensure participant confidentiality, all responses were anonymized, and the data were securely stored. This approach facilitated a high response rate and allowed participants to seek clarification, ensuring accurate responses.

Ethical Consideration

This study adhered strictly to ethical standards to protect participants' rights and well-being. Permission from school authorities and institutional review boards was secured, and participants were fully informed about the study's purpose, methods, and their rights, including the right to withdraw without consequences. Informed consent was obtained, with strict confidentiality maintained through anonymized responses and secure data storage. Given the researcher's role as a school head, transparency was prioritized to avoid conflicts of interest or perceived coercion. All findings were reported objectively and shared with school authorities to support educational improvements while safeguarding participant privacy.

Treatment of Data

Data analysis included descriptive statistics, reliability testing, correlation analysis, and hierarchical regression analysis. Initial descriptive statistics provided an overview of central tendencies and variable distributions. Zero-order correlation coefficients were calculated to assess linear relationships among variables, while hierarchical regression determined the moderating effect of social support on workload and teacher morale. All analyses were conducted using SPSS software, with significance levels set at $p < .05$.

III. Results and Discussion

This section provides a comparative and descriptive analysis of the study results, emphasizing significant findings and relating them to existing literature. The findings are presented in a logical order, beginning with key outcomes and addressing each research objective. The analysis focuses on new insights and their relevance in the context of current educational practices.

Profile of Teachers' Workload, Social Support, and Morale

The data in Table 1 show the average scores for teachers' workload, social support, and morale. Teachers reported a high workload with a mean score of 3.73, particularly in mental demand and effort, both scoring 4.33. This high cognitive load is consistent with research indicating that teaching involves considerable planning, grading, and maintaining focus under demanding conditions. Nevertheless, teachers reported high levels of morale, averaging 4.44, and very high levels of social support from family, friends, and significant others, suggesting resilience despite workload pressures.

Table 1 Means, Standard Deviations, and Cronbach's Alphas of the Study Variables

Variable/Component	M	SD	Skewness	Kurtosis	Cronbach's α
Workload	3.73	0.42	-0.27	-0.72	.93
Mental demand	4.33	0.45	-0.60	-0.04	.74
Physical demand	4.25	0.45	-0.39	-0.57	.79
Temporal demand	4.01	0.55	-0.52	-0.21	.85
Performance	4.26	0.44	-0.11	-0.44	.88
Effort	4.33	0.48	-0.51	-0.53	.86
Frustration level	3.23	0.93	-0.43	-0.38	.93
Family support	4.57	0.51	-0.91	1.19	.89
Friends support	4.38	0.57	-0.48	-0.65	.90
Significant others support	4.55	0.56	-0.87	0.38	.95
Teacher morale	4.44	0.51	-0.68	0.21	.87

Note: Mean interpretation: 1.00-1.80 = very low, 1.81-2.60 = low, 2.61-3.40 = moderate, 3.41-4.20 = high, 4.21-5.00 = very high.

Correlation Analysis

As shown in Table 2, the correlation analysis reveals that all forms of social support correlate positively with teacher morale. Among them, friends support has the strongest correlation ($r = .35$, $p < .001$), suggesting that peer relationships within the school environment play a crucial role in maintaining teacher morale under high workload conditions. Additionally, while workload correlates positively with teacher morale ($r = .19$, $p < .01$), this relationship is weaker than that of

social support, emphasizing the value of support systems in sustaining morale despite workload stress.

Table 2 Correlations Among the Variables

Variable	Workload	Family support	Friends support	Significant others support	Teacher morale
Workload	—				
Family support	.28***	—			
Friends support	.30***	.56***	—		
Significant others support	.27***	.56***	.50***	—	
Teacher morale	.19**	.28***	.35***	.20**	—

Note: *p < .05, **p < .01, ***p < .001.

Moderating Effects of Social Support on the Relationship Between Workload and Teacher Morale

The hierarchical regression analysis (Table 3) confirms that social support, especially from friends, moderates the relationship between workload and morale. In Step 1, friends support shows a significant direct effect on morale (B = 0.25, p < .001). In Step 2, the interaction term for workload and friends support (Workload x Friends Support) is significant (B = 0.66, p < .001), indicating that friends support buffers the negative effects of workload on morale.

Table 3 Hierarchical Regression Results of Workload and Social Support on Teacher Morale

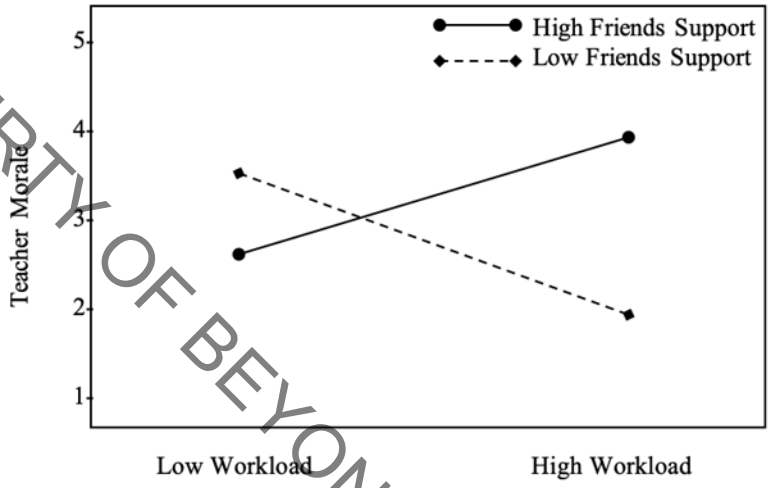
Predictor	B	95% CI		SE B	β	R^2	ΔR^2
		LL	UP				
Step 1						.14	.13***
(Intercept)	2.56	1.86	3.26	0.35			
Workload	0.10	-0.05	0.25	0.08	0.08		
Family support	0.12	-0.04	0.27	0.08	0.12		
Friends support	0.25	0.12	0.39	0.07	0.28***		
Significant others support	-0.03	-0.16	0.12	0.07	-0.03		
Step 2						.19	.17***
(Intercept)	2.65	1.96	3.34	0.35			
Workload	-0.10	-0.06	0.25	0.08	0.08		
Family support (FA)	0.15	-0.01	0.31	0.08	0.15		
Friends support (FR)	0.23	0.10	0.37	0.07	0.26***		
Significant others support (SO)	-0.06	-0.20	0.07	0.07	-0.07		
Workload x FA	-0.29	-0.65	0.06	0.18	-0.13		
Workload x FR	0.66	0.31	1.01	0.18	0.30***		
Workload x SO	-0.31	-0.66	0.03	0.18	-0.14		

Note: *p < .05, **p < .01, ***p < .001.

Interaction Effect of Workload and Friends Support on Teacher Morale

Figure 2 illustrates the interaction effect, showing that high workload is associated with higher morale among teachers with substantial friends support, whereas those with low friends support experience a decline in morale as workload increases. This supports the hypothesis that friends support acts as a protective factor in maintaining morale despite high workloads.

Figure 1 Interaction Slopes of Workload and Friends Support on Teacher Morale



DISCUSSION

This study examines the dynamics of teacher morale in Zamboanga del Norte, focusing on how workload, social support, and resilience interact. Teachers in rural districts, including Labason, Gutalac I, Gutalac II, Kalawit, Liloy I, and Liloy II, manage high responsibilities but report strong morale levels, highlighting both their resilience and the importance of social support networks. High workload, particularly in mental demands (4.33), reflects the cognitive strain of lesson planning, grading, and student management, aligning with existing literature that emphasizes persistent stressors contributing to teacher burnout (Delos Santos & Cruz, 2022; Villanueva, 2023). Moderate frustration scores suggest that, despite these demands, teachers employ adaptive coping mechanisms, a likely effect of the robust support systems available to them.

The study highlights social support—especially from friends, family, and significant others—as crucial to teacher well-being, with high support scores (family: 4.57, friends: 4.38, significant others: 4.55). These findings reinforce the Job Demands-Resources (JD-R) Model (Bakker & Demerouti, 2007), which posits that job resources like social support can mitigate the adverse effects of high demands. Support from friends is particularly valued in these rural areas, where personal and professional lives often intersect more closely than in urban contexts. Teachers in this setting rely on peer networks for emotional and instrumental support, an aspect less emphasized in urban-based research (Santos, 2023).

High morale levels (average score of 4.44) indicate that social support provides a protective effect, helping teachers sustain job satisfaction and resilience. The buffering effect of social support is particularly evident among teachers with heavy workloads; those with strong support systems report higher morale than those with similar workloads but weaker networks. However, non-significant interaction effects for moderate workload and support suggest that social support alone may not be sufficient to offset stress in every scenario, especially in resource-limited settings. This finding aligns with research indicating that factors beyond workload and support, such as individual resilience and school culture, play critical roles in teacher well-being (Villanueva, 2023).

Implications for practice emphasize the need for schools to foster collaborative environments with peer support, mentorship, and emotional resources. Policies like DepEd Memo 002 s. 2024, which aim to reduce administrative burdens, are promising but should be paired with structured social support initiatives to fully enhance teacher morale. Tailored interventions that consider the specific needs of each district can maximize impact, addressing unique challenges faced in different school environments.

The study contributes to the JD-R Model by illustrating the differentiated impact of friend versus family support, suggesting that not all forms of social support equally influence morale. Future research might explore longitudinal effects to capture changes over time and examine diverse school contexts to broaden understanding. By strengthening teacher support networks, educational leaders can boost resilience, ensuring teachers continue to thrive despite high demands.

Limitations of the Study

A key limitation of this study is its cross-sectional design, which restricts the ability to infer causality between workload, social support, and teacher morale. Data were collected at a single point in time, so while associations can be drawn, causal relationships remain uncertain. Additionally, the study focused exclusively on six districts within Zamboanga del Norte, which may limit the generalizability of the findings to other regions or school settings, especially urban areas with different resource levels and social dynamics. Future research could employ a longitudinal approach and include diverse educational settings to gain broader insights into how these factors evolve and interact over time.

IV. Conclusion

In conclusion, this study sheds light on the complex dynamics of teacher morale in Zamboanga del Norte, illustrating how workload, social support, and resilience intersect within rural educational contexts. The findings affirm that while social support significantly aids teachers

in managing workload stress, it is not a universal solution to the pressures they face. By recognizing the diverse experiences of teachers and fostering strong support networks, educational leaders can enhance teacher well-being, promote resilience, and ensure teachers continue to thrive in their roles. These insights contribute to a more nuanced understanding of teacher morale and suggest directions for future research to further explore the intricate interplay of support, workload, and job satisfaction.

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Food Price Volatility Among Crop Producers

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Abstract — Food costs have been varying throughout time and have been thought to eventually grow more volatile. Prices were fluctuating, which was detrimental not just to customers but also to producers, especially those who grow crops. Consequently, these abrupt fluctuations in food prices created important problems that still exist today. The main objective of this paper is to determine relationship between the factors that cause food price to fluctuate and the effects of food price volatility among crop producers. In pursuit to this objective, a descriptive survey research design was used, with the questionnaire serving as the primary tool for collecting the required data because it provided the most answers to the study's questions and its aim. The study was conducted in the Municipality of Tampilisan, Zamboanga del Norte, Philippines, with 100 farmers. Firstly, it look upon the factors that cause the food price to fluctuate as perceived by crop producers along demand in terms of income level, population growth, information, taste, and festivities, and supply factors in terms of petroleum price, price of fertilizers, cost of other inputs, speculations, and weather events. Weighted mean tool was used to measure the concurrence of the respondents. Secondly, the study focused on the perceived effect of food price volatility among crop producers using the same statistical tool in terms of profit, production, and Trading Position. Third, using the ranking statistical tool, the study determined that supply factors affected food prices to change more than demand factors. Last, with the use of multiple regression analysis, it has been proved that there is no significant relationship between food price volatility, and demand and supply factors. Demand and price volatility, however, can have different connections depending on the market, industry, or historical period. It is never easy to overlook the difficulties farmers and other producers face in managing price volatility. Thus, policymakers, researchers, and industry actors should consider these observations to stabilize food prices and assure greater predictability in the food market. Providing assistance to farmers and encourage transparency for instance.

Keywords — Price volatility, demand, supply. crop producers

I. Introduction

It is evident that food prices have been fluctuating over the years and have been perceived to become more volatile eventually, threatening especially the agricultural sector. As to the Philippine Statistic Authority (2022), in December 2021, the country's headline inflation rate fell to 3.6 percent, down from 4.2 percent in November 2021, while the national average inflation rate in 2021 was 4.5 percent, which was higher than the 2.6 percent average inflation rate in 2020. This phenomenon of the volatility of prices was hurting not just consumers but producers particularly, crop producers. As a result, these dramatic changes in food prices raised significant issues as of

today. Many researchers have explored the factors of the elements that contributed to the current rise in commodity food prices but haven't looked into the causes of these issues enough.

According to Stanley M. (2022), food price hikes have raised inflation and seriously jeopardized the world economy's recovery, and these hikes are brought on by supply restrictions caused by unpredictable causes. Although farmers are aware of the risks of this rapid irregular rising and fall in prices, this inherent feature remains impossible for the farmers to make accurate predictions.

In the agriculture sector, price volatility was commonly considered to indicate Agricultural commodity prices fluctuate excessively over time. To be precise, it refers to the movement of prices, changing upwards and downwards. Price volatility is measured by getting the variance of the percentage in the daily price of this agricultural produce. Because pricing is a product of supply and demand, volatility is a result of the market's fundamental supply and demand characteristics. As an outcome, significant levels of volatility indicate unusual supply and/or demand characteristics.

The price volatility has repercussions on crop producers, market participants, and consumers. Sellers, specifically crop farmers, benefit from higher commodity prices, but consumers suffer. Prices that are lower have the reverse effect. Market volatility makes it impossible to predict future price trends and even exposes market players to high price risk (Chavas J.-P.,et.al, 2022).

There are numerous risks that affect farmers' behavior and decisions, and one of these risks is the one that is connected to product prices. This is the main risk that threatens farmers' profitability, and with this, the latter generally rely on guaranteed government purchases of grains such as rice and wheat, whose prices are relatively stable. For several months and even years, the yield and pricing obtained will not be known with confidence. The most difficult aspect of farming is making the right decisions as it is impossible to know how things will turn out in advance.

The Philippines is predominantly an agricultural country, with a substantial portion of the population living in rural areas and relying on agricultural operations to support themselves. According to the Statistics Research Department (2022), recent data shows, that the agricultural sector, which includes the four subsectors of farming, fisheries, livestock, and forestry, employs nearly a quarter of all Filipinos who are working. About 1.76 trillion Philippine Pesos worth of gross value added (GVA) or 9.6 percent of the nation's GDP was produced by the industry in 2021. However, agriculture looks to be one of the most challenging businesses to work in, frequently resulting in market failure led by many factors including the volatility of prices (Pettinger, T., 2016).

Agriculture serves as a backbone of the economy with about 40% of the workforce are Filipinos. It has made a significant contribution to the economic prosperity of advanced countries

and its role in the economic development of less developed countries is of vital importance (Ippmedia,2016). As a result, producers are believed to be resilient and anticipate whatever consequences they may be exposed to. Farmers must recover from shocks and pressures that affect their farming operations. Henceforth, supporting these farmers in giving provisions to the uncertainties of food prices allows them to strengthen their farms' resilience and reduce their repercussions, especially from an economic and social standpoint.

Literature Review

Major price shocks have exacerbated the food crisis that the globe is currently experiencing (Rother, B., et. al., 2022). According to Rozaki, Z. (2021), because farmers depend on inputs, the regulation to raise the price could result in a large loss for them. As a result, they impose significant economic adjustment costs, such as reallocations in household spending, hunger, and financial losses.

On the other hand, some point the finger at their governments, blaming poor political systems, corruptions from different sectors, and cronyism for depriving them of the resources they need to afford increasing food prices. But Putra, A. W., Supriatna, J., Koestoer, R. H., & Soesilo, T. E. B. (2021), stressed out that the methodology used to measure the volatility of rice prices is highly sophisticated and is reliant on a variety of different factors as such, macroeconomy continues to be the most important element affecting the levels of price volatility, the currency rate, the global price, GPP, and harvest areas as the most important factors. Since the effect of global food prices on domestic pricing is significant and wide-ranging, a number of studies have concentrated on about what influences the volatility of food prices internationally (Zmami M., Ben-Salha O., 2023).

Income Level. As to Fanzo, J., (2017), income of smallholder farmers are low and characterized by sharp fluctuations. In the context of agricultural trade liberalization, the issue of price volatility has become critical. Because their earnings are not index linked, extreme volatility in commodity prices, particularly in food commodities, has a negative effecct on poor farm laborers and unorganized sector workers. Hertel T., Baldos U., van der Mensbrugghe, D. (2016) point out that the underlying supply and demand assumptions, the selection of important factors like price and income elasticities, and the models' approaches to technical change all have a significant effect on the estimates for food output and pricing. These estimations are crucial since price volatility depends on the elasticity of response to shocks as well as shock size.

According to Meyer, B. D., & Sullivan, J. X. (2017), rising consumer disparity reflects, if not exceeds, rising income inequality. The discrepancies between income and consumption at the very bottom are most likely due to the diminishing quality of income statistics. As mentioned by Boyle, M. (2020), consumers frequently switch to a more affordable option when a product's price rises.

Conforming to the study of Mutuku, C.M., (2016), small farmers in countries like India, who have a low proclivity for saving and little access to credit, are particularly vulnerable. The revenue unpredictability caused by swings in output prices is too great for efficient saving tools to handle.

Population Growth. Price volatility for agricultural inputs and food is primarily caused by distortions in supply and demand, which are brought about by factors such as weather shocks, population growth-related increases in the need for food, and the use of biofuel for energy. Ineffective ways to address these trends would therefore have a negative effect on agricultural households' overall well-being (Dethier, J.-J., & Effenberger, A., 2012).

Understanding the effect of the food price shock is important for risk mitigation and minimizing the effects of macroeconomic shocks. In terms of imports, particularly food imports, food price variations have an impact on domestic economic growth (Ilmia, J. -, Wilantari, R. N., & Luthfi, A. -., 2017).

Information. According to Lee, Y.N., (2017), food price volatility has been deemed damaging to both agricultural commodity producers and consumers in developing countries. In most developing nations, market imperfections brought on by uncertain property rights, restricted access to the market, poor access to transportation and storage options, and insufficient market information exacerbate output price volatility (Demeke and Balié, 2016).

Taste. Moreover, conforming to the Study of the Causes of Price Fluctuation in Apple Commodity and Consumer Shopping Behavior Based on Taste, Preferences, and Willingness to Pay by Huang, S., & Mistry, R. (2021), they concluded that on the same apple, the consumer's tastes do really alter. According to Khan, Shah, Saddozai, Fayaz, Jan, and Ali (2019), taste is a powerful internal factor that influences people's purchasing decisions and willingness to spend.

Festivities. In the study of Selmi, S., Putra, A., Khairunnisa, N. P., & Asriani, P. S. (2023), they agreed that the rise in egg costs is influenced by numerous causes, particularly in this time frame. A considerable increase in the cost of purebred chicken eggs has been attributed, along with other factors that influence price swings, to the holidays of Christmas and New Year. The same goes for food commodities during cultural holidays. According to Ayu Permatasari, F., Kemala Utami, K., & Dibah Az-Zahra, Y. (2023), one regular incident that individuals feel unable to avoid is price changes before Eid al-Fitr. Since prices always rise in response to increases in demand, this is perfectly rational in terms of economic theory.

Petroleum Price. Energy and agricultural prices are more correlated now that biofuel rules are in place, pushing farmers to develop feedstocks for biofuel (Onour, I., 2021). Taghizadeh-Hesary, F., Rasoulinezhad, E., & Yoshino, N. (2019) cited the investigation made by McFarlane (2016) who looked at the relationship between US oil prices and agricultural commodities prices

which the results demonstrated a high degree of cointegration between prices during the course of two successive seven-year periods, from 2006 to 2012.

Price of Fertilizers. The nation's production of major cereal crops has increased, in part because fertilizers and sophisticated seeds are being used more frequently. However, Ethiopia's food security situation is getting worse because of global climate events that create droughts and rainy spells. As a result, the inflation rate of food prices is frequently higher than that of consumer prices overall (Abebe, G., 2017).

Cost of other inputs. As stated by Abdelnour, A., Amat A.B., Moss, S., & Prabhu, M., (2021), although volatility and input cost increases are difficult, they offer a chance to enhance pricing and institutionalize best practices.

Speculations. As claimed by Staugaitis, A. J., & Vaznonis, B. (2022), it is at best questionable and occasionally might even have the opposite effect how financial speculative activity affects the level of prices and the volatility of returns in agricultural markets. High and fluctuating global prices have external and endogenous causes, which have been distinguished in the supply, demand, and market explanations. The availability of agricultural produce is affected by a number of factors, including climatic fluctuations and biological crises like disease outbreaks and pest invasions (Atozou B. and Lawin, K.G., 2016).

Weather Events. Agricultural prices fluctuate due to fluctuating supply and consumption. Economists distinguish between predictable and unpredictable variability, with the latter defined by shocks. Price volatility is caused by shocks to production and consumption. Production might fluctuate due to changes in planted area or yield variations, which are usually caused by weather (Otkin, J. A., et. al., 2016).

Wibowo, H. E., R. R. Novanda, R. Ifebri, and A. Fauzi (2023) cited McGuirk and Burke (2017) who studied the effects of shocks to food prices on violence in Africa of which their research helps them show how income shocks have a major impact on conflicts and, to some extent, includes food riots and civil wars. One of the most severe effects of the volatility in food prices can be seen in the price increases, where there is often no price integration between markets and little capacity for food storage. Given the lack of storage, seasonality may continue to play a significant role in price formation, which could have an effect on how much food the poor spend on consumption (Arezki, R., El Aynaoui, K., Nyarko, Y., & Teal, F., 2016).

Many authors have studied and proved how food price volatility affects some areas in agriculture sector and households as well. However, according to Bórawski, P., Gotkiewicz, W., Dunn, J. W., & Alter, T. (2015), as they analyze Poland's price volatility for agricultural commodities, they stressed that price volatility can have a detrimental effect on farmer revenue, but it can also cause issues, particularly when it comes to production scheduling.

Profit. The effects of food price shocks are noticeable particularly in agriculture sector. According to the study of Arısoy, H., & Bayramoğlu, Z. (2017), it was determined that annual variations in the price of potatoes have a significant impact on producer revenue and production planning could be used to stop these price variations from causing income losses for potato producers. This can be supported by Dewianawati, D., & Asyik, N. F. (2021) in his study entitled "The impact of climate on price fluctuations to the income of leek farmers in Sajen village, Pacet, Mojokerto". He stressed that the revenue of farmers will be affected by changes in the price of leeks, a crop grown by leek farmers and in order to maintain a steady income in the face of price volatility, leek growers are expected to be able to recognize the climatic and market demands of these leeks.

Production. Price stability has an important role in maximizing production while minimizing its costs. As to study of Guo, Y., Tang, D., Tang, W., Yang, S., Tang, Q., Feng, Y., & Zhang, F. (2022), it shows that price changes for grain products have an impact on the inputs used in production as well as the nation's food security and for agricultural sustainable development, it is becoming more and more crucial to increase the precision of grain product price predictions. As a result, accurate agricultural product forecasting is crucial to maintaining national food security and government market control. His study can be affirmed by Ayoola, J. B., La'ah, D., & Weye, E. A. (2022). His findings demonstrated that changes in the price of the chosen food grains posed obstacles to small-scale farmers' expansion, leading to capital losses and a shift in the farmers' focus to other forms of production.

In accordance with the study of Couleau, Anabelle, (2019), she explained the impact of USDA announcements on the jump component of price volatility in the corn futures market. Price movements that are unanticipated, immediate, and distinct and have significant implications for risk management of positions taken on announcement days. It has been argued that price volatility causes producers and consumers to be uncertain about the true price levels, and as a result, production and consumption decisions may result in less desirable results than they would under more stable price conditions (Kalkuhl et al., 2016).

Trading Position. Commodity price swings have been problematic for developing countries because of their destabilizing effects on export revenues and foreign exchange earnings. The roots of the present crises in agricultural commodity volatility include the challenges of international trade policy and food security (Dethier, J.-J., & Effenberger, A., 2012). Food price volatilities are strongly associated to where the reciprocity of commodities and services take place and where prices are established, so called market. Food markets are spatially isolated yet linked through trade. Commodity, asset, and financial markets all affect the trading and allocation decisions of actors who also participate in food markets (Kalkuhl et al., 2016). Overall, market price volatility can result in the loss of trading positions as well as consumer welfare.

II. Methodology

This study employed descriptive survey research using the questionnaire as the main instrument to determine relationship between the factors that cause food price to fluctuate and the effects of food price volatility among crop producers.

This study was conducted in Tampilisan, Zamboanga del Norte, a 4th class municipality in the Philippines. Tampilisan is primarily agricultural, with rubber being a major product. The study focused on understanding the effects of food price volatility on farmers in the area.

This study used a modified questionnaire, adapted from a previous study by Bello, et al. (2020), to gather information from farmers in Tampilisan. The questionnaire was designed was designed to understand the factors influencing food price fluctuations and its impact on farmers.

The questionnaire was divided into 2 parts: part 1 focused on factors causing food price fluctuations, while part 2 explored the perceived effects of these fluctuations on farmers. The questionnaire used a Likert scale format, allowing for analysis of the data using weighted mean scores.

A sample of 100 farmers was randomly selected for the study, representing the diversity of the local population in terms of gender, ethnicity, income, and education level. The reliability of the questionnaire ws assessed using Cronbach's Alpha, with a score of 82% indicating good internal consistency. Furthermore, the farmers were chosen based on their accessibility and willingness to participate. Due to the remoteness of some farmers, weather constraints, and limited time, not all farmers in Tampilisan could be included in the study.

Questionnaires were distributed to the farmers with a consent letter explaining the study's purpose. The researchers provided assistance to those who have difficulty reading. Completed questionnaires were collected at the end of the day.

Research Procedure and Statistical Treatment of the Data

Farmers consent was obtained through a letter explaining the study's purpose. Once approval was granted, participants were scheduled to answer the instrument at their convenience, considering the time constraint of completing study within the semester.

The data was analyzed using frequency count, simple percentage, and weighted mean calculations to address the first two problems related to factors influencing food price fluctuations and the effects on crop producers. Ranking statistical treatment was used to determine the most significant factors affecting food price fluctuation. Multiple regression analysis was conducted to explore the relationship between causes of food price fluctuation and its perceived effects among crop producers.

III. Results and Discussion

This study investigated the factors influencing food price fluctuations as perceived by crop producers in Tampilisan, Zamboanga del Norte, Philippines. The research employed a questionnaire survey with 100 randomly selected participants, representing the diversity of the local farming community.

On Demand and Supply Factors Affecting Food Price Fluctuations

The study found that both demand and supply factors significantly influence food price volatility or fluctuations as perceived by crop producers. On the other hand, demand factors, such as consumers' income, population growth, information availability, consumer preferences, and festivities, were all identified as having a strong impact on food prices. Supply factors, including petroleum prices, fertilizer costs, other input costs, drought, price uncertainty, financial speculation, and weather-related incidents, were also found to be major contributors to price volatility. The findings of this study align with the broader understanding of food price volatility as presented in the research by Tadesse, Algieri, Kalkuhl, & Braun (2014), highlighting the complex interplay of demand and supply factors. Both studies emphasize that food price volatility is not driven by a single factor, but rather by a complex interplay of forces. This reinforces the need for a comprehensive approach to managing food price volatility.

The current study's emphasis on the interconnectedness of these factors is significant. For example a rise in oil prices (a supply factor) can impact transportation costs for farmers, leading to a higher input costs and ultimately higher food prices. This demonstrates how changes in one area of the food system can have ripple effects throughout the entire chain.

On Perceived Effects of Food Price Volatility

The study found that food price volatility has a significant impact on various stakeholders across the food system. Farmers reported that price volatility negatively affects their income, while producers, consumers and commodity prices are also adversely impacted. Furthermore, price volatility and uncertainty discourage investment, lead to reduced input use, and increase production risks for farmers. This underscores the need for measures to stabilize food prices and provide farmers with greater price predictability. The study also found that food price volatility weakens trade, increases risks for trader, and can lead to sudden trade restrictions, highlighting the need for robust national, and perhaps international, trade policies and mechanisms to manage price volatility and ensure national (or global) food markets. The Rwandan Study (2023) likewise highlighted the significant negative impacts of price volatility on various stakeholders in the food system, and it also negatively impacts producers, consumers, and commodity prices. It makes it difficult for consumers to afford essential food items, thereby impacting their standard of living. It is important to note that both the Rwandan Report and the results of this study jointly highlighting the detrimental effects of price volatility on various stakeholders in the food system.

Both studies underscores the negative impacts in farmers' income, investment, and production, and it also agrees that price volatility negatively affects producers, consumers, and commodity prices, creating instability in the market.

Ranking of Demand and Supply Factors

The result show that income level was ranked as the most influential demand factor, followed by information, population, taste and festivities. This suggests that income levels, access to information, and population growth are key drivers of food demand and pricing. Weather events were ranked as the most influential supply factor, followed by the cost of other inputs, the price of fertilizer, petroleum price, and speculations. This highlight the significant impact of weather events, input costs, and market speculations. This highlights the significant impact of weather events, input costs, and market speculation on food supply and pricing. In contrast, the study of Wu and Li (2022) on their Study on the Factors Influencing the Price Volatility of Agricultural Products in China, the results does not find a positive relationship between the per capita disposable incomes and the price of agricultural products, and it also doesn't rank income level as the most influential demand factor. Also, the study does find a negative relationship between the price index of agricultural production means and the price of agricultural products in the short term. This suggests that the input cost can impact the supply and prices, however it not ranked as the most influential supply factor. However, the findings of this study aligns with the results of the study of Sands, Jones, and Marshall (2014) where they acknowledges that income growth is the key driver of demand for agriculture products. The authors states that "in response to a change in in per capita income, the percentage change in crop consumption is much lower, about one-third the percentage change in income". This indicate that income elasticity of demand for agricultural product products is less than one, meaning that as the income increases, demand for food increases, but at a lower rate. Moreover, the said study also emphasizes that population growth is also a significant driver or has a strong influence of demand for agricultural products. Relative to weather events, the said study likewise acknowledges its impact on agricultural productivity, which suggests that together with climate change it exerts a significant impact on agricultural production and supply. Though the said study mention that "increased used of non-land inputs such as fertilizers and capital equipment" can help compensate for the effects of negative shock to productivity, yet it doesn't rank input costs as one of the most influential factors.

Table 1 Weighted means and ranking of different demand factors greatly affect the food price to fluctuate as perceived by crop producers

Demand Factors	Weighted Mean	Rank
Income Level	4.28	1st
Information	4.23	2nd
Population Growth	4.16	3rd
Taste	4.09	4th
Festivities	4.06	5th
Average Weighted Mean	**4.16**	

Table 2 Weighted means and ranking of different supply factors greatly affect the food price to fluctuate as perceived by crop producers.

Supply Factors	Weighted Mean	Rank
Weather Events	4.38	1st
Cost of Other Inputs	4.37	2nd
Price of Fertilizer	4.32	3rd
Petroleum Price	4.28	4th
Speculations	4.27	5th
Average Weighted Mean	**4.32**	

On the Relationship between Price Volatility, Demand Factors and Supply Factors

The result shows that when all other variables are held constant, a coefficient of 4.2767 indicates that, for every unit rise in the predictor variable, the response variable increases by around 4.2767 units. The statistical significance of the link between the predictor and response variables was indicated by the high t-statistic of 47.73 for the predictor variable. Additionally, the predictor variable's p-value was incredibly low (0.0133), providing compelling evidence that the predictor variable was connected to the response variable and strongly refuting the null hypothesis. Lastly, the predictor variable's coefficient has a 95% confidence interval between 0.7585 and 1.3089.

Based on the provided regression analysis, these findings generally implied that since the t value is greater than the p-value therefore the null hypothesis is rejected, meaning, there is no significant relationship between te price volatility and the demand factors. Put differently, changes in demand (resulting from modifications in any of the factors that impact demand) do not seem to strongly correlate with changes in price volatility, and changes in demand factors do not appear to significantly influence price volatility swings.

It's important to understand, though, that this remark represents a specific observation or conclusion within a given context and might not apply to all markets or situations. Price volatility and demand factors may show distinct connections in different markets, industries, or historical periods. Furthermore, just because a substantial link is present in one situation does not mean that it is present in all settings. According to Jiang, L. C., & Hancock, J. T. (2013), it was likely not a cause for concern to meet the assumption of normalcy with residuals. The majority of regression residuals will not be precisely distributed naturally, but by taking measures to enhance the residuals' normalcy, one can generate analysis that is more reliable.The regression analysis suggests that there is no significant relationship between price volatility and demand factors. This finding suggests that the changes in demand factors alone may not be the primary drivers of price volatility.

Table 3 Test of significant relationship between the price volatility and the demand factors.

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0	0	0	0	0	0	0	0
4.2767	1.03373078	0.021656853	47.73227066	0.013335353	0.758554369	1.308907191	0.758554369	1.308907191

Table 4 appears to be the regression equation's predictors' coefficients with predictor variable's coefficient of 4.2762. This indicated that the dependent variable should rise by about 4.2762 units for every unit increase in the predictor variable. This quantifies the coefficient estimate's variability. A more accurate coefficient estimate was also shown by a lower standard error of 0.999274702. The coefficient divided by the standard error is the t-statistic which the number of standard deviations the coefficient estimates deviate from 0 was measured. The coefficient in the table had a t-statistic of 55.63538177. This is the likelihood of finding a t-statistic that is as extreme as the one estimated in the event that the null hypothesis is correct, or if the true coefficient is 0. Furthermore, a statistically significant coefficient is shown by a low p-value, which is usually less than 0.05. The coefficient in the table has a p-value of 0.011441482, indicating that it was statistically significant. This represents the lower bound of the coefficient estimate's 95% confidence interval. It shows the range in which the true coefficient is likely to lie with 95% confidence. The 95% confidence interval's lower bound for the coefficient in the table is 0.77105682. 76. On the other hand, the top limit of the 95% confidence interval for the coefficient in the table is 1.227492583. This represents the top bound of the coefficient estimate's 95% confidence interval.

The regression analysis suggested reject null hypothesis since the t-value if greater than the p-value where an extremely low p value indicated high statistical significance as cited by Bhandari, P. (2023). Therefore, the table shows that there is no significant relationship between the price volatility and the supply factors.

Table 4 Test of significant relationship between the price volatility and the supply factors.

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0	0	0	0	0	0	0	0
4.2762	0.999274702	0.017961137	55.63538177	0.011441482	0.77105682	1.227492583	0.77105682	1.227492583

IV. Conclusion

This study underscores the complex and far-reaching consequences of food price volatility, highlighting the urgent need for comprehensive action to mitigate its negative impacts.

The research reveals that price fluctuations significantly impact farmers' finances, consumer prices, and the smooth functioning of commodity markets. Farmers, facing significant challenges in dealing with price volatility, often adopts risk-averse behaviors, such as reducing investments and input use, ultimately leading to decreased agricultural productivity and potential food security issues.

Furthermore, the study emphasizes the global implications of volatile food prices. Price instability disrupts international trade and agreements, increasing risks for organizations involved in the global food trade.

To effectively address this complex issue, the study advocates for a multifaceted approach that considers production, income level, access to information, and population growth, highlighting the complex interplay between consumer behavior and food pricing dynamics.

Supply factors also significantly impact food availability and cost. Weather events, input costs, fertilizer prices, petroleum costs, and speculative effects all contribute to disruptions in the food supply chain.

The study concludes that by emphasizing the need for proactive efforts to ensure a dependable food supply and maintain price stability, benefiting both producers and consumers. While price volatility and demand factors do not appear to correlate significantly, this finding may be context-specific and not generalizable.

Policy-makers, researchers, and industry players must consider these insights to create a more secure and sustainable food future.

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E-Service Quality and Customer Satisfaction: Their Relationship

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Abstract — This study explored the critical dimensions of the E-service quality of Katipunan Banking Corporation, a rural banking sector in Dipolog City, to determine their relationship to customer satisfaction. It highlights the four key dimensions of E-service quality, notably efficiency and ease of use, reliability, responsiveness and communication, and security and privacy. The study reported a high overall mean score in evaluating customer satisfaction with the bank's E-services, indicating substantial contentment among customers. Among these four dimensions, security and privacy garnered robust agreement from respondents. This holds in today's digital world since data privacy had become critical for banking industries looking to build customer satisfaction. By prioritizing data privacy, banking industries can improve customer satisfaction, promote sustainable values, and ensure long-term success. Furthermore, this research revealed significant differences in E- service quality dimensions when respondents were grouped by age, educational attainment, and frequency of E-service usage. Specifically, significant differences surface, debunking the hypothesis that all groups shared uniform levels of agreement on E-service quality dimensions. The relationship between customer satisfaction and these E-service quality dimensions revealed a robust positive correlation, signifying the substantial influence of these dimensions on customer satisfaction. This finding was statistically significant, emphasizing the significance of these dimensions. In general, this study shed light on the intricate dynamics of E-service quality and its relationship with customer satisfaction, underscoring the pivotal roles of gender, age, and educational background. These insights E-SERVICE QUALITY AND CUSTOMER SATISFACTION: THEIR RELATIONSHIP had far-reaching implications for the rural banking sector's efforts to enhance customer satisfaction and bolster E-service offerings.

Keywords — E-service quality dimensions, rural banking sector, customer satisfaction, efficiency and ease of use, reliability, responsiveness and communication, data security and privacy

I. Introduction

In the digital age, the provision of electronic services or E-services has become an integral facet of modern business operations, revolutionizing the way organizations interact with their customers. An E-service refers to services offered over information and communication technologies, becoming increasingly important with continuously developed applications in various domains. It may apply to business, government, education, and health which also provide benefits to all parties concerned from service providers, to service users and society (AlBalushi,

2021). In the context of the rural banking sector, where traditional brick-and-mortar institutions coexist with their online counterparts, the quality of e-services takes on leading significance (Gao et al., 2023). This study delves into the pivotal realm of "E-Service Quality" and its profound implications on "Customer Satisfaction" within the rural banking landscape. As the digital divide narrows, understanding how e-service quality influences the satisfaction of rural banking customers not only sheds light on the dynamics of this evolving sector but also underscores the critical role that technology plays in shaping the future of financial services in rural communities. Through careful analysis and compelling evidence, this research endeavors to reveal the transformative potential of e-service quality, providing insights that are invaluable for both practitioners and policymakers in the quest for enhanced customer satisfaction in rural banking. Banking industries are key players in financial market operations and are important in keeping a country's economy running smoothly. In today's highly competitive corporate environment, the quality of services they offer is deemed an essential element for enhancing customer satisfaction. This is an important factor in improving banks' performance and determining their success, such as better profitability and a bigger market share (Khan, 2014).

With technological advancements, most modern banking institution are already adopting electronic banking operations in lieu of the traditional banking scheme which brought a tremendous impact to most offices, academe and industries in general. The application of information and communication technology concepts, techniques, policies, and implementation strategies on banking services has gained considerable importance and concern to all banks and is indeed a prerequisite for local and global competitiveness in the banking industry. As a result of this technological improvement, the business environment in the financial sector is extremely dynamic and experience rapid changes and demands banks to serve their customer electronically (Ozili, 2017). It is in this sense that electronic banking or E-banking transactions emerged. These are done with the use of electronic or satellite-based computerized devices to ensure accuracy and promptness in banking transactions.

The newly adopted Ebanking transaction scheme would undeniably have caused impacts and challenges on all of its stakeholders, particularly its customers like whether E-banking service quality would bring utmost customer satisfaction thereby enhancing the banks' profitability or this might be triggering customers' dissatisfaction (Almaiah et al., 2022). A very satisfied customer could boost up greater company profitability, while an unsatisfied one, could mean the opposite. However, providing and maintaining customer satisfaction seems one of the most important challenges facing business today. How customers perceive the quality of E-services contributes a great factor to how satisfied they would be (Khadka & Maharjan, 2017). eService quality dimensions will be utilized to measure customer satisfaction. Hammoud et. al (2018), suggested that efficiency and ease of use, reliability, responsiveness and communication, and security and privacy, were four important dimensions of customer satisfaction with E-Banking service quality. Thus, a survey was developed from pre-validated scales to assess the impact of the aforementioned

dimensions on customer satisfaction. These will be of relative importance in order to get to know what satisfies customers the most.

Several researchers had kept the focus on studying the close relationship between E-service quality and satisfaction of the customer. In this study, the researcher specifically aims to figure out the impact brought about by E-service quality dimensions towards customer satisfaction. Furthermore, this study is desired to better understand the dimensions of E-service quality that matter most in achieving customer satisfaction applied to the rural banking sector.

Literature Review

Customer satisfaction is a feeling that surfaces from an evaluation process. It is when the customer compares what kind of service is received against what is expected from the utilization of that good or service (Pakurar, 2019). The quality of service can be understood as a comprehensive customer evaluation of a particular service and the extent to which it meets their expectations and provides satisfaction (Al-Jazzazi, 2017). As observed, if the customers are satisfied with the provided goods or services, a greater probability is that they would avail of the services again, and will most probably talk enthusiastically about their buying or the use of a particular service; leading to positive advertising.

The fast-advancing global information infrastructure (including information technology and computer networks such as the Internet and telecommunications systems) enables the development of electronic commerce at a global level. These developments have created a new type of economy: the ‘digital economy’.

E-banking can be considered as an automated delivery of innovative and usual banking products and services to customers through electronic communication channels (Sikdar et al., 2015). It could be facilitated either offline or online. In an offline scheme, banking services are done via local networks without the Internet. Online banking platform allows customers to perform financial transactions and use other services offered by the bank rather than visiting it physically (Unyathanakorn & Rompho,2014). The presence of the internet makes it capable of online banking services, including electronic funds transfer for retail purchases, automatic teller machines (ATMs), and automatic payroll deposits and bill payments vastly reducing the physical transfer of paper money and coinage from one place to another or even from one person to another.

In order to specifically evaluate and progress upon customer-perceived E-service quality, it is important to identify the determinants of E-service quality. Several studies reveal dimensions of E-service quality. One of which is the study conducted by Hammoud, et. al., 2018 on E-banking Service Quality Dimensions were identified as significantly affecting customers’ satisfaction. The dimensions could be grouped as to efficiency and ease of use, reliability, responsiveness and communication, and privacy and security. Moreover, these dimensions are elaborated as follows: Efficiency and Ease of Use- which deals with the system resources used when providing the

required functionality which is the essential purpose of any product or service tendered, determines the ease with which the system functions can be understood, and relates to user mental models in Human-Computer Interaction methods. The ease of use increases the chances of the adoption of the E-banking. People, when they believe that E-Banking is effortless, can more easily adopt it (Chaouali et al., 2016). Reliability on the other hand as defined by INDEED Career Guide (2023) is the organization's ability and consistency in performing a certain service in a way that satisfies its customers' needs. The reliability dimension gives more focus on how banks fulfill their promise and how they show interest in doing work (Mistry, 2013). ISO 9126 Software Quality Characteristics emphasizes that once a software system is functioning and delivered as specified, reliability is attained. In the context of this study, reliability is rated based on five indicators. This includes "I have high confidence in E-Service in the bank"; "E-Service is reliable and dependable"; "E-banking services offer services right and accurately at all times"; "I have always found EService channels in working order"; and "I prefer using E-Banking services instead of visiting the branch to do my transactions".

Responsiveness and Communication.

Responsiveness refers to the institution's ability to provide fast and good quality service during the period (Zygiaris, et al., 2022). In the context of E-banking, responsiveness is the readiness to support the bank's customers and deliver them a rapid service namely; services availability 24/7, E-Banking services' immediate respond to clients' requests. immediate availability if there is any problem, promptness in answering to clients' questions, and gentleness in handling with customer complaints about electronic service.

Banks are also concerned about the security of the system, in particular with the unwarranted access to their accounts. In addition, individuals are also concerned with the secrecy of their personal information. In the digital world, security generally refers to the unauthorized access of data, often involving protection against hackers or cyber criminals. Privacy involves your right to manage your personal information, and security is the protection of this information, important aspects of cyber safety. You have privacy rights and should take measures to secure your personal information and data within the digital environment (Okta, 2023). It is always the customers' hope that their personal and financial information especially when they do transactions via E-banking be at all times secured and protected.

In the E-banking domain, reliability, responsiveness, ease of use, and security were also identified as part of the e-service quality dimension (Hussain, 2014). The identified dimensions are also related to the quality of the E-banking system developed. Specifically, the quality of service received by the customers would also mean the quality of the developed system software. ISO 9126-1 provides a standard of the software/system quality model developed. ISO 9126-1 is an international standard for the evaluation of developed software/systems, which was adapted to ISO/IEC 25010:2011. The characteristics and sub-characteristics provide consistent terminology

for specifying, measuring, and evaluating system and software product quality. Utilizing quality system software guarantees the delivery of an efficient quality service as well.

For this reason, a bank can gain a competitive advantage and build long-term relationships with their customers by providing premium quality services.

Theoretical Framework

The underpinning theoretical framework is drawn from Oliver's (1977 and 1980) Expectation Confirmation Theory (ECT) which seeks to explain post purchase or post-adoption satisfaction as a function of expectations, perceived performance, and disconfirmation of beliefs. The structure of the theory was developed in a series of two papers written by Richard L. Oliver in 1977 and 1980. Although the theory originally appeared in the psychology and marketing literature, it has since been adopted in several other scientific fields, notably including consumer research and information systems among others. This theory states that expectations, coupled with perceived performance, lead to post-purchase satisfaction. If a product/service outperforms expectations post-purchase satisfaction will result, which is the positive disconfirmation. However, if a product/service falls short of expectations the consumer is likely to be dissatisfied leading to a negative disconfirmation. The Expectation Confirmation Theory (ECT) also known as expectation disconfirmation theory (EDT) has customer satisfaction as the main dependent factor and expectation and perceived performance based on the E-service quality dimensions, as its main independent factors.

The expectation and perceived performance can be viewed as performance expectancy in terms of how the customers adopts E-banking services. In a study conducted by Morosan and DeFranco (2016), they defined performance expectancy as effect on behavior of the customer who adopts E-banking. The performance expectancy was positively associated with the behavioral intentions of bank customers (Sharma et al., 2020). Taking the perspective of the customers, they confirmed that their intentions toward internet banking are dependent on performance expectancy (Almaiah, 2022).

Customer satisfaction is considered to be the main dependent variable. Its outcome is dependent upon the indicators outlined on each of the four Ebanking service quality dimensions - efficiency and ease of use, reliability, responsiveness and communication, and security and privacy. Expectation and perceived performance will be evaluated utilizing the E-banking services dimensions as mentioned. These dimensions served as the independent variable. Customer responses on these dimensions will determine if the customer will be satisfied or not. This is based on the cited theory on customer satisfaction which can be explained as the customer's response in the context of the state of fulfillment, and the customer's adjudication of the fulfilled state (Oliver, 1997). Expectation disconfirmation could either be a positive or negative disconfirmation.

Disconfirmation theory indicates that customers compare a new service experience with a standard they have developed. Their belief about the service is determined by how well it measures up to this standard. The theory presumes that customers would be availing the E-banking services based on their expectations, attitudes, and intentions. Later, during or after consumption, a perception of performance occurs as customers evaluate their experience. The process is completed when customers compare the actual service performance with their pre-experience standard or expectation. The result could either be satisfaction or dissatisfaction.

There were four components to this paradigm – expectations, perceived performance, disconfirmation, and satisfaction. The level of expectations represents preconsumption expectation. Performance refers to the customer's perception of service. Disconfirmation results if there is a discrepancy between expectations and performance. Finally, satisfaction is determined by combining the satisfaction outcomes for the various attributes of the service. The first three components affected satisfaction but it was not determined whether or not these lead to satisfaction or dissatisfaction.

The disconfirmation theory is interrelated to the Negativity Theory as proposed by Richard Oliver (1980). When the outcome matches expectations, confirmation occurs. Disconfirmation occurs when there are differences between the expectations and the outcomes. Negative disconfirmation occurs when product or service performance is less than expected. Positive disconfirmation occurs when product or service performance is better than expected. Satisfaction is caused by confirmation or positive disconfirmation of customers' expectations, and dissatisfaction is triggered by a negative disconfirmation of customers' expectations.

According to expectancy-value theory, customers often make some judgments about a product, its benefits, and the likely outcomes of using the product. The "gap" in service quality occurs when the perception of service received is less than what is expected. People will learn to perform behavior that they expect will lead to positive outcomes. Their overall attitude is a function of beliefs about an object's attributes and the strength of these beliefs. This theory resembled the idea related to how satisfied a customer may be with their views towards E-banking service quality. Customers' satisfaction is anchored on the theories aforementioned. It is the measure of a customer's feelings regarding a recent interaction. It can also refer to how happy a customer is generally. When they rate their experiences highly, the banking industry knows what to keep up with. On the other hand, when they rate their experiences poorly, then it is an avenue for getting to know what to fix. It goes without saying that happy customers stick around.

Conceptual Framework

The context of this research focuses on the relationship between E-service quality towards customer satisfaction. The researcher adopted a correlational model that investigated relationships between variables without the researcher controlling or manipulating any of them. In this context, the identified dependent variable which was the "customer satisfaction" and the independent

variable focusing on the "E-service quality dimensions" were the variables considered. Specific dimensions of E-service quality are utilized to better evaluate if it has either a positive or negative correlation towards customer satisfaction. The customers' responses about the level of agreement on each of the specific indicators under the identified dimensions will be utilized as a determining factor toward customer satisfaction. The process entails a thorough data analysis of customers' responses based on the Expectation Confirmation Theory whether it would yield a positive or negative customer satisfaction output. The end result would mean either a positive or negative correlation towards customer satisfaction.

The purpose of this study was to examine the relationship between the dimensions of E-service quality and customer satisfaction so as to determine which dimension can potentially had the strongest influence on customer satisfaction. Furthermore, identifying what specific dimensions of E-service quality affect customer satisfaction and in what ways? Research instruments were crafted to acquire the relevant data and information for better analysis of the study. The above background had paved the way for the researcher to find answers to the problem, "Does E-service quality had a positive correlation towards customer satisfaction or not?"

This conceptual framework allowed a better understanding of how the input of equality service dimensions, when processed effectively through service delivery, monitoring, and improvement processes, can lead to desirable outputs like customer satisfaction. It emphasizes the iterative nature of improving e-quality service to meet and exceed customer expectations over time.

Statement of the Problem

The main purpose of this study is to determine the relationship between E-service quality and customer satisfaction in a rural bank this calendar year 2023. Specifically, it aims to answer the following questions:

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

    1.1 Sex;

    1.2 Age;

    1.3 Educational Attainment and

    1.4 Frequency of E-service Usage?

2. What is the quality of the E-service delivery of Katipunan Banking Corporation in terms of:

    2.1 Efficiency and Ease of Use;

2.2 Reliability;

2.3 Responsiveness and Communication; and

2.4 Security and Privacy?

3. What is the level of customer satisfaction with the banks' E-service quality?

4. Is there a significant difference in the customers' level of agreement on the E-service quality dimensions when grouped according to profile?

5. Is there a significant relationship between E-service quality and customer satisfaction?

Hypotheses

In addition to the researchers' thrust in answering the research questions, null hypotheses are also being tested in this study which are as follows:

H_O1: There is no significant difference between the customers' level of agreement on the E-service quality dimensions when grouped according to profile.

H_O2: There is no significant relationship between E-service quality and customer satisfaction.

Significance of the Study

Accomplishing this study would mean a great contribution to Katipunan Banking Corporation, Dipolog City for them to know the impact of E-service on their customers' satisfaction. From the managers' point of view, they can have an idea of their current position, providing them a clear outline to address challenges brought about by Eservices. Moreover, it would be beneficial to the following:

Customers. Katipunan Banking Corporation customers can freely express their opinions and perceived performance on the services received enabling banking industries in maintaining or enhancing their service performance, boosting customer satisfaction.

Rural Banking Sector. The result of the study can be an avenue for other rural banking sectors to benchmark on the effectiveness of adopting E-banking. Having superior customer satisfaction can create a competitive differentiation as well as build a branded image.

Researchers. Other researchers of the same interest and related areas can utilize this study as a reference to study further or to serve as a reading material for anyone who is interested and also boosts their interest, making this a vital part of its foundation.

Scope and Delimitation of the Study

The study focuses on assessing the impact of E-service quality dimensions: Efficiency and ease of use, reliability, responsiveness and communication, and security and privacy on customers' satisfaction in one of the Rural Banking Sectors, specifically Katipunan Banking Corporation, Dipolog City. The conduct of the study covered the midweek of February to March 2022 and considered gathering data as to the customers' perception of the E-service offered to them and how they saw the challenges and opportunities of this type of service as experienced in the rural banking sector. The basic limitation of this study is that it only considers customers' perspective of E-services received and it does not take into consideration what perspective all customers have on the type of technology, and system software adopted by the banking institution. Moreover, it does not include bank customers who do not use the current e-banking services. Therefore, a comparison of the attitude between E-banking users and non-users is beyond the scope of this study.

Definition of Terms

In this section, the researcher specifically defined and expounded upon the essential terms and concepts that form the foundation of the study for enhanced clarity and precision.

Customer refers to the existing account holder of Katipunan Banking Corporation, Dipolog City who had availed of the E-services offered and considered as the respondents of the study.

Customer satisfaction is a measure of how products and services supplied by a company meet or surpass customer expectations. It is an overall customer attitude towards a service provider, or an emotional reaction to the difference between what customers anticipate and what they receive, regarding the fulfillment of some need, goal, or desire.

E-Banking is a short term for Electronic Banking which refers to the provision of information about a bank and its services via a home page on the World Wide Web (WWW), enabling customer access to their own accounts, transferring their money between different accounts, and making payments or applying for loans via e-channels allowing banking convenient.

Efficiency and Ease of Use is one of the key dimensions of E-service quality that was concerned in providing the required functionality. It measures how easily the users can manipulate with the system's functions, and relates to user mental models in Human-Computer Interaction methods, ensuring that the software to be easily operated by a user in a given environment.

E-Service is a web-based service or an interactive service delivered by the Internet. A very common example of this was E-banking.

Reliability dimension of E-service quality entailed the ability of a service provider to provide the committed services truthfully and consistently.

Responsiveness and Communication dimension of E-service quality pertain to the banks' readiness to support its customers and deliver to them a rapid service and furthermore provide on-the-spot response to the customer's queries.

II. Methodology

A descriptive survey research method was utilized in the conduct of this study. A survey was conducted on the respondents' utilizing modified standardized questionnaire adopted from Hammoud et. al.'s (2018) study as the main data collection instrument since the researcher opted up with describing a particular phenomenon, focusing upon the issue of what is happening, or how much of it had happened, rather than why it is happening. The survey was conducted at Katipunan Banking Corporation, situated at Quezon Ave., corner Aguilar St., Miputak, Dipolog City. It was a rural bank with renowned E-banking services categorized as one of the rural banking sectors that catered to E-Banking services, specifically ATM and POS aiming to deliver rural banking products and services to customers in a more convenient and economical manner without compromising the existing level of quality service

In pursuance of the objective of the study, the attention was focused on an identified rural bank. Specifically, the population of the study was the Katipunan Banking Corporation customers with existing accounts. Since the total population was quite large, the researcher opted to utilize only a sample. In identifying the valid sample size of respondents to be utilized in the conduct of the study, the researcher used the Raosoft online calculator as the tool which recommended a sample of 295 customers out of approximately 1250 total number of existing account holders. The sample was computed considering a 95% confidence level, a 5% accepted margin of errors, and a 50% response distribution. Respondents were chosen from a range of varying demographic features using simple random sampling. The selection of the 295 customers was done utilizing the existing Wheel of Names application accessible at http://wheelofnames.com/, a random name picker that provided free access and easy to use spinner. In this manner, the selection of the respondents was deemed fair.

In order to facilitate the interpretation of the results obtained from the conduct of the study, both descriptive and inferential statistics were employed in analyzing this study and were done using SPSS Statistics.

The data gathered from the scores of the variables of the study and some demographic characteristics of the subjects were statistically treated using the following:

➢ *Frequency Counting and Percentage Computation.* A statistical tool used to apply the following formula:

Percentage = (part/whole) x 100

➢ *Weighted Mean.* This measure of central tendency was used by applying the formula:

Weighted Mean = (Data interval frequency x assigned weight) total no. of respondents ➢ *Standard Deviation.*

In the formula, σ is the standard deviation, x_i is each individual data point in the set, μ is the mean, and N is the total number of data points. In the equation, x_i, represents each individual data point.

$$\sigma = \sqrt{\frac{\sum(x_i - \mu)^2}{N}}$$

The respondents' individual responses on the different levels of the E-service quality dimensions were measured using the Likert Four-Point Scale. The respondents' responses were employed as follows:

4 – Strongly Agree. Indicates a strong agreement or a very positive response to the statement and shows an extremely related E-service quality and customer satisfaction relationship.

3 - Agree. Reflects agreement or a positive response to the statement and moderately related E-service quality and customer satisfaction relationship.

2 - Disagree. Signifies a less intense disagreement with the statement and a slightly related E-service quality and customer satisfaction relationship.

1 – Strongly Disagree. Indicates a strong disagreement or negative response to the statement and is not at all related E-service quality and customer satisfaction relationship.

In order to test the relationship between the variables, inferential tests including Kruskal Wallis H, and Pearson's correlation coefficient were used.

In safeguarding participants' privacy, anonymizing data and securely storing sensitive information were applied. The nature of participation was voluntary, ensuring that individuals were not coerced or unduly influenced to take part in research. Informed consent, as a cornerstone of ethical research, was also provided as a preliminary part of the questionnaire, which demanded that participants be fully aware of the study's purpose, potential risks, and benefits before

voluntarily agreeing to participate, preserving the dignity and autonomy of participants but also enhanced the credibility and trustworthiness of the research enterprise.

III. Results and Discussion

This study was conducted to better understand the possible dimensions of E-service quality that matter most in achieving customer satisfaction as applied to the rural banking sector. In this regard, the researcher aimed to seek answers to the problems stated and generated findings by investigating the relationship between the E-service quality of Katipunan Banking Corporation, one of the rural banking sectors of Dipolog City, and customers' satisfaction.

Considering the profile of the respondents in terms of sex, the data showed that the majority of the respondents were females. This indicated the female's dominance in using banking services signifying a greater adoption of E-banking services. The result was in congruence with the study that tested whether introducing the technology in the context of family networks made an additional difference in gender gapswherein an 11-percentage-point increase in adoption by women and just a 1-percentage-point increase by men (Lee, J. N., 2021). The same goes through in the study in which gender was examined as one of the factors related to E-banking adoption. The findings suggested that this association was more noticeable among African-American women, but it does not apply to African-American men (Yates, 2020).

Most of the respondents were between 41 to 50 years old revealing that they were more in tune with banking technology. However, age was negatively associated with the probability of online banking adoption for African-American consumers who were less likely to adopt electronic banking (Yates, 2020). Despite various studies that had been carried out on E-banking adoption, only a limited number of studies focused on the effects of age on consumers' intention to use E-banking. The results revealed that there was no association between age and intention to use E-Banking (Krishanan, 2017).

In the survey conducted, most of the respondents were college-level holding 34.6% close enough to Bachelor's degree holders 29.4% and the second in rank in terms of educational attainment. The zero percent data on doctorate level and degree holders supports to Zagalaz et. al (2019) study that individuals with a higher educational level were less likely to utilize E-banking, probably because in this case they preferred personalized advice to make decisions about investments in more complex financial products. E-service usage tended to occur within shorter time intervals, with the highest percentage (3.1%) occurring for a weekly frequency. The lowest rating, at 3.1%, corresponded to the "as needed" category, suggesting this was the least frequent occurrence. This overall pattern indicated that customers frequently utilized E-services.

Variables	Pearson r	Interpretation	pvalue	Interpretation
Customer Satisfaction and Efficiency and Ease of Use	0.590**	Moderate Positive Correlation	.000	With Significant Relationship
Customer Satisfaction and Reliability	0.524**	Moderate Positive Correlation	.000	With Significant Relationship
Customer Satisfaction and Responsiveness and Communication	0.622**	Moderate Positive Correlation	.000	With Significant Relationship
Customer Satisfaction and Security and Privacy	0.778**	High Positive Correlation	.000	With Significant Relationship

***. Correlation is significant at the 0.01 level (2-tailed).*

Pearson "r": *0 – ± 0.30* = *Negligible Correlation* *N =286*

± 0.31 – ± 0.50 = *Low Correlation*

± 0.51 – ± 0.70 = *Moderate Correlation*

± 0.71 – ± 0.90 = *High Correlation*

± 0.91 – ±1.00 = *Very High Correlation*

The study revealed a strong agreement on the four E-service quality dimensions specifically on the efficiency and ease of use, reliability, responsiveness and communication, and security and privacy. Among the four identified E-service quality dimensions, security and privacy yielded the strongest impact being the one with the highest mean value. The assessment of customer satisfaction with the quality of E-services offered by the bank generated an overall mean score of 3.68 reflecting a substantial consensus among respondents regarding the items assessed for customer satisfaction. This indicated that, on average, customers were notably contented with the quality of E-services provided by the bank.

It was found that there was no significant difference between the customers' level of agreement on the E-service quality dimensions when grouped according to profile in terms of sex only. This showed that males and females possessed relatively the same levels of agreement on the E-service quality dimensions. However, when grouped according to age, educational attainment, and frequency of E-service usage, the study revealed a statistically significant difference. Therefore, these three E-service quality dimensions strongly rejected $H_0$1, signifying that there was a significant difference in the E-service quality dimensions when grouped according to age, educational attainment, and frequency of E-service usage.

The relationship between customer satisfaction and E-service quality dimensions in terms of efficiency and ease of use, reliability, responsiveness and communication, and security and privacy were found to be significant. The result implied the strongest possible positive relationship. The correlation was significant at the 0.01 level (2-tailed) analysis.

This conformed to Hussain's (2014) study, that in the E-banking domain, reliability, responsiveness, ease of use, and security were also identified as part of the e-service quality dimension that had a positive influence in measuring the quality of E-service delivery.

The findings of the study generated out of a thorough data analysis revealed the following:

1. The level of customer satisfaction with E-service quality generated a collective mean score of 3.68 indicating a significant consensus among respondents regarding the assessed items. This overall score suggested that, on average, customers expressed notable satisfaction with the quality of E-services offered by the bank. Further implied an exceptional quality of E-service delivery.

2. There was no significant difference between the customers' level of agreement on the E-service quality dimensions when grouped according to profile in terms of sex only. However, there was a significant difference in the E-service quality dimensions when grouped according to age, educational attainment, and frequency of E-service usage, thus rejecting H_O2.

In general, it was proven that the identified E-service quality dimensions in terms of efficiency and ease of use, reliability, responsiveness and communication, and security and privacy held a significant relationship with customer satisfaction, placing security and privacy on top of these e-service quality dimensions. Since, customer satisfaction was expected to result from good service efficiency, which will improve customer engagement and interrelationships (Chang et al. (2017).

IV. Conclusion

The extensive data analysis undertaken in this study revealed several significant insights:

1. When categorizing customers based solely on sex, there was no substantial difference in their agreement regarding E-service quality dimensions. However, distinctions do emerged when considering age, educational background, and the frequency of E-service utilization.

2. The rejection of $H_0 2$ established a confirmed and meaningful relationship between customer satisfaction and the E-service quality dimensions.

In conclusion, study collectively emphasized the importance of tailoring E-service quality dimensions to specific customer segments. Moreover, the study had far-reaching implications for the rural banking sector's efforts to enhance customer satisfaction and strengthen E-service offerings.

The findings of this study point a strong correlation between E-service quality dimensions and customer satisfaction. It was recommended that Katipunan Banking Corporation, particularly the Management Information System Department responsible for the E-banking system, to prioritize the establishment of a robust framework for consistently maintaining, updating, and aligning with contemporary Ebanking services by placing a heightened focus on both physical and online security and privacy concerns to achieve the peak of service excellence.

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Principals' Strategic Management Skills and Their Basic Education – Learning Continuity Plan Implementation Effectiveness

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Abstract — This study investigated the relationship between Principals' Strategic Management Skills and Basic Education – Learning Continuity Plan Implementation Effectiveness. It is anchored on the framework by Hunger and Wheelen (2013) with four strategic management skills: a) environmental scanning, b) strategy formulation, c) strategy implementation, and d) evaluation and control. The study utilized a Likert scale survey distributed to 569 teachers across three DepEd divisions: Dipolog, Dapitan, and Zamboanga del Norte. Descriptive statistics and regression analysis were employed. The results revealed a strong positive correlation (R^2= 0.50-0.67) between principals' strategic management skills and BE-LCP implementation effectiveness. Furthermore, the findings show that principals exhibited high competency levels across all four strategic management areas. However, strategic monitoring & evaluation emerged as the statistically most developed skill and the one with the most significant impact on BE-LCP effectiveness. Principals who excelled in this skill substantially improved (16-83%) across all aspects of the BE-LCP program. These findings suggest that strategic management skills, particularly monitoring & evaluation, are crucial for school leaders in implementing educational programs like BE-LCP.

Keywords — strategic management skills, secondary school principal, Basic Education-Learning Continuity Plan (BE-LCP)

I. Introduction

The Year 2020 marks the beginning of a new and more challenging year for everyone due to the COVID-19 virus. According to the World Health Organization (WHO), COVID-19, or Coronavirus, is caused by the SARS-CoV-12 virus, which is highly infectious. The best way to protect from infection is to maintain at least one (1) meter apart from others, wear face masks, and maintain proper hygiene by frequent handwashing and hand sanitizing. Getting the vaccine will also help the spread of the virus. The world has a record of 418,650,474 confirmed cases of COVID-19, with 5,856,224 deaths (WHO, February 14, 2022). As of February 20, 2022, the number of established patients in the Philippines reached 3,652,203, with daily records of infections (DOH Bulletin, February 20, 2022).

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), the effect of COVID-19 on global crises does not only affect the public health sector

but also the education sector. Schools are shutdown in 191 countries worldwide, affecting at least 1.6 billion children. This education crisis is also a significant concern of the Organization for Economic Cooperation and Development stating that the impact of school closures due to the pandemic remains uncertain (OECD, 2020). Closure was necessary to slow the spread of the virus and protect the children, but the significant effect was on student learning, which was put in danger.

Education in the Philippines is not exempted from the catastrophe brought by Covid-19. The Department of Education (DepEd), the lead agency in the Philippine education system, remains steadfast in its fight against the COVID-19 pandemic by continuing education not through regular face-to-face learning but through different learning modalities. DepEd Secretary Leonor M. Briones, in her message, emphasized that "education must carry on, whatever the dangers and changes everyone is facing now and, in the future." DepEd is committed to providing every citizen the right to quality primary education.

To continue basic education in times of pandemic, the Department of Education (DepEd) issued the DepEd Order No. 012, s. 2020 or the "Adoption of Basic Education Learning Continuity Plan (BE-LCP) for the School Year 2020-2021 in Light of the Covid-19 Public Health Emergency". The Basic Education Learning Continuity Plan (BE-CLP) is the DepEd's response to the challenges posed by COVID-19 in education. The BE-LCP is DepEd's solution to respond to the challenges of COVID-19 as an intervention package for primary education. BE-LCP is a learning strategy that combines internal and external stakeholders. This program ensures the safety and health of all learners, parents, teaching and non-teaching personnel of DepEd.

BE-LCP was adopted in the opening of SY 2020 – 2021 classes and continued in the next school year. BE-LCP ensures that more than Twenty-Seven (27) million learners in primary education will attain quality, relevant, accessible, and liberating education. BE-LCP is switching education from traditional classroom instruction to different distance learning modalities. The other learning modalities adopted by DepEd include face-to-face, distance learning, blended learning, and homeschooling. Distance learning modalities adapted to modular distance learning, online distance learning, and TV/Radio-based Instruction. Schools may adopt any learning modalities depending on the local restrictions set by the Inter-Agency Task Force (IATF) for COVID-19 and the situation or context of learners in the locality.

Because of the changes in work conditions due to the pandemic, there are also changes in decision-making processes. The new challenges brought by this crisis call for new strategic management in the organization (Nowicka-Skowron & Stachowicz, 2020). Strategic management processes are significant for the proper functioning of the economy and society. According to the Department of Education (DepEd) Strategic Management Functions, strategic management enables organizations to focus on long-term directions and interface with the internal and external environment and stakeholders.

During the pandemic, the response of school leaders to the crisis could permanently change their schools' economic, social, and health foundations. Some leaders will face the challenge, while others will disappear. This pandemic has led to many changes in education in a short time, and research is limited relevant to school leadership experiences during the Covid-19 pandemic. As educators often need to do, even with very little time for planning, principals and school leaders had to put a plan in place as quickly as they could (Dirani et al., 2020).

To determine the efficacy of the BE-LCP implementation in schools, the study aimed to explore the strategic management skills of secondary school principals and their effectiveness in the Basic Education-Learning Continuity Plan (BE-LCP) implementation. The study's results may be used to improve the BE-LCP as a proactive measure to attain quality education and limit the effect of the disruption of classes in times of artificial and natural calamities.

Literature Review

Education is viewed as a pillar for the nation's development and a center for the people's economic, political, and cultural life. Education transmits essential beliefs, values, and traditions. Education means investing in people to be more productive, attain quality of life, and nation building (Alexopoulos, 2019). Because of the high regard for education, the Department of Education (DepEd) is allocated the highest budget among other agencies each year.

School leaders or principals who set direction, create a positive school culture, motivate people, and promote school success, especially in challenging situations (Day et al., 2016). School leadership is to facilitate learning for students and make the school conducive to learning for all, including the school staff (Ahmad & Ghavifekr, 2014); and its success is measured through the learner’s success (Donaldson, 2013).

Schools face challenges today. They need principals who have experienced the most current and compelling theories and practices of school leadership to lead them to success for each student. School principals, like leaders in other fields, encounter differing levels of success, which can be influenced by the school principal's leadership abilities and ethical behaviors (Njeru & Samwel, 2014).

In the dynamic, changing nature of school management and school environments, schools need fully engaged, creative, energetic, and competent principals. The principal is the key leader in the school, leading and managing school resources. An effective school leader with multi-tasking competencies always makes a difference in strategy and approach to improving the quality of their school (Reyes, 2018).

Strategic management skills take threats as an advantage by turning them into opportunities and using the school resources to recognize them. In strategic management, people perform their

duties and are more motivated when placed in positions that fit them (Syahrudin, Wasliman, & Sauri, (2020).

The primary objective of school leadership is due to the expanding knowledge of leadership and the complexity of school leaders' roles (National College for School Leadership, 2015). Thus, school leaders' strategic management skills are determined by the complexity of the school situation during the COVID-19 emergency.

The coronavirus paralyzed the world at the start of the Year 2020. The pandemic affects all human life, creating fear and uncertainty, including the world's educational system. In this crisis, the role of school leaders is greatly challenged. School leaders are looked upon by teachers and students as their guide in these times of uncertainty to stand firm on the ground (Comanducci & Unsplash, 2020).

Leadership skills and attributes fundamentally differ in regular days and times of crisis (Harris, 2013). Leadership in crisis is different because it minimizes health, personal, and physical harm in the school community while conducting school events and activities. Schools need new forms of leadership when crises happen, as the old leadership style may not be applicable. Education during the COVID-19 pandemic in the Philippines is a new experience, and school leaders are not pre-trained in handling critical situations. The DepEd Basic Education Learning Continuity Plan (BE-LCP) is a new strategy for basic education. Limited research was conducted to provide insights into its effectiveness in the implementation and assessment.

The difference between strategic leaders and other types of leaders in the COVID-19 epidemic; strategic leaders can face and cope with uncertainty and have a vision of what the organization will become (Hidiroğlu, 2020).

The mark of a great leader is courageous leadership in times of crisis. COVID-19 plunged education leaders into unprecedented calamity, requiring determined, strong, and courageous leadership. There is a positive correlation between strategic leadership and school effectiveness (Deeboonmee & Ariratana, 2014), with leadership as a necessity to achieve and maintain sustainable academic performance (Bett & Bett, 2021).

Schoolchildren have the right to continue education in times of crisis, disaster, and violence. Each student is treated with equity and has access to education, which is not relatively consistent with reality, especially in developing countries. A disruption would severely threaten the entire society in the post-crisis period. Therefore, educational institutions must respond quickly and ensure the continuity of the educational processes (Bojović et al., 2020). Education leaders and public and higher education policymakers need to learn new lessons about education in crisis (Affouneh et al., 2020).

Schools are situated in different localities contextualizing school management practices (Adams et al., 2021). Because of this crisis, distance learning is the most acceptable strategy, and schools must embrace the hybrid education model for the next generation of students (Bojović et al., 2020).

In the Philippines, researchers revealed that implementing the Basic Education-Learning Continuity Plan (BE-LCP) related variables has a significant relationship with school performance. These variables are learning delivery modalities, assessment of learning, and learning resources (Abril & Callo, 2021). Additionally, leadership skills greatly influence the implementation (Macalos, 2022), and knowledge of distance learning augments the program's implementation (Medina & Giray, 2022). BE-LCP is crucial in continuing basic education during the pandemic (Martinez, 2020).

The COVID-19 pandemic is a health crisis, and today's school principals face more challenging circumstances than at any other time in our known history. The disruption in education significantly impacts the quality of life and the future of young people. Therefore, educational institutions must respond quickly and ensure the continuity of the educational processes.

II. Methodology

This section should contain detailed information about the procedures and steps followed in the study.

Research Design

This study used a predictive-correlational design to identify and understand the relationship between the level of principals' strategic management skills and the level of their BE-LCP implementation effectiveness. This examines the principals' strategic management skills, their BE-LCP implementation effectiveness, and the association between these variables. This also allows for identifying the predictor variables that may influence outcome variables. Multiple regression analysis was used to determine the association between these variables and to predict outcomes based on this relationship. Questionnaires were used in this study as a primary tool for data collection.

Research Environment

The research environment included the three adjacent school divisions of Dipolog City, Dapitan City, and the province of Zamboanga del Norte, focusing mainly on public secondary schools. These schools offer a fertile ground for investigating the strategic management skills of school principals and their Basic Education Learning Continuity Plan (BE-LCP) amidst the challenges posed by the pandemic.

The research environment spanning the adjacent school divisions of Dipolog City, Dapitan City, and Zamboanga del Norte provides a rich and varied context for investigating the strategic management skills of public secondary school principals and their effectiveness in implementing the BE-LCP during the pandemic. By examining the experiences and approaches of principals in different settings, researchers can contribute valuable insights to inform educational policy and practice and enhance resilience and continuity in education during times of crisis.

Research Respondents and Sampling

The research employed a stratified random sampling technique to ensure a representative sample of teachers across the various educational landscapes. Dipolog City, Dapitan City, and Zamboanga del Norte were considered separate strata due to potential differences in school size, resources, and leadership styles. By employing this method, the researcher aimed to capture diverse perspectives and experiences from the different educational institutions within each city and province, thereby enhancing the generalizability and reliability of the study's findings (Lorensius et al., (2021).

Table 1 summarizes the school and the corresponding populations:

Table 1 Respondents of the Study

Division	Number of Schools	Percentage (%)	Number of Secondary Teachers
Dipolog City	7	35%	199
Dapitan City	5	25%	142
Zambo. Norte	8	40%	228
Total	**20**	**100%**	**569**

Research Instruments and Validity

The study used a standardized questionnaire based on Hunger and Wheelen's (2013) strategic management practices. The strategic management skills of the school principals were used to assess their effectiveness in implementing DepEd's Basic Education Learning Continuity Plan (BE-LCP). The five (5) principles of the BE-LCP were adopted from DepEd Order No. 012 s, 2020. The BE-LCP Questionnaire is based on the department order issued, which validates the reliability and integrity of the items. The questionnaire used the Likert Scale to record the responses.

Treatment of data

The data collected were analyzed using the following statistical tools:

Weighted Mean. This was used to determine the level of principals' strategic management skills and their BE-LCP implementation effectiveness.

Standard Deviation. This was used to determine the teachers' deviations from the answers to each questionnaire item.

The following continuum was used to interpret the weighted mean values for the level of principals' strategic management skills:

Level	Continuum	Level of Agreement	Implication
1	1.00 – 1.80	Strongly Disagree	Least Skilled
2	1.81 – 2.60	Disagree	Less Skilled
3	2.61 – 3.40	Neither	Moderately Skilled
4	3.41 – 4.20	Agree	Highly Skilled
5	4.21 – 5.00	Strongly Agree	Very Highly Skilled

The following continuum was used to interpret the weighted mean values for the level of principals' BE-LCP implementation effectiveness:

Level	Continuum	Level of Implementation	Implication
1	1.00 – 1.80	Least Implemented	Least Effective
2	1.81 – 2.60	Less Implemented	Less Effective
3	2.61 – 3.40	Moderately Implemented	Moderately Effective
4	3.41 – 4.20	Highly Implemented	Highly Effective
5	4.21 – 5.00	Very Highly Implemented	Very Highly Effective

Multiple Regression. This was used to determine the relationship between the principals' strategic management skills and their BE-LCP implementation effectiveness and to predict outcomes based on this relationship. This was also used to determine the regression model appropriate for predicting the outcome variable.

The data were analyzed using MS Excel and Jamovi v. 2.3.28. The relationship was tested using a .05 level of significance.

III. Results and Discussion

This chapter presents the data gathered in tabular form. The data were then analyzed and interpreted.

Principal's Strategic Management Skills

This study examines how well schools implement the Basic Education Learning Continuity Plan (BE-LCP). The findings reveal that schools successfully implemented general health protocols and feedback mechanisms. Additionally, aspects related to curriculum, facilitating a safe return to school and overall educational quality showed more robust results. This high effectiveness suggests that schools can create a solid framework to address the pandemic's challenges.

Table 2 The Summary of the Level of Principals' Strategic Management Skills

Indicator	Mean	Standard Deviation	Implication
Scanning the Environment	4.06	.750	Highly Skilled
Strategic Formulation	4.07	.751	Highly Skilled
Strategic Implementation	4.11	.762	Highly Skilled
Strategic Monitoring and Evaluation	4.12	.738	Highly Skilled
Grand Mean	**4.09**	**.750**	**Highly Skilled**

1.00 – 1.80 Least Skilled
1.81 – 2.60 Less Skilled
2.61 – 3.40 Moderately Skilled
3.41 – 4.20 Highly Skilled
4.21 – 5.00 Very Highly Skilled

Table 2 summarizes the results of the teacher survey on the level of principals' strategic management skills. The data reveals that principals were rated highly skilled across all four strategic management indicators: scanning the environment, strategic formation, strategic implementation, and strategic monitoring and evaluation. This is reflected in the grand weighted mean of 4.09 and a relatively low standard deviation of 0.759, indicating high levels of consistency in these skills across the assessed principals.

These findings suggest that principals possess the necessary strategic management skills to effectively support the needs of teachers and other stakeholders in achieving community and school improvement. The importance of effective management like task delegation, following established guidelines, and stakeholder involvement for successful school leadership (Setyaningsih et al., 2023).

Table 3 The Summary of the Level of Principals' BE-LCP Implementation Effectiveness

Indicator	Mean	Standard Deviation	Implication
General Health Protocols	4.16	.789	Highly Skilled
Curriculum	4.35	.686	Very Highly Skilled
Facilitation of Safe Return to School	4.32	.688	Very Highly Skilled
Feedback Mechanisms	4.18	.733	Highly Skilled
Linkages with Sulong Edukalidad	4.26	.696	Very Highly Skilled
Grand Mean	**4.25**	**.749**	**Very Highly Skilled**

1.00 – 1.80 Least Skilled
1.81 – 2.60 Less Skilled
2.61 – 3.40 Moderately Skilled
3.41 – 4.20 Highly Skilled
4.21 – 5.00 Very Highly Skilled

Table 3 examines the effectiveness of principals in implementing the various aspects of the BE-LCP. The data reveals that principals effectively implemented general health protocols ($\bar{x}$ = 4.16) and feedback mechanisms ($\bar{x}$ = 4.18). While curriculum delivery ($\bar{x}$ = 4.35), facilitating a safe return to school for students and teachers ($\bar{x}$ = 4.32), and establishing linkages with Sulong Edukalidad ($\bar{x}$ = 4.36), all reached a very high level of effectiveness. The overall high effectiveness is reflected in a grand mean score of 4.25 and a relatively low standard deviation (0.749), suggesting that schools successfully designed a comprehensive framework to address the challenges posed by the COVID-19 pandemic.

Principals who prioritize strategic planning and effective work communication and encourage collaborative decision-making have been able to navigate challenges and adapt to evolving circumstances, ensuring classroom learning continuity. Therefore, investing in leadership development and training programs that enhance principals' strategic management skills positively influences educational institutions (Herawaty, Hartono & Ramadhan, 2020).

Relationship between the Principals' Strategic Management Skills and Their BE-LCP Implementation Effectiveness.

Table 4 The Effect of Principals' Strategic Management Skills on BE-LCP Implementation Effectiveness on General Health Protocols

Predictor	Estimate (B)	Std. Error	Beta	t-Value	P-Value	95% CI
Intercept	18.31	1.87		9.81	<.001**	[14.63, 22.00]
Scanning the Environment	.19	.09	.10	2.14	.033	[0.01, 0.37]
Strategic Formulation	.29	.12	.13	2.52	.012	[0.05, 0.53]
Strategic Implementation	.25	.10	.14	2.57	.010	[0.05, 0.45]
Strategic Monitoring and Evaluation	.83	.13	.40	6.43	<.001**	[0.57, 1.09]
Adj $R^2 = .50$						
$F(4, 564) = 144.60$ $p < .001$ **						

Table 4 presents a multiple regression analysis that examines the impact of principals' strategic management skills on the effectiveness of implementing general health protocols within the BE-LCP framework. The statistical analysis shows that the four predictors in the model explain a significant portion of the variance in the outcome variable, which is the effectiveness of implementing general health protocols. Specifically, the results indicate that these predictors can account for 50% of the variability in implementing general health protocols. The high F-value of 144.60 with 4 and 564 degrees of freedom supports this finding and suggests a strong relationship between the predictors and the outcome variable.

All the predictors included in the model showed a positive relationship with the effectiveness of implementing general health protocols. This suggests that the efficacy of implementing general health protocols increases as each predictor increases. Among the predictors, strategic monitoring and evaluation had the most substantial impact on the efficacy of implementing general health protocols (B = 0.83, t-value=6.43, p-value <0.001). This indicates that for each unit increase in strategic monitoring and evaluation, there is an 83% increase in the effectiveness of implementing general health protocols. These results highlight the critical role of strategic monitoring and evaluation in driving the successful implementation of general health protocols.

By prioritizing strategic monitoring and evaluation practices, organizations can significantly enhance their ability to effectively implement and adhere to health protocols, ultimately promoting a healthier and safer environment. The intercept value of 18.31 suggests the baseline effectiveness of implementing general health protocols even without strategic management skills. However, the data indicates that principals' strategic management skills are

crucial in determining the implementation efficiency of BE-LCP along with general health protocols. Schools with principals with strategic solid formulation, implementation, monitoring, and evaluation skills will likely see more effective implementation of the BE-LCP. Despite inadequate school resources, school principals were able to promote school safety by ensuring effective and transparent communication, providing psychosocial assistance to staff members, and providing safe and adequate facilities, among other things (Nahdi, et al. (2020).

Table 5 The Effect of Principals' Strategic Management Skills on BE-LCP Implementation Effectiveness on Curriculum

Predictor	Estimate (*B*)	Std. Error	Beta	t-Value	P-Value	95% CI
Intercept	9.01	.63		14.31	<.001**	[7.78, 10.24]
Scanning the Environment	.07	.03	.11	2.43	.015	[0.01, 0.13]
Strategic Formulation	.09	.04	.10	2.18	.030	[0.01, 0.17]
Strategic Implementation	.06	.03	.10	1.92	.055	[-0.01, 0.13]
Strategic Monitoring and Evaluation	.38	.04	.50	8.73	<.001**	[0.30, 0.46]
Adj $R^2 = .57$						
$F(4, 564) = 190.92$	$p < .001$**					

Table 5 indicates that the four predictors account for 57% of the variability in the implementation effectiveness of the curriculum, with a strong relationship between the predictors and the outcome (F=190.92)

Upon closer analysis of the predictors, it was found that scanning the environment, strategic formulation, and strategic monitoring and evaluation were positively associated with curriculum implementation. The top predictor, strategic monitoring and evaluation, had a beta value of 0.38, which indicates a 38% increase in the effectiveness of curriculum implementation. The t-values associated with scanning the environment, strategic formulation, and strategic monitoring and evaluation were 2.43, 2.18, and 8.73, respectively, with corresponding p-values of 0.015, 0.030, and <0.001.

These results suggest that the relationships between these predictors and curriculum implementation effectiveness are statistically significant, further supporting the positive associations found in the analysis. In summary, the findings suggest that scanning the environment, strategic formulation, and strategic monitoring and evaluation are crucial factors for enhancing the effectiveness of curriculum implementation. Organizations seeking to improve their curriculum development and implementation processes can benefit significantly from understanding and

leveraging these predictors. The success of the curriculum will be determined mainly by the technological readiness, support, and collaboration from all stakeholders, both central and local governments, educational quality assurance institutions, schools, teachers, parents, and the community (Rusi Rusmiati, 2023).

Table 6 The Effect of Principals' Strategic Management Skills on BE-LCP Implementation Effectiveness on Facilitation of Safe Return to School

Predictor	Estimate (*B*)	Std. Error	Beta	t-Value	P-Value	95% CI
Intercept	3.50	.37		9.46	<.001**	[2.78, 4.22]
Scanning the Environment	.04	.02	.10	2.14	.033	[0.00, 0.08]
Strategic Formulation	.05	.02	.10	2.11	.035	[0.01, 0.09]
Strategic Implementation	.04	.02	.11	2.05	.041	[0.00, 0.08]
Strategic Monitoring and Evaluation	.21	.03	.48	8.12	<.001**	[0.15, 0.27]
Adj $R^2 = .54$						
$F(4, 564) = 169.97$	$p < .001$**					

Table 6 highlights the impact of principals' strategic management skills on the effectiveness of the BE-LCP for a safe return to school. The statistical analysis revealed a significant influence by the four predictors, explaining 54% of the variation in how effectively schools facilitate a safe reopening (F-value=169.97, p<0.001). This strong statistical relationship indicates that principals with more vital strategic skills can significantly improve BE-LCP implementation for a safe return.

While all four strategic management skills positively influence safe school reopening, strategic monitoring and evaluation are the most impactful factors. This means principals who excel at evaluating and refining health protocols see the most significant gains in BE-LCP implementation effectiveness. One-unit increase in strategic monitoring and evaluation translates to a significant 21% increase in safe return to school effectiveness (B = 0.21, t-value = 8.12, p-value <.001).

These findings further underscore the critical role of strategic monitoring and evaluation in a successful school reopening. By actively monitoring and refining health protocols, schools can ensure their effectiveness in facilitating a safe and healthy return to in-person learning. These findings align with previous research emphasizing the importance of monitoring and evaluation in challenging times (Hidayat & Wulandari, 2020). Additionally, studies have underscored the role

of school leadership in managing health protocols, such as those implemented during the COVID-19 pandemic (Jimenez, 2021).

Table 7 The Effect of Principals' Strategic Management Skills on BE-LCP Implementation Effectiveness on Feedback Mechanisms

Predictor	Estimate (B)	Std. Error	Beta	t-Value	P-Value	95% CI
Intercept	3.50	.37		9.46	<.001**	[1.15, 2.21]
Scanning the Environment	.04	.02	.10	2.14	.033	[0.01, 0.05]
Strategic Formulation	.05	.02	.10	2.11	.035	[-0.02, 0.06]
Strategic Implementation	.04	.02	.11	2.05	.041	[0.01, 0.05]
Strategic Monitoring and Evaluation	.21	.03	.48	8.12	<.001**	[0.12, 0.20]
Adj $R^2 = .54$						
$F(4, 564) = 169.97$	$p < .001$**					

Table 7 presents the significant influence of principals' strategic management skills on the effectiveness of feedback mechanisms within the BE-LCP. The statistical analysis reveals that these skills explain a substantial 53% variation in how well schools implemented feedback mechanisms (F-value=160.70, p-value=<0.001). This indicates a strong connection between strategic leadership and effective feedback practices.

Furthermore, two specific skills emerged as key predictors: scanning the environment (B = 0.03, t-value = 2.08, p-value = 0.038) and strategic monitoring and evaluation (B = 0.16, t-value = 8.46, p-value <0.001). Schools that excel at gathering external information and continuously refining their approach see corresponding increases in feedback mechanism effectiveness. The regression coefficients support this implication, for a one-unit increase in scanning the environment leads to a 3% increase, while strategic monitoring and evaluation results in a 16% increase in feedback effectiveness.

Several studies support the connection between strategic leadership and effective feedback mechanisms in educational settings. Cloyd, Negrido, and Malaga (2022) investigated the influence of principal leadership behaviors on teacher feedback practices, suggesting a link between leadership style and how feedback is implemented.

Table 8 The Effect of Principals' Strategic Management Skills on BE-LCP Implementation Effectiveness on Linkages with Sulong Edukalidad

Predictor	Estimate (*B*)	Std. Error	Beta	t-Value	P-value	95% CI
Intercept	3.66	.44		8.29	<.001**	[2.80, 4.52]
Scanning the Environment	.01	.02	.03	.65	.514	[-0.03, 0.05]
Strategic Formulation	.09	.03	.14	3.22	.001	[0.03, 0.15]
Strategic Implementation	.06	.02	.12	2.51	.012	[0.02, 0.10]
Strategic Monitoring and Evaluation	.31	.03	.55	10.29	<.001**	[0.25, 0.37]
Adj $R^2 = .63$ $F(4, 564) = 239.85$	$p <$ 001**					

Table 8 highlights the significant impact of principals' strategic management skills on strengthening linkages between BE-LCP and Sulong Edukalidad. The statistical analysis revealed that the skills account for a substantial 63% of the variation in how effectively forged these linkages (F-value=239.85, p-value=<0.001). This indicates a strong and positive relationship between strategic leadership and successful Sulong Edukalidad integration.

Further analysis of the individual predictors revealed that strategic formulation, implementation, monitoring, and evaluation were positively associated with Sulong Edukalidad. Schools with principals who excel at strategic planning, execution, and continuous improvement see corresponding increases in the effectiveness of BE-LCP, which is integrated into an effective Sulong Edukalidad. The regression coefficients showcase this impact, with strategic monitoring and evaluation having the most potent influence of about 31% (B = 0.31, p-value <0.001).

The data underscores the critical role of three strategic management skills: strategic formation (B = 0.09, t-value=3.22, p-value=0.001), strategic implementation (B = 0.06, t-value = 2.51, p-value = 0.12), and strategic monitoring and evaluation (B = 0.31, t-value = 10.29, p-value <0.001). These skills all positively and significantly influence strengthening linkages between the BE-LCP and Sulong Edukalidad with a 63% variance. This aligns with research on strategic leadership in school-community partnerships, suggesting that strategic planning and collaboration benefit from solid implementation (Damşa, et al. (2021). Additionally, Bergdahl & Nouri (2020) emphasized the importance of strategic implementation, which is crucial for translating plans into action and effectively integrating leadership and Sulong Edukalidad. These findings offer valuable insights for principals, highlighting the importance of strategic planning, effective implementation, and continuous monitoring to achieve successful BE-LCP and Sulong Edukalidad.

IV. Conclusion

In conclusion, this study examined the relationship between school principals' strategic management skills and the effectiveness of implementing the Basic Education-Learning Continuity Plan (BE-LCP) during the 2020-2021 school year. The results revealed a strong positive correlation, indicating that schools led by principals with higher strategic management skills, as assessed by teachers, tended to have more effective BE-LCP implementations. Notably, the analysis suggests that strategic management skills account for a substantial portion (51%-63%) of the variation observed in implementation effectiveness.

Furthermore, the findings demonstrate that principals exhibited high competency levels across all four strategic management processes: environmental scanning, strategy formulation, implementation, and monitoring and evaluation. Among these, strategic monitoring and evaluation emerged as the statistically most developed skill and the one with the most significant impact on BE-LCP effectiveness. Principals who excelled in constantly assessing progress, identifying areas for improvement, and adapting the BE-LCP accordingly achieved the most remarkable improvements (increases ranging from 16% to 83%) across different aspects of the BE-LCP. This highlights the critical role of this specific skill in ensuring successful program execution.

Additionally, teachers rated principals as highly effective in implementing all five key BE-LCP areas: strong adherence to general health protocols, effective curriculum delivery, creation of a safe learning environment, strong feedback mechanisms, and successful collaboration with Sulong Edukalidad. These findings collectively suggest that strategic management skills, particularly the ability to monitor and evaluate, are instrumental for school leaders navigating complex educational initiatives like the BE-LCP.

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Pupils Self-Efficacy as Affecting Their Motivation to Learn and Academic Performance

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Abstract — This study investigates the relationship between self-efficacy, motivation to learn, and academic performance among Grade 5 pupils in the Dipolog City South District, Philippines. Using a descriptive-correlational design, the research explores how self-efficacy influences pupils' academic performance and motivation. Findings indicate that self-efficacy is a significant predictor of academic achievement, as evidenced by a positive correlation ($r = 0.54$, $p < .001$) and a regression analysis demonstrating substantial academic gains ($B = 5.84$, $p < .001$). However, the relationship between self-efficacy and motivation to learn was found to be non-significant ($B = -0.03$, $p = 0.17$), suggesting that motivation is shaped by multiple factors beyond self-efficacy alone. An unexpected result was the negative correlation between motivation to learn and academic performance ($r = -0.22$, $p < .01$), indicating potential complexities in how motivation impacts learning outcomes. The study underscores the importance of fostering self-efficacy through targeted educational strategies that promote mastery, goal-setting, and a supportive classroom environment. These findings highlight the need for educators to develop holistic practices that enhance both self-efficacy and motivation to optimize academic success. Future research should further explore these dynamics and consider cultural and contextual variables to deepen the understanding of educational outcomes.

Keywords — Self-efficacy, motivation to learn, academic performance, intrinsic motivation

I. Introduction

Self-efficacy is a critical predictor of learners' motivation and academic performance. Arik (2019) highlights that academic self-efficacy and academic motivation are essential components for achieving academic success. Their findings indicate that higher cumulative grade point averages (GPAs) correlate with increased academic self-efficacy, suggesting that self-efficacy plays a foundational role in fostering motivation, which in turn contributes to academic achievement. This relationship is further supported by Kola, Jaafar, and Ahmad (2017), who demonstrate a significant connection between academic self-efficacy beliefs and students' academic performance, illustrating that increased ambition enhances students' motivation.

Motivation, which significantly impacts students' engagement and academic performance, has various dimensions as outlined by Deci and Ryan (1985). They differentiate between intrinsic motivation, which stems from an individual's interest and satisfaction in the task, and extrinsic motivation, driven by external rewards such as grades. Understanding these types of motivation is essential for comprehending how they influence learners' engagement and overall performance.

Academic performance serves as a key metric in education, reflecting students' knowledge, learning progress, and capabilities (Abaidoo, 2018; Rivkin, Hanushek, & Kain, 2005). Mosier (2018) found that students with low self-efficacy often lack the motivation to pursue academic success, reinforcing the interconnectedness of self-efficacy, motivation, and academic performance. Notably, while students with high self-efficacy are more likely to exhibit greater motivation, the nature of this relationship is complex and varies among individuals.

Given the significance of self-efficacy and motivation in shaping academic performance, this study aims to explore the relationships among self-efficacy, motivation to learn, and academic performance among learners in the Dipolog City South District. This research seeks to provide valuable insights into how self-efficacy influences academic achievement, thereby equipping educators and policymakers with the knowledge to develop targeted interventions.

The findings from this study will be particularly useful for the Department of Education in designing programs that foster self-efficacy and motivation among students. Addressing the self-efficacy levels and motivational needs of learners in this district is essential, as many students appear to approach education with limited academic engagement. By investigating these factors, this study aspires to contribute to creating a more supportive educational environment that nurtures students' academic success and future competencies.

Review of Related Literature

Self-Efficacy in Elementary Education

Self-efficacy plays a crucial role in shaping students' academic behavior, performance, and overall learning experiences. Defined by Bandura (1977, 1994) as the belief in one's ability to succeed in specific tasks, self-efficacy is a key determinant of motivation and achievement. It is nurtured through four primary sources: mastery experiences (successful task completion), vicarious experiences (observing peers succeed), social persuasion (encouragement and feedback), and emotional or physiological states (managing stress or anxiety). Research has shown a positive correlation between self-efficacy and academic performance, with studies indicating that students' belief in their competence is domain-specific. For instance, Grigg et al. (2018) found a moderate positive correlation ($r = 0.33$) between self-efficacy and academic performance, especially in language arts. Additionally, Talsma et al. (2021) explored the reciprocal relationship between self-efficacy and performance in a longitudinal study, confirming that early mastery experiences help build self-efficacy, which in turn influences future academic outcomes. Interventions focused on

enhancing self-efficacy have proven effective, such as a study by Grigg et al. (2024), which showed that a 12-week program combining mastery experiences and growth mindset training significantly improved reading self-efficacy and comprehension among struggling students.

Motivation in Young Learners

Motivation is another essential component that influences students' engagement, persistence, and academic success. It can be intrinsic (driven by the inherent desire to learn) or extrinsic (driven by external rewards), with research indicating that intrinsic motivation tends to decline over time. Kim et al. (2022) found that while intrinsic motivation declines, extrinsic motivation remains relatively stable, highlighting the need for sustained efforts to nurture intrinsic motivation throughout students' academic journeys. A meta-analysis by Lazowski and Hulleman (2023) showed that interventions focused on value beliefs, goal-setting, and growth mindset significantly enhanced students' motivation. The relationship between self-efficacy and motivation is particularly important, with Zhu et al. (2022) finding that intrinsic motivation mediates the relationship between self-efficacy and academic performance. This suggests that fostering intrinsic motivation is key to translating self-efficacy into improved academic outcomes, underscoring the importance of internal motivation over external rewards.

Academic Performance: A Holistic Approach

Traditionally, academic performance has been measured through test scores and grades, but recent research emphasizes the need for a more comprehensive approach. Abaidoo (2018) identified factors like student engagement, teacher quality, and parental involvement as predictors of student achievement, suggesting that academic success is influenced by a combination of individual, instructional, and environmental factors. Ren et al. (2020) argued for a more nuanced evaluation that includes critical thinking, problem-solving, and social-emotional development. This holistic perspective recognizes that academic success encompasses more than test results and reflects a student's ability to navigate complex situations and develop lifelong skills.

Integrating Self-Efficacy, Motivation, and Academic Performance

The interplay between self-efficacy, motivation, and academic performance forms a dynamic and interconnected process that shapes educational outcomes. Arik (2019) found that academic self-efficacy is closely related to motivation and is essential for achieving academic success. Their study revealed that higher self-efficacy promotes greater motivation, leading to improved academic outcomes. However, Mosier (2018) cautioned that students with low self-efficacy often experience diminished motivation, leading to a negative spiral that discourages effort and results in poorer performance. Kola et al. (2017) demonstrated that students' ambition increases academic motivation, suggesting that self-efficacy serves as the foundation for sustained effort and achievement. Motivation mediates the relationship between self-efficacy and academic outcomes, making it crucial for educators to foster both self-efficacy and motivation in students.

Synthesis and Research Gap

While significant progress has been made in understanding the relationships between self-efficacy, motivation, and academic performance, there remain important gaps in the literature. Most existing studies are based on Western contexts, and there is a lack of research exploring how these dynamics operate in other cultural settings, such as the Philippines. Furthermore, while self-efficacy, motivation, and performance have been studied individually, few studies have examined their combined impact in a single, comprehensive framework, particularly among elementary students in transitional grades like Grade 5. The shift to remote and hybrid learning models has also introduced new challenges that remain understudied and need further exploration. This study aims to fill these gaps by examining the relationships between self-efficacy, motivation, and academic performance among Grade 5 pupils in the South District of Dipolog City, Philippines. By focusing on this specific cultural and developmental context, the study will contribute to a more nuanced understanding of these constructs and inform targeted interventions and pedagogical strategies to foster student success in a rapidly changing educational environment.

II. Methodology

This chapter outlines the research method, sampling procedure, research setting, research instrument, data collection, ethical considerations, and statistical treatment employed in the study.

Research Design

The study used a descriptive-correlational research design to explore the relationships among self-efficacy, motivation to learn, and academic performance among junior high school students. This method is effective for examining natural relationships between variables without manipulation (Creswell, 2014). The approach allowed the assessment of learner profiles and their impact on self-efficacy and motivation, which in turn affect academic success (Polit & Beck, 2017). Quantitative data were gathered from surveys, questionnaires, and academic performance records, ensuring reliability and validity of the collected data (DeVellis, 2016). Correlation coefficients and regression analyses were applied to quantify the strength and direction of relationships, aiming to provide robust findings that contribute to educational psychology and practice (Field, 2013).

Research Environment

The research was conducted in 16 schools within the Dipolog City South District, specifically focusing on Grade 5 learners. These schools were selected based on their accessibility to the researcher. The study aimed to assess students' self-efficacy, motivation to learn, and academic performance, with particular attention to how motivation and self-efficacy correlate with

achievement. Understanding how learners' motivation and engagement with school relate to their academic success is a critical concern in educational settings (Bramlett et al., 2002; Brown, 2010).

Research Respondents and Sampling

A total of 153 students participated in the study, with a nearly even gender distribution—48.4% male and 51.6% female. The majority (90.2%) came from families with incomes below P10,957, representing a low-income population. A smaller percentage (9.8%) had parental incomes between P10,957 and P21,914. The educational background of the respondents' parents varied: 20.3% of mothers attended high school, while fathers' education ranged from elementary school (28.1%) to college graduates (15.7%). This demographic profile provides essential context for understanding how factors like family income and parental education may influence students' self-efficacy and academic performance.

Sampling Procedure

The study employed a simple random sampling technique to select Grade 5 students from the schools in the Dipolog City South District. This method ensured equal chances of inclusion for every student in the target population, enhancing the representativeness and generalizability of the findings. The sample size was calculated using Cochran's formula, which is suited for large populations, ensuring an adequate sample size for statistical precision and confidence.

Research Instrument

The primary data collection tool was an adapted survey questionnaire, previously used by Balacuit and Inabangan (2019). The questionnaire was divided into four parts:

- Part I collected demographic information, including age, sex, parental income, and educational background of parents.
- Part II measured self-efficacy using a Likert scale, ranging from "Strongly Agree" (5) to "Strongly Disagree" (1).
- Part III assessed motivation to learn using a similar 5-point scale, from "Highly Motivated" (5) to "Strongly Not Motivated" (1).
- Part IV gathered academic performance data from students' report cards, using the first grading period's average grades to classify academic performance based on DepEd's rating scale.

Validation of Instrument

The reliability of the questionnaire was confirmed through a pilot test, with Cronbach's alpha used to assess internal consistency. The overall self-efficacy scale showed high reliability (α

= 0.86), and the motivation to learn scale also demonstrated strong consistency (α = 0.84). However, some subscales of self-efficacy, such as Psychological Responses and Social Modeling, showed moderate reliability (α = 0.72 and 0.70), while the Mastery Experiences and Social Persuasion subscales had lower reliability (α = 0.62 and 0.63). These findings indicated that certain items in these subscales required refinement to ensure consistency. The validation process included the removal of low-performing items, improving the overall reliability of the instrument.

Data Collection Procedure

Data collection followed a structured procedure, starting with obtaining approvals from relevant authorities, including the Graduate School Dean, the School Principal, and the Schools Division Superintendent. Teachers informed students about the study, and participants were provided with informed consent, ensuring voluntary participation. After obtaining consent, surveys were distributed to the students.

Statistical Treatment

Various statistical methods were used:

1. **Psychometric Analysis**: Cronbach's alpha assessed internal consistency for self-efficacy and motivation scales.
2. **Descriptive Statistics**: Mean, standard deviation, skewness, and kurtosis were calculated to summarize the data.
3. **Correlation Analysis**: Pearson correlation coefficients assessed the relationships between self-efficacy, motivation, and academic performance.
4. **Regression Analysis**: Simple linear regression was used to examine how self-efficacy and motivation predicted academic performance.
5. **Model Fit Statistics**: R-squared values were calculated to assess the proportion of variance explained by the predictors.

Ethical Considerations

The study adhered to ethical guidelines ensuring the protection of participants' rights. Informed consent was obtained, and participants were informed about their voluntary participation and right to withdraw at any time without penalty. Confidentiality and anonymity were maintained, and data were securely stored. Institutional approvals were secured, and participants were debriefed after the study. The research design ensured non-maleficence, and data were handled transparently.

III. Results and Discussion

This chapter presents the findings from our investigation into the relationships between pupils' self-efficacy, motivation to learn, and academic performance. Through detailed statistical analyses, this chapter elucidates how these psychological constructs interact and influence educational outcomes.

Profile of Pupils' Self-efficacy, Motivation to Learn, and Academic Performance

Table 2 Psychometric Properties of the Scale for Self-efficacy and Motivation

Variable	No. of items	Cronbach's α
Mastery Experiences	5	.62
Social Modeling	4	.70
Social Persuasion	5	.63
Psychological Responses	5	.72
[Overall] Self-efficacy	19	.86
Motivation to Learn	5	.84

Table 2 highlights the psychometric properties of a scale assessing self-efficacy and motivation to learn, showing mixed results across its subscales. The Social Modeling subscale, after item removal, and the Psychological Responses subscale exhibited acceptable internal consistency, while the Mastery Experiences and Social Persuasion subscales demonstrated lower and unacceptable reliability. The overall Self-efficacy scale, however, had strong reliability with a Cronbach's alpha of 0.86. The Motivation to Learn scale was improved by removing five low-reliability items, resulting in a Cronbach's alpha of 0.84. These findings emphasize the need for thorough item selection and validation to ensure the reliability of educational measurement instruments.

Table 3 Descriptive Statistics of Self-efficacy, Motivation to Learn, and Academic Performance

Variable	*M*	*SD*	Skewness	Kurtosis
Self-efficacy	4.24	0.44	-0.92	1.61
Motivation to Learn	4.85	0.13	-2.40	3.80
Academic Performance	84.60	4.81	0.56	-0.28

Table 3 presents a descriptive analysis of self-efficacy, motivation to learn, and academic performance among pupils. The mean self-efficacy score of 4.24 (SD = 0.44) indicates high levels, supported by skewness (-0.92) and kurtosis (1.61), suggesting a roughly normal distribution. Motivation to learn shows an even higher mean of 4.85 (SD = 0.13) with significant negative skewness (-2.40) and kurtosis (3.80), reflecting a non-normal distribution and very high levels of

motivation. Academic performance, with a mean score of 84.60 (SD = 4.81), falls within the "Satisfactory" range as defined by DepEd Order 8, series 2015, and shows approximate normality (skewness = 0.56, kurtosis = -0.28). The strong correlation (r = .97, p < .001) between third and fourth quarter grades supports the validity of the performance measure. Overall, pupils demonstrated exceptionally high self-efficacy and motivation, alongside strong academic performance.

Correlations among the Study Variables

Table 4 Correlations among the Variables

Variable	SE	ML	AP
Self-efficacy (SE)	---		
Motivation to Learn (ML)	-0.11	---	
Academic Performance (AP)	0.54***	-0.22**	---

Note. *p < .05, **p < .01, ***p < .001.

Table 4 shows correlations among Self-efficacy (SE), Motivation to Learn (ML), and Academic Performance (AP), revealing key insights. Pearson's correlation analysis indicates a significant positive relationship between self-efficacy and academic performance, with a correlation coefficient of 0.54 (p < .001), suggesting that higher self-efficacy is linked to better academic performance. Conversely, motivation to learn is negatively correlated with academic performance (r = -0.22, p < .01), implying that under certain conditions, higher motivation may correspond to lower academic outcomes. Notably, there is no significant relationship between self-efficacy and motivation to learn (r = -0.11), indicating these variables do not have a linear association in this study. These findings highlight the complex interplay of self-efficacy, motivation, and academic achievement.

Relationship between Pupils' Self-efficacy and Motivation to Learn

Table 5 Simple Regression Results for Self-efficacy Predicting Motivation to Learn

Predictor	B	SE B	β	*t*	*p*	95% CI
(Intercept)	4.10	0.10		49.42	<.001	[4.79 – 5.19]
Self-efficacy	-0.03	0.02	-0.11	-1.39	0.17	[-0.08 –0.01]
R^2 .01						

Note. F(1, 152) = 1.938, p = 0.166.

Table 5 shows that self-efficacy has a negligible and statistically non-significant impact on motivation to learn, with a regression coefficient of -0.03 (β = -0.11), a t-value of -1.39, and a p-value of 0.17, supported by a 95% confidence interval of -0.08 to 0.01. The model's intercept of 4.10 is significant (p < .001), but the R-squared value of 0.01 indicates that self-efficacy only

explains 1% of the variance in motivation. The F-statistic of 1.938 (p = 0.166) suggests that the model does not fit well, implying that self-efficacy is not a meaningful predictor of motivation in this context, and other factors likely contribute to motivation levels.

Relationship between Pupils' Self-efficacy and Academic Performance

Table 6 Simple Regression Results for Self-efficacy Predicting Academic Performance

Predictor	B	SE B	β	*t*	*p*	95% CI
(Intercept)	59.82	3.19		18.74	<.001	[53.51 – 66.13]
Self-efficacy	5.84	0.75	0.54	7.80	<.001	[4.36 – 7.32]
R^2	.29					

Note. F(1, 152) = 60.90, p <.001.

Table 6 reveals that self-efficacy significantly predicts academic performance, as shown by a positive regression coefficient (B = 5.84, β = 0.54) with a standard error of 0.75. The significant t-value (7.80) and p-value (p < .001) confirm the reliability of this effect, further supported by a 95% confidence interval ranging from 4.36 to 7.32. The intercept (59.82, t = 18.74, p < .001) is also significant, underscoring the model's robustness. The R-squared value of 0.29 suggests self-efficacy explains 29% of the variance in academic performance, while the substantial F-statistic (F(1, 152) = 60.90, p < .001) indicates the model fits well. These results underscore the crucial role of self-efficacy in academic success, highlighting the value of interventions aimed at enhancing students' self-efficacy to boost their academic outcomes.

Relationship between Pupils' Motivation to Learn and Academic Performance

Table 7 Simple Regression Results for Motivation to Learn Predicting Academic Performance

Predictor	B	SE B	β	*t*	*p*	95% CI
(Intercept)	123.69	14.35		8.62	<.001	[95.35 – 152.04]
Motivation to Learn	-8.06	2.96	-0.22	-2.73	.007	[-13.90 – -2.22]
R^2	.05					

Note. F(1, 152) = 7.43, p = .007.

Table 7 details a simple linear regression analysis that examined the relationship between pupils' motivation to learn and academic performance. Surprisingly, motivation to learn was found to significantly predict academic performance in a negative direction, with a regression coefficient (B) of -8.06 and a standardized coefficient (β) of -0.22. This inverse relationship is supported by a t-value of -2.73 and a p-value of .007, with a 95% confidence interval from -13.90 to -2.22. The intercept is 123.69 (SE = 14.35), statistically significant with a t-value of 8.62 (p < .001), and a confidence interval from 95.35 to 152.04. The R-squared value of 0.05 suggests that motivation to learn accounts for 5% of the variance in academic performance. The model's F-statistic (F(1, 152)

= 7.43, p = .007) confirms the significance of this relationship, indicating that although motivation to learn impacts academic performance, it does so inversely.

DISCUSSION

The study contributes important insights into the intricate interplay between self-efficacy, motivation to learn, and academic performance, shedding light on how these factors collectively shape educational outcomes. The analysis indicates that self-efficacy is more than a mere predictor of academic success; it is a fundamental catalyst for students' willingness to engage with their learning environments, persist through challenges, and strive for achievement. The significant positive correlation between self-efficacy and academic performance ($r = 0.54$, $p < .001$) underscores self-belief's pivotal role in fostering academic engagement, resonating with extensive literature on the subject.

According to Bandura's (1997) social cognitive theory, self-efficacy—the belief in one's capability to accomplish tasks and navigate academic challenges—is a cornerstone of motivation. Individuals with high self-efficacy are more likely to approach academic tasks enthusiastically, engage deeply, and show resilience in the face of obstacles. This perspective aligns with Dweck's (2006) research on the growth mindset, which highlights the importance of believing in the capacity for development through effort. The present study's results corroborate these views, reinforcing that self-efficacy is integral to academic achievement.

The findings reveal that self-efficacy contributes to substantial academic improvements through mechanisms that influence learning behavior, strategic effort, and persistence. Schunk and Zimmerman (2007) emphasize that self-efficacy drives the adoption of effective learning strategies and goal-setting behaviors essential for academic success. Thus, the robust positive correlation observed supports the hypothesis that students with higher self-efficacy are better positioned to excel academically.

Unexpectedly, the study found that self-efficacy did not predict motivation to learn directly ($B = -0.03$, $p = 0.17$). This surprising outcome suggests that motivation is influenced by a range of factors beyond self-efficacy, supporting Bandura's view that motivation is multifaceted. While self-efficacy is critical, intrinsic interest, perceived relevance, and contextual factors also play substantial roles. For instance, students may exhibit high self-efficacy but lack motivation if the content appears irrelevant to their personal goals. This highlights the need for a holistic view of motivation that incorporates both internal and external factors.

The implications are profound: self-efficacy is a dynamic trait that can be nurtured through targeted educational practices. Educators can enhance self-efficacy by creating learning experiences that promote mastery and offering constructive feedback. Incremental challenges that align with students' current skills can foster confidence and growth. Teaching students to set and achieve realistic, challenging goals also reinforces self-efficacy. Locke and Latham's (2002)

research supports this, showing that specific, challenging goals boost performance compared to vague or easy ones.

The classroom environment's social and emotional aspects are equally significant. Supportive teacher-student relationships and peer collaboration foster confidence and willingness to tackle academic challenges. A nurturing, affirming classroom culture that encourages cooperative learning and peer mentoring strengthens students' self-efficacy and motivation.

Addressing barriers such as fixed mindsets or negative self-perceptions is also critical. Interventions that teach students about intelligence's malleability and frame effort and setbacks as part of the learning process can shift fixed mindsets to growth-oriented ones. Dweck's (2006) findings indicate that students who adopt a growth mindset are more inclined to embrace challenges and persist, leading to greater academic outcomes.

An intriguing, counterintuitive finding was the negative correlation between motivation to learn and academic performance ($r = -0.22$, $p < .01$). This result prompts further exploration. One possibility is that highly motivated students may set unrealistically high goals, perceiving themselves as underperforming even when their results are objectively strong. Alternatively, measurement issues or unaccounted variables could have influenced this outcome. Future research should delve deeper into these dynamics, potentially using mixed-method approaches for more nuanced insights.

The reliability of the scales used in this study, demonstrated by high internal consistency (Overall Self-efficacy $\alpha = 0.86$; Motivation to Learn $\alpha = 0.84$), suggests robust measurement tools. However, further studies should consider additional factors impacting motivation and performance to enrich our understanding of their interplay.

The findings underscore the essential role of self-efficacy in academic success and its complex relationship with motivation. Educational practices that foster self-efficacy and address holistic motivational factors are key to enhancing student performance. These insights offer valuable guidance for educators aiming to create environments that cultivate both self-belief and motivation, ultimately contributing to better educational outcomes.

Limitation of the Study

This study was limited to Grade 5 pupils in the Dipolog City South District, which may restrict the generalizability of the findings to other grades, regions, or educational systems. Additionally, the cross-sectional nature of the data collection only captured information at a single point in time, limiting insights into potential changes in self-efficacy, motivation, and academic performance over an extended period. These limitations suggest that caution should be exercised in applying the results to broader populations or contexts.

The use of self-reported questionnaires introduced potential response bias, as students may have provided socially desirable answers. Furthermore, given the age of the participants, some may have struggled to fully understand certain questionnaire items, which could impact data reliability. The cultural context is also a limitation, as most related studies are based in Western settings, while this study focuses on a Filipino population. These cultural differences may affect perceptions of self-efficacy and motivation, limiting comparisons to other backgrounds.

IV. Conclusion

This study underscores the vital role of self-efficacy as a key driver of academic performance among students. While self-efficacy significantly influences students' academic outcomes, the relationship with motivation to learn is complex and warrants further investigation. The findings confirm that high self-efficacy fosters greater resilience, strategic effort, and persistence, which in turn lead to enhanced academic performance. These insights emphasize the importance of developing educational practices that not only nurture students' belief in their own abilities but also provide a supportive, motivating environment. By prioritizing self-efficacy within educational settings, educators and policymakers can empower students to achieve academic success and equip them with the skills to navigate future challenges with confidence and resilience.

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Exploring the Psychosocial Aspects of Grade 6 Pupils in the COVID-19 Pandemic Recovery Stage

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Abstract — This study explores the psychosocial aspects of Grade 6 pupils during the recovery stage following the COVID-19 pandemic. Utilizing an adapted questionnaire, the research assesses pupils' cognitive, emotional, and social profiles. Findings indicate that pupils have a very high perception of their psychosocial well-being across these dimensions. Throughout the recovery stage, they experienced significant psychosocial changes as they navigated the healing process and sought to regain normalcy. Pupils expressed optimism about their academic performance, highlighting the importance of guidance from teachers and collaboration with classmates. Their awareness of mental health positively influences their resilience and capacity to face learning challenges. Furthermore, pupils reported a strong sense of safety within the school environment and a desire for in-person connections with peers and teachers. This emotional well-being is crucial, as it affects their confidence, resilience, and self-control. The recovery phase is essential for restoring a sense of normalcy, as crises can lead to anxiety and uncertainty. Engaging in targeted psychosocial support activities is vital for both coping and recovery, reinforcing resilience and equipping pupils with essential life skills. These activities should prioritize emotional health, recognizing its significant impact on academic success and overall development. By implementing interactive and sensitive psychosocial support initiatives, schools can enhance pupils' emotional and psychological well-being. This approach acknowledges that traditional academic instruction may be insufficient when learners face traumatic experiences. Prioritizing emotional support fosters a holistic educational environment, promoting resilience and enabling pupils to thrive despite past adversities. In conclusion, the interconnectedness of emotional health and learning necessitates a comprehensive strategy that nurtures both academic and emotional growth during the recovery stage, ultimately leading to stronger, more confident learners prepared to face future challenges.

Keywords — Psychosocial Profile, Recovery Stage, Cognitive, Emotional, Social, Psychosocial Support Activities

I. Introduction

In December 2019, an outbreak of a novel coronavirus, known as COVID-19, occurred in China and has spread rapidly across the globe within a few months. COVID-19 is an infectious disease caused by a new strain of coronavirus that attacks the respiratory system (World Health Organization, 2020). As of January 2021, COVID-19 has infected 94 million people and has caused 2 million deaths in 191 countries and territories (John Hopkins University, 2021).

The prevalence of the pandemic creates new stressors including fear and worry for oneself or loved ones constraints on physical movement and social activities due to quarantine, and sudden and radical lifestyle changes (Son, et al., 2020).

Essentially, the impacts of pandemics on fear are mainly reflected in two aspects. First, fear is directly associated with high transmission rate and rapid and invisible medium of infectious diseases caused by the virus. Second, fear is an indirect consequence of quarantine and other control measures (Masuyama et al., 2020). Due to the high risk of infection and high fatality rate, the COVID-19 pandemic has caused public panic and predisposed individuals to deterioration in mental health (Goldfarb, 2020).

The effects of the COVID-19 pandemic are problematic and potentially enduring on the mental health of children and adolescents, particularly in those with underlying psychiatric and/or developmental disorders (Brooks et al 2020). Anxiety, absence of peer contact, lack of stress regulation, domestic violence, and child maltreatment threats are significant concerns for the mental health of this population (Fegert, 2020). In our review, five publications addressed populations who might be more vulnerable than others to mental health disorders amid the pandemic, including children and adolescents with severe obesity (Abawi & Welling, 2020), chronic lung disease, (Adenham & Tural D, 2020), attention deficit hyperactivity disorder (Zhang, Shuai, et al., 2020), cystic fibrosis, (Pınar Senkalfa B. et al., 2020), and obsessive-compulsive disorder (Schwartz-Lifshitz et al., 2021).

To prevent the spread of this health catastrophe, many countries and regions have implemented strict prevention and control measures, such as home quarantine, social distancing, compulsory face mask usage, and community-wide containment (Wilder-Smith et al, 2020).

Additionally, Sharma et al. (2021) have reported the high levels of psychological distress among students during COVID-19 pandemic.

In an interview by Farzan and O'Grady (2020), United Nations Secretary-General António Guterres was quoted saying the world is facing generational catastrophe due to ongoing school closures, calling the coronavirus pandemic the largest disruption of education ever.

The closure of universities and schools have disrupted the learning of students and have deprived students opportunities for growth and development (UNESCO, 2020).

Face-to-face teaching has shifted to online courses to avoid a physical meeting of teachers with students, whereas difficulty in adapting to online courses makes the students feel more fear and anxiety (Wathelet et al., 2020).

This technique is out-of-the-blue and has raised concerns. It has subjected the mental health and well-being of Filipino children under drastic conditions (Malolos et al., 2021).

In 2022, because of the decreasing prevalence of COVID-19, significant changes have been made to the educational system (Borres et al., 2023).

The issuance of DepEd Order No. 034, s. 2022 signed by Vice President and Secretary Sara Z. Duterte – Carpio which provides direction and guidance in the re-opening of classes and the gradual introduction of 5 days of in-person learning modality classes served as a guide for SCES in adopting mechanisms to slowly transition from Modular Distance Learning Modality (MDL) to 5-Day In – Person Classes by November 2, 2022.

Everything must be considered for the opening of classessss. According to Poa (2022), not only the preparedness of infrastructure but also the mentall wellness of the teachers and learners is given emphasis.

The extent of students' learning losses is still unknown and will most likely have a long-term effect on students' profile and life (Andrew et al., 2020; McKendall et al., 2021; Tomasik et al., 2020).

This prompted the researcher to conduct a study and look into the psychosocial aspects of pupils in the covid-19 pandemic, looking into the impact to their mental health, their emotional well-being. Social reintegration, emotional support resources, educational support resources and family and community involvement in the recovery stage.

Literature Review

Research in mental health and psychosocial well-being is still highly fragmented. With this, there is a need for studies to further explore how Covid-19 affected or changed students' learning profile and perspectives (Moura et al., 2023).

The best example of the need to understand psychosocial well-being in a changing and complex context has been the COVID-19 pandemic that has developed over recent months. (Eiroa-Orosa, 2020).

The objective of the conduct of studies towards psychosocial well-being and eradicating ill-being, especially among learners, is geared towards the creation of interventions that will cultivate and improve one's sense of normalcy among school-age children (Tatham et al., 2021).

With this, there is a need for studies to further explore how Covid affected or changed students' learning profile and perspectives (Moura et al., 2023).

According to McKendall (2021), those more in-needed of school, more at risk, with less means of access as well as those more dependent on teachers, more passive learners, less autonomous, without self-study and regulation skills (Tomasik, et al. 2020 ; Yang 2020) suffered more seriously.

Education is widely recognized as a critical factor influencing an individual's social and economic success, as it provides a pathway to improved opportunities and a better quality of life (OECD, 2020).

Parents with more education usually know more about how the school system works and have the skills and information to help their children (Munir, Faiza, & Daud, 2023).

With the currently deteriorating quality of life caused by the pandemic as well as other causes such as conflicts between states and other calamities has made it difficult to come up with a unified result, considering that there are vast differences in the causes and individuals facing personal challenge, such as age-related memory changes, may feel that their experiences are abnormal or pathological (Tatham et al., 2021).

Compared with population norms, participants reported low quality-of-life, high career burden and high psychological distress (Collins et al., 2020). Due to the high risk of infection and high fatality rate, the COVID-19 pandemic has caused public panic and predisposed individuals to deterioration in mental health (Goldfarb, 2020). Additionally, Sharma et al. (2021) have reported high levels of psychological distress among students during COVID-19 pandemic.

Several initiatives were established through which the stakeholders (e. g. students, faculty members, and administrators) remained in active communication and performed their duties as expected (Camacho-Zuñiga et al., 2021).

In interviews, school leaders explained that social and well-being concerns were an even bigger issue than 'lost learning', with well-being seen by some as a higher priority to address before academic interventions could be used effectively (Achtaridou et al., 2022).

The issuance of DepEd Order No. 034, s. 2022 signed by Vice President and Secretary Sara Z. Duterte – Carpio which provides direction and guidance in the re-opening of classes and the gradual introduction of 5 days of in-person learning modality classes served as a guide for SCES in adopting mechanisms to slowly transition from Modular Distance Learning Modality (MDL) to 5-Day In – Person Classes by November 2, 2022.

According to Poa (2022), not only the preparedness of infrastructure but also the mental wellness of the teachers and learners is given emphasis.

To help ensure that the mental health and well-being of learners are prioritized as the country transitions back to in-person classes, the Department of Education (DepEd) has instructed schools to conduct psychosocial support activities (Malipot, 2022). This move is not something new because this is in consonance with DepEd Order No. 058, s. 2020 which mandates regional and schools division officers to conduct mental health and psychosocial support services in the time of Covid-19. Llego (2022) mentioned that psychosocial support activities are imperative in promoting, protecting, and prioritizing the learners' socio-emotional well-being.

Psychosocial aspects, such as resilience, help to address the imbalance they often experience in their daily lives (Garcia-Martinez, 2022).

It has prodded school educators and leaders to make major decisions, assess, and find solutions according to the needs and requirements of each school (Inquirer, 2021).

The behavior and attitude of students address the future and possible direction, several outcomes, and implication of the new normal classes and in the learning process for advance technology in increasing the interaction and communication process of learning (Mallillin et al., 2021). There is a need for synergy between cognitive development and learning attitudes that can encourage the effectiveness of the process and student learning outcomes (Putri et al., 2020).

Psychosocial support activities were sent to the field to ensure that learners are given the toolkits to help send them on the way to recovery through specially designed activities to help learners cope up with their social and learning skills.

II. Methodology

The study employed the descriptive survey research design using a questionnaire as a primary tool for data collection. Descriptive statistics were used to show the breakdown of the characteristics of Grade 6 pupils based on the education level of their parents and family structure, separated by gender. Factorial ANOVA was employed in this study to explore the differences of the psychosocial aspects of Grade 6 pupils in the Covid-19 pandemic recovery stage.

Research Respondents and Sampling

The study was conducted in the Division of Dipolog City, Division of Dapitan City, and Division of Zamboanga del Norte. These three schools divisions come from the Province of Zamboanga del Norte. The Dipolog City SDO is a medium size division. On the other hand, Dapitan City SDO is a small size division. The latter, is the biggest among the three divisions.

The respondents were randomly selected and were given questionnaires with the approval of the School Heads and the assistance of class advisers. The schools were selected randomly from the different districts of each schools division.

Table 1 The Sample of the Study

Division	No. Of Respondents
Dapitan City	175
Dipolog City	175
Zamboanga del Norte	150
Total	**500**

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III. Results and Discussion

his study described the psychosocial profile of pupils and their sense of normalcy. This also determined if the pupils' psychosocial factors predict their sense of normalcy. Understanding these challenges is essential for developing targeted interventions that can support the holistic well-being of Grade 6 pupils as they navigate the recovery phase and resume their academic journey.

Table 2 The Profile of Grade 6 Pupils

Sex	Parent's Educational Attainment	Family Type	Frequency	Percent
Male	Elementary Level	Single-Parent	13	2.6
		Two-Parent	52	10.4
	High School Level	Single-Parent	15	3.0
		Two-Parent	46	9.2
	College Level	Single-Parent	14	2.8
		Two-Parent	32	6.4
	College Graduate	Single-Parent	16	3.2
		Two-Parent	33	6.6
	Graduate Studies	Single-Parent	6	1.2
		Two-Parent	6	1.2
Female	Elementary Level	Single-Parent	22	4.8
		Two-Parent	44	8.8
	High School Level	Single-Parent	33	6.6
		Two-Parent	47	9.4
	College Level	Single-Parent	18	3.6
		Two-Parent	41	8.2
	College Graduate	Single-Parent	19	3.8
		Two-Parent	29	5.8
	Graduate Studies	Single-Parent	8	1.6
		Two-Parent	6	1.2

Table 2 provides a breakdown of the characteristics of Grade 6 pupils based on the sex, education level of their parents and family structure, separated by gender.

For male pupils, the data shows that a significant proportion of 52 pupils (10.4%) come from two-parent households where the parents have completed elementary education. In contrast, 15 male students from single-parent households with parents at the high school level represent a smaller yet notable group, making up 3.0% of the total.

In addition, Another significant proportion of male pupils (46 pupils, 9.2%) come from two-parent households where the parents have completed high school while the percentage of male pupils from single-parent households is generally lower across all parental educational levels, with the smallest group being those whose parents have graduate studies (6 pupils, 1.2%).

For female pupils, the largest group (47 pupils or 9.4%) comes two-parent households where parents have high school level of education. A larger percentage of 44 pupils (8.8%) come from two-parent households where the parents have an elementary education level. Female pupils from single-parent households with parents who have completed graduate studies represent one of the smallest groups (8 pupils, 1.6%).

Similar to the male group, female pupils from single-parent households are fewer, with 33 female pupils (6.6%) from two-parent households with high school-level education parents being the highest single-parent category.

The data highlights that two-parent households dominate the family structure of Grade 6 pupils, with most pupils coming from families where parents have a high school or elementary level of education. The distribution of male and female pupils is relatively balanced, though female pupils have a slightly higher presence in single-parent households at higher educational levels of parents. This information can help schools understand the diverse backgrounds of their students and possibly tailor interventions or support systems based on family structure and parental education level.

Table 3 The Psychosocial Aspects of Grade 6 Pupils in the Covid-19 Pandemic Recovery Stage

Aspect	Mean	Standard Deviation	Interpretation
Cognitive	3.45	.74	Very High
Emotional	3.39	.79	Very High
Social	3.28	.86	Very High
Overall	3.37	.80	Very High

1.00 – 1.75 Rarely/Low 1.76 – 2.50 Sometimes/Moderate
2.51 – 3.25 Often/High 3.26 – 4.00 Almost Always/Very High

Table 3 reveals that pupils have a very high perception of their psychosocial profile. This is evident from the mean scores, which suggest that pupils are highly aware of and engaged with their cognitive, emotional, and social experiences as they navigate the pandemic recovery stage.

Cognitive Factors. Cognitive processing is an essential part of the recovery stage. Pupils reflected on the challenges they faced during the pandemic, including their academic struggles, disruptions in routine, and the abrupt shift to online learning. The high mean score in the cognitive domain indicates that pupils were actively processing their experiences, thinking about the causes and consequences of the pandemic, and attempting to integrate these experiences into their understanding of the world. This process is crucial for adapting to the new normal and developing

resilience. standard deviations indicating that most pupils had similar levels of cognitive processing.

Emotional Factors. Pupils displayed a wide range of emotions during the recovery stage. Emotions such as relief (for overcoming the pandemic's challenges), happiness (from returning to some form of normalcy), and anxiety or fear (about potential future disruptions or lingering effects) were common. The mean score for emotional factors suggests that pupils, on average, reported strong emotional reactions to the pandemic's impact and their recovery process.

Social Factors. The social aspect of the pupils' recovery is another critical dimension. The pandemic significantly disrupted social connections, with pupils facing prolonged isolation from peers, teachers, and extended family members.

The presence of a strong support system, such as family, friends, and teachers, has been essential for the pupils. Pupils relied on these connections for comfort, reassurance, and emotional support, which helped mitigate some of the psychological impacts of the pandemic.

Table 4 The Difference in the Psychosocial Aspects of Grade 6 Pupils in the Covid-19 Pandemic Recovery Stage

Dependent Variable: Cognitive Aspect

Source	Sum of Squares	df	Mean Square	F	P-value	Partial η^2
Sex	12.96	1	12.96	0.587	0.444	0.001
Parent's Education	35.66	1	35.66	1.616	0.204	0.003
Family Type	41.00	1	41.00	1.858	0.173	0.004
Sex ✻ Parent's Education	18.52	1	18.52	0.839	0.360	0.002
Sex ✻ Family Type	0.01	1	0.01	3.30e-4	0.986	0.000
Parent's Education ✻ Family Type	27.84	1	27.84	1.262	0.262	0.003
Sex ✻ Parent's Education ✻ Family Type	90.75	1	90.75133	4.112	0.043	0.008
Residuals	10857.11	492	22.06730			

Table 4 presents the group differences in the psychosocial aspects of Grade 6 pupils during the Covid-19 pandemic recovery stage, with a focus on the interaction between sex, parent's education**,** and family type on the pupils' cognitive abilities. The factorial ANOVA results show a significant interaction effect between sex, parent's education, and family type on the cognitive aspect of Grade 6 pupils.

The F-statistic value of 4.112 and the p-value of 0.043 indicate that this interaction is statistically significant, meaning the combined influence of these factors has a real effect on pupils' cognitive performance during the recovery stage.

The partial eta squared value of 0.008 indicates that while the effect is statistically significant, it accounts for a small portion of the variance in cognitive abilities—approximately 0.8% of the total variation. Although this percentage may seem small, it highlights that sex, parent's education, and family type together play a measurable role in influencing cognitive development during this critical period.

Further analysis using Tukey's Honestly Significant Difference (HSD) test to identify specific group differences revealed that male pupils whose parents had at least a college-level education performed significantly better in cognitive tasks during the pandemic recovery stage. Specifically, male pupils from college-educated families had a mean cognitive score of 35.6 with a standard deviation of 4.50, significantly higher than the cognitive scores of other pupils in the study. This suggests that having parents with higher educational attainment could provide advantages, such as better academic support, access to resources, and intellectual stimulation at home, all of which contribute to enhanced cognitive outcomes.

This finding raises questions about whether male pupils benefitted more from the intellectual environment provided by their parents during the pandemic recovery or whether other factors, such as social expectations or different coping strategies, influenced these outcomes. Further research might be needed to explore why male pupils, in particular, showed this trend.

Table 5 The Difference in the Psychosocial Aspects of Grade 6 Pupils in the Covid-19 Pandemic Recovery Stage

Dependent Variable: Emotional Aspect

Source	Sum of Squares	df	Mean Square	F	P-value	Partial η^2
Sex	6.94	1	6.94	0.240	0.624	0.000
Parent's Education	71.04	1	71.04	2.461	0.117	0.005
Family Type	1.99	1	1.99	0.069	0.793	0.000
Sex ✻ Parent's Education	14.00	1	14.00	0.485	0.487	0.001
Sex ✻ Family Type	8.83	1	8.83	0.306	0.581	0.001
Parent's Education ✻ Family Type	79.86	1	79.86	2.767	0.097	0.006
Sex ✻ Parent's Education ✻ Family Type	119.70	1	119.70	4.147	0.042	0.008
Residuals	14201.61	492	28.87			

Table 5 presents the group differences in the emotional aspects of Grade 6 pupils during the Covid-19 pandemic recovery stage, focusing on the interaction between sex**,** parent's education, and family type. The results offer insight into how these factors jointly influence pupils' emotional well-being as they transition through the pandemic recovery.

The factorial ANOVA results show a significant interaction effect between sex, parent's education, and family type on the emotional aspect of Grade 6 pupils, with an F-statistic value of 4.147 and a p-value of 0.042, indicating that this interaction is statistically significant. The partial eta squared value of 0.008 suggests that while the interaction effect is statistically significant, it accounts for approximately 0.8% of the total variation in emotional abilities. This means the combination of sex, parent's education, and family type has a small yet meaningful impact on the emotional well-being of pupils.

The Tukey's Honestly Significant Difference (HSD) test further reveals that male pupils whose parents had at least a college-level education exhibited significantly better emotional abilities during the pandemic recovery stage compared to other groups. Specifically, the mean emotional score for these male pupils was 34.7 with a standard deviation of 6.05, which was notably higher than the emotional scores of other pupils.

Pupils from college-educated families, particularly male pupils, showed better emotional resilience during the pandemic recovery. This can be attributed to several factors such as 1) Parental education. Parents with higher educational attainment may be better equipped to provide effective emotional support, communicate openly with their children, and help them navigate their feelings during a time of crisis. Educated parents may also foster environments that promote emotional regulation and healthy emotional expression. 2) Family structure. Pupils from two-parent households or more stable family structures generally receive higher levels of emotional support, which can positively influence their emotional well-being. Family environments that encourage open communication, empathy, and problem-solving contribute to emotional stability during recovery periods.

Gender Differences in Emotional Abilities. Although the factorial ANOVA did not reveal a main effect of sex on emotional outcomes, it is important to note that male pupils from college-educated families demonstrated better emotional abilities. This raises questions about the role of sex in emotional development. While the interaction effect of sex, parental education, and family type was significant, gender norms around emotional expression and emotional regulation may still play a role. Research indicates that while sex differences in emotional expression and regulation exist, these differences may not manifest in the same way for all pupils. The pandemic recovery stage may have blurred typical patterns of emotional development, particularly for pupils coming from more supportive family environments.

The combination of sex, parental education, and family type has a small but significant effect on the emotional abilities of Grade 6 pupils, with male pupils from college-educated families

emerging as the group with the most positive emotional outcomes. Pupils from families with higher educational backgrounds and a complete family structure may have had access to more resources for coping with emotional stress. They may have benefitted from parents who not only provided emotional support but also modeled emotional regulation and resilience during the pandemic.

Table 6 The Difference in the Psychosocial Aspects of Grade 6 Pupils in the Covid-19 Pandemic Recovery Stage

Dependent Variable: Social Aspect

Source	Sum of Squares	df	Mean Square	F	P-value	Partial η^2
Sex	29.26	1	29.26	0.708	0.401	0.001
Parent's Education	30.20	1	30.20	0.731	0.393	0.001
Family Type	44.88	1	44.88	1.086	0.298	0.002
Sex ✻ Parent's Education	0.01	1	0.01	1.92e-4	0.989	0.000
Sex ✻ Family Type	1.07	1	1.07	0.026	0.873	0.000
Parent's Education ✻ Family Type	7.11	1	7.11	0.172	0.679	0.000
Sex ✻ Parent's Education ✻ Family Type	178.36	1	178.36	4.315	0.038	0.009
Residuals	20334.29	492	41.33			

Table 6 presents the group differences in the psychosocial aspects of Grade 6 pupils in the Covid-19 pandemic recovery stage. The ANOVA results highlight a statistically significant interaction between sex, parent's education, and family type on the social abilities of the pupils, with an F-statistic value of 4.315 and a p-value of .038, indicating a significant interaction effect. The partial eta squared value of .009 suggests that these factors collectively explain 0.9% of the variance in social abilities, a small but significant portion of the overall variability.

Further post-hoc analysis using Tukey's Honestly Significant Difference (HSD) test reveals that male pupils whose parents have attained at least a college-level education demonstrate superior social abilities during the recovery stage.

This can be attributed to potential advantages such as greater access to social resources and parental guidance, which may enhance their ability to navigate social situations.

While the findings indicate that sex alone does not have a significant impact on the social aspect, existing research suggests that there could be differences in social behaviors and interactions between males and females. However, these effects are modulated by other factors such as parental education and family structure. Children from families with higher educational attainment and complete family environments likely benefit from more supportive and socially connected environments, which may lead to improved social outcomes.

IV. Conclusion

In the aftermath of the Covid-19 pandemic and similar crises, it is evident that pupils have cultivated a positive attitude towards school, fostering feelings of safety and a desire for in-person connections with their teachers and peers. Their optimism regarding academic performance is closely tied to the guidance of educators and collaborative efforts with classmates. This awareness of their mental health underscores the importance of emotional well-being in navigating educational challenges.

The recovery phase is crucial for restoring a sense of normalcy, as disruptions from crises often lead to anxiety and uncertainty. Engaging in psychosocial support activities is essential not only for coping and recovery but also for reinforcing resilience and equipping pupils with life skills. These activities should be designed to address emotional health, acknowledging its profound impact on academic success and overall development.

By implementing interactive and sensitive psychosocial support initiatives, schools can effectively assess and enhance the emotional and psychological well-being of pupils. Such an approach recognizes that when learners face traumatic experiences, their cognitive functions may be compromised, making traditional academic instruction insufficient. Prioritizing emotional support creates a more holistic educational environment, fostering resilience and enabling pupils to thrive despite past adversities.

In conclusion, the interconnectedness of emotional health and learning necessitates a comprehensive strategy that not only addresses academic needs but also nurtures the emotional and psychological growth of pupils during the recovery stage. This commitment to their well-being will ultimately lead to stronger, more confident learners ready to face future challenges.

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Financial Risk Management Practices Among Banks in Zamboanga Del Norte

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Abstract — In the dynamic and competitive landscape of the banking industry, effective financial risk management practices were crucial for ensuring the stability and profitability of banks. This study aimed to determine the financial risk management practices of banks operating in Zamboanga del Norte, Philippines. The primary objective is to evaluate the effectiveness of these practices in mitigating financial risks and fostering a strong banking sector in the region. The study commenced by establishing a comprehensive framework for assessing financial risk management practices, composing of the five key dimensions: Risk Management Environment, Risk Measurement, Risk Mitigation, Risk Monitoring, and Adequate Internal Controls. The empirical findings revealed that the examined banks showed a strong commitment to financial risk management practices, demonstrating a welldefined financial risk management practices environment characterized by strong leadership, a risk-aware culture, and clearly articulated policies. Additionally, the banks exhibit proficiency in risk measurement, employing sophisticated models and data analytics to quantify and evaluate financial risks. Furthermore, the banks demonstrated a proactive approach to risk mitigation, implementing a range of strategies, including hedging, credit risk management, and operational risk controls. This provided compelling evidence that the banks in Zamboanga del Norte had adopted comprehensive and effective financial risk management practices, effectively mitigating credit risk, liquidity risk, and market risk. These findings contributed to a broader understanding of financial risk management practices in the Philippine banking sector and provided valuable insights for policymakers and banking practitioners alike.

I. Introduction

At the forefront of current financial theory, we have paramount thoughts that are relevant for establishing risk management techniques. One such prevailing idea is that investors are inclined to embrace higher levels of risk in pursuit of higher returns. Risk-taking is intrinsic to this pursuit of returns. However, the crucial imperative lies in the adept management and control of these risks. Ensuring the stability and sustainability of banks depends upon the sensible balance between risk and reward. Indeed, profits are in part the reward for successful risk taking. Banks face the difficult task of maximizing risk exposure while avoiding possible hazards as the financial landscape

changes. As this ever- changing environment, managing the complex equilibrium between risk, return, and the long-term viability of financial institutions requires combining the best financial theory with useful risk management practices.

According to Quwain et al. (2021) Financial risks were among the key challenges faced by many companies especially those listed on the stock exchange, where the value of companies depends on market conditions. Several risks common to all companies include liquidity risk, credit risk, market risk and other forms of non-financial risk (Kassi et al., 2019).

The heart of an economy's financial system is the banking industry (C. R. et al., 2019). As stated by Bülbül et al. (2019), intense competition is a strong determinant for Risk Management practices implementation, and weaker practices can signal poor control mechanisms (Wang et al., 2018). Furthermore, Mutukua (2016) presumes that all banks operate in an unstable and fragile environment and confront various risks which may, in one way or the other, lead to the closure of a bank as a result of inability to meet its financial obligations. As mentioned by Samimi et al. (2020), diversified understanding of the risk will help investors understood future prospects, cost of trade balance by different methods of investment.

The focus of this study is to broadly cover credit risk, market (price) risk, interest rate risk, liquidity risk and foreign exchange risk. According to Quan et al. (2022), Financial risk is the perception that a certain amount of money may be lost or needed for a product to function properly. Financial risk may be caused by interest rate changes, credit factors, foreign exchange fluctuations, variation in market prices, default risk and liquidity gap that affect the cash flows and, therefore its financial performance and competitive position in product markets. Credit risk as defined by the Basel committee as the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with the agreed terms. Liquidity risk arises when financial institutions encounter difficulties in meeting its short-term financial obligations due to an imbalance between its liquid assets and liabilities. According to Chen et al. (2018) liquidity risk has reverse impacts on bank performance in a market based financial system because of higher funding costs for obtaining liquidity, liquidity risk is regarded as a discount for bank profitability, yet liquidity risk shows a premium on bank performance in terms of banks' net interest margins. As explained by Glowka & Nilsson, (2022), foreign exchange settlement risk, is the risk that one party to a trade of currencies fails to deliver the currency owed, can result in significant losses for market participants, sometimes with systemic consequences.

Lastly, Market risk is the risk originating in instruments and assets traded in well-defined markets, it also refers to the potential for financial losses due to adverse movements in market variables such as interest rates, exchange rates, commodity prices, and equity prices.

Literature Review

Risk Management Environment

Basel III, or the third Basel Accord, is an international standards framework formulated by the Basel Committee on Banking Supervision (BCBS), as a successor of its previous versions Basel I and Basel II. The third Basel Accord was developed and formulated by the members of the BCBS in the aftermath of the 2007-08 worldwide financial crisis, with the latter's happening being mainly attributed to the somewhatrampant risk-taking behaviors of financial institutions around the world. Although Basel III, which is intended to mainly encourage increase capital requirements and high-quality liquid assets (Basel III Summary, 2021), was published by the BCBS in November 2010, its introduction was delayed until 2015, and its implementation initially postponed to 2022, and now to 2023.

In order to protect the financial stability of banks after the said financial crisis of 2007-08, Basel III issued three basic sets of principles, known as the Three Pillars of Basel III (Basel III Summary, 2021):

a) Capital Requirements, considerably the most visible and most relatable set of measures of the three pillars, which covers capital requirements, risk coverage, and the set-up of leverage ratios;

b) Risk Management Supervision, addressing to firm-wide governance and risk management, and broken down into smaller measures all concentrated towards keeping an eye on all organizational factors; and,

c) Market Discipline, covering securitization exposures, a requirement to enhance disclosures on the components of regulatory capital, and their reconciliation to the company's reported accounts.

Again, as broad as they seem to be, Basel III is, of course, built up with details which make it up, and, are most likely understood by everyone else. As carefully expounded in a study by Siskos (2019) on the role of Basel III in creating sufficient risk management in the banking sector, the basic pertinent requirements of Basel III are as follows:

1. The levels of the capital that banks should maintain as a percentage of risk-weighted assets, was increased from 2% to 7% (Byres, 2012).

2. A capital conservation buffer of 2.5% of common equity Tier 1 will be held on top of the minimum capital requirements, bringing the total common equity capital requirements to 7%, while in times of stress, banks can use countercyclical buffer provided that, if they do so, earnings distributions such as bonuses and dividends are limited. These actions resulted

into a) enforcing corrective action when a bank's capital ratio deteriorates and into b) holding more capital in good times to prepare for the inevitable rainy days ahead.

3. Wherever needed, there should be additional requirements. For example, financial institutions that reflect greater risks to financial stability may include capital surcharges.

4. A minimum leverage ratio (capital to total exposures) of 3% will be tested, which should address concerns about leverage in the financial system and back up the risk- based requirements outlined above. This action ensured that banks will not become unduly leveraged on a non-risk-weighted basis.

5. The additional buffer of up to 2.5% of common equity should have to be built up in periods of rapid aggregate credit growth during which it aggravates system-wide risk.

Since the inception of Basel III and its gradual publication and implementation on all compliant institutions within the next couple of years, it was seen that the new framework has had a positive impact in terms of bank resilience. As of the year ending 2019, the IMF Global Economic Outlook had recorded a global GDP growth of 3.1%, and a more robust world loan growth of 3.9% per data recorded by the Bank for International Settlements (BCBS, 2022, par. 56). It could be implied that the world's risk of entering into another economic crash like what happened while under the provisions of the Basel II has been minimized, and the new Basel III has encouraged banks to expand its activities with the new provisions giving them the guide to be able to do their business more safely. Oftentimes, organizational culture and risk appetite within banks could affect the risk management environment. A study by Inayah and Balqiah in 2017 mainly discussed about how risk management implementation is influenced by organizational culture and leadership styles. By using a four-part questionnaire (each part asking questions on demographic data, leadership styles, organizational culture, and practice of risk management measures) on the rank-and-file and middle management employees of a certain insurance firm in Indonesia, the researchers determined that organizational culture could greatly affect the risk management environment. Risk management should be successfully embedded into an organization when the beliefs and behaviors of employees of that organization reflect risk understanding, risk awareness, and the implementation of risk management framework (Inayah, Balqiah, 2019).

No matter how excellent were the regulations that were in place, the risk environment still played a major role in risk management? After all, the success of any organization's policy shall majorly lie in the effectivity and the commitment of the people who made it up.

Risk Measurement

In order for risk management to make sense, it has to come from somewhere where it starts its job– it has to know and measure the risks to be managed in a systematic and empirical manner.

Risk measurement, also known as risk quantification, is actually a broad term denoting any activity aiming to quantify risks in an organization (Open Risk Manual).

Across different literatures, a few risk measurement tools often stand out, which is found to be worthy of discussion in order to give us a perspective on how risk measurement is done. However, a worthy reference could be the risk management tools that the Land Bank of Philippines (LBP) uses as part of its risk management plan. The LBP, one of the leading government banks of the Philippines known for its heavy client base and its variety of products and services, are known to use the following risk management tools (Risk Management Organization, LBP):

a) ***Value-at-Risk (VaR)***- in the bank's case, this approach is used in order to derive quantitative measures for the bank's trading book market risks under normal market conditions. The VaR for a total portfolio represents a measure of the bank's diversified market risk in that portfolio.

b) ***Stress Testing***- this approach was used by the bank to supplement their analysis of credit, market, and liquidity risk. Stress tests was performed because valueat- risk calculations are based on relatively recent historical data, and thus, only reflect possible losses under relatively normal market conditions. Stress tests helped the bank determine the effects of potentially extreme and probable market developments on the value of its market risk sensitive exposures, on its highly liquid and less liquid trading positions, as well as, on investments. The Bank uses stress testing to determine the amount of economic capital allocation required to cover market risk exposure after evaluating extreme and probable market conditions. For liquidity risk management purposes, the Bank performs stress tests to evaluate the impact of sudden stress events on its liquidity position.

c) ***Scenario Analysis***- the bank uses this as a tool in order to generate forwardlooking "what-if" simulations for specified changes in market factors. The scenario analysis simulates the impact of significant changes in domestic and foreign interest rates, with the implications of specific scenarios simulated on the bank's current portfolio and liquidity position.

d) ***Regulatory Risk Reporting*** – in this approach, the bank's capacity to assume risk is going to be assessed by the BSP, with its final assessment report in the form of a report. In compliance with BSP Memorandum Circular No. 538, s. of 2006 re: calculation of the Bank's capital adequacy ratio (CAR) consistent with Basel II, the bank submits on a quarterly basis result of its Capital Adequacy Ratio Calculation.

Risk Mitigation

Once the risks have been identified and measured, any sound company would willingly take steps to reduce the impacts of any probable risk that it has identified. Risk mitigation is a process that a business undertakes to reduce its exposure to the risks that it might face. (Risk

Optics, 2023). Mitigating any possible risk that the business can face is important in order to safeguard a company's assets, and reduce the loss of those assets to a bare minimum whenever the occurrence of those risks are proven to be inevitable. One of the most common risk management and risk mitigation strategies adopted by financial institutions is strategy of diversification. Basically, diversification is a risk management strategy that creates a mix of various investments within a portfolio. It contains a mix of distinct asset types and investment vehicles in an attempt to limit exposure to any single asset or risk (Segal, 2023). One example which could readily be seen as one of the features of banks is the diversity in the products that they offer to the public – oftentimes banks could be seen offering different types of deposit products, loan products, and other services, all with unique and usually segment-specific characteristics, which we thought all along are just strategies to increase market scope and coverage. It turns out that, as a common risk mitigation strategy, diversification could help minimize losses whenever one or more of the products turn out to be not that profitable, or is discovered to be vulnerable and well- exposed to both internal and external risks.

Another common strategy used by banks and financial-service businesses is hedging. Hedging is another risk management technique used in attempting to offset losses in investments by taking an opposite position in a related asset. Through this strategy, the effects of any potential loss on the company's assets shall be downplayed or minimized.

Risk Monitoring

Another facet of risk management and risk measurement is the actual monitoring on how determined risks are affecting the company's assets, and on how risk mitigation strategies put in place are actually working. Risk monitoring specifically refers to an organization's framework for staying aware of its current risk exposure, including the implemented risk management system and any other activities that inform the organization's risk decisions. It is a key component of determining individual risk appetites, which is the decision of how much risk can be tolerated (Kadar, 2023). The two risk monitoring methods commonly used are to "either continuously monitor risk in realtime or to review it regularly", which are actually combined by a lot of companies in order to make sure of the effectiveness of their risk strategies. According to the same article by Kadar (2023), a lot of techniques could be used out of those combinations, which more often include the following:

a) Risk assessment and reassessment – This routine activity allows companies to reach conclusions from the risk monitoring process, which ought to inform the organization's strategy.

b) Risk auditing – This activity will determine and examine defined responses and other defenses, and will identify any need to update them in the context of time.

c) Trend analysis- This technique often looks into risk trends, as well as the variance between expectations and results, in order that any need for swift action for improvement shall be automatically flagged down immediately and effectively.

d) Risk responses – These are defined processes that trigger once a risk has been identified or a threshold has been crossed. When working together, these responses will define your risk management strategy.

e) Risk transfer – This technique will transfer the risk to an external stakeholder or a different internal department. A common method of risk transfer that is enabled through risk monitoring are insurance policies, where third parties take on the risk in exchange for insurance premiums.

Adequate Internal Controls

In many parts of the world, the internal control framework released by the Committee of Sponsoring Organizations of the Treadway Commission, or COSO, is regarded as an important guide for companies all over to implement and maintain effective internal control across an organization related to financial statements (Leland, 2023). Originally aimed to investigate financial fraud, COSO has expanded its scope by releasing a study and guidance on "internal controls over sustainability reporting", or ICSR, in response to growing demands for overall corporate sustainability. The famous "COSO cube" demonstrates the functional relationship between the pillars and the components of the COSO framework, as demonstrated in the placement of the individual components.

In general, effective risk assessment identifies and considers both internal (e.g. complexity of the organization's structure, nature of the bank's activities, and personnel profile) and external (e.g. economic conditions, technological developments, and changes in industry) factors that could affect the internal control framework. (MORB, Sec. 162, par.5). Appendix 117 of the BSP's Manual of Regulation for Banks have provided a list of examples of minimum internal control measures, which has been followed by local banks in their routine risk monitoring activities. The examples are broadly listed in the following categories: a) independent balancing; b) physical handling of transactions; c) joint custody; d) dual control; e) number control; f) confirmation of accounts; g) internal control procedures for dormant accounts; and h) other internal control measures.

After all the related literature mentioned above, it could be well noticed that most of the references used in order to support this study mostly revolved around Basel III (which is an international framework to start with), and descends down to some provisions of the Manual of Operation for Banks (MORB) of the Bangko Sentral ng Pilipinas (BSP). In this light, references on other studies that focused primarily on the banks in the province of Zamboanga del Norte, or even in the island of Mindanao, is somewhat scarce, if not non- existent. Several factors, both

internal and external, could be factored in coming up with the assumption that banks with base of operations in Zamboanga del Norte could have some differences in terms with whatever has transpired in the literature cited, perhaps in terms of priorities, strategies, and targets shaped by geographical, economic, social, and cultural factors.

II. Methodology

The study's participants were selected from bank managers and employees because they have valuable insights into evaluating financial risk management practices in banking institutions. Their firsthand knowledge of daily operations and financial risk management within their bank made them valuable contributors to the study. In total there were 90 respondents with 15 being bank managers and the remaining 75 being bank employees.

The research instrument, a modified standard questionnaire, underwent a rigorous validation process to ensure its relevance and ethical soundness. Ethical considerations including research standards, cultural and gender sensitivity, and confidentiality, were carefully addressed. The instrument's reliability, or effectiveness, was also assessed. Repeated testing of the questionnaire yielded a consistent and reliable results. The researchers used the Cronbach Alpha coefficient to evaluate internal consistency, which measures the uniformity of responses on multiple-item survey. The instrument, with its 44 questions, achieved a Cronbach's Alpha of 0.93, indicating a high level of internal consistency and reliability. With the corresponding approval and consent from the identified respondents, the questionnaire was administered personally by the researchers. Responses were collected based on the respondents' level of agreement and disagreement with the statements. A five-point scale was used to assess the effects of financial risk management practices, specifically in the areas of Risk Management Environment, Risk Measurement, Risk Mitigation, Risk Monitoring, and Adequate Internal Controls.

The data collected from the questionnaire responses was classified, tallied, tabulated, analyzed, interpreted, and statistically treated to determine the relationship between financial risk management practices and commercial banks in Zamboanga del Norte, Philippines. It employed weighted mean to determine the level of risk management environment, risk measurement, risk mitigation, risk monitoring, and adequate internal control. To determine the significant difference in the perception of employees and managers regarding the level of financial risk management practices and the financial performance of the banks, the Mann Whitney U-Test was used. Moreover, the Kruskall Wallis Test was used to determine the significant difference in the respondent's profile and on the level of financial risk management practices employed by banks.

III. Results and Discussion

The study categorizes banks into two main groups, which are the Private Banks and Public Banks. Private Banks, with 54 respondents (managers and employees combined), represented 60% of the total respondent population, while Public Banks, with 36 respondents, accounted for 40%.

The survey assessed the financial risk encountered by banks, allowing respondents to select multiple risk they faced. A majority of the respondents (68%) indicated they faced no specific financial risk. However, 23 respondents identified Liquidity Risks and Interest rate risk as current challenges. Liquidity risk was highlighted as a significant concern by Borio (2014), potentially impacting financial crises and economic growth. On the other hand, interest rate risk, as studied by Gomez, et al. (2020), remains a key exposure for banks based on their asset and liability structures,

Additionally, 22 respondents (24%) reported facing Credit Risk. Konovalova et al. (2016) emphasized the relevance of credit risk management and quantitative assessment for all banks involved in lending. Market (price) Risk was reported by 11 (12%) respondents, which was defined by the Basel Committee on Banking Supervision as potential losses from market price movement, including interest rates and equity values. Foreign Exchange Risk was noted by 6 (7%) respondents, impacting banks directly and indirectly due to exchange rate volatility (Keshtgar et al., 2020).

Regarding Risk Management Environment, results showed values within the range of 4.84 - 4.97, and an average weighted mean of 4.92 for employees, and 4.87 – 5.00 for managers with an average weighted mean of 4.97, indicating strong agreement. This suggest a formal risk management system, risk diversification policies, and allocated budget for risk management. Banks appeared to take risk management seriously and were actively mitigating potential risks. This study supported the claims of School et al. (2021) that Basel III has led to significant improvements in risk management practices in banks. Banks with strong risk management practices were better able to withstand the impact of COVID-19 pandemic (COVOD-19 Pandemic: Financial Stability Implications and Policy Measures Taken, 2020). The results suggested that Banks were employing a wide range of risk management practices, well-supported by both management and employees. This is likely to have a positive impact on bank performance and promote financial stability.

In terms of Risk Measurement, most item were within the range of 4.27 – 4.69 for employees, and 4.13 – 4.67 for managers, indicating a high priority on thorough risk assessment and management, employing cutting-edge methods and technologies. Banks were using technology to manage financial risks, sophisticated quantitative methods to assess interest rate risk, and Gap Analysis to monitor liquidity risk. Value at Risk, as defined by Wang, et al. (2022), has become a widely used risk measurement and management tool for regulatory authorities and

financial institutions. Worst-Case stress testing for risk analysis have become well-established worldwide, with many authorities regularly running stress tests (Baudino, et al., 2018).

Regarding risk mitigation, the results showed mean scores ranging from 4.41 to 4.99 for employees and 4.47 to 4.93 for managers, indicating strong agreement on the effectiveness of risk mitigation strategies. These findings align with those of Dries et al. (2022), who found that financial institutions like banks employ derivatives, credit limits, mark-up rates, and maturity ladder charts to reduce risks.

Looking at risks monitoring, it was found that banks were generally effective at monitoring the value of collateral assets. The average weighted mean for employees was 4.63 and 4.65 for managers, suggesting that banks were generally effective at monitoring financial risk. This supports the claim of Henry & Justice (2021) that banks need to develop comprehensive procedures and information systems for credit monitoring.

The results also indicated strong agreement on the sufficiency of internal controls within the bank. Values ranged from 4.79 - 4.92 with an average of 4.86 for employees, and 4.87 – 4.93 with an average of 4.89 for managers. This suggests efficient internal controls, including risks segregation, emergency plans, auditing processes, and board-level risk oversight. Banks had internal control systems capable of swiftly dealing with newly recognized risks, highlighting the importance of separating duties and having contingency plans in place. Internal auditors verified the authenticity of accounts and risk reports, and banks maintained back-ups of software and data files. According to Risk Management (2014) that the presence of a Risk Committee at the Board Level ensured active involvement in risk management.

Table 1 Significant difference on the level of financial risk management practices employed when banks are grouped as to profile in terms of the Type of Banks

Type of Banks	H-value	df	p-value @ 0.05 level of significance	Interpretation
Risk Management Environment	19.6	5	0.001	Significant
Risk Measurement	16.7	5	0.005	Significant
Risk Mitigation	18.3	5	0.003	Significant
Risk Monitoring	16.9	5	0.005	Significant
Adequate Internal Controls	18.6	5	0.002	Significant

On the significant difference on the level of financial risk management practices employed when banks are grouped as to profile in terms of the Type of Banks (Table 1), the results shows a significant difference in the level of financial risk management practices employed. The most significant difference was in the risk management environment, with an H-value of 19.6. This implied that diverse risk management cultures and systems existed in banks with varying profiles. The other aspects like adequate internal control with H-value of 18.6 followed by risk mitigation

with H-value of 18.3 and risk monitoring with H-value of 16.9, lastly, risk measurement with H-value of 16.7 also exhibited notable variations throughout bank kinds. This showed that, based on their unique profiles, banks were handling these risks in different ways.

Table 2 Significant difference on the level of financial risk management practices employed when banks are grouped as to profile in terms of the Type of Financial Risk.

Type of Financial Risk	H-value	df	p-value @ 0.05 level of significance	Interpretation
Risk Management				
Environment	287	50	<.001	Significant
Risk Measurement	273	50	<.001	Significant
Risk Mitigation	277	50	<.001	Significant
Risk Monitoring	276	50	0.002	Significant
Adequate Internal Controls	278	50	<.001	Significant

On the significant difference on the level of financial risk management practices employed when banks are grouped as to profile in terms of the Type of Financial Risk, the results show that the H-values, serving were test statistics, are notably high for each type of financial risk: Risk Management Environment H = 287, Risk Measurement H = 273, Risk Mitigation H = 277, Risk Monitoring H = 276, and Adequate Internal Controls H = 278. These high H-values, coupled with a substantial degrees of freedom (df) of 50 for each factor, indicated a comprehensive and strong assessment across a diverse set of categories. The highest Hvalue was observed for the risk management environment, which suggested that this was the most important risk management practice that differentiates banks with different financial risk profiles. This is consistent with the findings of a 2019 study by the Basel Committee on Banking Supervision, which found that a strong risk management culture is essential for banks to effectively manage their financial risks.

Table 3 Significant difference on the level of financial risk management practices employed when banks are grouped as to profile in terms of Location.

Location	H-value	df	p-value @ 0.05 level of significance	Interpretation
Risk Management				
Environment	369	10	<.001	Significant
Risk Measurement	333	10	<.001	Significant
Risk Mitigation	352	10	<.001	Significant
Risk Monitoring	353	10	<.001	Significant
Adequate Internal Controls	364	10	<.001	Significant

As shown on table 3, the study found statistically significant differences (p-value < 0.05) in the level of financial risk management practices employed by banks when they are grouped together based on their location. The risk management environment showed the most significant

difference (highest H-value), suggesting it was the key factor differentiating banks from different locations. This aligns with the findings of IMF (2019), which found that banks in emerging markets generally had weaker risk management practices than banks in developed market. These results suggest that banks in different locations, may it be rural or urban, may face distinct risks and required tailored risk management approaches. However, the study did not examine the specific reasons for these differences, and further research may be needed to better understand the underlying factors.

Table 4 Significant difference on the perception of employees and managers on the level of financial risk management practices of the banks

Risk Management Practices	U-value	U-value @ 0.05	Interpretation
Risk Management Environment	16	8	Significant
Risk Measurement	45	17	Significant
Risk Mitigation	29	8	Significant
Risk Monitoring	8	0	Significant
Adequate Internal Controls	16	6	Significant

As shown in table, the study found that all five financial risk management practices - Risk Management Environment, Risk Measurement, Risk Mitigation, Risk Monitoring, and Adequate Internal Controls – were statistically significant, indicating their importance in managing financial risk. This aligns with the findings of Fava et al. (2023), who concluded that effective financial risk management practices can help to mitigate the negative impact of economic crises on firms. Risk Management Environment refers to the overall framework and culture within an organization that supports financial risk management, while risk measurement involves identifying, assessing, and quantifying the financial risks faced by an organization and, risk mitigation involved taking steps to reduce the likelihood or impact of financial risk, more so, risk monitoring was the ongoing monitoring and review of financial risks to ensure that the organization's risk management strategies were effective and lastly, adequate internal controls was having in place appropriate internal controls to prevent or detect and correct financial losses.

The study suggests organizations should prioritize implementing and maintaining effective financial risk management practices to protect their financial assets and achieve their business goals. This is particularly relevant in light of Chang et al.'s (2020), research, which demonstrated the role of financial risk management practices in preserving financial performance during pandemic.

IV. Conclusion

The main purpose of this study was to assess the effects of financial risk management of the banks in Zamboanga del Norte. Risk management was assessed in terms of financial risk

management, and in particular; credit risk, liquidity risk and market risk in line with Matayo and Muturi (2018). With a focus on the Risk Management Environment, Risk Measurement, Risk Mitigation, Risk Monitoring, and Adequate Internal Controls, the examination of financial risk management procedures in banks suggested a favorable prognosis. The results highlighted how dedicated major financial institutions were to upholding effective risk management structures and procedures.

First of all, these banks had a strong risk management environment that was characterized by strong leadership and governance, a risk-aware culture, clearly defined policies, routine training, and compliance checks. This establishes a strong base for risk management. Second, the banks had shown proficiency in risk measurement by accurately quantifying and evaluating financial risks using cutting-edge models and data analytics. Regular stress tests and scenario analyses improved their readiness even further. Thirdly, these banks' use of risk mitigation methods were remarkable. They demonstrated their commitment to lowering risk exposure by establishing precise risk controls, using hedging strategies, and successfully managing credit risk. Fourth, risk monitoring procedures were stringent, with clear KPIs, robust liquidity risk management, and solid operational risk controls. This preventative strategy aids in the early identification and mitigation of potential problems.

The adoption of adequate internal controls was a top priority, to finish. The integrity of the banks' operations was ensured through the establishment of thorough control frameworks, stringent duty segregation, and well-defined event response plans.

In conclusion, the finding that these institutions had a significant commitment to financial risk management measures was favorable. Their risk management environment encouraged a risk-aware culture, and they had comprehensive and accurate risk measurement, successful risk mitigation techniques, vigilant risk monitoring procedures, and adequate internal controls to protect their business operations. These results confirm the banks' commitment to upholding financial stability, abiding by regulatory requirements, and successfully reducing financial risks, ultimately boosting investor trust and safeguarding their reputation.

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Types Of Questions Used by Grade 8 Teachers in Periodic Exam Vis-A-Viz Revised Bloom's Taxonomy: Basis for Teachers' Test Construction Upskilling Plan

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Abstract — This study examined the types of questions used by Grade 8 teachers in periodic exams and evaluated their alignment with Bloom's Revised Taxonomy and the 60%-30%-10% rule as outlined by the Department of Education (DepEd). Data were collected from 22 Grade 8 teachers at Sindangan National High School using a checklist to categorize questions across cognitive levels. The results revealed that 67.6% of the questions focused on lower-order thinking skills (Remembering and Understanding), while 23.9% addressed middle-order thinking skills (Applying and Analyzing), and only 8.4% involved higher-order thinking skills (Evaluating and Creating). These findings indicate a significant gap in the inclusion of higher-order cognitive tasks in assessments, suggesting that teachers primarily focus on foundational knowledge rather than promoting critical thinking and creativity. The study highlights the need for professional development to help teachers integrate higher-order questions into their test design, ensuring a more balanced assessment structure. Based on the findings, recommendations for an Upskilling Plan for teachers are proposed, aimed at enhancing their test construction practices and fostering deeper student learning.

Keywords — Bloom's Taxonomy, 60%-30%-10% rule, cognitive complexity, test construction, professional development

I. Introduction

Assessment is a cornerstone of the educational process, providing a vital means for measuring student learning outcomes and ensuring the development of critical cognitive skills. In today's rapidly changing world, the ability to think critically, solve problems creatively, and apply knowledge in real-world contexts is more important than ever. Globally, there has been a growing emphasis on fostering these higher-order thinking skills (HOTS) alongside foundational knowledge. However, in many educational systems, including the Philippines, assessment practices continue to favor lower-order thinking skills (LOTS) such as recalling facts and basic comprehension. This disproportionate focus leaves limited opportunities for students to engage with more complex tasks that require analyzing, evaluating, and creating.

Periodic exams, which are a primary evaluative tool within the Philippine K-12 curriculum, play a significant role in assessing students' mastery of the Philippine Elementary Learning Competencies (PELC) and the Philippine Secondary Schools Learning Competencies (PSSLC). These assessments, however, often overlook the full spectrum of cognitive complexity required to truly measure students' critical thinking and problem-solving abilities. The types of questions used in these exams are crucial—they should challenge students to do more than just memorize facts. They need to ask questions that require students to analyze information, evaluate scenarios, and create new solutions, all while demonstrating their understanding of core content. Yet, despite frameworks like Bloom's Revised Taxonomy and guidelines such as the 60%-30%-10% rule, many teachers' assessments remain overly focused on simple recall and comprehension, leaving higher-order cognitive tasks underrepresented.

This study aims to address this gap by analyzing the types of questions used in periodic exams by Grade 8 teachers at Sindangan National High School, with a focus on their alignment with Bloom's Revised Taxonomy and the 60%-30%-10% rule. Specifically, it seeks to:

1. Categorize the types of questions based on cognitive levels from Bloom's Revised Taxonomy (Remembering, Understanding, Applying, Analyzing, Evaluating, Creating).
2. Assess the extent to which periodic exams adhere to the 60%-30%-10% rule of question distribution.
3. Develop a Teachers' Test Construction Upskilling Plan to guide educators in designing more balanced assessments that promote both lower- and higher-order thinking skills.

The findings of this study will benefit multiple stakeholders. Teachers will gain practical strategies to enhance their test design skills, ensuring that assessments better reflect the full range of cognitive demands in the curriculum. Students will benefit from more comprehensive and challenging assessments that better prepare them for future academic and real-world challenges. Educational administrators and policymakers will find the study's results useful for shaping professional development initiatives and improving assessment practices across schools.

The scope of the study is limited to Grade 8 teachers at Sindangan National High School, focusing exclusively on written periodic exams. The study does not cover other types of assessments, such as oral exams or performance tasks, and excludes teachers who are not involved in test design. Through this focused investigation, the study aims to contribute to the improvement of assessment practices and the development of 21st-century skills among students.

Review of Related Literature

The Review of Related Literature (RRL) examines key theories guiding assessment design, focusing on Bloom's Revised Taxonomy, Cognitive Load Theory, and the Philippine Elementary Learning Competencies (PELC) and Philippine Secondary Schools Learning Competencies

(PSSLC). These frameworks are central to creating assessments that measure both lower-order thinking skills (LOTS) and higher-order thinking skills (HOTS). Bloom's Revised Taxonomy (Anderson & Krathwohl, 2001) categorizes cognitive skills into six levels, ranging from basic recall (Remembering) to complex cognitive tasks (Creating), ensuring that assessments support a wide range of cognitive development. Studies by Biggs (1996) and Brookhart (2010) emphasize that assessments should go beyond testing simple recall, encouraging students to engage in higher-order thinking, including application, analysis, evaluation, and creation, which are key to deep learning. Applying Bloom's Taxonomy to assessment design allows for a broader understanding of student competencies, as it incorporates both foundational knowledge and critical thinking (Hattie & Timperley, 2007; Schraw, 2013).

Cognitive Load Theory (Sweller, 1988) provides additional insight into designing effective assessments, advocating for a balanced cognitive load that supports student learning without overwhelming them. It aligns with the 60%-30%-10% rule, suggesting that 60% of test items should focus on lower-order thinking (Remembering and Understanding), 30% on applying and analyzing, and 10% on evaluating and creating. This distribution allows for a manageable cognitive load, ensuring assessments challenge students progressively.

The PELC and PSSLC, as outlined in DepEd Order No. 8, s. 2016, stress the importance of aligning assessments with both basic competencies and critical thinking skills, preparing students for future challenges. Research by Popham (2013), Rahima et al. (2023), and Brar (2024) underscores the need for professional development to improve teachers' ability to design assessments that integrate higher-order thinking. Studies by Liwun et al. (2019) and Brar (2024) reveal that many teachers struggle to adequately assess complex cognitive processes, highlighting the importance of upskilling teachers to create more balanced and effective assessments. This study aims to develop a Teachers' Test Construction Upskilling Plan that equips educators with the skills necessary to design assessments that align with both cognitive theories and national educational standards.

II. Methodology

Research Design

This study employed a descriptive research design to investigate the types of questions used by Grade 8 teachers in periodic exams and assess whether these questions align with the 60%-30%-10% rule as outlined by the Department of Education (DepEd). The descriptive aspect of the design categorized the exam questions based on Bloom's Revised Taxonomy (Anderson & Krathwohl, 2001), specifically identifying how questions fit into the cognitive levels of Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating. The study then compared the distribution of these questions to the 60%-30%-10% rule prescribed in DepEd Order No. 8, s. 2016, which recommends that 60% of the exam questions focus on lower-order thinking

(Remembering and Understanding), 30% on middle-order thinking (Applying and Analyzing), and 10% on higher-order thinking (Evaluating and Creating). This allowed for an evaluation of whether teachers' assessments were balanced in terms of cognitive complexity.

Additionally, the study sought to explore if there were differences in the types of questions used based on teachers' demographic profiles, such as age, sex, DepEd position, highest educational qualification, and seminars/training attended related to test construction. Using descriptive statistics for categorizing and summarizing the data, and inferential statistics to analyze differences based on demographic factors, the study aimed to determine if these factors influenced how teachers designed their periodic exams. By focusing on teachers' responses and their alignment with the DepEd guidelines, this study provides valuable insights into current assessment practices in Philippine public high schools.

Research Environment

The research environment for this study is Sindangan National High School, a public secondary educational institution located in Sindangan, Zamboanga del Norte, Philippines. The school serves a diverse student population from various socioeconomic backgrounds and follows the K-12 curriculum mandated by the Department of Education (DepEd) of the Philippines. The school offers a comprehensive education program from Grade 7 to Grade 12, covering various core subjects such as English, Mathematics, Science, Filipino, and Social Studies. Periodic exams are conducted across these subjects to assess students' learning and mastery of competencies as outlined in the K-12 curriculum.

At Sindangan National High School, Grade 8 teachers from different subject areas, including English, Mathematics, Science, Filipino, and Social Studies, are responsible for designing and administering periodic exams for their students. These exams typically consist of a combination of written tests, performance tasks, and other forms of assessment. Teachers are expected to design exams that evaluate students' knowledge, skills, and competencies in accordance with the curriculum. The school follows DepEd guidelines for test construction, including ensuring that the periodic exams reflect a balance of cognitive levels, with an emphasis on both foundational knowledge and higher-order thinking skills. Periodic exams are an essential tool for monitoring student progress and ensuring that learning goals are met throughout the academic year.

Research Respondents and Sampling

The participants of this study are 22 Grade 8 teachers from Sindangan National High School. A total population sampling method is used due to the limited number of Grade 8 teachers at the school, ensuring comprehensive representation and eliminating sampling bias. Inclusion criteria require participants to be current English teachers at the school, having taught for at least

one full academic year and prepared at least one set of quarterly exams. Substitute or temporary teachers and those who have not completed a full academic year are excluded from the study.

The participant characteristics reveal a balanced distribution of ages, with 50% of participants in both the early adults (25-40) and middle age (41-60) categories. A majority of the participants are female (63.6%), while 36.4% are male. In terms of their DepEd positions, 39.1% are in the T1 (Teacher I) category, 30.4% are in T3 (Teacher III), 13.0% hold the MT1 (Master Teacher I) position, and 4.3% are in T2 (Teacher II). Educationally, most participants have attained an M.A. CAR (43.5%), followed by those with M.A. units (21.7%), M.A. Graduate (8.7%), Bachelor's Degree (8.7%), and EdD units (8.7%). Regarding professional development, the overwhelming majority (95.5%) have not attended any seminars or training, while only 4.5% have attended one seminar or training.

Research Instrument

The primary data collection tool for this study was a checklist designed to gather information about the types of questions used by Grade 8 teachers in their periodic exams. The checklist was developed to assess whether the questions aligned with Bloom's Revised Taxonomy and the 60%-30%-10% distribution rule for cognitive levels.

The checklist included the following sections:

1. Demographic Information: This section captured the teachers' age, sex, DepEd position, highest educational qualification, and seminars or training attended related to test construction. This information was used to correlate teachers' profiles with their assessment practices.

2. Types of Questions in Periodic Exams: Teachers were asked to categorize each question in their periodic exams according to Bloom's Taxonomy cognitive levels (Remembering, Understanding, Applying, Analyzing, Evaluating, Creating). The checklist allowed teachers to reflect on how their exam questions were distributed across these cognitive levels.

3. Distribution of Test Items: This section assessed whether teachers followed the 60%-30%-10% rule for the distribution of test items. According to this rule, 60% of the questions should be focused on lower-order thinking (Remembering and Understanding), 30% on medium-level thinking (Applying and Analyzing), and 10% on higher-order thinking (Evaluating and Creating). Teachers were asked to review their periodic exams and indicate the percentage of items that adhered to this distribution.

Data Collection Procedure

The data collection process involved the following steps:

1. Obtaining Permission: Before data collection began, permission was obtained from the school administrators and the Department of Education (DepEd) to conduct the study and access the teachers' periodic exams.
2. Distribution of the Checklist: The checklist was distributed to the 22 participating Grade 8 teachers during scheduled faculty meetings or in-service training sessions. Teachers were instructed to fill out the checklist based on their most recent periodic exams, which ensured that the information provided reflected their actual test construction practices.
3. Clarification and Assistance: To ensure that all teachers understood the instructions and could complete the checklist accurately, research assistants were available to clarify any questions and provide assistance as needed.
4. Collection of Completed Checklists: Once the teachers completed the checklists, the researcher collected the forms to maintain confidentiality and anonymity. The teachers' responses were recorded and coded to protect their identities.

Data Analysis

The data collected from the **checklists** completed by the Grade 8 teachers were analyzed using the following statistical tools:

1. **Descriptive Statistics**:
    - Frequency and Percentage Distribution: This statistical tool was used to summarize and categorize the demographic characteristics of the teachers, such as their age, sex, DepEd position, highest educational qualification, and seminars/training attended. These statistics provided an overview of the teachers' profiles and helped in understanding the sample's composition.
    - Categorization of Test Items: Descriptive statistics were also used to analyze the distribution of exam questions across different cognitive levels in Bloom's Revised Taxonomy (Remembering, Understanding, Applying, Analyzing, Evaluating, Creating). This helped to determine the percentage of questions in each cognitive category and to assess adherence to the 60%-30%-10% rule for question distribution.
2. **Inferential Statistics**:

- **T-test**: A **t-test** was used to determine whether there were significant differences in the types of questions used by teachers based on their **demographic profiles** (age, sex, DepEd position, highest educational qualification, and seminars/training attended). The t-test helped identify any statistical differences in the distribution of cognitive levels in exam questions based on these demographic variables. A significance level of **0.05** was used to test for the differences.

Validity and Reliability

- Validity: The validity of the checklist was ensured through content validity. The tool was reviewed by experts in educational assessment and test construction. Their feedback was incorporated to ensure that the checklist accurately assessed the alignment of exam questions with Bloom's Taxonomy and the 60%-30%-10% rule.
- Reliability: The reliability of the checklist was tested through test-retest reliability. A pilot test was conducted with a small sample of teachers to assess the consistency of their responses over time. A high correlation between the initial and retested responses confirmed the reliability of the checklist.

Ethical Considerations

Ethical standards were strictly followed throughout the study. The informed consent of all participants was obtained, ensuring that they voluntarily agreed to participate in the study and understood the purpose of the research. Teachers were assured that their responses would remain confidential and that their identities would not be disclosed. Participation was voluntary, and the data collected were used solely for research purposes. Teachers were also informed that they had the right to withdraw from the study at any time without any negative consequences.

III. Results and Discussion

Profile of Respondents

Table 1 Profile of Teacher Respondents (N = 22)

Participant Characteristics	n	%
Age		
Early adults (25-40)	11	50.0
Middle age (41-60)	11	50.0
Sex		
Male	8	36.4
Female	14	63.6
DepEd Position		

Participant Characteristics	n	%
T1- T2	11	50.0
MT1	11	50.0
Highest Educational Attainment		
Bachelor's degree & w/ MA units	7	31.8
MA-CAR, MA degree, EdD units	15	68.2
Seminars/Trainings Attended		
No seminar/training attended	21	95.5
One seminar/training	1	4.5

The 22 teacher respondents at Sindangan National High School are equally split between early adults (25-40 years) and middle-aged teachers (41-60 years), reflecting a balance of experience and fresh perspectives. More female teachers (63.6%) participated compared to male teachers (36.4%), consistent with trends in the Philippine teaching profession. Half of the respondents hold Teacher I to Teacher II positions, while the other half are Master Teachers (MT1), indicating a mix of experienced and newer educators. Regarding educational qualifications, 68.2% hold advanced degrees (MA or EdD units), while 31.8% have a Bachelor's degree with MA units. However, most teachers (95.5%) have not attended seminars or training related to test construction, highlighting a significant gap in professional development in this area. Only 4.5% have attended one relevant seminar.

Table 2 Mean Distribution of Types of Questions Used by Teachers per Subject Area

Subject Area	N	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating	Total items
English	2	8.0	15.5	0.0	19.0	0.0	5.0	47.5
Science	3	21.7	12.3	7.3	4.7	3.7	0.3	50.0
Math	4	15.0	11.5	5.3	4.0	2.8	1.5	40.0
Filipino	2	10.0	19.0	2.5	1.5	4.0	3.0	40.0
ArPan	3	12.0	16.7	12.0	0.0	5.7	0.0	46.3
MAPEH	3	20.3	13.0	1.3	5.3	0.0	0.0	40.0
TLE	4	15.6	10.0	8.0	3.8	2.5	0.0	40.0
EPS	1	24.0	12.0	0.0	4.0	0.0	0.0	40.0

The mean distribution of types of questions used by Grade 8 teachers across various subject areas reveals a significant emphasis on lower-order thinking skills, particularly Remembering and Understanding. In English, 49.4% of the questions focused on Understanding, while 40.0% were aimed at Remembering. Science had a strong focus on Remembering (43.4%) but included moderate attention to Applying (14.6%). In Math, the majority of questions also addressed Remembering and Understanding (66.5%), with a smaller portion assessing higher-order skills. Filipino assessments heavily favored Understanding (47.5%) and Remembering (25%), while ArPan showed a stronger balance with 62.6% on Remembering and Understanding, and 25.9% on Applying and Analyzing. MAPEH and TLE had less focus on higher-order skills, with MAPEH

using just 1.3% for Applying and TLE using 8.0%. Lastly, the EPS subject was dominated by Remembering (60%) and Understanding (30%), with minimal coverage of higher-order skills, illustrating a trend across all subjects of prioritizing foundational knowledge over complex cognitive tasks.

Table 3 Overall Distribution of Types of Questions Used by Teachers

Types of questions	Number of questions	%
Remembering	345	36.6
Understanding	293	31.0
Applying	120	12.7
Analyzing	106	11.2
Evaluating	57	6.0
Creating	23	2.4
Total	*944*	*100.00*

The overall distribution of types of questions used by teachers shows a clear emphasis on lower-order thinking skills, with 36.6% of questions focused on Remembering and 31.0% on Understanding, making up 67.6% of all questions. Applying accounted for 12.7%, followed by Analyzing at 11.2%. Higher-order thinking skills were less represented, with Evaluating at 6.0% and Creating at just 2.4%. This distribution highlights a tendency to prioritize foundational knowledge over more complex cognitive tasks, reflecting a gap in promoting critical thinking and creativity in assessments.

Mean Distribution of Types of Questions Used According to the 60-30-10 Percent Rule per Subject Area

Table 4 Mean Distribution of Types of Questions Used According to the 60-30-10 Percent Rule per Subject Area

Subject Area	Mean Total items	Remembering & Understanding (60%)		Applying & Analyzing (30%)		Evaluating & Creating (10%)	
		Mean no. of items	%	Mean no. of items	%	Mean no. of items	%
English	47.5	23.5	49.4	19.0	40.0	5.0	10.5
Science	50.0	25.0	68.0	12.0	24.0	4.0	8.0
Math	40.0	26.5	66.3	9.3	23.3	4.3	10.8
Filipino	40.0	29.0	72.5	4.0	10.1	7.0	17.5
ArPan	46.3	28.7	62.6	12.0	25.9	5.7	12.3
MAPEH	40.0	33.3	83.3	6.6	16.6	0.0	0.0
TLE	40.0	25.6	64.0	11.8	29.5	2.5	6.3
EPS	40.0	36.0	90.0	4.0	10.0	0.0	0.0

The mean distribution of types of questions used according to the 60-30-10 rule across subject areas shows varying adherence to the recommended distribution. Subjects like EPS and MAPEH show a strong focus on lower-order thinking skills, with 90% and 83.3% of their questions, respectively, in the Remembering and Understanding categories. Filipino also exceeds the 60% target, with 72.5% of its questions on basic skills. Meanwhile, subjects such as English and ArPan show a more balanced distribution, with approximately 50% or more of questions in Remembering and Understanding, but still insufficient representation of higher-order skills. Overall, the study reveals a predominant focus on foundational knowledge and a gap in the inclusion of Evaluating and Creating questions, which are crucial for fostering critical thinking and problem-solving abilities.

Table 5 Overall Distribution of Types of Questions Used by Teachers and the extent of use according to the 60-30-10 Percent Rule

Types of questions	Number of questions	Extent of Use	60-30-10 Percent Rule (Standards)
Remembering & Understanding	638	67.6%	60%
Applying & Analyzing	226	23.9%	30%
Evaluating & Creating	80	8.4%	10%
Total	*944*	*100.00*	*100*

The overall distribution of types of questions used by teachers reveals a notable imbalance when compared to the 60-30-10 rule. A significant 67.6% of the questions focus on Remembering and Understanding, exceeding the 60% target. However, only 23.9% of questions assess Applying and Analyzing, falling short of the 30% guideline. Furthermore, Evaluating and Creating questions make up just 8.4% of the total, underperforming relative to the recommended 10%. This distribution highlights the need for a more balanced approach to assessment that incorporates more higher-order cognitive tasks to foster critical thinking and creativity in students.

Difference in the type of questions used by Grade 8 teachers when grouped according to profile

Table 6 T-test Results for Group Comparisons on the Use of Questions on Remembering

Profile Variables	*n*	*M*	*SD*	*t*	df	*p*
Age				-1.49	20	.15
Early adults (25-40)	11	13.55	7.67			
Middle age (41-60)	11	17.82	5.63			
Sex				-0.92	20	.37
Male	8	13.88	5.84			
Female	14	16.71	7.47			

DepEd position				-0.15	20	.88
T1 – T2	11	15.46	7.71			
T3 – M1	11	15.91	6.40			
Highest education				-0.57	20	.57
Bachelor's degree & w/ MA units	7	14.43	7.23			
MA-CAR, MA degree, EdD units	15	16.27	6.94			
Seminars attended				-	-	-
No seminar/training attended	21	16.05	6.87			
One seminar/training	1	8.00	0.00			

Table 7 T-test Results for Group Comparisons on the Use of Questions on Understanding

Profile Variables	***n***	***M***	***SD***	***t***	**df**	***p***
Age				-0.45	20	.66
Early adults (25-40)	11	12.82	5.79			
Middle age (41-60)	11	13.82	4.66			
Sex				-0.47	20	.65
Male	8	12.63	2.88			
Female	14	13.71	6.17			
DepEd position				-0.28	20	.78
T1 – T2	11	13.64	5.45			
T3 – M1	11	13.00	5.10			
Highest education				-0.46	20	.65
Bachelor's degree & w/ MA units	7	12.57	4.61			
MA-CAR, MA degree, EdD units	15	13.67	5.51			
Seminars attended				-	-	-
No seminar/training attended	21	13.00	5.06			
One seminar/training	1	20.00	0.00			

Table 8 T-test Results for Group Comparisons on the Use of Questions on Applying

Profile Variables	***n***	***M***	***SD***	***t***	**df**	***p***
Age				0.17	20	.87
Early adults (25-40)	11	5.64	6.45			
Middle age (41-60)	11	5.27	3.07			
Sex				1.95	20	.07
Male	8	8.00	5.40			
Female	14	4.00	4.17			
DepEd position				0.60	20	.56
T1 – T2	11	6.19	6.19			
T3 – M1	11	4.82	3.46			
Highest education				1.84	20	.08
Bachelor's degree & w/ MA units	7	8.14	6.79			
MA-CAR, MA degree, EdD units	15	4.20	3.39			
Seminars attended				-	-	-
No seminar/training attended	21	5.71	4.90			
One seminar/training	1	0.00	0.00			

Table 9 T-test Results for Group Comparisons on the Use of Questions on Analyzing

Profile Variables	*n*	*M*	*SD*	*t*	df	*p*
Age				0.59	20	.56
Early adults (25-40)	11	5.55	7.75			
Middle age (41-60)	11	4.09	2.43			
Sex				-0.43	20	.68
Male	8	4.13	2.70			
Female	14	5.21	6.87			
DepEd position				-0.52	20	.61
T1 – T2	11	4.18	5.44			
T3 – M1	11	5.46	6.06			
Highest education				-0.14	20	.89
Bachelor's degree & w/ MA units	7	4.57	6.68			
MA-CAR, MA degree, EdD units	15	4.93	5.37			
Seminars attended				-	-	-
No seminar/training attended	21	4.24	5.08			
One seminar/training	1	17.00	0.00			

Table 10 T-test Results for Group Comparisons on the Use of Questions on Evaluating

Profile Variables	*n*	*M*	*SD*	*t*	df	*p*
Age				-0.57	20	.58
Early adults (25-40)	11	2.27	2.90			
Middle age (41-60)	11	2.91	2.34			
Sex				0.55	20	.60
Male	8	3.00	2.62			
Female	14	2.37	2.65			
DepEd position				-0.57	20	.58
T1 – T2	11	2.27	2.72			
T3 – M1	11	2.91	2.55			
Highest education				-0.37	20	.72
Bachelor's degree & w/ MA units	7	2.29	2.98			
MA-CAR, MA degree, EdD units	15	2.73	2.49			
Seminars attended				-	-	-
No seminar/training attended	21	2.71	2.59			
One seminar/training	1	0.00	0.00			

Table 11 T-test Results for Group Comparisons on the Use of Questions on Creating

Profile Variables	*n*	*M*	*SD*	*t*	df	*p*
Age				0.81	20	.43
Early adults (25-40)	11	1.46	3.08			
Middle age (41-60)	11	0.64	1.29			
Sex				-0.44	20	.67
Male	8	0.75	1.49			
Female	14	1.21	2.75			
DepEd position				-1.00	20	.33
T1 – T2	11	0.55	1.21			
T3 – M1	11	1.55	3.08			
Highest education				-	-	-
Bachelor's degree & w/ MA units	7	0.00	0.00			
MA-CAR, MA degree, EdD units	15	1.53	2.72			
Seminars attended				-	-	-
No seminar/training attended	21	1.10	2.39			
One seminar/training	1	0.00	0.00			

The t-test results for the use of different types of questions by Grade 8 teachers, when grouped by various profile variables, show minimal significant differences. For Remembering and Understanding questions, age, sex, DepEd position, highest education, and seminar attendance did not exhibit statistically significant differences, indicating that teachers across these groups generally used similar approaches to these basic cognitive tasks. In contrast, the use of Applying, Analyzing, Evaluating, and Creating questions showed small variations but again lacked statistical significance across most profile variables. For instance, while male teachers used more Applying questions than female teachers, this difference was not statistically significant. Similarly, the number of Analyzing, Evaluating, and Creating questions did not significantly vary between different age groups, educational attainment levels, or those who attended seminars. These findings suggest that, regardless of teachers' demographic profiles, there is a consistent trend toward focusing on lower-order thinking skills in their assessments.

DISCUSSION

Interpretation of Results

This study aimed to explore the types of questions used by Grade 8 teachers in periodic exams and assess how well these questions align with Bloom's Revised Taxonomy (Anderson & Krathwohl, 2001), particularly the 60%-30%-10% rule for cognitive complexity as outlined by the Department of Education (DepEd). The results indicated a notable predominance of lower-order thinking questions (Remembering and Understanding), which made up 67.6% of the total questions, exceeding the 60% recommended by the DepEd guidelines. On the other hand, higher-order thinking questions (Evaluating and Creating) accounted for only 8.4%, well below the 10% target in the 60%-30%-10% rule. These findings suggest that while teachers are primarily focusing on assessing students' recall and comprehension, they are underutilizing the higher cognitive levels

required for fostering critical thinking and problem-solving skills, as recommended by Bloom's Taxonomy.

The study's primary research questions were aimed at identifying the types of questions used by Grade 8 teachers and evaluating whether these questions adhered to the 60%-30%-10% rule for cognitive complexity. The results showed that the majority of questions used by teachers fell within the lower-order thinking categories of Remembering and Understanding, with fewer questions addressing the middle-order (Applying and Analyzing) and higher-order cognitive levels (Evaluating and Creating). This means that while teachers are likely assessing students' foundational knowledge and comprehension, they are not sufficiently challenging students with tasks that promote higher-level cognitive skills such as critical evaluation and creative problem-solving. The study indicates that Bloom's Taxonomy is not being fully utilized to guide assessment practices, which limits the development of students' higher-order thinking abilities.

Comparison of Findings with Previous Research

The results of this study are consistent with previous research that suggests a widespread reliance on lower-order thinking questions in educational assessments. Studies by Rahima et al. (2023) and Liwun et al. (2019) have highlighted similar trends in assessments across various educational contexts, where teachers often prioritize easily assessable lower-order cognitive tasks over more complex, higher-order tasks. These findings align with Popham (2013), who pointed out that teachers may feel more comfortable with simple recall questions and may lack the training or resources to effectively design questions that assess higher-order thinking. Additionally, the study's findings reflect the challenges identified by Anderson and Krathwohl (2001), who argued that despite the importance of Bloom's Taxonomy in promoting cognitive development, its application in classroom assessments is often inconsistent, particularly in terms of incorporating higher-order questions.

Limitations

While this study provides valuable insights into the types of questions used in Grade 8 periodic exams, it has several limitations. First, the sample size was relatively small, consisting of only 22 Grade 8 teachers from a single school. This limits the generalizability of the findings to other schools or educational contexts. Teachers from different regions or subject areas may have different approaches to test design, which could result in different patterns of question use. Second, the study relied on teacher self-report data, which may be subject to biases such as social desirability or recall bias. Teachers may have over-reported the use of higher-order questions in their assessments, reflecting their ideal practices rather than actual classroom behavior. Finally, the study employed a cross-sectional design, which provides a snapshot of teachers' questioning practices at a single point in time. Longitudinal studies could offer more comprehensive insights into how teachers' practices evolve over time, especially with continued professional development.

The limitations of this study must be acknowledged, as they may affect the interpretation and generalization of the findings. The small, localized sample size restricts the ability to apply these results to a broader population of teachers across the Philippines. Additionally, relying on teacher self-report data may not fully capture the actual questioning strategies employed in classrooms. These limitations should be taken into account when considering the conclusions drawn from the study. Future studies could address these limitations by expanding the sample size, incorporating classroom observations, and using a longitudinal approach to track changes in teachers' questioning practices over time.

The limitations of this study, particularly the small sample size and the use of self-report data, may impact the accuracy and generalizability of the conclusions. For instance, if teachers over-reported their use of higher-order questions, the study's findings might reflect an idealized version of their questioning practices rather than their actual classroom behavior. Furthermore, the cross-sectional nature of the study limits the ability to observe changes in teachers' questioning practices over time, which could provide more robust insights into how professional development impacts test design and the use of higher-order thinking questions. The study's conclusions should, therefore, be interpreted with caution, and future research should aim to address these limitations to strengthen the findings.

IV. Conclusion

This study reveals a significant gap between theoretical frameworks such as Bloom's Taxonomy and the 60%-30%-10% rule and the actual questioning practices of Grade 8 teachers. While a substantial portion of the exam questions focused on lower-order cognitive skills (Remembering and Understanding), there was an underutilization of higher-order questions (Evaluating and Creating). This imbalance highlights the need for professional development programs such as upskilling plan for teachers in test construction that equip teachers with the tools and strategies to incorporate more complex cognitive tasks into their assessments. By improving teachers' awareness of Bloom's Taxonomy and the 60%-30%-10% rule, schools can promote critical thinking, problem-solving, and creativity among students, leading to deeper learning outcomes.

V. Recommendations

Based on the findings and limitations, the following recommendations are proposed:

1. Upskilling plan for test Construction: Schools can implement the upskilling plan designed by the researcher for teachers' test construction. This plan focuses on Bloom's Taxonomy

and test question design, helping teachers create assessments that cover a range of cognitive levels, particularly higher-order thinking skills.

2. Peer Collaboration: Teachers are encouraged to collaborate with peers to review and refine their test questions, ensuring they are challenging students at various cognitive levels.

3. Use of Technology: Schools can integrate digital tools that assist teachers in designing varied and cognitively complex questions aligned with Bloom's Taxonomy.

4. Ongoing Reflection: Teachers scan engage in regular reflection on their questioning practices to ensure they are incorporating a balance of cognitive levels in their assessments.

5. Future Research: Longitudinal studies can be conducted to explore the long-term impact of professional development on teachers' questioning practices and student learning outcomes.

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Financial Literacy And Financial Management Practices of Public School Teachers

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Abstract — This study investigates the financial literacy and management practices of public school
teachers in Dapitan City, Zamboanga del Norte, addressing prevalent challenges such as overspending and high debt. The research employed a quantitative, descriptive survey design, utilizing stratified random sampling to select 475 public school teachers. Demographic data, financial literacy assessments, and financial management practice evaluations were collected. The demographic profile revealed a majority of participants were married female teachers aged 31-40, holding college degrees and earning monthly incomes between P19,041 and P38,080. The findings demonstrated a high level of financial literacy among the teachers, categorized as "very literate" in financial behavior and "much literate" in financial attitude and training. Their financial management practices were also deemed "much practiced," indicating effective savings, credit management, and budgeting habits. A statistically significant moderate positive relationship ($d = 0.364$, $p < 0.05$) was observed between financial literacy and financial management practices, suggesting that improved financial knowledge directly correlates with enhanced financial behaviors.

The study underscores the critical need for targeted financial literacy training programs within educational institutions to enhance teachers' financial management skills. Tailored workshops and collaborative efforts with financial institutions can further bolster teachers' financial stability and decision-making abilities. By improving financial literacy among teachers, not only are their personal lives positively impacted, but also a culture of financial responsibility is fostered within their communities, ultimately benefiting future generations.

Keywords — Financial literacy, financial management practices, public school teachers, financial behavior, financial attitude, financial training, financial knowledge, savings practices, credit practices, budget practices, spending practices and investing practices

I. Introduction

Many individuals, including teachers, often demonstrate a lack of understanding of essential financial concepts. This issue is especially concerning among educators, as their perspectives on spending and financial behavior show troubling tendencies. According to Elomina (2021), teachers often fail to perceive financial information fully, resulting in poor decision-making without a comprehensive understanding of their financial circumstances.

Briones, former Philippine Education Secretary, highlighted the financial management challenges teachers face, including overspending, high liabilities, careless use of credit cards, inadequate budgeting, and insufficient funds to meet basic needs (Galang, 2021). These behaviors indicate the growing significance of financial literacy, which has become increasingly crucial in modern times.

Financial literacy encompasses an understanding of financial concepts and risks, promoting informed decision-making and better financial habits, such as budgeting, investing, and long-term planning (Elomina, 2021). Financial management, meanwhile, refers to the ability to handle finances efficiently, allowing individuals to meet daily needs while planning for the future. Bhatt (2011) stresses the importance of financial management for personal and professional stability, urging individuals to develop these skills to improve their lives (as cited by Munohsamy, 2015).

Financial literacy is not solely determined by education or income. Studies show that even welleducated and high-income individuals can struggle with financial matters, while those with lesser knowledge are more vulnerable to financial mismanagement (Zucchi, 2022). Financial knowledge influences financial behaviors, and individuals lacking this knowledge can benefit from financial planning services to make more informed decisions (M.U., 2019).

Sanderson (2015) defines financial literacy as the ability to use financial knowledge and skills to make sound decisions and manage resources effectively. Sujaini (2021) emphasizes that financial literacy involves mastering skills such as personal finance management, budgeting, and saving, which are crucial for achieving financial independence and security. Dwiastanti's (2015) study further underscores the role of financial literacy in personal prosperity, with financial behavior and attitude contributing significantly to literacy, particularly among women (Rai et al., 2019).

Gutti (2020) argues that financial literacy is central to individuals' economic futures, shaped by three pillars: knowledge, attitude, and behavior. Financial knowledge includes understanding key concepts like saving, investing, credit, inflation, and interest rates, while financial behavior relates to managing money through practices such as budgeting and timely bill payments. Financial attitudes influence one's approach to savings and planning for future needs, and education can enhance these attitudes, reducing dependence on credit (Ibrahim & Alqaydi, 2013).

In the context of public school teachers in Dapitan City, Zamboanga del Norte, there exists a significant gap in financial literacy and financial management practices. Many educators lack the necessary financial understanding, leading to problematic behaviors like overspending, high debt, and poor budgeting. Addressing this gap is critical, as financial literacy empowers individuals to live comfortably, make sound decisions, and achieve financial security.

Given the importance of financial literacy and management, this research aims to assess the current financial literacy and management practices among public school teachers in Dapitan City. It will explore the factors influencing these practices and propose strategies to enhance teachers' financial knowledge and skills. The ultimate objective is to bridge the knowledge gap, empowering teachers to improve their financial well-being and serve as role models for their students.

Literature Review

The importance of financial literacy and effective financial management practices among public school teachers has been a recurring theme in numerous studies, highlighting the significant gaps and challenges in this area. Elomina (2021) revealed a concerning lack of understanding of fundamental finance concepts among teachers, leading to troubling perspectives on spending and a lack of focus on behavioral improvements. Similarly, Galang (2021) identified several financial management problems faced by teachers, including overspending, high levels of debt, and inadequate budgeting practices. These findings underscore the urgent need to improve financial literacy and management skills among teachers to address these persistent issues.

Research by Bhatt (2011, as cited by Munohsamy, 2015) emphasizes the critical role of financial management in both personal and professional life, regardless of an individual's financial standing. This underscores the importance of equipping teachers, regardless of their income level, with the necessary skills to manage their finances effectively. Zucchi (2022) further emphasized the need for comprehensive financial education that extends beyond basic knowledge. This approach should focus on developing positive financial attitudes and behaviors, recognizing the diverse needs and backgrounds of teachers.

Moreover, M.U. (2019) highlighted the role of financial planning services in supporting individuals who lack financial knowledge, enabling them to make informed financial decisions. Sanderson (2015) defined financial literacy as the practical application of financial knowledge in real-life situations, highlighting its relevance for teachers in managing their personal finances. Similarly, Sujaini (2021) emphasized the importance of practical financial skills, such as budgeting and saving, in effectively managing personal finances. Dwiastanti (2015) highlighted the significance of high financial literacy, which is influenced by both financial education and behavior. This suggests that interventions should address both knowledge and behavior to improve financial literacy among teachers. Additionally, Rai et al. (2019) emphasized the role of financial behavior and attitude in determining financial literacy, calling for interventions that promote positive financial attitudes and behaviors among teachers. Khawar & Sarwar (2021) stressed the need for targeted educational programs and resources to enhance financial literacy among teachers. These interventions can provide teachers with the necessary knowledge and skills to improve their financial management practices.

This comprehensive review underscores the critical importance of improving financial literacy and management practices among public school teachers. The findings highlight the need for a multifaceted approach that includes comprehensive financial education, the development of positive financial attitudes and behaviors, and the provision of ongoing support and resources. By addressing these crucial aspects, interventions can empower teachers to make informed financial decisions, improve their financial wellbeing, and serve as positive role models for their students.

This study aims to assess the current level of financial literacy among teachers, examine their financial management practices, identify influencing factors, and propose strategies to enhance their financial literacy and management skills. The goal is to bridge the gap in financial knowledge and empower teachers with the necessary tools to make informed financial decisions. The ultimate objective is to improve teachers' financial well-being and enable them to serve as positive role models for their students. Through targeted interventions and educational programs, this research endeavors to enhance financial literacy and management practices among public school teachers in Dapitan City, Zamboanga del Norte.

II. Methodology

The present study utilized a quantitative research technique through a descriptive-correlational method. This method is a type of quantitative research design that involves collecting observational or survey data to analyze the relationships between variables and address the question of how are they related.

In this study, the objective was to examine the relationship between financial literacy and financial management among public school teachers. By employing this research design, the study aimed to gather data on the financial literacy levels and financial management practices of public school teachers. Through surveys, respondents' experiences, views, and attitudes towards financial literacy and financial management were assessed. The study did not involve any manipulation of the primary variables of interest. The use of a descriptive-correlational method allowed for the exploration of the relationship between financial literacy and financial management among public school teachers. The focus was on understanding the association between these variables and identifying any potential patterns or trends. By employing quantitative techniques, the study aimed to provide a comprehensive analysis of the relationship between financial literacy and financial management among public school teachers. The findings from this research approach can contribute to the existing literature and inform strategies to enhance financial literacy education and promote effective financial management practices among teachers. The utilization of a descriptive-correlational method in this study allowed for a systematic examination of the relationship between financial literacy and financial management among public school teachers, providing valuable insights into the topic.

III. Results and Discussion

Table 1 Summary of Responses of Financial Literacyhe

Descriptors	AWV	Description
1. Financial Knowledge	3.37	Very Literate
2. Financial Behavior	2.69	Much Literate
3. Financial Attitude	2.94	Much Literate
4. Financial Training	3.14	Much Literate
Mean	3.04	Much Literate

** AWV = Average Weighted Value*

The table provides a summary of responses on financial literacy among public teachers in Dapitan City. It reveals that in the categories of financial knowledge, financial behavior, financial attitude, and financial training, the weighted averages are 3.37, 2.69, 2.94, and 3.14 respectively. This indicates that teachers excel in financial knowledge, are moderately proficient in financial attitude and training, but show room for improvement in financial behavior.

The overall average weighted mean of 3.04 categorizes the public teachers as "much literate." This suggests a solid foundation in financial knowledge and training, with opportunities to enhance financial behavior and attitude further. By focusing on improving these areas, such as encouraging better financial practices and fostering a positive financial attitude, the financial literacy and decision-making skills of public teachers in Dapitan City can be strengthened comprehensively.

Table 2 Summary of Responses of Financial Management Practices

Descriptors	AWV	Description
1. Savings Practices	2.35	Practiced
2. Credit Practices	2.36	Practiced
3. Investing Practices	2.21	Practiced
4. Spending Practices	3.01	Much Practiced
5. Budgeting Practices	3.14	Much Practiced
Mean	2.61	Much Practiced

** AWV = Average Weighted Value*

The table summarizes the financial management practices of public teachers in Dapitan City, highlighting weighted averages for budgeting, spending, credit management, savings, and investing practices as 3.14, 3.01, 2.36, 2.35, and 2.21 respectively. The overall average weighted mean of 2.61 categorizes the teachers as "much practiced." This data suggests that public teachers excel in budgeting and spending practices, as indicated by the higher weighted averages in these categories. However, there is room for improvement in credit management, savings, and investing practices, as shown by the lower weighted averages in these areas. Strengthening skills in credit management, savings habits, and investment strategies can further enhance the financial management capabilities of public teachers, enabling them to make more informed decisions and achieve greater financial stability.

Table 3 Test of Significant Relationship Between Financial Literacy on the Financial Management Practices at 5% level of Significance

Relationship	D-value	P-value @ 0.05	Decision	Interpretation
Financial Literacy Financial Management	0.364	0.000	*Reject Ho*	Significant

** p-value is lesser than 0.05 level of significance = significant; Reject Ho*
** p-value is greater than 0.05 level of significant = not significant; Fail to reject Ho.*

The table presents a test for a significant relationship between financial literacy and financial management practices among public school teachers in Dapitan City. The Somers' D resulted in a coefficient (d value) of 0.364, with a p-value (0.000) smaller than the level of significance. This implies that the null hypothesis, which suggests no significant relationship between financial literacy and financial management practices, must be rejected. The findings indicate a significant relationship between the variables examined. Interpreting the degree of relationship, the correlation coefficient of 0.000 suggests a moderate positive relationship between financial literacy and financial management practices among public school teachers. This means that as financial literacy levels increase, there is a corresponding tendency for improved financial management practices. These results underscore the importance of enhancing financial literacy initiatives to positively impact the financial management skills and practices of public school teachers in Dapitan City.

Table 4 Test of Significant Relationship Between Financial Literacy in terms of Financial Knowledge and Financial Management Practices at 5% level of Significance

Relationship	Financial Management Practices			
	D-value	P-value @ 0.05	Decision	Interpretation
Financial Knowledge	0.167	0.000	*Reject Ho*	Significant
Financial Behavior	0.357	0.000	*Reject Ho*	Significant
Financial Attitude	0.312	0.000	*Reject Ho*	Significant
Financial Training	0.360	0.000	*Reject Ho*	Significant

** p-value is lesser than 0.05 level of significance = significant; Reject Ho*
** p-value is greater than 0.05 level of significant = not significant; Fail to reject Ho.*

The results of the Somers' D test indicate a moderate positive relationship between financial literacy and financial management practices among public school teachers, as evidenced by a d value of 0.364.

This suggests that teachers with higher levels of financial literacy tend to exhibit better financial management practices, such as effective budgeting, saving, and credit management. Moreover, the p-value (< 0.05) indicates that this relationship is statistically significant, meaning the observed association is unlikely to be due to random chance.

Based on these findings, the null hypothesis, which posits that there is no significant relationship between financial literacy and financial management practices, is rejected. Instead, the alternative hypothesis is supported, confirming that financial literacy plays a significant role in influencing financial management behaviors among the teachers surveyed. These results highlight the importance of enhancing financial literacy to improve financial decision-making and overall financial well-being in this population.

IV. Conclusion

The findings of this study underscore the critical role financial literacy plays in shaping the financial management practices of public-school teachers in Dapitan City. With a majority of teachers demonstrating high levels of financial literacy and commendable financial management behaviors, such as savings, budgeting, credit management, and investing, the results indicate that these educators possess the foundational knowledge and skills necessary for sound financial decision-making. The moderate positive relationship identified between financial literacy and financial management practices, supported by a statistically significant p-value, highlights the interdependence of these factors. Teachers with greater financial knowledge are more equipped to

adopt effective financial behaviors, leading to improved financial well-being and reduced financial stress. These findings align with theoretical frameworks such as Bandura's Social Cognitive Theory and Ajzen's Theory of Planned Behavior, which emphasize the interplay of knowledge, behavior, attitudes, and perceived control in influencing financial decision-making. However, the study also reveals opportunities for further improvement, particularly in addressing potential barriers such as demographic disparities and gaps in advanced financial literacy. The implications are clear: sustained efforts in professional development, such as tailored financial literacy training and workshops, can enhance teachers' financial capabilities and their ability to serve as role models for financial responsibility. Policymakers and educational institutions must prioritize integrating financial education into teacher training and providing access to financial counseling and resources. By doing so, they can foster a culture of financial awareness and resilience, ultimately benefiting not only the teachers but also the broader educational community they serve. Addressing these needs through targeted interventions will ensure long-term financial stability and empower teachers to contribute more effectively to their personal and professional spheres.

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Navigating The Digital Frontier: Assessing AI Readiness Among Financial Institutions Using An AI Readiness Index

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Abstract — Artificial intelligence (AI) has redefined the financial services industry by providing previously unheard-of chances for creativity and efficiency. Assessing financial institutions' AI readiness is still difficult, though, especially when it comes to matching current frameworks with the operational and regulatory requirements of the sector. This study fills this knowledge gap by evaluating the level of AI readiness among Dipolog City's financial institutions such as banks, credit unions, insurance companies, and microfinance institutions. A sample size of 152 employees was examined using a descriptive quantitative design to find patterns and connections in AI readiness. In terms of organizational, business value, ethical and governance, data, and infrastructural readiness, the results show a high level of readiness. Through effective staff capabilities, resource optimization, faith in AI systems, and innovative culture, institutions show a strong basis for AI adoption. AI's potential advantages and organizational requirements are strategically understood by internal stakeholders. Furthermore, there are procedures in place to guarantee high-quality data and infrastructure that can assist AI projects. The study emphasizes how crucial it is to handle data security, completeness, and quality through strong data governance, notwithstanding these advantages. Creating customized financial services, improving risk management, regularly evaluating AI readiness, making calculated investments in AI-specific initiatives, and putting in place thorough staff training programs are some of the recommendations. Financial institutions may maximize AI adoption tactics, foster confidence in AI systems, and unleash AI's potential to spur innovation and enhance business results by giving priority to these areas. This study offers a road map for successfully integrating technical developments with strategic goals to achieve digital transformation.

Keywords — AI readiness, financial institutions, artificial intelligence, organizational readiness, business value readiness, ethics and governance, data readiness, infrastructure readiness

I. Introduction

Artificial Intelligence is revolutionizing the finance industry. AI technologies are changing how clients interact with financial service providers and other customer experiences in general. They are additionally transforming how financial institutions operate, offering substantial cost savings through process automation, leveraging predictive analytics to improve product offerings, and ensuring regulatory compliance and more efficient risk and fraud management systems

(Boukherouaa et al., 2021). According to Moretto (2023), it is now feasible to spot trends, risks involved, and opportunities by utilizing AI's sophisticated forecasting methodologies and its capacity to handle massive volumes of data, which enables improved risk management and more informed decision-making.

Businesses have become more intelligent since the introduction of AI. It can decrease tedious processes, make well-informed judgments, and increase productivity many times over. It's crucial to remember, though, that not every company is adjusting to this change at the same rate. This reluctance may even obstruct the expansion of the company and lead to missed chances. Companies that implement AI slowly run the danger of falling behind and losing out on growth prospects. They forfeit the opportunity to make data-driven decisions and optimize operations—both crucial in the rapidly evolving digital landscape of today (Simplifai, 2023). As indicated by Marous (n.d.), banks and credit unions are facing a serious risk of losing ground to competitors if they do not adopt AI innovation into their operations. Furthermore, Snowflake (n.d.) highlights that adopting AI is becoming essential as rivals make use of its benefits and consumer demand for seamless, highly customized services rises.

It is important to build an awareness of how businesses may deal with these problems since AI platforms have the potential to change organizations in fundamentally different ways than other technologies. The ability of a company to implement and use AI in ways that benefit the company is known as AI readiness (Holmström, 2022). A comprehensive AI readiness evaluation is essential, according to Cashatt (2023) since it will keep your company from wasting money on AI initiatives that are out of step with reality or put you at risk of catastrophic consequences. Evaluations guarantee that projects are set up for success from the beginning. AI Readiness Index (AIRI) is a framework for evaluating AI readiness with an emphasis on industry. As a result, it gives business units and organizations the ability to assess where they are in terms of AI readiness right now. They can then distinguish between where they are and where they want to go by understanding where they are (AI Singapore, 2021). Thus, the five key pillars—organizational readiness, business value readiness, ethic and government readiness, data readiness, and infrastructure readiness—have a significant impact on the AI readiness index, which proved to be a useful instrument.

There is still a significant gap in assessing AI readiness among financial institutions, despite growing evidence that AI plays a significant role. The industry's unique regulatory framework may not be sufficiently represented by the existing AI readiness framework which may result in mismatched tactics, a delayed adoption rate, and less-than-ideal results. The primary goal of this study is to aid financial establishments in Dipolog City, such as banks, credit unions, insurance companies, and microfinance institutions, in evaluating their readiness for artificial intelligence. Financial institutions may successfully traverse the digital frontier by identifying their strengths, limitations, and potential for AI adoption using the AI Readiness Index (AIRI) developed to meet the special requirements and challenges financial institutions face. Additionally,

the study's results will be useful in transforming into useful recommendations that will encourage the financial sector's responsible and effective deployment of AI.

Literature Review

Definition of Artificial Intelligence (AI)

The foundation of artificial intelligence lies in the idea that human intelligence can be described in a way that makes it easy for a machine to emulate and perform tasks—from the easiest to the most difficult. Simulating human cognitive processes is one of artificial intelligence's objectives. As far as concretely defining processes like learning, reasoning, and perception are concerned, researchers and developers in this discipline are making unexpectedly quick progress in simulating these (Frankenfield, 2023). The physical and digital worlds are being bridged in a new way (Xu et al., 2018), human-machine interactions are being strengthened (Eberhard et al.,2017; Ferreira et al., 2020), and automation is being promoted through the integration of intelligent software and smart machines (Ibarra et al., 2018).

The manufacturing and service industries are adopting artificial intelligence (AI) as the "new normal." AI has its origins in philosophy, mathematics, computation, psychology, and neuroscience (Ibarra et al., 2018; Müller et al., 2020). The goal of AI is to enable machines to think like humans while exceeding human capabilities (Misselhorn, 2018). Von Krogh (2018) added that it involves giving robots the ability to independently collect and process data from their surroundings to solve issues, make decisions, and carry out other tasks that need human reasoning (Pereira et al., 2023). The use of artificial intelligence (AI) in the workplace is growing to enhance worker productivity as well as efficiency (Lee et al., 2018; Von Krogh, 2018).

Integration of AI in Financial Institutions

In the 2010s, artificial intelligence (AI) gained prominence and is predicted to overtake all other technologies by the 2020s. AI-driven fundamental shifts are occurring in many industries, propelled by advancements in technology, breakthroughs in algorithms, the availability of large data, and ever-increasing compute capacity (Hilpisch, 2020). Similarly, with the introduction of the internet, organizations have undergone multiple stages of digitalization, and now, the financial services industry is entering the artificial intelligence (AI) phase of this journey. The level of services and products provided by the banking sector is evolving due to artificial intelligence. It has not only made data handling easier and enhanced client satisfaction, but it has also streamlined, expedited, and redesigned conventional procedures to increase their efficiency (Deloitte, 2023).

AI, according to Rahmani & Zohuri (2023), helps financial organizations to provide more accurate and timely analysis of client data, preferences, and behaviors to provide individualized services and products. This may result in enhanced risk assessment, wiser choices, more effective operations, and eventually lower losses, all of which will boost return on investment. Regalado

(2023) reveals that the importance of artificial intelligence (AI) in business has increased as the globe grows more digitally connected. The Philippines is not an exception, as the effects of AI are already being seen in several sectors, including retail, healthcare, and finance. Filipino customers are more open to new bank services based on cutting-edge technology like artificial intelligence (AI) and machine learning than many of their Asia Pacific neighbors, according to a recent study on the country's banking sector (Unisys, 2018).

AI Readiness Index (AIRI)

A framework for assessing AI readiness with an industry focus is called AIRI. Thus, it enables the business units or organizations to evaluate their current level of AI readiness, or where they are at. By knowing where they are, they can then determine the difference between where they are and where they want to go. Organizations will be able to bridge the gap and enhance their AI preparedness by knowing where they need to focus their efforts after the gaps are found (AI Singapore, 2021). Thus, the AI readiness index which served as a valuable tool is highly influenced by the five fundamental pillars namely: organizational readiness, business value readiness, ethic and government readiness, data readiness, and infrastructure readiness.

Organizational Readiness

According to Felemban et al. (2024), resources are critical for an organization's adoption and readiness, especially financial and human resources and talents. The availability of specialist knowledge can increase innovation acceptance, improve readiness, and provide the expertise required for a skilled workforce, resulting in success. Similarly, Hofmann et al. (2020) state that employees require AI awareness, which entails a broad grasp of AI's cognitive activities such as perception, prediction, and generation. This allows people to view AI as a versatile tool with possible applications in their profession or industry. For example, they accept that high-quality input is required to achieve high-quality AI results (Agrawal et al., 2018). Developing AI awareness allows employees to create realistic expectations about AI's potential.

Business Value Readiness

According to Agrawal et al. (2019), there are two primary types of AI-driven value creation: (i) initiatives that attempt to increase productivity and save expenses, and (ii) initiatives that seek to expand and increase revenue (Cockburn et al., 2018). The goal of efficiency-related activities is to enhance current procedures, like everyday operations and routine maintenance (Agrawal et al., 2019). These enhancements greatly increase cost savings and decrease the amount of time spent on specific tasks, even if customers may not notice a difference. Agrawal et al. (2019), for instance, show how labor can be streamlined by AI's capacity to forecast outcomes by automating certain aspects of the decision-making process, which lowers costs and eliminates repetitious work. According to Cockburn et al. (2018), artificial intelligence (AI) can generate revenue and support corporate expansion in addition to cost savings.

Ethics and Government Readiness

Regarding Smuha (2019), artificial intelligence (AI) is viewed as a flexible instrument that can handle intricate problems that conventional uses are unable to address. Businesses have embraced AI to cut costs, increase efficiency, and streamline processes to obtain a competitive edge (Raisch & Krakowski, 2021; Frank et al., 2019; Gregory et al., 2020). However, appropriate AI governance is essential to using AI for these purposes. AI governance, as defined by Butcher and Beridze (2019), entails a variety of techniques, instruments, and approaches that direct the creation and application of AI. However, further study is needed to fully comprehend the function that AI governance plays in assisting businesses in achieving their goals and how it might be applied within enterprises. Harmful outcomes could result from developing AI applications without supervision (Chatterjee et al., 2020; Mishra & Pani, 2020). As such, it is imperative to actively promote the development of reliable AI systems that are resilient (technologically and socially), ethical (respecting moral principles and values), and legal (according to legal norms).

Data Readiness

The appropriateness of data for the purposes for which it is intended is determined by several variables that make up data quality. Improving these quality aspects increases the readiness of AI because reliable outputs from AI models require high-quality data to be trained (Davenport, 2018; Pumplun et al., 2019). To improve data readiness, organizations must make improvements in the processing of data, quality control, and preparation because of frequent problems with historical data (Groopman, 2018; Iansiti & Lakhani, 2020; Kruse et al., 2019). Additionally, the convenience and quickness of data accessibility is a measure of data availability. Access control is used to manage this and gives authorized staff access to different organizational data sources (Catalyst Fund, 2020). With the right data, AI experts may create and prototype AI models because to its accessibility (Intel, 2018). By centralizing data (using data lakes or warehouses, for example) as opposed to maintaining it in discrete silos, organizations can increase the accessibility of their data (Iansiti & Lakhani, 2020; Pumplun et al., 2019).

Infrastructure Readiness

Alhashimy (2024) asserts that creating a customized infrastructure that can meet the requirements of AI systems is essential to realizing the full potential of AI. This strong infrastructure integrates necessary hardware, software, and data processing capabilities to provide the framework for implementing cutting-edge AI applications. Establishing an environment that guarantees smooth data flow, real-time insights, and effective machine learning model training and deployment is more important than merely implementing the newest technologies. In addition to improving AI workloads, this procedure entails meticulous planning, handling issues with data management, storage, AI security, and privacy. Organizations cannot safely grow their operations and promote innovation unless they have such a well-built infrastructure.

II. Methodology

This study used a descriptive quantitative research method in which numerical data was collected and analyzed systematically to characterize or summarize a population or phenomenon and provide a clear and concise account of the research topic. It emphasized objective measurement and statistical analysis (Bhandari, 2020; Dovetail Editorial Team, 2023). The quantitative survey offers an extensive perspective and makes cross-institutional comparisons easier. In addition, the researcher can be able to gain a more comprehensive and nuanced knowledge of financial institutions' AI readiness which enables more focused and successful interventions to help their AI adoption path.

The study focused on measuring the level of AI readiness in financial institutions using an AI readiness index such as organizational readiness, business value readiness, ethic and government readiness, data readiness, and infrastructure readiness.

Purposive sampling was utilized in the process of selecting respondents. This sampling design enables researchers to delve into the depth and complexity of the subject matter by focusing on certain traits or experiences, offering rich, in-depth insights (Stewart, n.d.). In that regard, the study's respondents are the middle management and employees of the financial institutions in Dipolog City. The middle management controls all aspects of the company and makes choices that affect the overall strategy and direction. The researcher used descriptive quantitative research to gather, examine, and interpret numerical data to comprehend trends, patterns, or correlations.

To determine an appropriate sample size for the quantitative survey, the researcher employed a statistical method known as the Raosoft formula. The population under study consists of 250 employees from financial institutions, and thus the researcher determined that surveying 152 of them would be statistically representative of the total population. Using this method ensures that there is a sufficient sample size to make accurate inferences about the population.

III. Results and Discussion

AI Readiness Index of Financial Institutions in terms of: Organizational Readiness, Business Value Readiness, Ethic and Governance Readiness, Data Readiness, and Infrastructure Readiness

Table 1

Financial Institution's Organizational Readiness Index

Criteria	Mean	SD	Scale Level	Implication
1. In the organization, more than 75% of AI employees exhibit competence in AI-related knowledge and abilities.	2.67	0.933	Agree	AI Ready
2. The organization employs highly skilled artificial intelligence workers who specialize in creating AI programs.	2.54	0.891	Agree	AI Ready
3. In the organization, the management has allocated funds for projects involving AI that correspond with a strategic plan for putting AI technologies into practice.	2.59	0.923	Agree	AI Ready
4. In the organization, the employees are confident in AI-powered systems and understand how these tools enhance their effectiveness when they interact with other employees	2.68	0.843	Agree	AI Ready
5. The organization actively encourages employees to explore experiments for new AI applications.	2.70	0.884	Agree	AI Ready
Overall	2.64	0.895	Agree	AI Ready

Table 1 shows the scale level, mean, standard deviation, implication, and overall mean of the organizational readiness index for the financial institution. The averages for each criterion, which range from 2.54 to 2.70 and are rated as agree, were shown in the figures. According to this, financial institutions are ready for AI (M=2.64, SD=0.895). The competence of the workforce, the

strategic distribution of resources, the organization's confidence in artificial intelligence (AI) systems, and the innovative culture all point to the organization's readiness for AI. All these elements work together to ensure the company is ready to utilize and benefit from AI technology, setting it up for success in the future in an increasingly AI-driven environment.

According to Jöhnk et al. (2020), determining an organization's level of preparedness is critical to boosting the likelihood that AI will be adopted successfully and is also necessary to realize the financial potential of AI. As a result, businesses need to assess how well their talents, resources, and degree of dedication match the objectives of AI adoption. AI readiness is the extent to which an organization is equipped to adopt changes related to AI technologies and applications, as described by Alsheibani et al. (2018). Jöhnk et al. (2021) further elaborated the definition of AI readiness by stressing the pre-adoption stage. This stage involves assessing the requirements, resources, and commitment of an organization for implementing AI. Important factors that contribute to AI readiness include a dedicated budget and financial resources (Pumplun et al., 2019), internal expertise (Mikalef & Gupta, 2021), domain experts (Alsheibani, Messom, & Cheung, 2020), skilled and trained staff (Pumplun et al., 2019), organizational culture, and strategic planning (Jöhnk et al., 2021).

Table 2

Business Value Readiness

	Mean	SD	Description	Implication
1. The organization has identified AI use cases, and their value propositions are derived from internal stakeholders.	2.64	1.04	Agree	AI Ready
Overall	2.64	1.04	Agree	AI Ready

Table 2 reveals that the financial institution was AI-ready with a business value readiness rating of agree (M=2.64, SD= 1.04). Businesses have determined use cases and scenarios for artificial intelligence. These cases are areas where AI can benefit a business, streamline operations, or address internal issues. Furthermore, internal stakeholders provide the benefits and justifications for utilizing AI, indicating that the choice to use AI is guided by knowledge of the demands and difficulties of the business.

Artificial intelligence (AI) encompasses a broad range of technologies that provide businesses with numerous benefits in terms of increased revenue. Following an abundance of data and a significant growth in processing power, businesses have been looking more and more at AI in the last few years to generate business value. Even with the increased interest in artificial intelligence (AI), many businesses still struggle to efficiently integrate and apply AI into their daily operations. The requirement for a holistic view is highlighted by the fact that this issue is

mostly caused by a lack of understanding of how AI technologies generate business value and what precise value results are anticipated (Enholm et al., 2022). There are several new challenges and issues when integrating AI into organizational operations (Duan et al., 2019). These obstacles include the requirement to manage and clean varied data sources (Mikalef & Gupta, 2021), link AI applications with current processes and systems (Davenport & Ronanki, 2018) and combine cross-domain expertise to produce accurate and relevant models (Duan et al., 2019). Furthermore, as Fountaine et al. (2019) note, many businesses are finding it difficult to get a return on their AI investments, even as interest in the technology is growing. The expected benefits of AI adoption may not materialize even when enterprises invest a significant amount of time, energy, and resources in technology (Makarius et al., 2020).

Table 3

Descriptives for ethics and government readiness

	Mean	SD	Description	Implication
1. The organization has formal policies and processes in AI governance for all AI application development.	2.49	0.935	Disagree	AI Aware
2. The organization has agreed-on criteria to assign AI use cases to risk levels according to an established regulatory framework and a standard process is implemented for each AI system.	2.51	0.906	Agree	AI Ready
Overall	2.50	0.921	Agree	AI Ready

The assessment for AI governance was "disagree" (M=2.49, SD=0.935). This indicates a level of AI unawareness among respondents, who seemed to believe that the organization lacked structured AI governance policies and procedures. The organization has not yet built or communicated clear governance mechanisms for AI development, as shown by the mean score of 2.49. The comparatively large standard deviation of 0.935 denotes answer variability, implying that respondents' perspectives or experiences with the organization's AI governance procedures vary.

On the other hand, the respondents gave standardization and risk assessment an agree rating (M=2.51, SD=0.96). The main finding is the high level of agreement (M=2.50, SD=0.921). This strong consensus suggests the organization has the potential to be considered “AI-ready.”

The statements' varying evaluations show how differently prepared the organization is for AI in terms of several AI governance elements. The absence of codified rules and practices in AI

governance implies that the company is still in the early stages of completely integrating AI into its operational framework, even though efforts in risk-level assignment and regulatory alignment are acknowledged.

An ethical framework is fundamentally required to direct the development of AI as its use spreads across a wide range of businesses. This is especially true given how delicate and highly susceptible today's social systems are to hazards and outside influences. According to Ariffin et al. (2023), the AI ethics and governance framework needs to consider the growing number and complexity of stakeholder interactions as well as handle the new risks and uncertainties that are arising within the socioeconomic and Industry 4.0 contexts. To maximize socioeconomic advantages while reducing uncertainties and hazards, effective technological governance, particularly regarding artificial intelligence—is crucial. A wide range of public and private sector stakeholders regularly get together to discuss the rules, ethics, and controls that are required to direct and control the advancement and application of AI technologies. They admit that improving artificial intelligence requires sound governance (Ariffin et al., 2023).

A robust and flexible governance framework is required to oversee AI technologies. This method should encourage innovation while minimizing potentially disruptive negative consequences. Achieving stability and balance in the public and private sectors is an essential component of efficient AI governance (Ariffin et al., 2023). Additionally, regulation of artificial intelligence is critical for addressing risks associated with data privacy and security. Financial organizations that handle significant amounts of sensitive client information have increasing hurdles in protecting this data from unlawful access or misuse as AI becomes more prevalent. A solid governance framework is required to apply appropriate safeguards and handle cybersecurity threats associated with AI applications (Platt, 2024).

Table 4

Data Readiness

	Mean	SD	Description	Implication
1. The organization has processes, policies, and employees with responsibilities for overseeing and managing data quality.	2.89	0.939	Agree	AI Ready
2. The organization has a single source of truth for data; formal common data definition and units of measurement are established to ensure data consistency.	2.86	0.899	Agree	AI Ready
Overall	2.88	0.919	Agree	AI Ready

The data readiness of financial institutions is displayed in Table 4, with special attention to the data quality management practices (M=2.89, SD=0.939) and data consistency and reliability (M=2.86, SD=0.899). The financial institutions were rated as "agree" (M=2.88, SD=0.919) overall, indicating that they were ready for AI. This implies a general agreement that the organizations have implemented procedures for high-quality data. The fact that both assertions' standard deviations are still somewhat high (SD>0.5) suggests that there are some differences in opinion. This may be because different people are aware of the same data quality initiatives, and there may be differences in the efficiency with which these practices are used in various departments.

Data quality assurance entails concentrating on multiple aspects that validate the data's appropriateness for consumer usage. Improving these aspects raises the readiness for AI since AI models need high-quality data to function at their best (Davenport, 2018; Pumplun et al., 2019). Implementing access control mechanisms that enable authorized workers to retrieve data from various organizational sources is how data accessibility—which entails quick and simple access to data—is handled (Catalyst Fund, 2020). This makes it possible for AI specialists to create prototypes and models using pertinent data (Intel, 2018). Furthermore, instead of keeping data across several divisions, organizations can improve accessibility by centralizing their data into repositories like data lakes or warehouses (Iansiti & Lakhani, 2020; Pumplun et al., 2019).

Table 5

Infrastructure Readiness

	Mean	SD	Description	Implication
1. The organization has enough machine learning infrastructure in place to facilitate the comprehensive development and use of artificial intelligence solutions.	2.64	0.916	Agree	AI Ready
2. The organization keeps a lot of information in one location, including databases, large data storage areas, and well-organized listings of the data's meanings.	2.94	0.908	Agree	AI Ready
Overall	2.79	0.912	Agree	AI Ready

The financial institutions' infrastructure readiness was graded as agreed in Table 5 (M=2.79, SD=0.912). This shows that respondents generally think their organizations have the infrastructure necessary to support AI activities. Even though the mean score indicated that infrastructure preparation was adequate, there may be space for improvement to reach higher levels of confidence and readiness. Their responses showed a moderate degree of difference, suggesting that while the majority of respondents agreed that the infrastructure was ready, some did not.

Furthermore, the aggregate score of "agree" indicates that financial organizations polled have a favorable opinion of infrastructure readiness, pointing to a generally encouraging climate for the creation and application of AI. Variability in responses, however, also suggests that more improvements and standardization could be helpful to guarantee consistent infrastructure readiness across institutions.

Innovations in machine learning (ML) and artificial intelligence (AI) are radically changing the financial services sector. The way financial institutions run, engage with clients, and develop new services is being completely transformed by these technologies. AI and ML are changing the way that banks and credit unions interact with their customers by making it possible for them to offer largely unthinkable levels of personalization, like customized financial advice and predictive analytics. With the aid of these technologies, financial institutions can examine consumer behavior, transaction patterns, and preferences to create offers that are specifically tailored to meet the demands of each customer (Pieton, 2024).

IV. Conclusion

Financial institutions were found to be generally well-positioned to adopt and execute AI technologies, under the study's assessment of their AI readiness using an AI readiness index. According to the analysis, financial institutions showed a level of preparedness that demonstrates their potential to embrace AI-driven solutions across important domains, including organizational, business value, ethical and governance, data, and infrastructure readiness. This preparedness reflects an awareness of how AI may improve customer service, expedite processes, and improve decision-making.

The results also looked at the relationship between the AI readiness of the institutions and the characteristics of the company, like the number of branches, years in business, ownership structure, and kind of financial institution. The null hypothesis, which proposed that there was no significant relationship between the AI readiness of the financial institutions and their profiles, was rejected. The study also attempted to investigate whether the company's profile and the AI-ready index results differed significantly, rejecting the null hypothesis in the process.

Overall, the results validate the applicability of both Organizational Theory and Diffusion of Innovation (DOI) Theory in evaluating financial institutions' preparedness for AI. With elements like workforce competency, AI trust, and innovation culture in line with concepts like relative advantage and compatibility, DOI Theory sheds light on how breakthroughs like AI are embraced. Findings that stress stakeholder alignment and strategic resource usage support organizational theory's emphasis on leadership, structure, and resource allocation. Gaps that have been found, including uneven AI risk management and inadequate data governance, emphasize the necessity of organizational flexibility. When combined, these theories offer a thorough

framework for comprehending and improving AI preparedness as well as practical advice for coordinating innovation with business objectives.

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The Mediating Role of Basic Psychological Need Satisfaction and Thwarting in the Relationship Between Teacher Challenges and Work Commitment

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Abstract — This study examined the mediating effects of basic psychological need satisfaction and thwarting on the relationship between teacher challenges and work commitment among public school teachers in Cluster 1 of DepEd Zamboanga del Norte Division. Using a cross-sectional correlational design, 311 teachers completed questionnaires measuring teacher challenges, basic psychological needs satisfaction and thwarting, and work commitment. Structural equation modeling revealed that basic psychological needs satisfaction significantly mediated the relationship between teacher challenges and work commitment, while basic psychological needs thwarting did not. Contrary to expectations, teacher challenges positively predicted both needs satisfaction and work commitment. The study found high levels of teacher challenges (M = 3.99 to 4.50), moderate levels of needs satisfaction (M = 3.00 to 3.10), high levels of needs thwarting (M = 4.04 to 4.21), and high levels of work commitment (M = 4.32 to 4.46). These findings suggest that teachers may perceive challenges as opportunities for growth, leading to increased needs satisfaction and work commitment. The results highlight the importance of supporting teachers' basic psychological needs, particularly in the face of workplace challenges, to enhance work commitment and potentially reduce burnout and turnover in the profession.

Keywords — Teacher Challenge, Basic Psychological Need, Work Commitment, Self-Determination Theory, Structural Equation Modeling

I. Introduction

Teaching is a profession of immense responsibility, creativity, and emotional investment, yet it is often accompanied by challenges that test educators' resilience and commitment. Teacher well-being and commitment are significantly influenced by meeting basic psychological needs—autonomy, competence, and relatedness—which are essential for maintaining motivation and engagement, particularly in challenging environments.

Self-Determination Theory (SDT), developed by Ryan and Deci (2000), emphasizes that satisfying these needs fosters optimal functioning and professional commitment. In contrast, frustration of these needs can diminish motivation and performance, leading to burnout. Research highlights that satisfying autonomy, competence, and relatedness mediates the relationship

between teacher challenges and work commitment. However, studies exploring the interaction of need satisfaction and frustration with teacher challenges in non-Western contexts remain scarce.

This study applies Basic Psychological Needs Theory (BPNT), a sub-theory of SDT, to investigate how satisfaction and frustration of psychological needs mediate the relationship between teacher challenges and work commitment. It examines challenges such as classroom management, resource constraints, and administrative tasks, exploring their influence on psychological needs and teacher commitment.

While extensive research exists on teacher challenges in Western settings, there is limited focus on non-Western contexts like the Philippines. This study addresses this gap by exploring these dynamics among teachers in Cluster 1 of DepEd Zamboanga del Norte Division. The goal is to provide culturally relevant insights into how teacher challenges, psychological needs, and work commitment interconnect.

By identifying the psychological mechanisms linking teacher challenges to work commitment, this study aims to inform strategies that support teacher well-being. These include professional development, creating supportive school environments, and reducing administrative burdens. The findings will contribute to evidence-based practices and policies that enhance teacher retention, job satisfaction, and overall educational quality.

Review of Related Literature

Teaching is one of the most emotionally demanding professions, where educators face complex challenges that test their resilience and commitment. These challenges include managing diverse student needs, balancing administrative duties, integrating technology, and maintaining personal well-being. Understanding the factors that influence teachers' motivation and job satisfaction is crucial to addressing the root causes of burnout, stress, and turnover.

Self-Determination Theory (SDT) offers a useful framework for examining how teachers' psychological needs influence their work outcomes. SDT, developed by Ryan and Deci (2000), identifies autonomy, competence, and relatedness as fundamental psychological needs that drive intrinsic motivation. According to SDT, when these needs are satisfied, individuals experience enhanced motivation, well-being, and engagement in their work. Conversely, when these needs are thwarted—due to workplace stressors, lack of support, or restrictive environments—motivation and well-being suffer, leading to burnout and disengagement.

Teacher Challenges and SDT

Teaching involves numerous challenges that affect teachers' ability to meet their psychological needs. A significant body of research highlights how various teacher challenges, such as classroom management, administrative tasks, and lack of resources, contribute to teacher stress. These challenges often hinder teachers' sense of competence and autonomy, key elements

of SDT. For instance, studies by Coxen et al. (2023) found that rigid school structures and excessive administrative demands undermine teachers' autonomy and sense of control, leading to feelings of frustration and disengagement.

At the same time, research has shown that need satisfaction can buffer the negative effects of these challenges. Teachers who experience autonomy in lesson planning, have opportunities for professional growth, and work in supportive environments are more likely to remain committed to their work. Johnson and Smith (2021) demonstrated that teachers who felt they had control over their teaching methods reported higher job satisfaction and lower stress levels. Similarly, Chen et al. (2022) found that strong professional relationships and a sense of belonging within the school community helped teachers cope with stress and maintain their motivation.

The Role of Psychological Need Satisfaction in Teacher Well-being

The satisfaction of teachers' basic psychological needs has been linked to numerous positive outcomes in the teaching profession. For example, autonomy satisfaction—the feeling of being in control of one's teaching—has been shown to lead to greater intrinsic motivation and job satisfaction. Teachers who are empowered to make decisions about their teaching methods and classroom management are more likely to experience higher levels of work engagement (Larsson et al., 2024). Similarly, when teachers feel competent—able to meet the challenges of their job—they report higher job satisfaction and are more resilient in the face of adversity (Patel et al., 2023).

The Impact of Psychological Need Frustration

While the satisfaction of psychological needs promotes teacher well-being, the frustration of these needs has the opposite effect. Need thwarting occurs when teachers are unable to exercise autonomy, feel ineffective in their roles, or lack supportive relationships with colleagues and students. Studies consistently show that when these needs are thwarted, teachers are more likely to experience burnout and decreased work commitment. For instance, Thompson et al. (2023) found that teachers who felt micromanaged or unsupported by administration were more likely to report higher levels of stress and lower job satisfaction. Similarly, Anderson and Lee (2023) highlighted that the lack of adequate training and resources frustrates teachers' competence needs, leading to feelings of inadequacy and emotional exhaustion.

The frustration of relatedness needs is particularly detrimental. Teachers who feel isolated or unsupported by their peers and students are at a greater risk of disengagement. Kim et al. (2021) found that teachers who lacked positive interpersonal relationships at work were more likely to consider leaving the profession due to stress and dissatisfaction.

Burnout and the Dual Role of Need Satisfaction and Thwarting

Burnout in teaching is a multi-dimensional phenomenon, with both need satisfaction and need thwarting acting as key determinants of teachers' psychological health. While need

satisfaction helps protect against burnout, need frustration exacerbates it. Sharma and Gupta (2023) concluded that the cumulative effects of unmet psychological needs lead to emotional exhaustion, which is the hallmark of burnout. Burnout can lead to reduced job performance, lower work commitment, and eventually, higher turnover rates in the teaching profession.

However, interventions aimed at supporting psychological needs have shown promise in reducing burnout. For example, stress management programs, mentorship opportunities, and professional development designed to foster autonomy and competence have been effective in improving teacher well-being and work engagement (Larsson et al., 2024). These interventions not only enhance teachers' motivation but also promote resilience, enabling them to continue thriving in challenging educational environments.

The Need for Contextual Understanding

While much of the research on teacher challenges and psychological needs has been conducted in Western countries, there is a gap in studies examining these dynamics in non-Western settings. This study seeks to address this gap by focusing on teachers in the Philippines, particularly in Cluster 1 of DepEd Zamboanga del Norte Division. The unique socio-cultural and educational context in the Philippines may shape how teachers experience and respond to challenges, making it important to explore how these dynamics play out in this setting.

Summary and Research Gap

The literature underscores the crucial role of basic psychological needs in teacher motivation, well-being, and work commitment. However, the literature has largely overlooked how both need satisfaction and need frustration mediate the relationship between teacher challenges and work commitment, especially in non-Western contexts. This study aims to fill this gap by examining how teacher challenges affect psychological need satisfaction and thwarting, and how these, in turn, impact teacher work commitment.

II. Methodology

Research Design

This study employed a quantitative, cross-sectional correlational design. This design was chosen for its ability to assess multiple variables simultaneously and explore their interrelationships at a single point in time. A cross-sectional approach is particularly useful for examining the mediational models in organizational psychology, as it allows researchers to capture the complexity of workplace dynamics efficiently.

Research Environment

The study was conducted in public schools within Cluster 1 of the Department of Education (DepEd) Zamboanga del Norte Division, which encompasses the municipalities of Mutia, Piñan, Polanco I, Polanco II, La Libertad, Rizal, Sergio Osmeña I, Sergio Osmeña II, and Sibutad. These areas provide a representative sample of public-school teachers, offering insights into the unique challenges and psychological experiences in both rural and semi-urban educational contexts. This cluster was critical for examining the broader public education landscape within the province.

Research Respondents and Sampling

Participants in this study were full-time public school teachers from Cluster 1 of DepEd Zamboanga del Norte Division. The study included teachers who had at least one year of teaching experience, ensuring they had sufficient familiarity with their work environment to provide meaningful responses. A stratified random sampling approach was employed to select participants, with districts serving as the strata. This method was chosen to ensure proportional representation across the different districts within Cluster 1, accounting for the varying sizes of teacher populations in each district.

Research Instruments and Validity

This study employed three primary instruments to collect data, each designed to measure distinct dimensions relevant to the research objectives. The Teacher Challenges Questionnaire was a self-developed tool created to assess the various professional challenges faced by teachers. Drawing from an extensive literature review, the instrument captured a comprehensive range of challenges specific to the participants' teaching contexts. To ensure its validity, the questionnaire underwent Exploratory Factor Analysis (EFA) to confirm its structure and accuracy in measuring the intended constructs. The second instrument, the Basic Psychological Need Satisfaction and Frustration Scale, was adapted from Gunnell et al. (2013) and used to assess the satisfaction and thwarting of three core psychological needs: autonomy, competence, and relatedness. This tool provided critical insights into how workplace environments affect teachers' well-being and motivation. Lastly, the Work Commitment Scale, a 21-item measure adapted from Paniza (2021), evaluated teachers' motivation, attachment to their profession, and perceived job security, offering a holistic understanding of their work commitment.

A rigorous process ensured the validity and reliability of these instruments. Expert reviews were conducted to assess the clarity, relevance, and contextual appropriateness of each item, with specialists in educational research refining the instruments to enhance their alignment with the study's objectives. Pilot testing was then carried out in Cluster 2 of DepEd Zamboanga del Norte Division, involving 5–10% of the target population as recommended by Johanson and Brooks (2010). This process helped identify and address any issues related to phrasing, structure, or length, ensuring that the instruments were clear and functional. Cronbach's alpha demonstrated high

internal consistency across all constructs, with values ranging from 0.89 to 0.94, indicating strong reliability. This combination of expert review, pilot testing, and statistical validation ensured that the instruments were robust, enabling the collection of accurate and meaningful data to address the study's research questions effectively.

Data Collection Procedures

Data was collected through a combination of online surveys and paper-based questionnaires, depending on participant preference and accessibility. The process involved:

- Obtaining necessary permissions from DepEd Zamboanga del Norte Division.
- Contacting school principals for cooperation.
- Distributing detailed information sheets and obtaining signed consent forms from all participants.
- Administering questionnaires in person.

Data Analysis

Data analysis for this study involved a series of sophisticated steps to evaluate the relationships between teacher challenges, Basic Psychological Needs (BPN) satisfaction and thwarting, and work commitment. The primary techniques used in the analysis included:

1. Descriptive Statistics: Calculating means and standard deviations for all variables to summarize key characteristics of the data.
2. Correlational Analysis: Using Pearson's correlation coefficients to examine relationships between manifest variables within each construct, such as between teacher challenges, BPN satisfaction/thwarting, and work commitment.
3. Structural Equation Modeling (SEM): SEM was used to test two mediational models:
    - Model 1: Examining the mediating effects of BPN satisfaction between teacher challenges and work commitment.
    - Model 2: Investigating the mediating effects of BPN thwarting between teacher challenges and work commitment.

Ethical Considerations

The study strictly adhered to ethical guidelines to safeguard participants' rights and well-being. Confidentiality was maintained through anonymized data coding and secure storage on password-protected devices. Participants provided informed consent after receiving detailed

information about the study's purpose and procedures, and their participation was entirely voluntary, with the option to withdraw at any time without consequences. Ethical approval was obtained from the institutional review board, and all data collection complied with local data protection regulations to ensure the integrity and security of participant information.

III. Results and Discussion

Underlying Factors of Teacher Challenges

Table 1 Eigenvalues and Rotated Solution Variances of the Extracted Factors

Factor	Eigenvalues	Proportion variance	Cumulative variance
1	29.80	.122	.122
2	5.91	.080	.202
3	4.40	.076	.278
4	3.81	.070	.348
5	3.06	.063	.411
6	2.69	.056	.467

Table 2 Items that Loaded in Factor 1

Number	Item Statement
BM5.	I believe a positive classroom environment enhances learning.
BM6.	I seek professional development on behavior management techniques.
BM7.	I involve students in creating classroom rules.
BM8.	I address individual student needs in behavior management.
BM9.	I believe building relationships with students is key to behavior management.
CP1.	I maintain regular communication with parents regarding student progress.
CP2.	I involve parents in decision-making processes related to their child's education.
CP3.	I address parental concerns in a timely and respectful manner.
CP4.	I provide resources for parents to support learning at home.
CP5.	I collaborate with parents to create a supportive learning environment.
CP6.	I seek feedback from parents on ways to improve communication.
CP9.	I attend parent-teacher conferences regularly.
CS1.	I find it challenging to communicate effectively with all students.
CS3.	I provide multiple channels for students to express their needs.
CS4.	I seek feedback from students on their understanding of the material.
CS8.	I collaborate with parents to improve student communication.
CS9.	I believe effective communication is essential for student success.
FU5.	I believe adequate funding is essential for student success.
FU6.	I creatively adapt lessons to accommodate resource limitations.

Table 3 Items that Loaded in Factor 2

Number	Item Statement
BM10.	I receive support from school administrators on behavior issues.
CP8.	I use technology to facilitate communication with parents.
CS5.	I use technology to enhance communication with students.
CS6.	I address communication barriers proactively.
CS10.	I receive training on communication strategies.
FU8.	I seek grants and donations to support classroom needs.
LT4.	I receive training on the latest educational technology tools.
LT6.	I collaborate with colleagues on technology integration.
LT10.	I stay informed about emerging trends in educational technology.

Table 4 Items that Loaded in Factor 3

Number	Item Statement
LP4.	I use technology to enhance lesson delivery.
LP6.	I believe engaging lesson plans improve student retention.
LP10.	I believe student participation is a key indicator of lesson effectiveness.
LS1.	I am aware of the various learning styles present in my classroom.
LS2.	I adapt my teaching methods to cater to different learning styles.
LS3.	I believe understanding learning styles enhances student performance.
LS4.	I regularly assess students' learning preferences.
LS6.	I adjust lesson plans based on student feedback.
LS7.	I use a variety of teaching techniques to accommodate different learning styles.
LT3.	I believe technology enhances student engagement.

Table 5 Items that Loaded in Factor 4

Number	Item Statement
SA1.	I feel supported by school administrators in achieving educational goals.
SA2.	I receive clear guidance from administrators on performance expectations.
SA3.	I have autonomy in decision-making within my classroom.
SA4.	I collaborate with administrators on school improvement initiatives.
SA5.	I believe school administrators value teacher input.
SA6.	I receive professional development opportunities aligned with school goals.
SA7.	I effectively communicate with administrators on challenges and successes.
SA8.	I feel motivated by administrative directives.
SA9.	I believe school administrators prioritize student well-being.
SA10.	I am recognized for my contributions to the school community.

Table 6 Items that Loaded in Factor 5

Number	Item Statement
SF2.	I prioritize self-care to prevent burnout.
SF3.	I seek support from colleagues during challenging times.
SF4.	I set boundaries to maintain a healthy work-life balance.
SF5.	I engage in professional development on stress management techniques.
SF6.	I recognize signs of burnout and take proactive steps to address them.
SF7.	I believe teacher well-being impacts student outcomes.
SF8.	I practice mindfulness to reduce stress levels.
SF10.	I believe addressing burnout is essential for long-term teaching success.

Table 7 Items that Loaded in Factor 6

Number	Item Statement
AW1.	I spend a significant amount of time on administrative tasks.
AW2.	I prioritize administrative responsibilities to ensure efficiency.
AW3.	I seek ways to streamline administrative processes.
AW4.	I use technology to manage administrative tasks.
AW5.	I believe administrative work impacts my teaching effectiveness.
AW6.	I receive support from colleagues in managing administrative workload.
AW7.	I delegate administrative tasks when possible.
AW8.	I set boundaries to maintain a healthy work-life balance.
AW9.	I seek professional development on time management strategies.
AW10.	I believe reducing administrative burden improves student outcomes.

Table 8 Descriptive Statistics and Scale Reliabilities

Latent and Manifest Variable (Code)	*M*	*SD*	Cronbach's alpha	No. of items
Teacher challenges				
Classroom Management and Engagement (CME)	4.37	0.45	.93	19
Technology and Support (TS)	4.20	0.54	.86	9
Instructional Adaptability (IA)	4.48	0.41	.87	10
School Administration (SA)	4.37	0.49	.92	10
Self (SF)	4.20	0.55	.86	8
Administrative Work (AW)	4.07	0.58	.91	10
Basic Psychological Needs (BPN) Satisfaction				
Autonomy Satisfaction (ASat)	3.10	0.99	.91	5
Competence Satisfaction (CSat)	3.00	1.02	.89	5
Relatedness Satisfaction (RSat)	3.04	1.06	.91	5
Basic Psychological Needs (BPN) Thwarting				
Autonomy Thwarting (AThw)	4.04	0.81	.92	5
Competence Thwarting (CThw)	4.09	0.66	.94	5
Relatedness Thwarting (RThw)	4.21	0.67	.91	5
Work Commitment				
Loyalty towards Work (Loyalty)	4.46	0.54	.90	7
Personal Commitment (Personal)	4.32	0.57	.82	7
Security of Tenure (Tenure)	4.39	0.57	.92	7

The study identified six key areas of teacher challenges, with detailed insights provided in the tables from Table 1 to Table 7. Table 1 presents the eigenvalues and rotated solution variances, explaining that the six factors collectively account for 46.7% of the total variance in teacher experiences. Table 2 focuses on Classroom Management and Engagement (Factor 1), which includes challenges in managing student behavior, creating a positive classroom environment, and maintaining communication with parents. Teachers reported the importance of building relationships with students and involving parents in their child's education to support student success. Table 3 outlines Technology and Support (Factor 2), where teachers faced difficulties using technology for communication and instruction, citing a lack of adequate training and support for integrating educational technology into their teaching practices. Table 4 discusses Instructional Adaptability (Factor 3), emphasizing challenges in lesson planning and adapting to diverse learning styles. Teachers expressed the need to engage students through varied teaching methods and to use student feedback for lesson adjustments. Table 5 presents School Administration (Factor 4), where teachers reported insufficient support from school leaders, unclear performance expectations, limited collaboration, and lack of recognition for their contributions, highlighting the need for better communication and stronger administrative backing. Table 6 addresses Self-Related Challenges (Factor 5), exploring the personal challenges teachers face in managing stress, preventing burnout, and achieving a healthy work-life balance. Teachers acknowledged that their well-being directly affects student outcomes. Finally, Table 7 discusses Administrative Workload (Factor 6), where teachers emphasized the burden of administrative tasks such as paperwork, time management, and record-keeping, which detract from their teaching effectiveness. These factors, spanning classroom management, technology use, instructional adaptability, administrative support, teacher well-being, and workload, are integral to understanding the multifaceted challenges educators face in their roles.

Table 9 Correlations among the Manifest Variables of Teacher Challenges

Manifest variable	CME	TS	IA	SA	SF
Classroom Management and Engagement	---				
Technology and Support	.65***	---			
Instructional Adaptability	.68***	.58***	---		
School Administration (SA)	.51***	.49***	.48***	---	
Self (SF)	.58***	.57***	.48***	.40***	---
Administrative Work (AW)	.35***	.56***	.43***	.33***	.38***

Note. ***p <.001

Table 10 Correlations among the Manifest Variables of the Basic Psychological Needs

Manifest Variable	ASat	CSat	RSat	AThw	CThw
ASat	---				
CSat	.65*	---			
RSat	.64*	.80*	---		
AThw	.02	.10	.02	---	
CThw	.09	-.02	-.04	.82*	---
RThw	.10	.06	-.05	.71*	.77*

Note. *p <.001

Table 11 Correlations among the Manifest Variables of Work Commitment

Manifest Variable	Loyalty	Personal
Loyalty	---	
Personal	.75*	---
Tenure	.68*	.73*

Note. *p <.001

The study also examined the relationships between various teacher challenges and work commitment, as summarized in Table 9, Table 10, and Table 11. Table 9 displays the correlations among the manifest variables of teacher challenges, indicating strong positive relationships between Classroom Management and Engagement (CME), Technology and Support (TS), Instructional Adaptability (IA), School Administration (SA), and Self-Related Challenges (SF). Specifically, CME shows strong correlations with IA (r = 0.68) and TS (r = 0.65), suggesting that challenges in classroom management are closely related to issues with lesson adaptability and technology use. Similarly, SA and SF are positively correlated with other factors, indicating that administrative support and teacher well-being are linked to broader teacher challenges. Table 10 provides correlations among the manifest variables of Basic Psychological Needs (BPN), showing that Autonomy Satisfaction (ASat) is strongly correlated with Competence Satisfaction (CSat) (r = 0.65) and Relatedness Satisfaction (RSat) (r = 0.64), highlighting the interconnectedness of teachers' psychological needs. Furthermore, BPN Thwarting (AThw, CThw, and RThw) has weaker correlations with other factors, with Relatedness Thwarting (RThw) showing strong negative correlations with both Competence Thwarting (CThw) (r = 0.82) and Autonomy Thwarting (AThw) (r = 0.71), suggesting that thwarted psychological needs are a significant concern for teachers. Table 11 reveals strong correlations between Work Commitment variables, with Loyalty and Personal Commitment (r = 0.75) being highly related, and both showing significant correlations with Tenure (r = 0.68 and r = 0.73, respectively), indicating that teachers who are committed to their work also feel secure in their tenure. These findings, in conjunction with those in Table 12, suggest that despite facing significant teacher challenges, such as classroom

management, technology integration, and administrative burdens, teachers exhibit strong work commitment.

Further analysis in Table 16 indicates that Basic Psychological Needs (BPN) satisfaction mediates about 48% of the effect of teacher challenges on work commitment. This means that by addressing teachers' psychological needs—particularly autonomy, competence, and relatedness—educators' commitment to their work can be enhanced, even in the face of challenges.

Structural Equation Modelling Results for the Mediating Effects of Satisfaction of Basic Psychological Needs (Model 1)

Table 12 Direct Effects of Model 1

Predictor Variable	Outcome Variable	Estimate	*p*
Teacher challenges	Satisfaction on BPN	0.77	< .001
	Work commitment	0.36	< .001
Satisfaction of BPN	Work commitment	0.36	< .001

Table 13 Indirect and Total Effects of Model 1

Effect	Estimate	*P*
Indirect	0.33	< .001
Total	0.69	< .001
Proportion	0.48	< .001

Figure 1 Structural Model of BPN Satisfaction as a Mediator between Teacher Challenge and Work Commitment (Model 1)

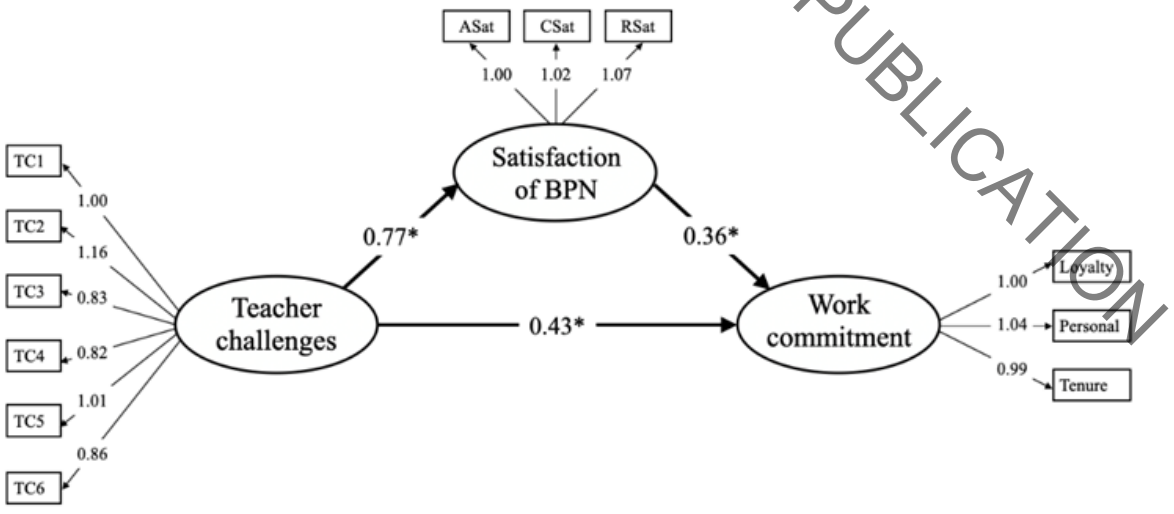

Table 14 Fit Statistics of Model 1

Fit Measures	Critical Levels	Observed Fit Indices
Ratio of Chi-square by Degree of Freedom (X^2/df)	< 6.00	4.60
Comparative Fit Index (CFI)	> 0.90	0.92
Tucker-Lewis Index (TLI)	> 0.90	0.89
Bentler-Bonnet Non-Normed Fit Index (NNFI)	> 0.90	0.89
Root Mean Square Error of Approximation (RMSEA)	< 0.08	0.11

The Structural Equation Modeling (SEM) results for the mediating effects of Basic Psychological Needs (BPN) satisfaction on the relationship between teacher challenges and work commitment are outlined in Table 12, Table 13, Figure 1, and Table 14. Table 12 shows the direct effects in Model 1, revealing that Teacher Challenges significantly predict both Satisfaction of BPN (estimate = 0.77, p < .001) and Work Commitment (estimate = 0.36, p < .001). Furthermore, Satisfaction of BPN also significantly predicts Work Commitment (estimate = 0.36, p < .001), indicating that greater satisfaction of psychological needs enhances work commitment. Table 13 presents the indirect and total effects of the model, highlighting that the indirect effect of teacher challenges on work commitment through BPN satisfaction is 0.33 (p < .001), while the total effect is 0.69 (p < .001), with 48% of the effect being mediated by BPN satisfaction, demonstrating the significant mediating role of psychological need satisfaction in fostering work commitment despite teacher challenges. Figure 1 provides a structural model illustrating the mediation path, emphasizing the central role of BPN satisfaction as a mediator. Finally, Table 14 presents the fit statistics for the model. The Ratio of Chi-square by Degrees of Freedom (X^2/df) is 4.60, which is below the critical threshold of 6.00, indicating a good fit. The Comparative Fit Index (CFI) is 0.92, above the acceptable level of 0.90, while the Tucker-Lewis Index (TLI) and Bentler-Bonnet Non-Normed Fit Index (NNFI) both fall slightly below 0.90 (0.89), indicating room for improvement in model fit. The Root Mean Square Error of Approximation (RMSEA) is 0.11, slightly above the desired threshold of 0.08, suggesting a less-than-ideal fit but still within an acceptable range. These results collectively suggest that addressing teachers' BPN satisfaction significantly mitigates the impact of teacher challenges on work commitment, with implications for improving teacher motivation and resilience.

Structural Equation Modelling Results for the Mediating Effects of Thwarting of Basic Psychological Needs (Model 2)

Table 15 Direct Effects of Model 2

Predictor Variable	Outcome Variable	Estimate	*p*
Teacher challenges	Thwarting on BPN	0.08	.593
	Work commitment	0.67	< .001
Thwarting of BPN	Work commitment	-0.00	.923

Table 16 Indirect and Total Effects of Model 2

Effect	Estimate	*P*
Indirect	0.05	.594
Total	0.05	.621
Proportion	1.06	.090

Figure 2 Structural Model of BPN Thwarting as a Mediator between Teacher Challenge and Work Commitment (Model 2)

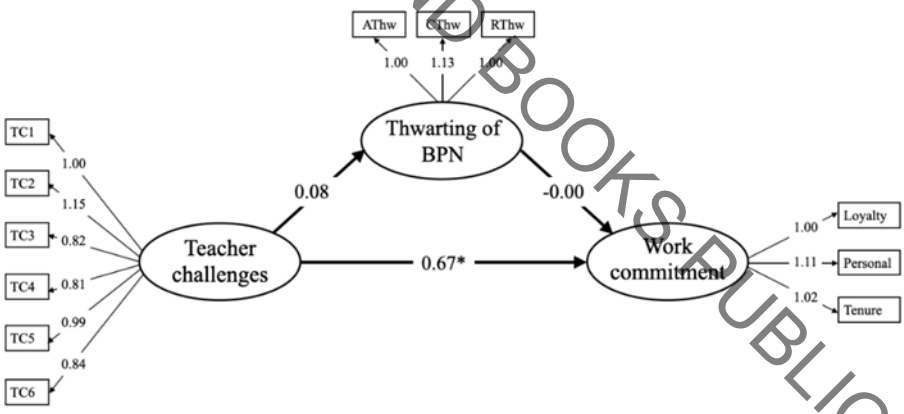

Table 17 Fit Statistics of Model 2

Fit Measures	Critical Levels	Observed Fit Indices
Ratio of Chi-square by Degree of Freedom (X^2/df)	< 6.00	3.03
Comparative Fit Index (CFI)	> 0.90	0.95
Tucker-Lewis Index ITLI)	> 0.90	0.94
Bentler-Bonnet Non-Normed Fit Index (NNFI)	> 0.90	0.94
Root Mean Square Error of Approximation (RMSEA)	< 0.08	0.08

The mediating role of basic psychological needs was examined using structural equation modeling (SEM). The results from Model 1, which tested BPN satisfaction as a mediator, revealed significant findings. As shown in Table 15, teacher challenges positively predict both BPN satisfaction (Estimate = 0.77, $p < .001$) and work commitment (Estimate = 0.36, $p < .001$). Table 16 further indicates that BPN satisfaction mediates the relationship between teacher challenges and work commitment, with 48% of the effect being explained by this mediation. Figure 2 visually represents this relationship, highlighting the critical role of BPN satisfaction in fostering teacher commitment despite challenges.

In contrast, Model 2, which tested BPN thwarting as a mediator, did not yield significant results. As shown in Table 15, teacher challenges do not significantly predict BPN thwarting (Estimate = 0.08, $p = 0.593$), and BPN thwarting does not significantly influence work commitment (Estimate = -0.00, $p = 0.923$). These findings were confirmed in Table 16, which shows nonsignificant indirect and total effects for BPN thwarting as a mediator. Figure 3 illustrates this model, reinforcing the conclusion that BPN thwarting does not mediate the relationship between teacher challenges and work commitment.

Summary of the Results

The findings of this study highlight several key points. First, Table 3 and Table 5 to Table 10 provide a comprehensive breakdown of teacher challenges across six key areas, demonstrating the multifaceted nature of their experiences. Second, Table 12, Table 14, and Table 16 confirm a positive relationship between teacher challenges and work commitment, with BPN satisfaction playing a significant mediating role. Finally, Table 15, Table 16, and Figure 2 demonstrate that BPN satisfaction mediates the relationship between teacher challenges and work commitment, while Table 18, Table 19, and Figure 3 show that BPN thwarting does not play a significant mediating role.

DISCUSSION

This study investigated the mediating effects of basic psychological needs satisfaction and thwarting on the relationship between teacher challenges and work commitment among public school teachers in Cluster 1, Zamboanga del Norte Division. The findings underscore the significant role of basic psychological needs satisfaction—autonomy, competence, and relatedness—in enhancing teacher commitment, while the frustration of these needs (thwarting) does not demonstrate the same mediating influence. These results are analyzed through the lens of Self-Determination Theory (SDT) and related literature, providing insight into the resilience and adaptive capacity of teachers working in resource-limited, culturally specific environments

Theoretical Insights

SDT posits that the satisfaction of psychological needs is integral to intrinsic motivation, well-being, and sustained commitment. This study supports this theory by demonstrating that need satisfaction significantly mediates the relationship between teacher challenges and work commitment. Teachers reported deriving autonomy satisfaction when they were empowered to make instructional decisions or adapt practices to suit diverse classroom needs. Competence satisfaction was tied to professional achievements and administrative support, while relatedness satisfaction emerged from the strong bonds teachers formed with colleagues and students .

In contrast, need thwarting, characterized by resource limitations, administrative rigidity, or feelings of isolation, did not mediate the relationship between challenges and commitment. This aligns with previous research, such as Larsson et al. (2024), which suggests that while reducing need thwarting alleviates stress, it does not necessarily enhance motivation or professional dedication. Teachers in Cluster 1 appear to compartmentalize and manage these frustrations, relying on positive need satisfaction experiences to sustain their commitment .

Contextual Relevance

The findings gain additional significance when contextualized within the challenges faced by teachers in Cluster 1. These challenges include classroom management, parent communication, technology integration, lesson planning for diverse learning styles, school administration, and personal well-being. Despite these adversities, the satisfaction of psychological needs acts as a critical buffer, enabling teachers to maintain high levels of commitment. Research by Patel et al. (2023) and Kim et al. (2021) resonates with these results, highlighting the protective role of autonomy and relational connections in mitigating professional stress .

The communal and relational dynamics in Cluster 1 amplify the importance of relatedness satisfaction. Unlike contexts where professional isolation undermines motivation, the collaborative relationships within this region foster a sense of belonging and shared purpose, enabling teachers to derive meaning and motivation from their roles .

Implications for Educational Practice

The study's findings provide actionable insights for administrators and policymakers. To support teacher well-being and work commitment, the following strategies are recommended:

- Autonomy: Empower teachers by increasing their involvement in policy discussions, granting greater freedom in instructional decision-making, and reducing micromanagement.
- Competence: Address gaps in professional development through targeted training on challenges such as technology integration and effective parent communication.

- Relatedness: Cultivate a supportive school culture that reinforces collaborative relationships and a sense of community.

- At the same time, addressing need thwarting remains essential. Reducing administrative burdens, enhancing resource allocation, and implementing structured mentorship programs can alleviate stressors that undermine teachers' emotional well-being .

Limitations and Future Directions

This study has several limitations. It focused exclusively on public school teachers in Cluster 1, limiting the generalizability of findings to other regions. The reliance on self-reported data introduces potential response bias, and the cross-sectional design precludes insights into how these dynamics evolve over time. Future studies should consider longitudinal designs to explore the interplay between challenges, psychological needs, and work commitment. Additionally, examining potential moderators, such as teaching experience or systemic support, could deepen understanding of these relationships.

IV. Conclusion

The study highlights the critical role of basic psychological needs satisfaction in fostering teacher work commitment amidst challenges. By addressing the factors that support autonomy, competence, and relatedness, educational systems can enhance teacher well-being and reduce burnout. These findings provide a roadmap for creating environments that sustain teacher motivation and commitment, ultimately benefiting both educators and students.

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