

**TECHNOLOGY INTEGRATION AMONG TEACHERS IN BASIC EDUCATION
IN RELATION TO THEIR TEACHING PERFORMANCE
AND LEARNERS' ENGAGEMENT**

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APPROVAL SHEET

This dissertation entitled, **“TECHNOLOGY INTEGRATION AMONG TEACHERS IN BASIC EDUCATION IN RELATION TO THEIR TEACHING PERFORMANCE AND LEARNERS’ ENGAGEMENT”** submitted by **Lovelie B. Centino**, in partial fulfillment of the requirements for the degree **Doctor of Education**, major in **Educational Management**, has been examined and is recommended for acceptance and approval for Oral Examination.


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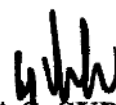

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DEDICATION

This study is wholeheartedly dedicated to
All the people who became part of this endeavor;
Our Almighty God, for His guidance, wisdom, strength, and blessings
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GENERAL ABSTRACT

As digital tools increasingly influence educational practices, their adoption has become essential for fostering learner engagement and improving teaching performance. This study examined the relationships among technology integration, teachers' teaching performance, and learners' engagement. It explored teachers' experiences in enhancing students' engagement through technology integration in selected private schools in Ozamiz City during the SY 2025-2026. The quantitative study used a descriptive-correlational design. Data were collected from teachers in Basic Education, selected through simple random sampling, using validated researcher-made questionnaires, and analyzed using Means, Standard Deviations, and Spearman's Rho. Findings revealed that teachers demonstrated a very great extent of technology integration across key domains, while teaching performance was excellent and learners' engagement was very high. Frequency of technology use was significantly influential to teaching performance across all domains, while access and support systems were significantly influential to assessment practices. Technology integration were influential to cognitive engagement but not to behavioral and emotional engagement. The qualitative study employed a phenomenological design, utilizing semi-structured interviews with the teachers selected through purposive sampling. Data were analyzed using Colaizzi's Seven-Step Method to identify significant statements, formulate meanings, and generate thematic clusters. The findings revealed the following main themes: enabling teaching through technology integration; transforming instruction and classroom routines through technology; experiencing increased learner engagement and participation through technology; navigating constraints through adaptive teaching strategies; and strengthening teacher capacity and supportive learning environments for

effective technology integration. Technology integration enhances both teaching performance and learner engagement when supported by teacher competence and systemic support. It is recommended that teachers undergo continuous training, while school heads and administrators enhance infrastructure and provide sustained institutional support to ensure the effective and meaningful integration of technology in Basic Education.

Keywords: *learner engagement, learning environment, teaching strategies, technology integration, transformed instruction*

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Chapter 1

GENERAL INTRODUCTION

Rationale of the Study

Technology plays a vital role in modern instruction by enhancing engagement, facilitating personalized learning, and expanding access to educational resources. Digital tools such as learning management systems, educational apps, and multimedia content support differentiated instruction and allow learners to study at their own pace and style (Almusharraf & Khahro, 2020). Emerging technologies such as artificial intelligence and virtual reality are also transforming traditional teaching methods by providing immersive, adaptive learning experiences (Scherer et al., 2021; Alghamdi & Aldossary, 2023). Therefore, integrating technology in instruction, especially in Basic Education, is essential for preparing students for the demands of a digital and interconnected world.

This innovation is not merely a tool, but a transformative element that reshapes classroom dynamics, making learning more engaging and accessible. According to Heartman et al. (2019), the integration of technology is associated with themes of high confidence, professional development, and excitement about its potential to improve learning experiences. However, challenges such as inadequate infrastructure and support remain significant barriers. The importance of teacher motivation in successful technology integration has been emphasized by Backfisch et al. (2021), noting that teachers' enthusiasm and self-motivation, especially during the initial stages of technology adoption, are crucial for fostering effective learning environments. Furthermore, Bereczki and Kárpáti (2021) highlighted the role of expert teachers' beliefs and experiences in nurturing

creativity through technology-enhanced learning, suggesting that effective technology integration requires thoughtful and purposeful application in the classroom.

Models of technology integration, (Kimmons, 2020), offer frameworks for understanding the complexities of this process. These models help educators navigate the challenges of technology adoption, offering a roadmap for successful implementation. As the field of educational technology evolves, the integration process becomes increasingly sophisticated, requiring ongoing adaptation and refinement. In the context of teaching, teachers' performance plays a critical role in the effectiveness of educational systems. Teachers' teaching performance directly contributes to school success and the achievement of educational objectives (Özgenel and Mert, 2019). The quality of teaching is influenced by various factors, including gender, professional experience, and training which all intersect with the ability to integrate technology effectively (Al-rsa'I et al., 2024). They further argue that modern teaching methods and strategies are essential for enhancing educational outcomes, particularly when technology is used to improve instruction.

Moreover, effective teaching performance encompasses a range of competencies, including classroom management, instructional delivery, content mastery, and the ability to adapt to diverse learners' needs (Daniel, 2020). The integration of reflective practices, continuous professional development, and feedback mechanisms has also been shown to enhance teaching effectiveness (Zhang & Liu, 2021). Additionally, the pandemic underscored the importance of adaptability in teaching performance, especially in transitioning to digital platforms and maintaining student motivation in virtual settings (Kim & Asbury, 2020). Current studies also highlight how supportive school leadership and a collaborative school culture contribute significantly to improved teaching

performance (Taylan, 2023; Abrego & Choi, 2024). These findings suggest that fostering high teaching performance requires both individual competence and institutional support.

Learner engagement, another crucial aspect of the educational experience, has been shown to increase when technology is effectively integrated. Technology offers diverse learning experiences, from multimodal to text-based communication, all of which foster learner autonomy, engagement, and satisfaction (Mohammadi Zenouzagh et al., 2023). Bond and Bedenlier (2019) stressed that technology's role in engaging students is pivotal, and a bioecological framework of student engagement explicitly incorporates technology as a key factor. According to Gavín-Chocano et al. (2024), learner engagement emotionally, cognitively, and behaviorally is associated with higher academic performance and improved long-term knowledge retention.

Engaged students are more likely to participate actively, persist in challenging tasks, and demonstrate deeper learning and retention (Bond et al., 2020). Recent studies emphasize that meaningful engagement arises when learning experiences are interactive, relevant, and supportive of student autonomy (Reeve & Tseng, 2021). The shift to digital and blended learning environments has further highlighted the importance of innovative teaching practices and supportive teacher-student relationships in sustaining engagement (Martin & Bolliger, 2022). Moreover, learner engagement is strongly influenced by inclusive pedagogy and culturally responsive teaching, which affirm students' identities and experiences, thereby promoting active participation (Zhao et al., 2023). These findings suggest that fostering learner engagement requires a holistic and intentional approach to instruction, learning design, and classroom interaction.

In practical classroom settings, technology integration manifests in various instructional and management applications. For instance, teachers may use interactive presentations, educational videos, or gamified quizzes to introduce lessons and sustain learners' attention. Digital platforms allow teachers to track attendance, monitor learner progress in real time, and provide immediate feedback, thereby improving classroom management and instructional efficiency. During group activities, collaborative tools such as shared documents and discussion boards facilitate peer interaction while allowing teachers to effectively supervise participation and behavior. These illustrative scenarios demonstrate how technology supports not only teaching strategies but also classroom organization, discipline, and learner accountability in basic education contexts.

Despite the growing body of literature on technology integration in education, a knowledge gap remains. Many studies focus on higher education or contexts in developed countries, leaving a gap in understanding its impact on Basic Education, particularly in under-resourced settings. Furthermore, prior research often examines either teaching performance or learner engagement in isolation, with limited exploration of their interconnected effects. Challenges such as lack of infrastructure and support systems require further investigation to understand their implications for long-term technology integration in basic education (Heartman et al., 2019). Additionally, while teacher motivation (Backfisch et al., 2021) and creativity (Bereczki & Kárpáti, 2021) are recognized as important, there is insufficient research on how these factors interact with learners' capability to use technology for higher-order thinking. This study addressed this knowledge gap by simultaneously examining the effects of technology on teaching performance and learner engagement within the context of Basic Education. It also

highlighted context-specific challenges and opportunities, offering valuable insights for researchers, educators, and policymakers.

This study aimed to determine the impact of technology integration in Basic Education on two critical outcomes: Teachers' Teaching Performance and Learners' Engagement. Specifically, it sought to examine how technology integration enhances teachers' practices, strategies, and professional performance while also investigating its influence on learners' emotional, cognitive, and behavioral engagement. Additionally, the study aimed to identify the challenges and barriers teachers and learners face in adopting and using technology effectively. By addressing these objectives, this research may contribute to understanding the role of technology in improving educational outcomes and provides actionable insights for stakeholders to implement technology-based interventions more effectively.

The study is significant as it explored the dynamic relationship between instructional technology, teacher effectiveness, and student participation, three critical components of quality education in the 21st century. This study provides valuable insights into how well-integrated technology can enhance teachers' lesson delivery, classroom management, and responsiveness to student needs, while simultaneously promoting active, meaningful, and sustained student engagement. The findings can guide school administrators, policymakers, and educators in designing professional development programs, selecting appropriate technological tools, and creating supportive learning environments that maximize educational outcomes in basic education settings.

Theoretical Framework

This study was anchored in the following theories: the Technological Pedagogical Content Knowledge (TPACK) framework by Mishra & Koehler (2006); Self-Determination Theory (SDT) by Deci and Ryan (1985); and Engagement Theory by Kearsley & Schneiderman (1999).

The technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006) emphasizes the intersection of three knowledge domains: technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK). Effective technology integration occurs when teachers successfully combine these domains to enhance their teaching practices and improve learner engagement.

The Technological Pedagogical Content Knowledge (TPACK) framework, originally proposed by Mishra and Koehler (2006), remains a foundational model for understanding the complex interplay among technology, pedagogy, and subject-matter knowledge in effective teaching. Recent studies emphasize its relevance in guiding educators as they integrate digital tools meaningfully into instruction to enhance student learning (Yeh et al., 2021). TPACK encourages teachers to go beyond simply using technology, urging them to consider how technology aligns with pedagogical approaches and content objectives (Loong et al., 2020). In the context of remote and blended learning, the framework has proven essential in supporting teacher adaptability and instructional effectiveness (Schmid et al., 2021). Moreover, research highlights the importance of professional development in building TPACK competencies, especially in preparing teachers to design engaging and inclusive digital learning experiences (Yigit et al., 2023).

Thus, TPACK serves as a critical lens for fostering innovative and responsive teaching practices in the digital age.

The theory provides a comprehensive lens for understanding how teachers effectively integrate technology into their instructional practices. TPACK emphasizes the intersection of technological knowledge, pedagogical strategies, and content expertise, which is essential in enhancing both teaching performance and learner engagement. In this study, TPACK is reflected in how teachers select and utilize appropriate digital tools that align with their subject matter and teaching methods to create more interactive, relevant, and engaging learning experiences. By using the TPACK framework, the study assesses not only the presence of technology in classrooms but also its meaningful integration—where technology enhances rather than merely supports instruction. This approach highlights the need for professional development that strengthens teachers' abilities to harmonize content, pedagogy, and technology, ultimately improving educational outcomes in basic education.

Recent studies have increasingly utilized the Technological Pedagogical Content Knowledge (TPACK) framework to evaluate and improve technology integration in education. For instance, Yeh et al. (2021) investigated how short-term professional development programs can enhance teachers' TPACK, finding that structured learning experiences significantly improved teachers' confidence in integrating technology with pedagogy and content. Similarly, Schmid, Brianza, and Petko (2021) developed a concise TPACK assessment tool and found notable differences in the self-assessed competencies of pre-service and in-service teachers, underscoring the value of targeted training. Loong, Sharpe, and Chandra (2020) applied the TPACK model in mathematics education,

illustrating that effective integration of technology requires not only familiarity with tools but also alignment with pedagogical goals and curriculum content. Furthermore, Yigit, Tas, and Aksu (2023) highlighted the role of continuous professional development in cultivating TPACK skills, especially in adapting to digital learning environments. These studies underscore TPACK's utility in guiding both teacher training and research on effective technology use in education.

Self-Determination Theory (SDT) by Deci and Ryan (1985) also underpins the study, highlighting the importance of intrinsic and extrinsic motivation for both teachers and learners. Teachers' willingness to adopt technology is influenced by autonomy (freedom to explore), competence (confidence in technology use), and relatedness (support from peers and administrators). Similarly, learners' engagement improves when technology-rich learning environments satisfy their needs for autonomy, competence, and relatedness.

In the study, Self-Determination Theory (SDT) provides a valuable framework for understanding how technology can fulfill the basic psychological needs of autonomy, competence, and relatedness—key drivers of motivation and engagement according to SDT. When technology is meaningfully integrated into instruction, it can empower teachers to feel more competent and autonomous in delivering lessons, which enhances their teaching performance. At the same time, students experience increased engagement when technology enables them to take greater control of their learning (autonomy), interact more effectively with content (competence), and connect with peers and teachers (relatedness). This alignment with SDT suggests that technology, when used purposefully, not only supports instructional delivery but also fosters intrinsic motivation and deeper involvement

among educators and learners alike. Thus, SDT helps explain why and how technology integration improves educational outcomes by influencing motivation and engagement.

Recent studies have widely applied Self-Determination Theory (SDT) to explore motivation and engagement in various educational settings. For instance, Ryan and Deci (2020) reaffirmed the foundational principles of SDT and highlighted its relevance in modern classrooms, emphasizing how autonomy-supportive teaching enhances students' intrinsic motivation. Zhou, Wang, and Wang (2021) examined the role of SDT in online learning and found that satisfying students' needs for autonomy, competence, and relatedness significantly predicted higher engagement and academic achievement. Similarly, Alamer (2022) investigated language-learning motivation through the lens of SDT and found that intrinsic motivation was a strong predictor of language performance. In a blended learning context, Chen and Jang (2020) applied SDT and found that students' perceived autonomy and competence were associated with increased learning satisfaction and participation. These studies collectively underscore SDT's usefulness in explaining how learning environments, especially those enhanced by technology, can be designed to support motivation and engagement by fulfilling basic psychological needs.

Engagement Theory (Kearsley & Shneiderman, 1999) further supports this study by illustrating how technology fosters interactive, collaborative, and meaningful learning experiences. According to this theory, students are more engaged when learning activities are collaborative, project-based, and authentic, qualities that technology can readily facilitate. Additionally, Rogers' Diffusion of Innovations Theory (2003) explains the adoption of technology in educational settings. It identifies factors such as perceived

usefulness, ease of use, and institutional support as critical to teachers and schools progressing toward embracing technology to enhance teaching and learning outcomes.

The study emphasizes the importance of creating technology-supported learning environments that are interactive, collaborative, and purposeful. Engagement Theory, which emphasizes meaningful learning through "relate-create-donate" activities, suggests that technology can facilitate student engagement by enabling learners to work in teams (relate), create authentic and valuable products (create), and contribute their work to real-world audiences (donate). In this study, technology integration supports teachers in designing lessons that are not only content-rich but also socially and intellectually stimulating, thereby enhancing teaching performance. At the same time, students become more motivated and participatory when engaged in meaningful, technology-enabled tasks that connect classroom learning to real-world applications. Therefore, the theory aligns with the study's goals by framing technology as a tool for both instructional innovation and deep learner engagement.

Some studies have employed Engagement Theory to examine how technology-enhanced learning environments promote active participation and collaboration among students. For example, Eseryel et al. (2020) applied Engagement Theory to design a game-based learning environment, demonstrating that collaborative tasks and real-world relevance significantly boosted learner motivation and engagement. Similarly, Al-Samarraie and Saeed (2022) explored digital collaborative learning in higher education. They found that student engagement increased when learning tasks aligned with the "relate-create-donate" model of Engagement Theory. In another study, Morze, Varchenko-Trotsenko, and Smyrnova-Trybulska (2021) investigated online learning in schools and

demonstrated that student-centered, technology-supported projects enhanced engagement and knowledge retention. These studies reinforce the relevance of Engagement Theory in guiding effective technology integration strategies that foster meaningful learning and sustained student involvement.

General Objectives of the Study

This study explored the teachers' technology integration, teaching performance, and learners' engagement in Basic Education during the SY 2025-2026. Specifically, it sought to answer the following objectives:

1. What is the extent of technology integration by teachers in terms of Type of Technology Used, Frequency of Use, Teacher Training and Competence, Access to Technology, and Support System?
2. What is the teaching performance of teachers in terms of instructional delivery, adaptability to technological tools, classroom management with technology, and assessment strategies?
3. What is the level of learners' engagement in class in terms of cognitive, emotional, and behavioral aspects?
4. Is there a significant relationship between the extent of technology integration and teachers' teaching performance?
5. Is there a significant relationship between technology integration and learners' engagement?
6. What are the teachers' experiences with technology integration in the classroom?

Null Hypotheses

Ho1: There is no significant relationship between the extent of technology integration and teachers' teaching performance.

Ho2: There is no significant relationship between technology integration and learners' engagement.

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Chapter 2

TECHNOLOGY INTEGRATION AMONG TEACHERS IN BASIC EDUCATION IN RELATION TO THEIR TEACHING PERFORMANCE AND LEARNERS' ENGAGEMENT

ABSTRACT

In today's digital era, effective teaching depends on the meaningful integration of technology in classroom practices. This study examined the relationship between technology integration, teachers' teaching performance, and learners' engagement in Basic Education in selected private schools in Ozamiz City during the SY 2025-2026. A descriptive-correlational design was employed. Data were collected from 121 teachers through simple random sampling using validated researcher-made questionnaires and analyzed using mean, standard deviation, and Spearman's rho. Findings revealed that teachers demonstrated a very great extent of technology integration across key domains, while teaching performance was excellent and learners' engagement was very high. Frequency of technology use was significantly related to teaching performance across all domains, while access and support systems were significantly related to assessment practices. Technology integration was also significantly related to cognitive engagement but not to behavioral and emotional engagement. Teaching performance and learner engagement are largely shaped by strong pedagogical practices. School principals may strengthen support systems and professional development, while teachers design interactive, learner-centered activities.

Keywords: *basic education, instructional practices, learner engagement, technology integration, teaching performance*

INTRODUCTION

The rapid advancement of Information and Communication Technologies (ICTs) has significantly transformed the educational landscape, redefining both teaching and learning paradigms. Modern learners, often called digital learners, require innovative pedagogical approaches that effectively integrate technology into the classroom. Teachers play a pivotal role in this process, as their attitudes, technological knowledge, and skills determine the success of technology integration (Akram et al., 2022).

Technology integration (TI) in education has emerged as one of the most critical research areas in educational technology over the past few decades. Digital technologies have the potential to revolutionize teaching and learning processes while simultaneously reshaping societal structures. However, these changes bring both opportunities and challenges. Educational technology experts advocate for a dual approach—teaching learners not only how to use technology but also how to understand its broader societal implications (Consoli et al., 2023). Defined as a sustainable and transformative change in school social systems, technology integration aims to facilitate students' knowledge construction through innovative tools and practices (Tosuntaş et al., 2019). As digital tools increasingly influence educational practices, their adoption has become essential for fostering learner engagement and improving teaching performance (Bhat, 2023).

The integration of technology enhances teachers' ability to plan, implement, and evaluate learning activities effectively. Teachers' teaching performance encompasses their achievements in creating meaningful and engaging educational experiences, guided by professional ethics and codes of conduct (Kusumaningrum et al., 2019). When supported by a conducive organizational culture, technology integration can enhance educators'

motivation and productivity, ultimately benefiting the overall performance of educational institutions (Rofifah et al., 2021).

Performance in teaching is a goal-oriented process that ensures organizational strategies maximize teacher productivity. Evaluating teacher performance involves examining various aspects, including their ability to innovate and adapt to technological advancements in the classroom (Kadiyono et al., 2020). Effective teaching strategies, particularly those that leverage reliable and innovative methodologies, not only boost teacher performance but also enhance students' participation and learning outcomes (Zhang et al., 2024).

The integration of technology in the classroom has reshaped teachers' roles, requiring them to adopt new competencies and strategies to maintain effective instruction. Recent studies have shown that teaching performance in digital environments is closely tied to educators' digital competence and preparedness. For instance, Reich et al. (2020) reported that only 14 percent of surveyed teachers felt prepared to meet student needs during the shift to online learning, underscoring a critical gap in digital readiness. This unpreparedness often results in decreased instructional quality, particularly when educators lack access to the training and resources necessary for effective digital instruction.

Moreover, the Technological Pedagogical Content Knowledge (TPACK) framework has been widely referenced to explain the complexities of effective technology integration in teaching. According to Budak (2021), many teachers possess basic digital skills but struggle to design and deliver lessons that thoughtfully combine technology with content and pedagogy. Professional development programs grounded in TPACK have proven essential in equipping teachers with the knowledge to integrate digital tools

meaningfully into their instruction. Without this framework, technology may be used superficially, failing to support deeper learning or improved teaching performance.

Assessment and feedback are also crucial indicators of teaching effectiveness in technology-rich environments. As noted by O'Doherty et al. (2021), teachers who successfully navigated emergency remote teaching (ERT) used strategies such as embedded rubrics, immediate digital feedback, and personalized support to engage students and maintain learning quality. These adaptive practices reflect high levels of teaching performance, highlighting the importance of flexible, responsive instruction in digital contexts. In sum, effective teaching in the modern classroom depends not only on access to technology but also on the teacher's capacity to integrate it meaningfully into pedagogical practice.

Learner engagement refers to students' emotional, cognitive, and behavioral involvement in their educational experiences. High levels of engagement are associated with improved academic performance, greater knowledge retention, and the development of critical thinking skills (Gavín-Chocano et al., 2024). Technology integration plays a crucial role in fostering this engagement by providing tools and resources that make learning more interactive, collaborative, and self-directed. Digital technologies, such as multimedia tools and internet-based platforms, can enhance students' motivation and attention while promoting autonomy. These tools facilitate cooperative learning, offer alternative approaches for skill development, and help learners apply knowledge in diverse contexts (Rintaningrum, 2023). The key to fostering learner autonomy lies in maintaining engagement, which reflects students' psychological commitment to the learning process (Dixson, 2015).

Learner engagement has also evolved significantly with the introduction of educational technologies. Engagement Theory, which emphasizes meaningful learning through collaboration and purposeful tasks, aligns closely with current research on immersive technologies. Eseryel et al. (2020) demonstrated that game-based and mixed reality learning environments enhance student motivation and engagement by fostering interaction, challenge, and real-world relevance. These platforms support the "relate-create-donate" components of Engagement Theory, suggesting that when students collaborate and produce meaningful outcomes using technology, their engagement deepens substantially.

In blended and hybrid learning environments, instructional design plays a critical role in sustaining learner engagement. Kahu and Nelson (2020) emphasize that clearly structured lessons, frequent feedback, and a well-balanced mix of synchronous and asynchronous activities contribute to stronger behavioral, cognitive, and emotional engagement. Teachers who intentionally align online tools with student needs and provide consistent guidance create learning experiences that are more interactive and satisfying for students. These design principles demonstrate that engagement is not merely about using technology but about how it is used to foster clarity, participation, and connection.

Additionally, localized studies reinforce the global trend of technology's positive influence on student engagement. For example, Dela Cruz and Isip (2022) conducted research in Philippine state colleges. They found that using interactive tools, such as gamified quizzes and virtual simulations, led to a 75 percent increase in student motivation and a 10 percent improvement in academic performance. Students expressed that these tools made learning more enjoyable, participatory, and relevant. This evidence underscores

the idea that when technology is integrated thoughtfully into instruction, it can transform the classroom into a dynamic and engaging learning environment that supports sustained student interest and academic growth. While learner engagement has been widely studied, inconsistencies in research findings highlight its complexity. Effective pedagogy, supported by technology, can bridge these gaps by creating dynamic learning environments that cater to diverse student needs (Mohammadi Zenouzagh et al., 2023).

Conceptual Framework

This study explored the interrelationships between technology integration, teachers' teaching performance, and learners' engagement in Basic Education. It serves as a guide for understanding how the effective use of technology impacts teaching and learning processes and contributes to educational outcomes.

Technology integration is defined as the sustainable and transformative adoption of technology within schools' social systems to support knowledge construction (Tosuntaş et al., 2019). It is influenced by teachers' technological knowledge, skills, and attitudes (Akram et al., 2022). It encompasses the use of digital tools such as multimedia, internet platforms, and cooperative learning technologies to create engaging learning environments (Rintaningrum, 2023). Technology integration enhances teachers' ability to design interactive and meaningful learning experiences, improving their performance through innovative methodologies and resources that align with professional standards (Kadiyono et al., 2020). Furthermore, supportive organizational cultures amplify the positive impact of technology on teacher productivity and effectiveness (Rofifah et al., 2021).

Type of Technology Used. The choice of technology in classrooms, from laptops and projectors to YouTube videos and Learning Management Systems (LMS), greatly

influences teaching methods and student learning experiences. A 2025 overview of U.S. classrooms found widespread use of YouTube for math in kindergarten, Chromebooks in middle school, and Google Docs in high school, signaling a shift toward personalized learning tools (Randazzo et al., 2025). Research on LMS adoption during the pandemic underscores its effectiveness in organizing course materials and enhancing teacher–student interaction, although its success relies heavily on teacher support and training. Thus, selecting the right technologies aligned with pedagogical goals, such as multimedia for demonstrations, LMS for course management, or collaborative platforms, is crucial for meaningful integration and improved learning outcomes.

Frequency of Use. The impact of technology on instruction is directly related to how often it is used. Surveys from the post-pandemic era indicated that 50 percent of teachers reported that students completed over half their classwork on digital devices, up from around 20 percent before COVID 19, while screen time averages between 98 minutes and 2¼ hours daily, depending on grade level (Randazzo et al., 2025). According to a 2023 U.S. survey, 60 percent of students experienced slow or unreliable internet during class, hindering frequent technology use (Miller, 2024). These findings suggest that regular, consistent usage of digital tools depends not just on teacher attitudes and competence but also on reliable infrastructure; when devices and connections are dependable, technology becomes a regular part of everyday teaching and learning.

Teacher Training and Competence. Teacher competence in technology integration is closely linked to training. A 2024 multi-country study of ICT readiness found that while some teachers had basic digital literacy, many lacked competence in applying it pedagogically, highlighting the need for structured, sustained professional development.

Parallel studies emphasize that training rooted in the TPACK framework, integrating technology, pedagogy, and content, is essential for teachers to design meaningful lessons that go beyond superficial tool use. Simply providing one-off workshops is insufficient; ongoing, context-specific programs help build confidence, instructional creativity, and ultimately more effective teaching performance.

Access to Technology. Equitable access to devices, the internet, and software remains a foundational issue. A 2024 U.S. national survey reported that 28 percent of school-aged children lacked internet access at home or at school, and another 23 percent accessed it only at home, exposing deep access disparities (Gangmei & Thomas, 2025). A global review of 29 countries found clear links between digital divides and socioeconomic status, migration background, and rural vs. urban location (Herman et al., 2022). Without consistent access, especially high-quality connectivity and hardware, even well-trained teachers cannot fully integrate technology into instruction, underscoring the need for infrastructure investment as a priority for educational equity.

Support System. Finally, technical and institutional support are vital for sustainable technology integration. A 2022 study of K–12 schools found that while device access improved, significant barriers persisted: teachers lacked sufficient internet bandwidth, support materials, and time for curriculum redesign. Brookings research further shows that community and parental involvement amplify school-based efforts by extending tech benefits into students' homes. Consistent technical assistance, peer collaboration, leadership backing, and supportive policies are essential to build teacher confidence and embed technology use in everyday practice.

Teachers' teaching performance refers to their achievements in planning, implementing, and evaluating effective learning activities (Kusumaningrum et al., 2019). Key constructs of teaching performance include instructional delivery, adaptability to technological tools, classroom management with technology, assessment strategies, and professional development. Effective teaching strategies, supported by technology, motivate students and enhance their class participation (Zhang et al., 2024). Teachers' ability to adapt to students' needs and integrate relevant tools sustains learners' cognitive and emotional involvement (Mohammadi Zenouzagh et al., 2023).

Instructional Delivery. Teachers' instructional delivery in technology-enhanced classrooms demands both digital resilience and pedagogical adaptability. A 2024 study of 100 Filipino public school teachers found high levels of digital proficiency and resilience, which positively correlated with effective instructional practices, including clear communication, online pedagogy, and lesson pacing, despite challenges with internet connectivity (Ogodo et al., 2021). Likewise, experts caution that technology should augment, not replace, proven instructional strategies such as modeling and formative assessment, emphasizing that digital delivery must be grounded in sound pedagogy (Schmoker et al., 2020). These findings highlight that quality instructional delivery in digital settings hinges on teachers' ability to blend technological tools with foundational teaching methods.

Adaptability to Technological Tools. Teachers' adaptability to new technological tools is a key indicator of teaching effectiveness. As illustrated by a 2024 Australian case study, educators who embraced emerging technologies even amid trial and error reported increased instructional innovation and responsiveness to diverse learner needs. This

willingness to experiment, coupled with reflective teaching practices, enables teachers to tailor tools to specific curricular goals. Research shows that through deliberate experimentation and iterative refinement, teachers develop the dexterity needed to integrate technology in pedagogically meaningful ways, fostering stronger classroom dynamics and engagement.

Classroom Management with Technology. Effective classroom management in tech-rich environments requires structure, trust, and strategic oversight. A qualitative study of online classrooms featuring 97 teachers revealed that common digital challenges, such as low interaction and technical issues, could be mitigated through ongoing professional development and robust infrastructure, which support synchronous learning and student engagement (Adsız & Dinçer, 2025). Research in Thailand's smart-learning classrooms underscored how purposeful digital activity planning, clear communication, and adaptive teacher responses sustained classroom order and active participation (Nguyen et al., 2022). These studies underscore that teachers who skillfully manage digital tools and interactions can foster environments conducive to learning even remotely.

Assessment Strategies. Assessment strategies in digitally mediated instruction demand creativity and rigor. Canadian STEM teachers during the COVID era remote teaching reported challenges with online assessments; while 86 percent felt technologically competent, 76 percent deemed their methods ineffective and inauthentic, citing a lack of formative, real-time feedback. Experts advocate integrating both formative and authentic assessment tools, such as rubrics, peer feedback, and classroom assessment techniques, to ensure assessments inform teaching and support student learning effectively. Thus,

purposeful use of digital platforms must be complemented by pedagogically sound assessment practices to enhance instructional quality.

Learners' engagement involves students' emotional, cognitive, and behavioral commitment to their learning process (Gavín-Chocano et al., 2024). It is supported by various constructs, including cognitive, behavioral, emotional, collaborative, and self-regulatory engagement. High levels of engagement are associated with improved academic performance, long-term knowledge retention, and critical thinking skills (Dixson, 2015). Technology plays a crucial role in fostering this engagement by providing tools that promote motivation, attention, and autonomy in learning (Rintaningrum, 2023). Digital tools create interactive environments that make learning more engaging and participatory, fostering autonomy and experimentation and enabling students to take a more active role in their education (Rintaningrum, 2023).

Cognitive Engagement. Cognitive engagement refers to learners' psychological investment in tasks, involving deep thinking, critical analysis, and the strategic use of metacognitive skills. In cloud-supported collaborative learning, higher levels of cognitive engagement, as measured by active knowledge-seeking, summarizing, and critical discussion, consistently lead to better knowledge construction outcomes (Baanqud et al., 2020). Moreover, a MOOC study using automated analysis found that deep cognitive processing, such as reasoning and reflective content in forum discussions, was strongly correlated with higher learning achievement. These findings underscore the importance of cognitive engagement for meaningful learning and academic success in technology-enhanced environments.

Emotional Engagement. Emotional engagement involves learners' affective responses to instruction, such as interest, enjoyment, and a sense of belonging. Automated sentiment analysis of MOOC discussions revealed that positive emotions, such as enthusiasm, directly supported motivation and problem-solving engagement. A study on online secondary education also emphasized the importance of teacher presence: the lack of interaction led to student distraction. At the same time, instructors who encouraged participation fostered emotional investment and reduced feelings of disconnection (Li et al., 2021). Emotional engagement thus plays a vital role in sustaining learner motivation and participation in digital environments.

Behavioral Engagement. Behavioral engagement captures observable participation in learning activities, including time-on-task, contribution frequency, and compliance with course requirements. For instance, in online courses, students who produced more discussion posts, read peer contributions, and completed quizzes demonstrated higher behavioral involvement, which translated into improved achievement. In programming education, behavioral engagement, as reflected in assignment completion and active participation, was directly associated with improvements in both emotional involvement and higher-order cognitive skills (Li et al., 2023). These studies highlight that engaging students through structured, consistent digital activity is fundamental to effective learning.

Presented on the next page is the Schematic Diagram of the Study.

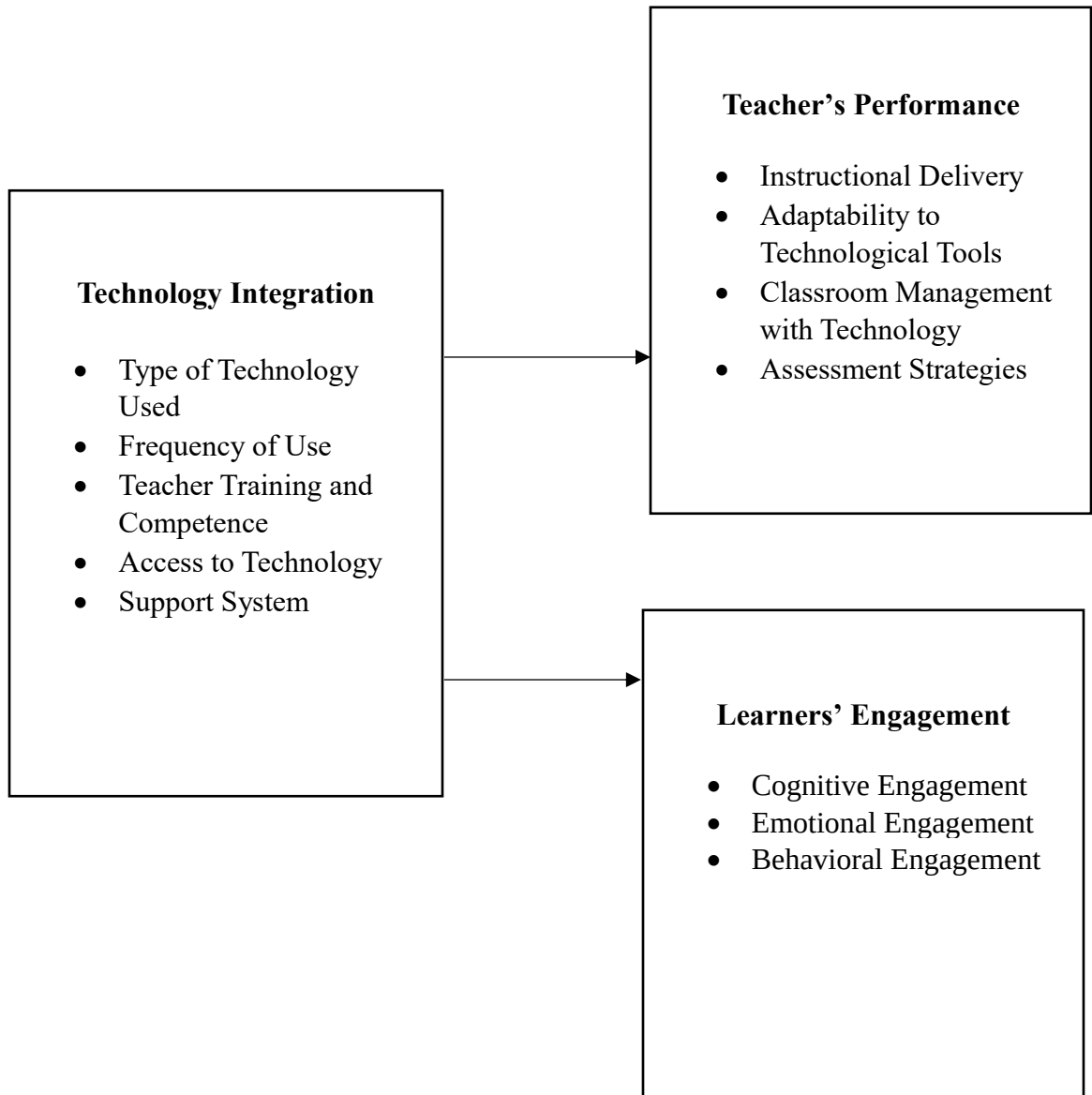


Figure 1. Schematic Diagram of the Study

Statement of the Problem

This study explored the teachers' technology integration, teaching performance, and learners' engagement in Basic Education during the SY 2025-2026. Specifically, it sought to answer the following research question:

1. What is the extent of technology integration by teachers in terms of Type of Technology Used, Frequency of Use, Teacher Training and Competence, Access to Technology, and Support System?
2. What is the teaching performance of teachers in terms of instructional delivery, adaptability to technological tools, classroom management with technology, and assessment strategies?
3. What is the level of learners' engagement in class in terms of cognitive, emotional, and behavioral aspects?
4. Is there significant relationship between the extent of technology integration and teachers' teaching performance?
5. Is there significant relationship between technology integration and learners' engagement?

Null Hypotheses

Ho1: There is no significant relationship between the extent of technology integration and teachers' teaching performance.

Ho2: There is no significant relationship between the teachers' technology integration and learners' engagement.

RESEARCH METHODOLOGY

Design

This quantitative study used the descriptive-correlational design. The researcher used the design to explain phenomena, opinions, behaviors, and other defined variables through numerical data collection and statistical analysis (Kapici & Akçay, 2016). This design was considered appropriate for the study as it determined technology integration, teachers' teaching performance, and learners' engagement.

Setting

This study was conducted in selected Private Schools in Ozamiz City during the Academic Year 2025–2026. The Basic Education Department of the institution comprised preschool, elementary, junior high, and senior high school levels and was dedicated to developing learners' foundational knowledge, skills, values, learning habits, and technology use. The department integrated age-appropriate instructional strategies, learner-centered pedagogies, and emerging educational technologies to support academic growth and holistic development.

Respondents

The respondents in the study were 121 teachers from the Basic Education Department during the School Year 2025–2026, selected through simple random sampling. These respondents represented different grade levels, including Preschool, Elementary, Junior High School, and Senior High School (Grades 11–12), thereby providing diverse instructional perspectives relevant to the study's objectives.

Inclusion criteria for participation were follows: (1) teachers must be officially employed in the Basic Education Department during the School Year 2025–2026; (2) teachers were handling at least one class during the conduct of the study; (3) teachers utilized or had exposure to instructional technologies such as digital learning platforms, multimedia resources, or online assessment tools in their teaching practices; and (4) the teachers gave consent to participate in the study.

Instruments

Data for this study were gathered using the following instruments:

A. Technology Integration Questionnaire. The researcher created this survey. It included five constructs: Type of Technology Used, Frequency of Use, Teacher Training and Competence, Access to Technology, and Support System. The respondents who were not included in the study completed a pilot version of this questionnaire. The instrument underwent pilot testing, with Cronbach's alpha coefficient of 0.9060 to assess its reliability and validity.

In assessing the extent of the teacher's technology integration, the following scale was used:

Responses	Continuum	Interpretation
5 – Always (A)	4.20 – 5.00	Very Great Extent (VGE)
4 – Often (O)	3.40 – 4.19	Great Extent (GE)
3 – Sometimes (S)	2.60 – 3.39	Moderate (M)
2 – Rarely (R)	1.80 – 2.59	Less Extent (LE)
1 – Never (N)	1.0 – 1.79	Least Extent (LE)

B. Teachers' Teaching Performance Questionnaire. This was a researcher-developed questionnaire with four constructs and 20 indicators. It used a five-point Likert scale to measure teachers' teaching performance. The instrument underwent validation and reliability testing before being administered to the respondents, with a Cronbach's alpha coefficient of 0.8508. The data instrument demonstrated strong internal consistency and reliability.

In evaluating the teachers' teaching performance, the following scale was used:

Responses	Continuum	Interpretation
5 – Always (A)	4.20 – 5.00	Excellent (E)
4 – Often (O)	3.40 – 4.19	Very Satisfactory (VS)
3 – Sometimes (S)	2.60 – 3.39	Satisfactory (S)
2 – Rarely (R)	1.80 – 2.59	Fair (F)
1 – Never (N)	1.0 – 1.79	Poor (P)

C. Learners' Engagement Questionnaire. This was a researcher-developed questionnaire with three constructs and 15 indicators. A five-point Likert scale was used to measure learners' engagement in classes. The instrument underwent validation and reliability testing before being administered to the respondents, with a Cronbach's alpha coefficient of 0.9230. The data instrument demonstrated strong internal consistency and reliability.

In evaluating the learners' engagement, the following scale was used:

Responses	Continuum	Interpretation
5 – Always (A)	4.20 – 5.00	Very High (VH)
4 – Often (O)	3.40 – 4.19	High (H)
3 – Sometimes (S)	2.60 – 3.39	Moderate (M)
2 – Rarely (R)	1.80 – 2.59	Low (L)
1 – Never (N)	1.0 – 1.79	Very Low (VL)

Data Gathering Procedure

Before collecting data, permission was first sought from the Dean of the Graduate School at Misamis University, Ozamiz City, to conduct the study. Permission was also requested from the principal of the Basic Education Department, where the research took place. The researcher prepared an institutional informed consent form for the respondents and explained the study's importance. Data collection was conducted via Google Forms. The researcher personally administered and managed the survey questionnaires to ensure respondents' full cooperation and facilitate data collection. The gathered data were then tallied, analyzed, and interpreted.

Ethical Considerations

The researcher ensured that respondents participated voluntarily to uphold the study's ethical standards. They were assured that no harm would be inflicted upon them. The respondents' dignity was treated with the utmost respect. The respondents were allowed to withdraw at any time without penalty or consequence. Steps were taken to

protect respondents' privacy, ensure each respondent's anonymity, and maintain a high level of confidentiality for the research data.

Regarding the study's purposes and goals, the researcher refrained from lying or exaggeration. The authors disclosed all relevant affiliations, funding sources, and any conflicts of interest. False information and incorrect interpretations of primary data findings were avoided in all communications regarding the research, which were conducted with honesty and transparency. As confirmation of their willingness to participate, respondents must sign informed consent forms.

Data Analysis

Mean and Standard Deviation were used to determine the extent of technology integration on teachers' teaching performance and learners' engagement.

Spearman's rho was used to explore significant relationships between the extent of technology integration and teachers' teaching performance, and between technology integration and learners' engagement.

RESULTS AND DISCUSSION

Extent of the Teachers' Technology Integration

Table 1 presents the extent of technology integration among teachers. The results show that the overall extent of technology integration were very great ($M = 4.45$, $SD = 0.64$). This indicates that teachers extensively utilized technology in their instructional practices and classroom activities. The finding suggests that digital tools have become an integral part of teaching, supporting lesson delivery, communication, and assessment. It also implies that teachers were responsive to the increasing demands of technology-

enhanced education. The high overall result reflects teachers' readiness to integrate technology into their daily instructional routines.

The extensive integration of technology indicates that teachers not only use it frequently but also apply it across different aspects of teaching. This reflects a shift toward more modern, flexible, and learner-centered instructional approaches. The integration of technology enhances teaching efficiency, improves access to learning resources, and supports diverse instructional strategies. It also suggests that teachers are adapting to an evolving educational landscape in which digital competence is essential. Thus, technology integration is already embedded in instructional practices.

This finding is supported by studies indicating that effective technology integration enhances instructional delivery and learner engagement when aligned with pedagogical goals (Bhat, 2023; Akram et al., 2022). Research further emphasizes that digital tools foster interactive, learner-centered environments, thereby improving both teaching practices and learning outcomes (Kadiyono et al., 2020). Teachers who integrate technology meaningfully are better able to respond to diverse learner needs. Thus, the very great extent reflects both competence and adaptation to modern educational demands.

Among the constructs, the type of technology used obtained the highest mean ($M = 4.60$, $SD = 0.96$), indicating that teachers utilize a wide range of digital tools and platforms in teaching. This suggests that teachers are exposed to and capable of using a range of technologies, including multimedia, online resources, and digital applications. The high result reflects the diversity of technological tool use in instruction. It also implies that teachers can select appropriate technologies to support learning objectives. This contributes to more engaging and interactive classroom experiences.

The use of varied technological tools allows teachers to present content in multiple formats, catering to different learning styles and needs. It enhances learners' engagement by providing visual, auditory, and interactive learning experiences. Diverse technologies also support creativity and innovation in teaching practices. However, effective use depends on how well these tools are aligned with instructional goals. Therefore, technological variety must be accompanied by purposeful application.

This finding is supported by research showing that diverse technological tools enhance student engagement and accommodate different learning styles (Zhang et al., 2024). Multimedia and interactive platforms provide varied learning experiences that improve comprehension and participation (Perifanou et al., 2022). The use of multiple technologies also encourages creativity and innovation in teaching. Therefore, diversity in technology use contributes to more effective and engaging instruction.

Frequency of use was also rated as very great extent ($M = 4.53$, $SD = 0.51$), indicating that teachers consistently use technology in their daily instruction. This suggests that technology were regularly incorporated into lesson planning, delivery, and assessment. Frequent use helped teachers become more familiar and efficient with digital tools. It also contributed to improved instructional practices and classroom management. This reflects the normalization of technology in teaching.

Regular use of technology supports the development of engaging and interactive learning environments. It allows teachers to implement varied instructional strategies that enhance student participation. Frequent exposure to technology also helps learners become more comfortable and proficient in using digital tools. However, consistent use must be

aligned with pedagogical goals to ensure meaningful learning. Therefore, frequency of use should be accompanied by effective instructional design.

This finding is supported by research indicating that frequent use of technology enhances instructional practices and student engagement (Rintaningrum, 2023; Hlazunova et al., 2024). Regular exposure allows teachers to refine their skills and integrate innovative teaching strategies. It also aligns with Connectivism, which emphasizes learning through continuous interaction with digital tools. Therefore, consistent use strengthens both teaching effectiveness and learning experiences.

Teacher training and competence also showed a very great extent ($M = 4.57$, $SD = 0.46$), indicating that teachers possess strong knowledge and skills in using technology. This suggests that teachers are confident and capable of integrating digital tools into their instruction. The high rating reflects effective training and professional development initiatives. It also implies that teachers are equipped to respond to technological demands in education. This contributes to improved teaching practices and instructional delivery.

Teacher competence plays a crucial role in successful technology integration, as it determines how effectively tools are used in teaching. Continuous training enhances teachers' ability to design interactive and meaningful learning experiences. It also supports the development of innovative teaching strategies and adaptability to new technologies. Competent teachers are more likely to integrate technology in ways that enhance learning outcomes. Thus, teacher training remains a key factor in sustaining effective integration.

Teacher competence is a key factor in successful technology integration (Reich et al., 2020; Budak, 2021). Professional development strengthens teachers' ability to align technology with pedagogy and content. The TPACK framework further explains that

effective integration occurs when these domains are combined. Thus, strong training and competence enable teachers to maximize the use of digital tools in teaching.

Access to technology was rated as to a very great extent ($M = 4.45$, $SD = 0.52$), indicating that teachers generally had sufficient access to digital tools and resources. This suggests that schools provided the necessary infrastructure to support technology integration. Adequate access enabled teachers to implement diverse teaching strategies and utilize multimedia resources. It also supports the delivery of flexible and interactive learning experiences. This reflects the availability of technological resources in the educational setting.

Access to technology is essential for effective integration, as it provides the tools needed for instruction. When teachers have reliable access, they can explore innovative teaching methods and adapt to learners' needs. It also enables efficient communication and assessment. However, access alone does not guarantee effective use without proper training and support. Thus, access must be complemented by competence and institutional support.

This finding is supported by studies showing that access to digital tools enhances instructional flexibility and supports diverse teaching strategies (Zhang et al., 2024). Access enables teachers to utilize multimedia resources and digital platforms effectively. It also supports differentiated instruction and improved learner engagement. However, research highlights that access must be combined with competence for maximum effectiveness (Akram et al., 2022).

The support system was rated as great ($M = 4.11$, $SD = 0.75$), the lowest among the constructs. This indicates that while support is present, it is weaker than other aspects of technology integration. Teachers may experience limitations in terms of technical

assistance, training opportunities, or administrative support. These challenges may affect the consistency and effectiveness of technology use. This suggests a need to strengthen institutional support mechanisms.

Support systems play a vital role in sustaining technology integration by providing guidance, resources, and assistance. Strong support systems enhance teachers' confidence and ability to use technology effectively. They also ensure that technical issues are addressed promptly, minimizing disruptions in instruction. Improving support systems can lead to more consistent and effective use of technology. Therefore, strengthening institutional support is essential for sustaining integration efforts.

This finding is supported by research indicating that institutional support plays a crucial role in sustaining technology integration (Rofifah et al., 2021). Support systems such as training, leadership, and technical assistance enhance teachers' ability to use technology effectively. Without adequate support, teachers may face challenges in implementation. Strengthening support systems leads to more consistent and effective integration practices.

Overall, the findings indicate that teachers demonstrate a very great extent of technology integration across all constructs. This reflects their strong capability to utilize digital tools and adapt to modern educational demands. Technology integration supports more interactive, efficient, and learner-centered teaching practices. However, the relatively lower rating for support systems highlights an area for improvement. Strengthening this aspect may further enhance the quality and sustainability of technology integration in education.

Table 1

Extent of Teacher's Technology Integration

Constructs	M	SD	Interpretation
Type of technology Used	4.60	0.96	Very Great Extent
Frequency of Use	4.53	0.51	Very Great Extent
Teacher Training and Competence	4.57	0.46	Very Great Extent
Access to Technology	4.45	0.52	Very Great Extent
Support System	4.11	0.75	Great Extent
Overall Extent of Integration	4.45	0.64	Very Great Extent

Note: 4.20-5.00 (Very Great Extent); 3.40-4.19 (Great Extent); 2.60-3.39 (Moderate); 1.30-2.59 (Less Extent); 1.00-1.29 (Least Extent)

Level of the Teachers' Teaching Performance

Table 2 shows the excellent level of teaching performance among teachers ($M = 4.66$, $SD = 0.43$). This finding implies that teachers demonstrated a high level of competence in delivering instruction, managing classrooms, adapting to technological tools, and implementing assessment strategies. It indicates that teachers were effective in facilitating learning and meeting instructional objectives in the classroom. The high level of performance reflects teachers' strong commitment to quality teaching and their ability to integrate appropriate strategies to support student learning. This also suggests that teachers were well-prepared to address the demands of contemporary education.

Teaching performance refers to the effectiveness of teachers in delivering instruction, managing classroom activities, adapting to instructional tools, and assessing student learning. It plays a crucial role in achieving positive learning outcomes and ensuring meaningful educational experiences for students. The overall result suggests that teachers are consistently demonstrating excellence across all domains of teaching performance. This reflects their professional competence, adaptability, and ability to create

structured and engaging learning environments. High teaching performance is often associated with effective instructional practices and strong pedagogical knowledge.

Instructional delivery was rated excellent ($M = 4.77$, $SD = 0.33$). This finding that teachers are highly effective in presenting lessons, explaining concepts clearly, and facilitating learning activities. Teachers could organize content systematically and deliver instruction that promotes understanding and engagement. This suggests that they were proficient in using appropriate teaching strategies to meet learners' needs. The high rating also reflects teachers' ability to maintain clarity and coherence in lesson delivery.

Instructional delivery is a key component of teaching performance, as it directly influences students' understanding and learning outcomes. Effective instructional delivery involves clear communication, structured presentation of content, and the use of appropriate teaching strategies. Teachers who deliver instruction effectively can engage learners and facilitate meaningful learning experiences. The integration of technology can further enhance instructional delivery by making lessons more interactive and accessible. Thus, strong instructional practices contribute significantly to overall teaching effectiveness.

Classroom Management with Technology was rated as excellent ($M = 4.69$, $SD = 0.44$). This indicates that teachers were effective in managing classroom activities while integrating technology into their instruction. Teachers could maintain order, facilitate participation, and ensure technology is used appropriately during lessons. This suggests that they could balance the use of digital tools with effective classroom control. The result reflects teachers' ability to create a structured and productive learning environment.

Classroom management with technology involves organizing learning activities, maintaining discipline, and ensuring that digital tools support rather than disrupt instruction. Effective classroom management ensures that students remain focused and engaged during lessons. Teachers who are skilled in this area can maximize the benefits of technology while minimizing potential distractions. The use of clear rules, structured activities, and appropriate monitoring strategies supports effective classroom management. As a result, students can actively participate in a well-managed learning environment.

Adaptability to Technological Tools was rated as excellent ($M = 4.61$, $SD = 0.42$). This indicates that teachers were highly capable of adjusting to new technologies and integrating them into their instructional practices. Teachers could effectively use a range of digital tools and platforms to support teaching and learning. This suggests that they were flexible and responsive to technological changes in education. The high rating reflects teachers' readiness to embrace innovation in their teaching practices.

Adaptability to technological tools is essential in modern education, where new digital platforms and resources are continuously introduced. Adaptable teachers can effectively integrate these tools and enhance their instructional practices. This adaptability supports the development of innovative teaching strategies and promotes more engaging learning experiences. It also enables teachers to respond to diverse learner needs and changing educational contexts. Therefore, adaptability is a critical factor in sustaining effective technology integration.

Assessment Strategies was rated as excellent ($M = 4.57$, $SD = 0.52$). This indicates that teachers were effective in assessing student learning and providing feedback. Teachers could use various assessment methods to evaluate students' understanding and progress.

This suggests that they could design and implement appropriate assessment strategies that support learning. The result reflects teachers' ability to monitor student performance effectively.

Assessment strategies play a vital role in the teaching-learning process, as they provide information about students' progress and guide instructional decisions. Effective assessment involves using diverse methods, including formative and summative approaches, to evaluate learning outcomes. Technology can enhance assessment practices by enabling timely feedback and efficient monitoring of student performance. Teachers who utilize effective assessment strategies are better able to support student learning and improvement. Thus, strong assessment practices contribute to overall teaching effectiveness.

Teaching performance has been widely recognized as a critical factor in improving student learning outcomes and engagement. Studies have shown that effective instructional delivery, classroom management, adaptability, and assessment practices contribute to higher levels of student achievement and participation (Perifanou et al., 2022; Hlazunova et al., 2024). Moreover, integrating technology enhances teaching performance by enabling more interactive, learner-centered approaches. Teachers who perform at high levels are better able to create meaningful and engaging learning experiences for students. These findings support the present results and highlight the importance of strong teaching performance in modern education.

The findings imply that maintaining excellent teaching performance requires continuous professional development, access to technological resources, and supportive institutional environments. School administrators may provide ongoing training and

support to help teachers sustain and further enhance their instructional practices. Encouraging collaboration among teachers can also promote the sharing of effective strategies and best practices. Integrating technology meaningfully into teaching can further improve instructional delivery and student engagement. Strengthening these areas may lead to sustained excellence in teaching performance and improved learning outcomes.

Table 2

Level of the Teachers' Teaching Performance

Constructs	M	SD	Interpretation
Instructional Delivery	4.77	0.33	Excellent
Adaptability to Technological Tools	4.61	0.42	Excellent
Classroom Management with Technology	4.69	0.44	Excellent
Assessment Strategies	4.57	0.52	Excellent
Overall Performance	4.66	0.43	Excellent

Note: 4.20-5.00 (Excellent); 3.40-4.19 (Very Satisfactory); 2.60-3.39 (Satisfactory); 1.30-2.59 (Fair); 1.00-1.29 (Poor)

Level of the Learners' Engagement in Class

Table 3 shows the very high level of learners' engagement in class ($M = 4.67$, $SD = 0.42$). This finding implies that learners were actively involved in classroom activities and demonstrate strong participation in the learning process. It indicates that students were attentive, motivated, and responsive during instruction. The high level of engagement reflects learners' interest in classroom tasks and their willingness to participate in learning activities. This also suggests that classroom practices were effective in promoting active student involvement.

Learner engagement refers to the level of students' cognitive, behavioral, and emotional involvement in learning activities. It plays a critical role in improving academic performance, motivation, and knowledge retention. The overall result suggests that learners

are highly engaged across multiple dimensions of learning. This reflects the presence of interactive and meaningful instructional practices that encourage participation. High engagement levels indicate that students are not only present in class but are also actively contributing to the learning process.

Emotional engagement was rated very high ($M = 4.70$, $SD = 0.38$). This indicates that learners demonstrated strong interest, enjoyment, and positive attitudes toward classroom activities. Students were likely motivated and emotionally connected to the learning process. This suggests that they found learning experiences meaningful and enjoyable. The high rating reflects a supportive and engaging classroom environment.

Emotional engagement is an important aspect of learning, as it influences students' motivation and willingness to participate. When students feel interested and emotionally connected, they are more likely to engage deeply in learning tasks. Positive emotional experiences in the classroom contribute to increased participation and sustained attention. Teachers play a key role in fostering such engagement through interactive and supportive teaching strategies. As a result, emotional engagement enhances the overall learning experience.

Cognitive engagement was rated as very high ($M = 4.68$, $SD = 0.43$). This indicates that learners were actively involved in thinking processes such as understanding concepts, solving problems, and applying knowledge. Students demonstrated effort and persistence in completing learning tasks. This suggests that they were intellectually invested in their learning activities. The result reflects learners' ability to engage in higher-order thinking.

Cognitive engagement involves students' mental effort and willingness to invest in learning tasks. It includes activities such as critical thinking, problem solving, and a deep

understanding of content. High cognitive engagement indicates that students are not only participating but are also processing information meaningfully. Instructional strategies that promote inquiry, discussion, and application of knowledge support this type of engagement. Therefore, cognitive engagement contributes to improved learning outcomes.

Behavioral engagement was rated as very high ($M = 4.62$, $SD = 0.44$). This indicates that learners actively participated in classroom activities and demonstrate positive learning behaviors. Students were attentive, follow instructions, and engage in assigned tasks. This suggests that they are actively involved in the learning process. The high rating reflects learners' consistent participation in classroom activities.

Behavioral engagement refers to students' observable actions in the classroom, such as participation, attention, and involvement in tasks. It is a key indicator of active learning and classroom interaction. When students demonstrate strong behavioral engagement, they are more likely to complete tasks and achieve learning objectives. Teachers can enhance behavioral engagement through structured activities and clear expectations. As a result, students become more involved and responsive during lessons.

Learner engagement has been widely recognized as a key factor in improving academic performance and learning outcomes. Studies have shown that cognitive, emotional, and behavioral engagement contribute to deeper understanding, increased motivation, and active participation in learning (Perifanou et al., 2022; Hlazunova et al., 2024). The integration of technology further enhances engagement by creating interactive and learner-centered environments. Digital tools such as multimedia resources and interactive platforms support students' active involvement in learning activities. These

findings support the present results and highlight the importance of maintaining high levels of educational engagement.

The findings imply that sustaining a very high level of learner engagement requires continuous use of interactive teaching strategies and supportive learning environments. Teachers may continue to implement learner-centered approaches that promote active participation and meaningful learning. School administrators may provide resources and support systems that enhance engagement, such as access to digital tools and training opportunities. Encouraging collaborative and interactive learning activities can further strengthen students' involvement. These efforts may contribute to improved academic performance and overall learning experiences.

Table 3

Level of the Learners' Engagement in Class

Constructs	M	SD	Interpretation
Cognitive Engagement	4.68	0.43	Very High
Behavioral Engagement	4.62	0.44	Very High
Emotional Engagement	4.70	0.38	Very High
Overall Level of Engagement	4.67	0.42	Very High

Note: 4.20-5.00 (Very High); 3.40-4.19 (High); 2.60-3.39 (Moderate); 1.30-2.59 (Low); 1.00-1.29 (Very Low)

Significant Relationship between Technology Integration and Teaching Performance

Table 4 presents the results of the Spearman's rho correlation analysis examining the relationship between the extent of technology integration and teachers' teaching performance. Technology integration was examined across five dimensions, namely technology used, frequency of use, teacher training and competence, access to technology, and support system, while teaching performance was measured in terms of instructional

delivery, adaptability to technological tools, classroom management with technology, and assessment strategies.

The results reveal that frequency of use showed a significant relationship with all domains of teaching performance, including instructional delivery ($r_s = 0.202$, $p = 0.027$), adaptability ($r_s = 0.182$, $p = 0.047$), classroom management ($r_s = 0.192$, $p = 0.035$), and assessment strategies ($r_s = 0.218$, $p = 0.017$). This indicates that the more frequently teachers used technology, the higher their level of teaching performance. Frequent engagement with digital tools allowed teachers to develop familiarity, confidence, and efficiency in integrating technology into their instructional practices. It also supports improved classroom management and enhances assessment processes. This suggests that consistency in technology use is a key factor in improving teaching effectiveness.

This finding is supported by studies indicating that frequent and sustained use of technology enhances instructional delivery and classroom practices (Perifanou et al., 2022; Hlazunova et al., 2024). It also aligns with Connectivism Theory, which explains that learning and professional development occur through continuous interaction with digital tools and networks. Moreover, Self-Determination Theory (Deci & Ryan, 1985) suggests that repeated engagement strengthens competence, thereby improving performance. These perspectives emphasize that frequent and meaningful use of technology contributes to effective teaching practices.

The results further show that access to technology was significantly related to assessment strategies ($r_s = 0.199$, $p = 0.029$). This indicates that when teachers have access to digital tools and resources, they are better able to implement effective assessment practices. Technology enables teachers to conduct online assessments, provide timely

feedback, and monitor student progress more efficiently. This contributes to improved evaluation processes and supports student learning. However, access to technology did not significantly influence other domains of teaching performance.

This finding is supported by research showing that digital tools enhance assessment and feedback through real-time monitoring and evaluation of student performance (Qi & Derakhshan, 2025). Technology-based assessment platforms enable teachers to provide immediate feedback and effectively track learners' progress. These tools also facilitate more efficient and data-driven decision-making in instruction. However, the effectiveness of access depends on how technology is utilized in practice, reinforcing the importance of purposeful integration.

The findings also indicate that the support system showed a highly significant relationship with assessment strategies ($r_s = 0.264$, $p = 0.004$). This suggests that institutional and technical support played a crucial role in enhancing teachers' assessment practices. Teachers who received adequate support are more likely to utilize digital tools for evaluation and feedback. Support systems such as training, guidance, and technical assistance enabled teachers to effectively implement technology-based assessment. This highlights the importance of structured support in improving specific aspects of teaching performance.

This result emphasizes that institutional and technical support strengthen teachers' ability to use technology effectively. It also aligns with Self-Determination Theory, which holds that external support enhances competence and motivation. Additionally, Social Constructivism highlights the importance of collaborative support systems in improving

shared practices such as assessment and feedback. These perspectives suggest that support systems are essential in maximizing the impact of technology integration.

On the other hand, the results reveal that the technology used and teacher training and competence showed no significant relationship with all domains of teaching performance. This indicates that the mere presence of technology and teachers' competence do not directly influence teaching effectiveness. These findings suggest that having access to tools or knowledge alone is insufficient to improve performance. Instead, the effectiveness of technology integration depends on how it is applied in instructional practices. This highlights the importance of meaningful, purposeful technology use.

This finding supports the TPACK framework, which emphasizes that technology must be integrated with pedagogy and content knowledge to produce meaningful instructional outcomes. It also aligns with Social Constructivism, which suggests that knowledge becomes meaningful only when applied through interaction and authentic practice. Studies have shown that pedagogical strategies have a stronger influence on teaching effectiveness than mere access to technology (Guaña-Moya et al., 2024). Therefore, the focus should be on how technology is used rather than simply on its availability or the level of competence.

Overall, the findings suggest that frequency of use, access to technology, and support systems particularly in assessment are key factors influencing teaching performance. In contrast, mere access and competence alone are not sufficient. These results highlight that effective technology integration requires consistent use, targeted application, and strong institutional support. Schools may prioritize promoting frequent engagement with technology and providing structured support systems. Professional

development programs may focus on practical application rather than solely on theoretical knowledge. These efforts may lead to more meaningful and sustained improvements in teachers' teaching performance.

Table 4

Significant Relationship Between the Extent of Technology Integration and Teachers' Teaching Performance

Variables		Instructional Delivery	Adaptability to Technological Tools	Classroom Management with Technology	Assessment Strategies
Technology Used	r_s	0.024	0.006	0.045	0.071
	p	0.797	0.945	0.625	0.438
	I	Accept Ho	Accept Ho	Accept Ho	Accept Ho
Frequency of Use	r_s	0.202*	0.182*	0.192*	0.218*
	p	0.027	0.047	0.035	0.017
	I	Reject Ho	Reject Ho	Reject Ho	Reject Ho
Teacher Training and Competence	r_s	0.143	0.067	0.031	0.159
	P	0.118	0.468	0.733	0.083
	I	Accept Ho	Accept Ho	Accept Ho	Accept Ho
Access to Technology	r_s	0.087	0.115	0.035	0.199*
	P	0.346	0.211	0.707	0.029
	I	Accept Ho	Accept Ho	Accept Ho	Reject Ho
Support System	r_s	0.163	0.160	0.130	0.264**
	P	0.075	0.081	0.158	0.004
	I	Accept Ho	Accept Ho	Accept Ho	Reject Ho

P value Scale: *** $p < .001$ (Highly Significant); ** $p < 0.01$ (Highly Significant);

* $p < 0.05$ (Significant); $p > 0.05$ (Not significant)

Significant Relationship between Technology Integration and Learners' Engagement

Table 5 presents the results of the Spearman's rho correlation analysis examining the relationship between technology integration and learners' engagement. Technology integration was examined across five dimensions, namely technology used, frequency of use, teacher training and competence, access to technology, and support system. At the

same time, learners' engagement was measured across cognitive, behavioral, and emotional domains.

The results reveal that frequency of use was significantly related to cognitive engagement ($r_s = 0.185$, $p = 0.043$). This indicates that the more frequently teachers used technology, the higher learners' cognitive engagement. Frequent use of digital tools enabled learners to engage more actively with content, solve problems, and develop a deeper understanding of lessons. It also encouraged learners to think critically and participate in meaningful learning activities. This suggests that consistent exposure to technology enhances learners' cognitive involvement in the learning process.

This finding is supported by studies showing that regular technology use promotes active learning and deeper cognitive processing among students (Perifanou et al., 2022; Hlazunova et al., 2024). It also aligns with Connectivism, which emphasizes that learning occurs through continuous interaction with digital tools and information networks. Through repeated exposure, learners develop the ability to process and connect information more effectively. Thus, frequent technology use plays a significant role in strengthening cognitive engagement.

The results further show that access to technology was significantly related to cognitive engagement ($r_s = 0.181$, $p = 0.048$). This indicates that when learners have access to digital tools and resources, they are more likely to engage cognitively in learning activities. Access enabled students to explore learning materials, interact with multimedia content, and engage in independent learning. It also supports deeper understanding by allowing learners to revisit concepts and access additional resources. This suggests that the availability of technology enhances cognitive engagement.

This finding is supported by research showing that access to digital resources enhances students' ability to engage in meaningful learning experiences (Qi & Derakhshan, 2025). It also aligns with Social Constructivism, which emphasizes that learning occurs through interaction with tools, resources, and the environment. Access to technology provides learners with opportunities to actively construct knowledge. Therefore, access to digital tools plays an important role in promoting cognitive engagement.

On the other hand, the results reveal that the technology used, teacher training and competence, and the support system showed no significant relationships with cognitive, behavioral, and emotional engagement. This indicates that the mere presence of technology, teachers' competence, and institutional support do not directly influence learners' engagement. These findings suggest that engagement is not automatically achieved through access or teacher capability alone. Instead, how technology is used in instruction plays a more critical role. This highlights the importance of integrating technology meaningfully and purposefully into teaching.

This finding supports the TPACK Framework, which emphasizes that effective outcomes occur when technology is integrated with pedagogy and content. It also aligns with Self-Determination Theory, which suggests that learners' engagement depends on intrinsic motivation, autonomy, and meaningful learning experiences. Studies have shown that poorly implemented technology does not significantly enhance engagement (Guaña-Moya et al., 2024). Therefore, the effectiveness of technology depends on how it is applied in the learning process.

Overall, the findings suggest that frequency of use and access to technology are key factors influencing learners' cognitive engagement. In contrast, other dimensions of

technology integration do not show significant relationships with engagement. These results highlight that consistent exposure and availability of technology contribute to learners' active involvement in learning. Schools may focus on ensuring regular technology use and improving access to digital resources. Teachers may design interactive and meaningful activities that promote deeper engagement. These efforts may lead to improved cognitive engagement and better learning outcomes.

Table 5

Significant Relationship between Technology Integration and Learners' Engagement

Variables		Cognitive	Behavioral	Emotional
Technology Used	r_s	0.171	0.175	0.146
	p	0.062	0.055	0.112
	I	Accept Ho	Accept Ho	Accept Ho
Frequency of Use	r_s	0.185*	0.109	0.152
	P	0.043	0.234	0.096
	I	Reject Ho	Accept Ho	Accept Ho
Teacher Training and Competence	r_s	0.113	0.046	0.114
	P	0.217	0.618	0.214
	I	Accept Ho	Accept Ho	Accept Ho
Access to Technology	r_s	0.181*	0.067	0.110
	P	0.048	0.470	0.231
	I	Reject Ho	Accept Ho	Accept Ho
Support System	r_s	0.136	0.067	0.078
	P	0.139	0.466	0.397
	I	Accept Ho	Accept Ho	Accept Ho

Note: P value Scale: *** $p < .001$ (Highly Significant); ** $p < 0.01$ (Highly Significant); * $p < 0.05$ (Significant); $p > 0.05$ (Not significant)

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This study investigated the relationship between technology integration, teachers' teaching performance, and learners' engagement in Basic Education. Specifically, it sought to: Determine the extent of technology integration in terms of frequency of use, teacher training and competence, access to technology, and support system; Assess the level of teaching performance in terms of instructional delivery, adaptability to technological tools, classroom management with technology, and assessment strategies; Evaluate the level of learners' engagement in terms of cognitive, behavioral, and emotional engagement; Examine the significant relationship between technology integration and teaching performance; and Determine the significant relationship between technology integration and learners' engagement.

The study employed a quantitative descriptive-correlational design. It was conducted among 121 teachers in Basic Education in Private schools selected through simple random sampling. Data were collected using a researcher-developed and validated questionnaire that assessed technology integration, teaching performance, and learners' engagement, each measured on a Likert scale. Mean and Standard Deviation were used to describe the extent and levels of the variables, and Spearman's rho correlation to determine the significant between variables.

Findings

The following are the findings of the study:

1. Teachers demonstrated a very high level of technology integration, characterized by strong competence, consistent use, and adequate access to digital tools, although institutional support was comparatively less emphasized.

2. Teachers demonstrated excellent teaching performance across instructional delivery, adaptability to technology, classroom management, and assessment practices.

3. Learners showed a very high level of engagement, reflected in strong emotional, cognitive, and behavioral involvement in classroom activities.

4. Technology integration was significantly associated with teaching performance primarily through frequent use. In contrast, access to technology and support systems specifically contributed to assessment practices, whereas mere technology availability and teacher competence showed no significant relationship.

5. Technology integration was significantly related to learners' cognitive engagement through frequent use and access. In contrast, no significant relationship was found with behavioral or emotional engagement, indicating that meaningful use is more influential than mere availability.

Conclusions

Based on the findings of the study, the following are the conclusions:

1. Technology integration is already embedded in teaching practices, but its sustainability depends on stronger institutional support.

2. Teachers effectively translate their knowledge into classroom practice. Pedagogical strength remains the key driver of instructional success even in technology-rich environments.

3. Learners are meaningfully engaged, showing both active participation and deeper learning involvement.

4. Technology improves teaching performance when it is applied consistently and purposefully.

5. Learner engagement is shaped by how technology is integrated into instruction rather than by its presence alone. Pedagogical design plays a crucial role in maximizing the benefits of technology in education.

Recommendations:

Based on the findings and conclusions, it is recommended that:

1. Schools may strengthen institutional support systems by providing continuous technical assistance, structured training, and accessible digital resources to sustain effective technology integration.

2. Teachers may continue enhancing pedagogical practices through ongoing professional development and collaborative learning to maintain high levels of teaching performance.

3. Teachers may design more interactive, learner-centered activities that sustain students' cognitive, emotional, and behavioral engagement in classroom learning.

4. Schools may encourage consistent and purposeful technology use through targeted training and monitoring to further improve teaching performance.

5. Teachers may integrate technology meaningfully into instructional design by using interactive strategies and relevant digital tools to enhance learners' engagement.

6. Future researchers may conduct further studies exploring additional factors and contexts to better understand how technology integration influences teaching performance and learner engagement.

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Chapter 3

EXPLORING TEACHERS' LIVED EXPERIENCES ON TECHNOLOGY INTEGRATION

ABSTRACT

Technology integration makes teaching more engaging and learning more active. This study explored teachers' experiences in enhancing students' engagement through technology integration in Basic Education during the SY 2025-2026. The study employed a qualitative phenomenological design, utilizing semi-structured interviews with 10 teachers from Basic Education at one of the private schools in Ozamiz City during the School Year 2025–2026. Data were analyzed using Colaizzi's Seven-Step Method to identify significant statements, formulate meanings, and generate thematic clusters. The findings revealed the following themes: enabling teaching through technology integration; transforming instruction and classroom routines through technology; experiencing increased learner engagement and participation through technology; navigating constraints through adaptive teaching strategies; and strengthening teacher capacity and supportive learning environments for effective technology integration. Technology integration enhances both teaching performance and learner engagement when supported by teacher competence and systemic support. It recommends continuous training, improved infrastructure, and sustained institutional support to ensure effective and meaningful technology integration in Basic Education.

Keywords: *classroom routines, learner engagement, teacher experiences, teaching strategies, technology integration*

INTRODUCTION

The integration of technology in basic education has become a defining feature of contemporary teaching practice, reshaping how teachers plan, deliver, and reflect on instruction. Beyond being a set of digital tools, technology integration represents a complex pedagogical process that requires teachers to adapt their instructional beliefs, professional identities, and classroom practices. Recent literature emphasizes that the effectiveness of technology integration depends not only on access to digital resources but also on how teachers experience, interpret, and make meaning of technology within their daily teaching contexts (Scherer et al., 2021; Tondeur et al., 2021).

Teachers play a central role in technology integration, as they are the primary agents who translate digital innovations into meaningful classroom practices. Studies show that teachers' attitudes, confidence, pedagogical beliefs, and prior experiences strongly influence how technology is adopted and sustained in instruction (Lai & Jin, 2021; Petko et al., 2022). Rather than a linear process, technology integration is often experienced by teachers as a gradual journey involving experimentation, reflection, adaptation, and professional growth. Understanding teachers' lived experiences is therefore critical in explaining why technology integration succeeds in some classrooms while remaining limited or superficial in others.

Recent qualitative and phenomenological studies highlight that teachers' initial encounters with technology integration are frequently marked by uncertainty, anxiety, and resistance, particularly when institutional support and training are insufficient. For instance, Enarsao (2023) documented Filipino teachers' early struggles with blended learning, including limited digital skills, a lack of devices, and unstable internet

connectivity. However, as teachers gained hands-on experience and professional support, many reported increased confidence, instructional creativity, and a more positive disposition toward technology use. Similar findings were reported by Teichert et al. (2023), who found that teachers' early frustrations during the shift to virtual instruction gradually transformed into adaptive teaching practices characterized by improved communication, flexibility, and reflective teaching.

Teachers' lived experiences with technology integration are also shaped by their professional identities and pedagogical orientations. Lai and Jin (2021) argue that teachers who view technology as a tool for enhancing pedagogy rather than merely a technical requirement are more likely to integrate it meaningfully into instruction. Likewise, Bereczki and Kárpáti (2021) found that teachers' beliefs about creativity, innovation, and learner-centered instruction influenced how they used digital tools in the classroom. These studies suggest that technology integration is deeply intertwined with teachers' values, beliefs, and sense of professional purpose.

Moreover, teachers' narratives reveal that technology integration can catalyze professional transformation. Raes et al. (2021) reported that teachers engaged in blended, technology-supported teaching experienced a shift in their instructional roles from content transmitters to learning facilitators, requiring new forms of classroom interaction, assessment, and feedback. Heilporn et al. (2021) similarly found that teachers' sustained engagement with digital platforms fostered reflective practice and instructional intentionality, particularly when supported by institutional leadership and collegial collaboration.

Despite these documented benefits, teachers continue to encounter persistent challenges that shape their lived experiences of technology integration. Common barriers include insufficient professional development, increased workload, limited technical support, and inequitable access to digital resources (Petko et al., 2022; Scherer et al., 2021). These challenges often influence teachers' emotional responses to technology integration, ranging from frustration and fatigue to motivation and professional satisfaction. Exploring these lived realities provides critical insights into how technology integration unfolds in authentic classroom settings.

While existing research has examined technology integration from technical, pedagogical, or policy perspectives, fewer studies have focused explicitly on teachers' lived experiences, particularly within basic education and developing country contexts such as the Philippines. Much of the literature emphasizes outcomes or competencies, leaving a limited understanding of how teachers experience technology integration as a personal, professional, and contextual process. In the Philippine K to 12 setting, where technology integration is increasingly mandated, there remains a need for in-depth qualitative inquiry into how teachers navigate this shift in practice.

Hence, this study sought to explore teachers' lived experiences of technology integration in the classroom. By foregrounding teachers' voices, reflections, challenges, and meaning-making processes, the study aimed to provide a deeper understanding of how technology integration is experienced in everyday teaching practice and how it shapes teachers' professional lives. Insights from this study may inform teacher training, institutional support systems, and policy decisions that promote more human-centered and sustainable technology integration in basic education.

Conceptual Framework

The following themes were developed after the conduct of the study:

Enabling Teaching Through Technology Integration. Technology integration serves as a critical enabler of teaching by expanding instructional possibilities and supporting diverse pedagogical approaches. It allows teachers to move beyond traditional methods and adopt interactive, student-centered strategies that enhance learning experiences. Studies emphasize that classroom technology use is shaped by teachers' beliefs and institutional support, underscoring that effective integration depends on both individual and systemic factors (Mufron et al., 2024). Furthermore, technology-enhanced instruction enables differentiated teaching by addressing learners' varied needs and learning styles, thereby improving instructional delivery and accessibility (Consoli et al., 2024).

In addition, technology empowers teachers to design more engaging and flexible learning environments that foster collaboration, creativity, and critical thinking. Digital tools such as learning management systems, interactive applications, and multimedia resources allow teachers to facilitate deeper learning and continuous assessment (Emma, 2025; Bhat, 2025; Mufron et al., 2024). Research further suggests that technology integration enhances teaching quality by supporting classroom management, individualized instruction, and cognitive activation (Consoli et al., 2024; Gong et al., 2024; Castro et al., 2024). Thus, technology serves as a powerful enabler, strengthening instructional effectiveness and promoting meaningful learning experiences.

Transforming Instruction and Classroom Routines Through Technology. Technology integration significantly transforms instruction and classroom routines by

reshaping how teachers deliver content and manage learning processes. Traditional teacher-centered approaches are increasingly replaced with interactive, technology-mediated practices that promote active learning and student participation (Emma, 2025; Bhat, 2025).

The use of digital tools such as online platforms, simulations, and collaborative applications allows teachers to redesign classroom routines, making learning more dynamic and responsive to students' needs (Sharma, 2024; Consoli et al., 2024; Pereyra & Canoy, 2025). Moreover, technology fosters a shift toward blended and flexible learning environments, where instructional time and space are restructured to accommodate both synchronous and asynchronous learning. This transformation enables teachers to provide continuous feedback, monitor progress, and facilitate personalized learning pathways (Mufron et al., 2024; Emma, 2025; McCall, 2025).

Research indicates that these changes not only improve instructional efficiency but also enhance the overall learning experience by integrating real-world applications and digital literacy skills into classroom routines (Bhat, 2025; Consoli et al., 2024; Gong et al., 2024).

Experiencing Increased Learner Engagement and Participation Through Technology. Technology integration has been widely associated with increased learner engagement and participation, as digital tools create interactive and motivating learning environments. Research consistently shows that the use of multimedia resources, collaborative platforms, and interactive applications enhances students' cognitive, emotional, and behavioral engagement (Consoli et al., 2024; McCall, 2025; Emma, 2025). Furthermore, technology allows students to actively participate in learning through

discussions, simulations, and problem-solving activities, thereby fostering deeper understanding and sustained interest (Gong et al., 2024; Castro et al., 2024).

Technology-supported instruction promotes inclusive and equitable participation by accommodating diverse learners and providing multiple means of engagement. Studies show that digital tools enable personalized learning experiences, thereby increasing motivation and improving academic outcomes (Bhat, 2025; Pereyra & Canoy, 2025; Sharma, 2024). Moreover, the integration of technology has been shown to positively influence students' participation levels and overall academic performance, reinforcing its role as a key driver of engagement in modern classrooms (Emma, 2025; Gong et al., 2024; Consoli et al., 2024).

Navigating Constraints Through Adaptive Teaching Strategies. Despite the benefits of technology integration, teachers often encounter constraints such as limited infrastructure, insufficient training, and unequal access to digital resources. These challenges require teachers to adopt adaptive strategies to effectively integrate technology into their teaching practices (Atabek, 2019; McCall, 2025; Emma, 2025). Research indicates that teachers respond to these constraints by modifying instructional approaches, using available resources creatively, and prioritizing pedagogical goals over technological limitations (Ertmer & Ottenbreit-Leftwich, 2013; Hew & Brush, 2006; Mumtaz, 2000).

Adaptive teaching strategies involve continuous problem-solving and resilience, as teachers strive to maintain student engagement despite challenges. Educators often employ blended learning, offline alternatives, and collaborative learning techniques to address technological barriers and ensure instructional continuity (Pereyra & Canoy, 2025; Sharma, 2024; Bhat, 2025). These adaptive practices highlight the importance of teacher agency

and innovation in overcoming constraints, ultimately contributing to more sustainable and effective technology integration in education (Consoli et al., 2024; Mufron et al., 2024; Gong et al., 2024).

Strengthening Teacher Capacity and Supportive Learning Environments for Effective Technology Integration. Effective technology integration requires the continuous development of teacher capacity and the establishment of supportive learning environments. Professional development programs, institutional support, and access to resources are essential in enhancing teachers' technological competence and confidence (Mufron et al., 2024). Research emphasizes that when teachers receive adequate training and support, they are more likely to integrate technology effectively and align it with pedagogical goals (Casilao, 2025; Consoli et al., 2024).

In addition, supportive learning environments foster collaboration among teachers, administrators, and stakeholders, which enhances the sustainability of technology integration initiatives. Schools that promote a culture of innovation and provide access to digital tools and infrastructure enable teachers to implement technology-driven instruction more effectively (Bhat, 2025; Emma, 2025; Pereyra & Canoy, 2025). Moreover, collaborative professional communities and ongoing support systems contribute to the continuous improvement of teaching practices, ensuring that technology integration leads to meaningful and impactful learning experiences (Sharma, 2024; Gong et al., 2024; Consoli et al., 2024)

Next page shows the Schematic Diagram of the Study.

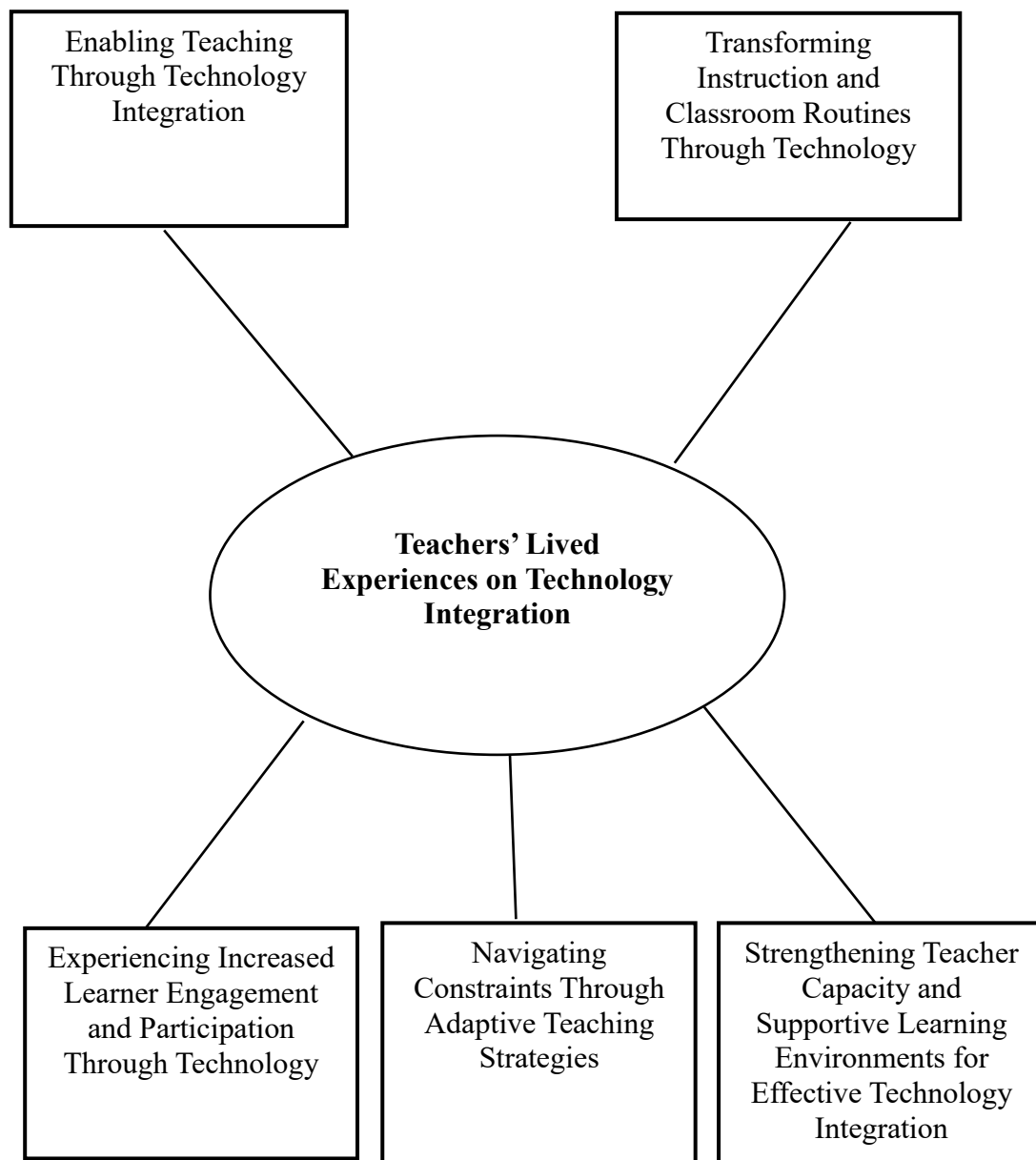


Figure 1. Schematic Diagram of the study

Statement of the Problem

This study aimed to explore the experiences of teachers in students' engagement through technology integration in Basic Education during the SY 2025-2026. Specifically, it sought to answer the following research questions:

1. In what ways has technology influenced your teaching strategies or daily classroom routines?
2. How do learners typically respond to technology-based activities or lessons? Have you noticed changes in their engagement levels?
3. What challenges or limitations do the respondents encounter in integrating technology into teaching and learning?
4. How do the respondents deal with these challenges?
5. What insights do the respondents have to improve the integration of technology in Basic Education, thereby enhancing both teacher performance and learner engagement?

RESEARCH METHODOLOGY

Design

The study adopted a qualitative phenomenological design, in which semi-structured interview questions served as the primary tool for data gathering to examine the effects of teachers' performance and learners' engagement in technology integration. This allowed participants to write narrative responses to their perceptions and experiences of technology implementation. The survey included questions designed to elicit perceptions of the benefits and difficulties of using technology in collaboration, its effects on learner engagement, and how educators adapted their teaching to maximize effective technology

use. This method helped draw up participants' thorough views and experiences by strengthening their responses (Jamil & Isiaq, 2019).

Setting

This study was conducted in one of the private schools in Ozamiz City during the Academic Year 2025–2026. This school offered a complete educational continuum, catering to learners from preschool to graduate studies, and provided a wide range of academic programs committed to delivering quality and holistic education. The Basic Education Department of this school comprises preschool, elementary, junior high, and senior high school levels and is dedicated to developing learners' foundational knowledge, skills, values, and learning habits. The department integrated age-appropriate instructional strategies, learner-centered pedagogies, and emerging educational technologies to support academic growth and holistic development.

Participants

The participants in the study were 10 teachers from the Basic Education of Misamis University during the school year 2025-2026. They were selected through purposive sampling. This comprehensive group of educators, representing grades from Preschool to Grade 12, provided valuable insights and diverse perspectives relevant to the study's questions and objectives. The participants gave consent to participate in the study.

Instruments

The primary research instrument used in this phenomenological study was a Semi-structured Interview Guide specifically designed for teachers in the Basic Education

Department. The interview process began with an introductory phase, during which the researcher introduced the study, explained its purpose, secured informed consent, and described the interview structure. The Interview Guide included opening questions to gather optional demographic information. The core questions aimed to elicit detailed insights into participants' experiences with integrating technology into classroom instruction, including the challenges, coping mechanisms, and opportunities they encountered. The interview concluded with a closing statement thanking the participants and asking if they would like to receive a copy of the study's results. This structured yet flexible format ensured that rich, meaningful data were collected while respecting the participants.

Data Gathering Procedure

The researcher asked permission from the Graduate School of Misamis University before conducting data gathering for the research. After obtaining the permit to conduct the interview, the researcher approached the principal of the Basic Education department for approval to conduct the research. The participants were given informed consent.

To maintain confidentiality and honor participants' rights to withdraw, each participant who participated in the interview agreed to the date and time within the school setting, but after duty hours. The responses were analyzed using Colaizzi's method in NVivo, which was used to code, categorize, and organize them into themes. Those themes were further analyzed and interpreted. Results were given to participants for verification.

Ethical Considerations

Prior to data collection, the researcher obtained the necessary permissions from the Dean of the Graduate School at Misamis University and from institutional authorities at the private higher education institutions included in the study. A formal request letter was submitted to the institution, detailing the study's objectives, research design, and ethical considerations. Upon receiving approval, participants who taught during the School Year 2025–2026 were purposefully selected and were actively involved in both academic and school-related responsibilities. This selection strategy ensured that participants had relevant, in-depth experiences aligned with the study's focus.

Data were collected through face-to-face, semi-structured interviews using an interview guide that was designed to explore the core research areas: experiences in technology integration, teaching strategies, faculty performance, challenges or limitations encountered, coping mechanisms, and opportunities experienced. Each interview began with an orientation phase, where the researcher introduced the study, obtained informed consent, and assured participants of confidentiality and the voluntary nature of their participation. Interviews were audio-recorded with participants' permission to ensure accurate data capture. Each session was conducted in a quiet, private setting beyond duty hours, to foster reflective sharing. Following the interviews, the recordings were transcribed verbatim to prepare for in-depth analysis.

Data Analysis

To analyze and cluster the participants' responses in the interview and to find the common themes for interpretation, Colaizzi's Seven-Step Method of Data Analysis was used:

Step 1: Making sense or acquiring a feeling for the protocol

The researcher began by familiarizing himself with the research protocol and reviewing the procedures for conducting the study. The researcher then transcribed the interview data and thoroughly reviewed it multiple times to maintain accuracy and consistency. Data integrity was preserved throughout the transcription process. To protect participants' privacy and confidentiality, names were omitted, and participant numbers were used instead.

Step 2: Extracting Significant Statements

The second step involved extracting significant statements (SS) from the interview transcripts. The researcher thoroughly reviewed each transcript, identified and isolated key words or sentences directly related to the study, following Colaizzi's (1978) method. These statements were organized into a table to reflect participants' feelings or ideas. Each significant statement (SS) was labeled with a sequential number (e.g., SS1–SS72) based on its order in the transcript. Before transcription, the researcher also reviewed interview notes for context. A total of 50 significant statements were identified.

Step 3: Formulation of meanings

After extracting the significant statements (SS), the researcher developed Formulated Meanings (FMs) based on them. Given the complexity of constructing formulated meanings (FMs), careful attention was paid to preserve the original intent and

avoid misinterpretation. Each formulated meaning (FM) was numbered and regularly checked against the original statements to ensure consistency. To maintain accuracy and focus, the researcher consulted with the research adviser for validation. Following Colaizzi's (1978) guidelines, meanings were derived by uncovering the underlying essence of participants' experiences, while avoiding interpretations not supported by the data. Once all formulated meanings (FMs) were finalized, the researcher grouped them into thematic clusters.

Step 4: Organizing the cluster themes

The cluster themes were organized based on their identified meanings. After reviewing the transcript again, the significant statements (SS) and their corresponding formulated meanings (FMs) were re-examined to ensure accuracy. The researcher also consulted with the research adviser to discuss the finalized meanings, themes, and thematic clusters.

Step 5-6. Integration of results and Exhaustive description

According to Colaizzi's fifth and sixth steps of analysis, the investigation's results were synthesized into a comprehensive description, and the essential structure of the phenomenon was identified. This involved merging the theme clusters and overarching themes into a detailed narrative. The researcher reviewed the Formulated Meanings [FM], Significant Statements [SS], and the full transcriptions during this process.

Step 7. Validation

Colaizzi's final step in data analysis involved validating the findings by returning to the participants to confirm that the results accurately represent their experiences. To accomplish this, the researcher met individually with all 10 participants and provided them

with a copy of the exhaustive description. After reviewing it, each participant confirmed that the account truthfully captured their experiences.

RESULTS AND DISCUSSION

This study explored the work-life balance among teachers. The participants' profiles are presented in Table 1. Their ages range from 27 to 36 years old. Among the 10 participants, only one male, while 9 females. The male participant has the longest teaching experience (5 years), while 7 of the female participants taught for 4 years, and the other 2 for 2 years. Only one has units in the Doctor of Education; the rest have units in their Master's degree. The five interview scripts were analyzed and interpreted using Colaizzi's (1978) methodology to identify key themes.

Colaizzi's Seven-Step Method of Data Analysis

Step 1: Making sense or acquiring a feeling for the protocol

The first step was making sense or acquiring a feeling for the protocol. Next, I went over the steps for doing this study. To ensure the transcription and the information recorded during the interview were consistent, I transcribed the interview and carefully reviewed it several times. This process ensured that throughout transcription, the integrity of the data being sent was not jeopardized. The names of the participants are not included in the written transcription due to privacy and confidentiality concerns; instead, the responder numbers are used.

Step 2: Extracting Significant Statements

The second step involved extracting the significant statements (SS) from the textual transcription. The researcher reviewed each transcript and deleted words or sentences directly related to the subject, as indicated by the removal or addition of significant comments (Colaizzi, 1978). The significant statements were presented in a table to align with the transcription of participants' feelings or ideas.

The significant statements (SS) in each interview transcription were classified or given sequential numbers (e.g., SS1–SS57) after each interview. The researcher carefully examined the interview notes before transcribing them. A total of 66 significant statements were obtained from the interviews (SS).

Step 3: Formulation of meanings

The meanings (FMs) derived from the significant statements (SS) were developed after the significant statements (SS) were extracted from the transcription. Due to the complexity of FM construction, I made sure that she did not stray from the intended meanings to alternative meanings unrelated to the research; as a result, I always checked and verified the primary assertions to ensure that the FM was accurately consistent. Numbers were also given to the FMs. To be always guided and stay focused in formulating FMs, I conferred it to my adviser for validation. Colaizzi (1978) states that when determining these formulated meanings, "I must ascertain and illuminate the unseen meanings while taking into account the various perspectives and possibilities of the phenomenon described in the original transcript," and "must not formulate meanings that have no connection with the data." The researcher then created the cluster themes from the meanings that emerged after all FMs had been created.

Step 4: Organizing the cluster themes

Following that, the cluster themes were arranged according to their declared meanings. The significant statements (SS) and evolved meaning were reviewed after a second reading of the transcript to achieve this (FM). I discussed the developed meanings, themes, and topic clusters with my mentor.

Twelve (12) themes were derived from the 66 coded meanings. The 12 themes were subdivided into subthemes from which four cluster themes were drawn:

Theme Cluster 1: Enabling Teaching Through Technology Integration

Theme 1: Enhanced Engagement and Interactive Learning

Theme 2: Improved Teaching Efficiency and Instructional Support

Theme Cluster 2. Transforming Instruction and Classroom Routines
Through Technology

Theme 3: Shift toward Learner-Centered and Interactive Teaching
Strategies

Theme 4: Enhanced Efficiency in Classroom Management and
Instructional Tasks

Theme 5: Promoted Engaging and Memorable Learning
Experiences

Theme Cluster 3. Experiencing Increased Learner Engagement and
Participation Through Technology

Theme 6: Stimulate Interest, Motivation, and Active Participation.

Theme 7: Improved Attention, Understanding, and Learning
Experience

Theme Cluster 4: Navigating Constraints Through Adaptive Teaching
Strategies

Theme 8: Infrastructural and Technical Constraints

Theme 9: Teacher Adaptability and Use of Alternative Strategies

Theme Cluster 5: Strengthening Teacher Capacity and Supportive Learning
Environments for Effective Technology Integration

Theme 10: Continuous Professional Development for Teachers

Theme 11: Provision of Reliable Technological Infrastructure and
Resources

Theme 12: Strengthen Effective, Inclusive, and Collaborative
Practices

Step 5&6: Integration of results and Exhaustive Description

The fifth and sixth steps of Colaizzi's analysis merged the findings into a comprehensive description and defined the underpinning structure of the subject. To create a description, topic clusters and themes were combined. To ensure that the written information was complete, the researcher also assessed the meanings created, notable statements, and the transcription.

Enabling Teaching Through Technology Integration

Technology integration enables teaching by enhancing pedagogical practices, fostering flexibility in instruction, and supporting meaningful learning experiences in contemporary classrooms. Recent studies emphasize that technology catalyzes transforming teaching by enabling educators to design interactive, student-centered learning environments that promote engagement and academic achievement (Panakaje, 2024; Abedi, 2024; Adler, 2025). Moreover, teachers' ability to effectively integrate technology is influenced by their beliefs, self-efficacy, and access to professional

development, underscoring the importance of continuous capacity-building in digital pedagogy (Yavich, 2024; Lai, 2023; Akram, 2022). Technology also enables differentiated instruction and real-time feedback, allowing teachers to address diverse learner needs while facilitating collaboration and active participation (Yavich, 2024; Abedi, 2024; Adler, 2025). Research highlights that when effectively implemented, technology integration improves instructional quality by supporting adaptive teaching strategies and fostering more responsive and inclusive learning environments (Schmitz et al., 2022; Buschmann, 2025; Brackett, 2024).

Technology serves as a critical enabler of teaching by strengthening instructional delivery, enhancing teacher effectiveness, and promoting innovative, learner-centered educational practices. This theme comprises the following subthemes: Enhanced Engagement and Interactive Learning, and Improved Teaching Efficiency and Instructional Support.

Enhanced Engagement and Interactive Learning. The findings reveal that teachers consistently perceive technology as a tool that enhances teaching efficiency by making lessons more interactive, engaging, and supportive of learners' needs. Participants P1 and P3 similarly emphasized that technology helps make lessons more interactive and engaging, indicating a shared experience of improved instructional delivery through digital tools.

"It helps me make my lessons more interactive and engaging." (P1)

"My overall experience with using technology in the Basic Ed. setting has been positive. It has made lessons more interactive and engaging." (P3)

This is further reinforced by P10, who highlighted the use of videos, presentations, and interactive activities to enhance learners' understanding, suggesting that multimedia resources play a critical role in simplifying complex concepts.

In the same vein, P5 noted that technology enhances overall learning experiences. At the same time, P7 described it as "vital" to making teaching and learning more effective, noting its role in improving both instructional quality and outcomes. P6 also provided a contextual insight into early-grade classrooms, explaining that technology is particularly useful in maintaining pupils' attention, especially among young learners with short attention spans. These responses demonstrate that technology integration not only improves lesson delivery but also supports classroom management and learner engagement, ultimately contributing to more efficient and effective teaching practices.

These are indicated in their answers during the interview:

"Using technology in the Basic Education setting enhances learning experiences among learners." (P5)

"In terms of the use of technology in classroom setting, I can say that it is really helpful most especially in holding pupil's attention. Dealing with smaller kids with very low attention span, technology is so useful." (P6)

"My overall experience with using technology in the Basic Education setting has been very positive and meaningful. In today's generation technology plays a vital role in making teaching and learning more effective" (P7)

"It makes lessons more engaging through videos, presentations, and interactive activities, which help learners improve their understanding." (P10)

Recent studies affirm that technology integration significantly enhances instructional efficiency by enabling teachers to deliver more interactive and engaging lessons. Digital tools such as multimedia presentations, simulations, and interactive platforms allow educators to present content in dynamic ways that improve comprehension and retention (Panakaje, 2024; Abedi, 2024; Adler, 2025). Moreover, technology facilitates the organization and delivery of instructional materials, reducing teachers' workload while increasing the effectiveness of lesson implementation (Yavich, 2024; Lai, 2023; Schmitz

et al., 2022). These findings support the participants' experiences, particularly those of P1, P3, and P10, who emphasized the role of technology in making lessons more engaging and understandable.

Furthermore, research indicates that technology plays a crucial role in capturing and sustaining learners' attention, especially among younger students who require more stimulating, interactive learning environments. Studies indicate that integrating videos, gamified activities, and interactive content significantly increases student engagement and participation (Akram, 2022; Buschmann, 2025; Brackett, 2024). In addition, technology enables differentiated instruction by providing multiple representations of content, allowing teachers to address diverse learning needs and improve overall learning experiences (Adler, 2025; Yavich, 2024; Panakaje, 2024). These findings align with the insights of P5, P6, and P7, who noted that technology enhances learning experiences, supports attention, and improves teaching effectiveness.

The findings imply that integrating technology in Basic Education is essential for improving teaching efficiency and instructional support. Schools should invest in accessible, age-appropriate digital tools that enable teachers to design engaging, interactive lessons, particularly for learners with shorter attention spans. Additionally, continuous professional development programs should be provided to strengthen teachers' capacity to effectively use technology to enhance instruction. The results also suggest the need for institutional policies that promote the integration of multimedia and interactive strategies in classroom teaching to maximize learning outcomes. Ultimately, leveraging technology as an instructional support tool can lead to more responsive, efficient, and learner-centered educational practices.

Improved Teaching Efficiency and Instructional Support. The participants' responses highlight how technology integration enhances teaching efficiency by streamlining instructional tasks, organizing lesson delivery, and improving assessment processes. Participants P1 and P2 both emphasized that technology makes their work easier, more organized, and efficient, indicating that digital tools reduce the complexity of lesson preparation and classroom management.

"Aside from that, it allows me to organize my lessons more easily and makes my work lighter." (P1)

"Makes my work easy, engaging, and efficient." (P2)

P4 also elaborated that technology enables them to be more responsive to learners' needs, particularly through its use in lesson preparation, content presentation, and the creation of instructional materials. This suggests that technology not only supports efficiency but also enhances the quality and adaptability of instruction.

"Technology has helped me become more efficient and responsive to the needs of my learners. I regularly use technology for preparing lessons, presenting content and creating learning materials." (P4)

Furthermore, P10 pointed out that technology improves the efficiency of assessing and monitoring student progress, highlighting its role in facilitating timely feedback and data-driven instruction. These responses demonstrate that technology functions as a critical instructional support system that reduces teachers' workload, enhances organization, and improves both teaching and assessment practices, as they stressed in their answers:

"It also helps in assessing and monitoring their progress more efficiency." (P10)

Literature confirms that technology integration significantly improves teaching efficiency by simplifying lesson planning, content delivery, and instructional organization. Digital tools such as learning management systems, presentation software, and content

creation platforms enable teachers to structure lessons more effectively and reduce the time spent on administrative tasks (Yavich, 2024; Panakaje, 2024; Abedi, 2024). Moreover, technology allows educators to access, modify, and reuse instructional materials thereby making teaching more efficient and manageable (Lai, 2023; Schmitz et al., 2022; Brackett, 2024). These findings support the experiences of P1, P2, and P4, who highlighted how technology helps organize lessons, ease workload, and improve instructional efficiency.

In addition, research shows that technology enhances teachers' responsiveness and adaptability to learners' needs by enabling real-time access to information and flexible instructional tools. Teachers can quickly adjust their teaching strategies, provide immediate feedback, and tailor learning experiences based on students' progress (Adler, 2025; Akram, 2022; Yavich, 2024). Furthermore, digital platforms support collaborative and interactive learning environments, allowing teachers to engage students more effectively while maintaining efficient classroom management (Panakaje, 2024; Buschmann, 2025; Lai, 2023). These findings align with P4's experience of becoming more responsive to learners through technology integration.

The findings imply that technology plays a vital role in enhancing teaching efficiency and instructional support in Basic Education. Schools should prioritize providing teachers with access to reliable digital tools and platforms that support lesson planning, content delivery, and assessment. Additionally, professional development programs should equip teachers with the skills to use technology effectively for efficient classroom management and data-driven instruction. The results also suggest the importance of integrating digital assessment tools that enable continuous monitoring of student progress and timely feedback. Ultimately, strengthening the use of technology in

instructional processes can reduce teacher workload, improve efficiency, and enhance the overall quality of teaching and learning.

Transforming Instruction and Classroom Routines Through Technology

Technology integration has significantly transformed instruction and classroom routines by enabling more dynamic, flexible, and student-centered teaching practices. Digital tools allow teachers to redesign lesson delivery, incorporate multimedia resources, and facilitate interactive learning experiences that move beyond traditional lecture-based approaches (Panakaje, 2024; Abedi, 2024; Adler, 2025). In addition, technology supports more efficient classroom routines by streamlining lesson planning, assessment, and communication processes, thereby improving instructional organization and effectiveness (Yavich, 2024; Lai, 2023; Schmitz et al., 2022).

Classrooms become more adaptive and responsive environments, with teaching strategies continuously shaped by the integration of digital innovations, ultimately enhancing both instructional quality and learning outcomes. This theme comprises the following subthemes: Shift toward Learner-Centered and Interactive Teaching Strategies, Enhanced Efficiency in Classroom Management and Instructional Tasks, and Promoted Engaging and Memorable Learning Experiences.

Shift toward Learner-Centered and Interactive Teaching Strategies. The participants' responses reveal a clear shift from traditional teacher-centered approaches to more learner-centered and interactive teaching strategies facilitated by technology. Several participants, including P2, P4, P9, and P10, consistently emphasized that technology has

made their lessons more interactive and student-centered, highlighting its role in transforming instructional approaches.

"differentiated instruction, communication faster and more flexible" (P2)

"It has influenced my teaching strategies by making my lessons more interactive and learner-centered." (P4)

"Technology has made teaching more flexible, efficient, and student-centered. It shifts the classroom from a one-size-fits-all approach to a more dynamics learning environment." (P9)

"Technology has influenced my teaching strategies by making my lessons more interactive and learner-centered through the use of videos, presentations, and digital activities. It also helps me differentiate instruction to meet the diverse needs of students." (P10)

P2 and P9 further noted that technology enables flexibility and moves teaching away from a "one-size-fits-all" approach toward a more dynamic learning environment, suggesting that instruction is becoming more responsive to individual learner needs.

Similarly, P10 and P7 described how digital tools such as videos, presentations, and assessments help simplify complex concepts, maintain student engagement, and support differentiated instruction. Meanwhile, P3 and P5 emphasized the role of technology in promoting interactive discussions and making classroom routines more engaging and enjoyable for both teachers and learners. Taken together, these responses indicate that technology integration not only enhances engagement but also fundamentally reshapes teaching strategies by promoting active participation, flexibility, and inclusivity in the classroom.

These were their responses:

"Technology has encouraged me to adopt more learner-centered strategies such as interactive discussions." (P3)

"Technology helps in making teaching strategies and daily classroom routines fun and engaging, and easy for both my pupils and me." (P5)

"Technology has significantly influenced my teaching strategies and daily classroom routines by making them more interactive, organized and student-centered. I now use digital tools for presentations, videos, and quick assessments, which help simplify complex topics and keep students engaged." (P7)

Studies affirm that technology integration promotes a shift toward learner-centered pedagogies by enabling interactive, participatory, and flexible learning environments. Digital tools such as multimedia resources, collaborative platforms, and interactive applications support active learning and encourage students to take a more central role in the learning process (Panakaje, 2024; Adler, 2025; Abedi, 2024). Moreover, technology enables teachers to design learning experiences that foster collaboration, critical thinking, and engagement, thereby transforming traditional instructional approaches into more dynamic, student-focused practices (Lai, 2023; Yavich, 2024; Schmitz et al., 2022). These findings support the experiences of P2, P4, P9, and P10, who observed that technology makes lessons more interactive and learner-centered.

In addition, literature highlights that technology integration supports differentiated instruction by allowing teachers to tailor content, pacing, and learning activities to meet diverse student needs. Through digital platforms, teachers can provide multiple representations of content, offer personalized feedback, and create flexible learning pathways (Adler, 2025; Yavich, 2024; Akram, 2022). Furthermore, technology enhances classroom interaction by facilitating discussions, collaborative tasks, and real-time engagement, which contribute to deeper learning and improved student participation (Buschmann, 2025; Panakaje, 2024; Lai, 2023). These findings align with the statements

of P3, P5, P7, and P10, who emphasized the role of technology in supporting interactive discussions, engagement, and differentiated instruction.

The findings imply that technology integration is instrumental in promoting learner-centered and interactive teaching strategies in Basic Education. Schools should encourage the use of digital tools that support active learning, collaboration, and differentiated instruction to better address learners' diverse needs. Professional development initiatives should focus on equipping teachers with the skills to design student-centered, technology-enhanced learning experiences. Additionally, educational policies should emphasize the integration of flexible and interactive teaching approaches to move away from traditional, teacher-centered practices. Ultimately, embracing technology as a tool for learner-centered instruction can lead to more engaging, inclusive, and effective classroom environments.

Enhanced Efficiency in Classroom Management and Instructional Tasks. The participants' responses indicate that technology integration significantly enhances efficiency in classroom management and instructional tasks by streamlining daily routines, improving organization, and facilitating communication. Participant P2 provided a comprehensive view, highlighting that technology supports lesson interactivity, improves organization and efficiency, enables differentiated instruction, facilitates faster communication, reduces paperwork, and allows the provision of additional materials for struggling learners. P3 and P4 emphasized that technology makes lesson preparation and daily tasks, such as material preparation and parent communication, easier and more manageable.

In addition, P8 noted that technology helps streamline routine tasks, such as attendance, grading, and lesson delivery, resulting in more organized and engaging lessons. P7 further emphasized the benefits of faster communication, efficient lesson planning, and improved monitoring of student progress, which contribute to more effective teaching and adaptability to learners' needs. Meanwhile, P10 highlighted the use of technology in various instructional processes, including lesson preparation, content delivery, assessment, and progress tracking.

These responses demonstrate that technology is an essential tool for optimizing classroom management and instructional workflows, enabling teachers to manage their responsibilities more efficiently and enhance the overall quality of instruction. These are emphasized in the following responses of the participants:

"Lessons more interactive and student-centered, improved organization and efficiency, supports differentiated instruction, communication faster and more flexible. I can provide extra materials for those pupils who need more help. Reduces paperwork and saves time." (P2)

"It has improved my classroom routines by making it easier to prepare my lessons." (P3)

"It helps me organize my daily tasks such as preparing materials and communicating with parents." (P4)

"It helped streamline daily routines like attendance, grading, and lesson delivery. As a result, lessons are more organized and engaging." (P8)

"It allows faster communication, easier lesson planning, and more efficient monitoring of students' progress. Overall, teaching helps me deliver lessons more effectively and adapt to the needs of today's learners." (P7)

"In my daily classroom routines, I use technology for preparing lessons, presenting content, giving assessments, and tracking student progress more efficiently." (P10)

Recent studies highlight that technology integration improves classroom management by streamlining administrative and instructional tasks, allowing teachers to

focus more on teaching and learning. Digital tools such as learning management systems, automated grading platforms, and attendance systems help reduce paperwork and save time, thereby increasing overall efficiency (Yavich, 2024; Abedi, 2024; Panakaje, 2024).

Additionally, technology enhances lesson planning and instructional organization by enabling teachers to easily access, modify, and distribute materials, which supports more structured and effective classroom routines (Lai, 2023; Schmitz et al., 2022; Brackett, 2024). These findings align with the experiences of P2, P3, and P8, who emphasized improved organization, reduced workload, and streamlined classroom processes.

Furthermore, literature emphasizes that technology facilitates efficient communication and monitoring, which are essential components of effective classroom management. Digital communication tools enable faster interaction between teachers, students, and parents, fostering stronger collaboration and timely feedback (Akram, 2022; Adler, 2025; Yavich, 2024). In addition, technology allows teachers to track student progress in real time through digital assessments and analytics, enabling data-driven instruction and early intervention for learners who need additional support (Panakaje, 2024; Buschmann, 2025; Lai, 2023). These findings support the statements of P4, P7, and P10, who highlighted the role of technology in communication, monitoring, and efficient instructional delivery.

The findings imply that technology integration is crucial in enhancing efficiency in classroom management and instructional tasks in Basic Education. Schools should invest in digital systems that support lesson planning, assessment, communication, and administrative functions to reduce teachers' workload and improve productivity. Professional development programs should also focus on training teachers to effectively

use these tools for classroom management and data-driven instruction. Additionally, policies should encourage the adoption of technology to streamline routine tasks and improve communication among stakeholders. Ultimately, maximizing the use of technology in managing classroom processes can lead to more organized, efficient, and responsive teaching practices that benefit both teachers and learners.

Promoting Engaging and Memorable Learning Experiences. The participant's responses highlight the role of technology in creating engaging, memorable learning experiences that enhance both teaching and learning. Participant P5 emphasized that technology makes teaching strategies and daily classroom routines "fun and engaging," while also making them easier to implement for both the teacher and pupils. This suggests that technology contributes not only to instructional effectiveness but also to a more enjoyable and accessible classroom environment. Additionally, P4 observed that pupils tend to remember technology-based activities better than traditional explanations, indicating that digital tools support improved retention and deeper learning. These insights demonstrate that technology enhances the quality of learning experiences by combining engagement with meaningful interaction, allowing learners to actively participate and connect with the content.

Their answers reflect how technology integration fosters memorable learning by making lessons more interactive, stimulating, and impactful for students:

"Technology helps in making teaching strategies and daily classroom routines fun and engaging, and easy for both me and my pupils. My pupils tend to remember technology-based activities and routines better than just plainly saying/explaining it directly to them." (P5)

"It also helps me organize my daily tasks such as preparing materials and communicating with parents." (P4)

"It has also helped streamline daily routines like attendance, grading, and lesson delivery." (P8)

"Reduces paperwork and saves time." (P2)

Recent studies indicate that technology integration significantly enhances student engagement by creating interactive and stimulating learning environments. Digital tools such as videos, animations, and gamified activities capture learners' attention and make learning more enjoyable, thereby increasing motivation and participation (Panakaje, 2024; Adler, 2025; Abedi, 2024). Moreover, technology enables the use of multimodal instructional strategies that combine visual, auditory, and interactive elements, helping learners process information more effectively (Akram, 2022; Yavich, 2024; Lai, 2023). These findings support P5's observation that technology makes classroom activities more fun and engaging.

Research emphasized that technology-enhanced instruction improves memory retention and understanding by providing experiential and interactive learning opportunities. When students engage with content through digital tools, they are more likely to retain information due to increased cognitive involvement and active participation (Buschmann, 2025; Brackett, 2024; Schmitz et al., 2022). In addition, multimedia learning environments allow learners to revisit content, practice skills, and engage in meaningful tasks, which strengthens long-term retention and comprehension (Panakaje, 2024; Adler, 2025; Yavich, 2024). These findings align with P5's statement that pupils remember technology-based activities better than traditional teaching methods.

The findings imply that technology plays a vital role in fostering engaging, memorable learning experiences in Basic Education. Schools should encourage the integration of interactive and multimedia tools to enhance student engagement and learning

retention. Teachers should be supported through training programs that focus on designing technology-enhanced activities that are both meaningful and enjoyable for learners. Additionally, curriculum developers should incorporate digital and interactive elements that align with learners' needs and preferences. Ultimately, leveraging technology to create engaging and memorable learning experiences can improve student motivation, deepen understanding, and enhance overall learning outcomes.

Experiencing Increased Learner Engagement and Participation Through Technology

The integration of technology in education has been widely associated with increased learner engagement and participation, as digital tools create interactive and motivating learning environments. Multimedia resources, gamified activities, and collaborative platforms stimulate students' interest and encourage active involvement in learning tasks (Panakaje, 2024; Adler, 2025; Akram, 2022). Furthermore, technology enables real-time interaction, discussion, and feedback, thereby enhancing students' sense of participation and ownership of their learning (Yavich, 2024; Lai, 2023; Buschmann, 2025).

These interactive experiences foster deeper cognitive engagement and sustained motivation, making learning more meaningful and effective for diverse groups of learners as reflected in these subthemes: Stimulate Interest, Motivation, and Active Participation, and Improved Attention, Understanding, and Learning Experience.

Stimulating Interest, Motivation, and Active Participation. The participants' responses consistently highlight that technology integration stimulates learners' interest, motivation, and active participation in classroom activities. Several participants, including P1, P2, P3, P4, and P10, emphasized that learners become more interested and motivated

when technology is incorporated into instruction, often responding positively and enthusiastically to technology-based activities. P1 specifically noted that pupils get excited about new experiences through media, while P2 and P3 observed noticeable improvements in attention, motivation, and participation.

"Pupils tend to become more interested when I incorporate technology into my instruction/lesson. They get excited about seeing new things through media." (P1)

"Pupils' attention and motivation change, encourages greater participation, learners respond positively and enthusiastically." (P2)

"Learners generally respond positively to technology-based activities. They show increased interest, participation and motivation during lessons." (P3)

Similarly, P4 and P5 noted that learners find technology-based activities enjoyable and engaging, thereby becoming more willing to actively participate in lessons.

"Learners generally respond positively to technology-based activities because they find them enjoyable and engaging. They participate more actively and show greater interest when lessons involve multimedia and interactive tasks." (P4)

"Learners tend to engage more on technology-based activities. They find it more fun and easy which makes them want to participate more." (P5)

Participants 7 and 8 further reinforced this by noting that learners become more eager, participative, and motivated, especially when lessons involve multimedia tools such as videos, games, and interactive platforms. Collectively, these responses indicate that technology not only captures learners' attention but also fosters a more active and participatory learning environment, ultimately enhancing student engagement and motivation.

The following statements were given by Participants 7, 8, and 10:

"They become more active, interested and eager to participate in class." (P7)

"They tend to be more participative and motivated, especially when lessons involve videos, games, or interactive platforms." (P8)

"Learners have become more interested and it really boosted their engagement and participation in the class." (P10)

Studies show that integrating technology significantly increases students' interest and motivation by creating engaging, interactive learning environments. The use of multimedia tools such as videos, animations, and gamified platforms stimulates learners' curiosity and encourages active involvement in the learning process (Panakaje, 2024; Adler, 2025; Abedi, 2024). Moreover, technology-enhanced instruction provides varied and dynamic learning experiences that sustain learners' attention and promote intrinsic motivation (Akram, 2022; Yavich, 2024; Lai, 2023). These findings align with the experiences of P1, P2, and P3, who observed increased interest, excitement, and motivation among learners when technology is integrated into lessons.

Furthermore, literature highlights that technology fosters active participation by enabling interactive and collaborative learning opportunities. Digital tools enable students to engage in discussions, simulations, and hands-on activities, thereby promoting deeper involvement and meaningful learning (Buschmann, 2025; Panakaje, 2024; Adler, 2025). In addition, gamified learning environments and interactive platforms have been shown to enhance student engagement by making learning enjoyable and accessible, thereby encouraging participation and sustained attention (Yavich, 2024; Akram, 2022; Lai, 2023). These findings support the observations of P4, P5, P7, and P8, who noted that learners participate more actively and respond positively to technology-based activities.

The findings imply that technology integration is a powerful tool for enhancing students' interest, motivation, and active participation in Basic Education. Schools should promote the use of interactive and multimedia-based instructional strategies that capture

learners' attention and encourage engagement. Teachers should be supported through professional development programs that focus on designing motivating and participatory technology-enhanced learning activities. Additionally, curriculum developers should integrate digital tools and platforms that foster active learning and student involvement. Ultimately, leveraging technology to stimulate interest and motivation can lead to more engaging, dynamic, and effective classroom experiences that support improved learning outcomes.

Improved Attention, Understanding, and Learning Experience. The participants' responses indicate that technology integration enhances students' attention, understanding, and overall learning experience. Participants 7 and 8 both observed a noticeable increase in learners' engagement and attention, with Participant 7 further noting that students interact more during discussions and understand lessons faster when technology is used. This suggests that technology not only captures learners' focus but also promotes active cognitive engagement during instruction. Meanwhile, P9 emphasized that learners find it easier to grasp complex topics when multimedia presentations and digital tools are incorporated, highlighting the role of technology in simplifying abstract or difficult concepts.

These responses demonstrate that technology enhances the learning process by improving attention, facilitating comprehension, and creating more effective and meaningful learning experiences for students. These are evident in their answers:

"I've notice a clear increase in their engagement levels-students pay more attention, interact more during discussions, and understand lessons faster." (P7)

"I have noticed a significant increase in their engagement and attention." (P8)

"They often find it easier to grasp and understand complex topics when incorporate multimedia presentations or digital tools into their lessons." (P9)

Recent studies confirm that integrating technology improves students' attention and engagement by providing interactive, visually stimulating learning environments. Multimedia tools such as videos, animations, and interactive presentations capture learners' attention and sustain it throughout the lesson (Panakaje, 2024; Adler, 2025; Abedi, 2024). Furthermore, technology encourages active participation and interaction, which enhances students' cognitive engagement and involvement in the learning process (Akram, 2022; Yavich, 2024; Lai, 2023). These findings support the observations of P7 and P8, who reported increased attention and engagement among learners during technology-enhanced lessons.

In addition, the literature highlights that technology facilitates a better understanding of complex concepts by presenting information across multiple modalities. Multimedia learning environments combine visual, auditory, and interactive elements, which help learners process and retain information more effectively (Adler, 2025; Panakaje, 2024; Yavich, 2024). Research also shows that digital tools enable scaffolding and visualization of abstract ideas, making lessons more accessible and easier to comprehend (Buschmann, 2025; Brackett, 2024; Lai, 2023). These findings align with P9's observation that students learn lessons more quickly and grasp complex topics more easily when technology is integrated into instruction.

The findings imply that technology integration plays a crucial role in enhancing students' attention, comprehension, and overall learning experience in Basic Education. Schools should promote the use of multimedia and interactive tools that support active engagement and improve understanding of complex topics. Teachers should be trained to

design technology-enhanced lessons that use multiple instructional modes to cater to diverse learning needs. Additionally, curriculum developers should incorporate digital resources that facilitate visualization and interaction to strengthen learners' comprehension. Ultimately, leveraging technology to improve attention and understanding can lead to more effective, meaningful, and learner-centered educational experiences.

Navigating Constraints Through Adaptive Teaching Strategies

Despite the benefits of technology integration, teachers often face constraints such as limited resources, technical issues, and varying levels of digital competence, which require them to adopt adaptive teaching strategies. Research shows that effective teachers demonstrate flexibility by modifying instructional approaches, preparing alternative materials, and utilizing blended methods to ensure continuity of learning (Adler, 2025; Brackett, 2024; Abedi, 2024). Additionally, proactive planning, such as preparing offline resources and simplifying tasks, enables teachers to mitigate disruptions caused by technological limitations (Panakaje, 2024; Lai, 2023; Schmitz et al., 2022).

These adaptive practices highlight the importance of teacher resilience and innovation in sustaining effective instruction in technology-rich yet challenging environments. These are the subthemes: Infrastructural and Technical Constraints, and Teacher Adaptability and Use of Alternative Strategies.

Infrastructural and Technical Constraints. The participants' responses reveal that infrastructural and technical constraints remain significant barriers to effective technology integration in the classroom. A common issue highlighted by participants P1, P3, P4, P8, and P10 is the limited access to devices and unstable internet connectivity, which restricts

both teachers' ability to deliver technology-enhanced lessons and students' opportunities to engage with digital learning materials. P2 noted technical difficulties, including slow systems and login issues, while P4 and P7 emphasized the impact of power interruptions on instructional continuity, often disrupting planned technology-based activities. Additionally, P8 and P10 noted that limited technical skills among users further compound these challenges, indicating that both infrastructural and human factors affect the effectiveness of technology integration. Collectively, these responses suggest that, despite the recognized benefits of technology in education, persistent issues with access, connectivity, system reliability, and technical competence hinder its consistent and effective use in teaching and learning.

Recent studies highlight that infrastructural limitations, such as inadequate access to devices and unreliable internet connectivity, are among the most significant barriers to technology integration in education. Limited technological resources restrict teachers' ability to implement digital tools effectively and prevent students from fully participating in technology-enhanced learning (Abedi, 2024; Brackett, 2024; Adler, 2025). In addition, unstable internet connections can disrupt lesson flow and reduce the effectiveness of instructional delivery, particularly in contexts where online or digital platforms are heavily relied upon (Akram, 2022; Yavich, 2024; Lai, 2023). These findings support the experiences of P1, P3, P4, and P10, who emphasized challenges with connectivity and device access.

Furthermore, the literature emphasizes that technical issues, such as system failures, login difficulties, and power interruptions, can significantly affect the implementation of technology-based instruction. These disruptions not only interrupt

teaching but also reduce instructional time and impact student engagement (Panakaje, 2024; Buschmann, 2025; Schmitz et al., 2022). Additionally, research indicates that insufficient technical skills among teachers and students further complicate the use of technology, as users may struggle to effectively utilize digital tools or troubleshoot problems (Adler, 2025; Brackett, 2024; Yavich, 2024). These findings align with the experiences of P2, P7, P8, and P10, who reported technical difficulties, power interruptions, and varying levels of digital competence.

The findings imply that addressing infrastructural and technical constraints is essential for the successful integration of technology in Basic Education. Schools and policymakers should prioritize investments in reliable internet connectivity, adequate digital devices, and a stable power supply to support uninterrupted teaching and learning. Additionally, there is a need to provide continuous technical support and training programs to enhance the digital competencies of both teachers and students. Educational institutions should also develop contingency plans, such as offline teaching strategies, to minimize disruptions caused by technical issues. Ultimately, overcoming these challenges is crucial to ensuring equitable access to technology and maximizing its potential to enhance teaching and learning.

Teacher Adaptability and Use of Alternative Strategies. The participants' responses demonstrate that teachers exhibit strong adaptability in addressing technology-integration challenges by employing alternative strategies to maintain learning continuity. A common practice among participants P1, P3, and P4 is preparing backup plans, particularly by downloading materials in advance or preparing offline, printed resources to mitigate issues such as poor connectivity and limited device access. Similarly, P2 emphasized the

importance of providing offline options and maintaining learners' focus despite potential distractions from gadgets, highlighting both instructional and classroom management strategies.

"To address these issues, I tried to prepare my lesson ahead of time and downloaded the necessary materials needed for my lesson." (P1)

"I always have backup plan, not all pupils have reliable gadgets or stable internet so I make sure to provide offline options and pupils distraction to games or social media." (P2)

"I prepare backup plans such as offline materials and simplified activities" (P3)

Participants 8 and 10 further elaborated on adaptive practices by noting the need to continuously improve digital skills, simplify instructions, and adjust activities based on available resources. Notably, P10 also highlighted the use of a blended approach, combining digital and traditional methods to ensure effective learning. Collectively, these responses indicate that teachers play a proactive and resilient role in overcoming technological constraints by modifying instructional approaches, preparing alternative materials, and maintaining flexibility to meet learners' needs.

These are noted in their responses:

"To address this, I prepare alternative materials to ensure that learning continues." (P4)

"To address these, I prepare back up plans like offline materials and continuously improve my digital skills. I also adapt activities to fit available resources." (P8)

"To cope with these, I do prepare printed/offline materials as alternatives, simplify instructions, and provide guidance to students who need support." (P10)

"I also remain flexible and use a mix of digital and traditional methods to ensure learning effectively." (P10)

Recent literature underscores the importance of teacher adaptability in successfully integrating technology into classroom instruction, particularly in contexts with

infrastructural and technical limitations. Teachers who demonstrate flexibility and preparedness are more likely to sustain effective teaching practices despite challenges, as they can adjust instructional strategies and use alternative resources (Adler, 2025; Brackett, 2024; Abedi, 2024). Moreover, research highlights that planning and preparing backup materials such as offline content are essential strategies that enable continuity of learning when digital tools are unavailable (Panakaje, 2024; Lai, 2023; Schmitz et al., 2022). These findings align with the experiences of P1, P3, and P4, who emphasized the importance of advanced preparation and the use of alternative materials.

In addition, studies emphasize that combining digital and traditional teaching methods enhances instructional resilience and effectiveness. Blended approaches allow teachers to maximize the benefits of technology while ensuring that learning is not disrupted by technical issues (Yavich, 2024; Akram, 2022; Buschmann, 2025). Furthermore, continuous development of teachers' digital competencies enables them to better adapt to evolving classroom demands and effectively implement technology-enhanced instruction (Adler, 2025; Yavich, 2024; Lai, 2023). These findings support the responses of P8 and P10, who highlighted the importance of improving digital skills, simplifying instruction, and using a mix of teaching strategies.

The findings imply that teacher adaptability is a critical factor in ensuring effective technology integration in Basic Education. Schools should support teachers by providing training programs that enhance both digital competence and adaptive teaching strategies. Additionally, educators should be encouraged to develop contingency plans and utilize blended instructional approaches to address technological limitations. Institutional policies should also promote flexibility in teaching practices and provide resources for both online

and offline learning. Ultimately, fostering teacher adaptability can ensure the continuity and effectiveness of instruction, even in the face of technological challenges.

Strengthening Teacher Capacity and Supportive Learning Environments for Effective Technology Integration

Effective technology integration depends on strengthening teacher capacity and creating supportive learning environments that foster continuous professional growth. Ongoing professional development enhances teachers' digital competence, confidence, and ability to align technology with pedagogical goals (Adler, 2025; Yavich, 2024; Akram, 2022). Moreover, supportive institutional environments that provide access to resources, infrastructure, and collaborative opportunities enable teachers to implement technology more effectively (Abedi, 2024; Panakaje, 2024; Lai, 2023).

Collaborative practices, such as professional learning communities, further support knowledge sharing and innovation, ensuring that technology integration leads to meaningful and sustainable improvements in teaching and learning. These are the subthemes for this theme: Continuous Professional Development for Teachers, Provision of Reliable Technological Infrastructure and Resources, and Strengthening Effective, Inclusive, and Collaborative Practices.

Continuous Professional Development for Teachers. The participants' responses consistently emphasize the importance of continuous professional development in enhancing teachers' ability to effectively integrate technology into instruction. Participants 1, 3, 5, 7, and 8 all highlighted the need for regular seminars and training workshops to improve teachers' knowledge and skills in using digital tools for teaching. P1 further elaborated that such training helps teachers refine their teaching strategies and design more

interactive and engaging lessons. At the same time, P5 noted that exposure to new applications and technology-based activities can provide innovative ideas for classroom use.

"Seminars/Training workshops for teachers on how to properly integrate technology into teaching. This will also help teachers to refresh their knowledge when it comes to technology and will help teachers as well to improve their teaching strategies and create an interactive and engaging lessons." (P1)

"Teachers should be given continuous training on effective technology integration." (P3)

"Additional training or seminar about current apps or activities that are technology-based could also be helpful for teachers to gain new knowledge and ideas on what we could use during the teaching and learning process." (P5)

Similarly, P7 and P8 emphasized that ongoing training builds teachers' confidence in using various digital tools and ensures effective implementation of technology in the classroom. Additionally, P9 and P10 stressed the importance of hands-on, continuous professional development, particularly for improving teachers' digital skills and enabling them to select appropriate tools suited to learners' needs.

Sustained, practical training opportunities are essential for empowering teachers to integrate technology effectively and enhance instructional practices. These are revealed in their responses:

"Schools should also provide regular training for teachers so they can confidently use different digital tools." (P7)

"I recommend providing more training for teachers on technology integration and ensuring access to reliable devices and internet." (P8)

"Provide continues, hands-on professional development, like additional training/seminar for the teacher." (P9)

"Teachers should improve their digital skills through training and use simple, appropriate tools for students." (P10)

Studies highlight that continuous professional development is a key factor in successful technology integration, as it enhances teachers' digital competence, confidence, and pedagogical practices. Training programs that focus on technology integration enable teachers to develop the necessary skills to effectively use digital tools in instruction and align them with learning objectives (Adler, 2025; Abedi, 2024; Panakaje, 2024). Moreover, research indicates that ongoing professional development helps teachers stay up to date with emerging technologies and innovative teaching strategies, thereby improving instructional quality and student engagement (Yavich, 2024; Lai, 2023; Akram, 2022). These findings support the perspectives of P1, P3, and P5, who emphasized the importance of training in enhancing teaching strategies and integrating new tools into classroom practice.

Furthermore, the literature suggests that hands-on, sustained professional development programs are more effective than one-time training sessions, as they allow teachers to practice, reflect, and continuously improve their use of technology in real classroom contexts. Such programs foster confidence and self-efficacy, enabling teachers to integrate technology more effectively and adapt to changing educational demands (Brackett, 2024; Buschmann, 2025; Adler, 2025). In addition, professional learning communities and collaborative training environments provide opportunities for teachers to share best practices and support each other in implementing technology-enhanced instruction (Panakaje, 2024; Yavich, 2024; Lai, 2023). These findings align with the responses of P7, P8, P9, and P10, who highlighted the need for continuous, hands-on training to build confidence and improve digital skills.

This implies that continuous professional development is essential for empowering teachers to effectively integrate technology in Basic Education. Schools and educational institutions should implement sustained and hands-on training programs that focus on both technological and pedagogical skills. Additionally, policies should support regular capacity-building initiatives and provide opportunities for teachers to explore new digital tools and instructional strategies. Institutions should also foster collaborative learning environments where teachers can share experiences and best practices in technology integration. Ultimately, investing in continuous professional development can enhance teachers' competence, confidence, and effectiveness, leading to improved teaching practices and better learning outcomes.

Provision of Reliable Technological Infrastructure and Resources. The participants' responses underscore the critical role of reliable technological infrastructure and resources in ensuring effective technology integration in Basic Education. A recurring concern among Participants 3, 4, 5, 6, and 7 is the need for stable, accessible internet connectivity, particularly in classrooms, to support uninterrupted teaching and learning. P5 specifically recommended that every classroom have internet access, while P6 emphasized that strong connectivity and access to digital platforms can enhance both teacher performance and student engagement. Similarly, P4 highlighted the importance of adequate digital resources alongside reliable internet connectivity, indicating that both are essential for successful integration.

"I recommend providing reliable internet access and sufficient technological resources in schools." (P3)

"Schools should ensure the availability of reliable internet connection especially inside the classroom, and provide adequate digital resources." (P4)

"To improve the integration of technology in the Basic Education, I would recommend to have internet connection in each classroom." (P5)

Participant 7 further noted that functional equipment and backup resources are necessary to prevent disruptions caused by technical issues or power interruptions.

These responses reveal that the effectiveness of technology integration is highly dependent on the availability, reliability, and accessibility of technological infrastructure, which serves as the foundation for implementing digital teaching strategies, as stated in their answers:

"Strong internet connection in every classroom would probably improve the integration of technology to enhance teacher performance. School's subscription to different digital platforms would also be nice to boost student engagement." (P6)

"Based on my experience, I recommend ensuring reliable internet connection and functional equipment to avoid delays lessons." (P7)

"It is important to have back up resources, especially during technical issues or power interruptions." (P7)

Studies emphasize that reliable technological infrastructure, particularly stable internet connectivity and access to digital devices, is fundamental to effective technology integration in education. Without adequate infrastructure, teachers face significant challenges in implementing digital tools and delivering technology-enhanced instruction (Abedi, 2024; Adler, 2025; Brackett, 2024). Research further indicates that consistent internet access in classrooms enables seamless use of digital platforms, supports real-time interaction, and enhances both teaching efficiency and student engagement (Yavich, 2024; Lai, 2023; Akram, 2022). These findings support the recommendations of P3, P4, and P5, who highlighted the importance of reliable internet access and sufficient technological resources.

Moreover, literature highlights that access to digital platforms and educational technologies enhances instructional quality by providing diverse learning materials, interactive content, and opportunities for personalized learning. Schools that invest in digital subscriptions and educational technologies are better positioned to support engaging and effective teaching practices (Panakaje, 2024; Adler, 2025; Yavich, 2024). Additionally, research underscores the importance of maintaining functional equipment and having backup systems to address technical disruptions, ensuring continuity of instruction (Buschmann, 2025; Brackett, 2024; Lai, 2023). These findings align with the perspectives of P6 and P7, who emphasized the need for strong connectivity, functional equipment, and backup resources.

The findings imply that reliable technological infrastructure and resources are essential for the successful integration of technology in Basic Education. Schools and policymakers should prioritize investments in stable internet connectivity, adequate digital devices, and access to educational platforms to support effective teaching and learning. Additionally, institutions should ensure backup resources and contingency systems are available to minimize disruptions caused by technical issues. Professional development initiatives should also be aligned with the available infrastructure to maximize its use. Ultimately, strengthening technological infrastructure can create a more supportive environment for teachers, enhance student engagement, and improve overall educational outcomes.

Strengthening Effective, Inclusive, and Collaborative Practices. The participants' responses highlight the importance of using technology to promote effective, inclusive, and collaborative teaching practices. Participant P2 emphasized that the use of appropriate

digital tools, combined with clear instructional purpose and teacher support, leads to more flexible and inclusive learning environments. This suggests that technology alone is insufficient; its effectiveness depends on intentional, purposeful use. Similarly, P8 underscored the need for schools to support the use of interactive, learner-centered tools, noting that institutional backing is crucial to fostering inclusive practices.

Meanwhile, P10 highlighted the value of blending technology with traditional methods to ensure inclusivity, particularly for learners with varying needs and access levels. P10 also emphasized the importance of designing interactive activities and collaborating with other teachers to share effective practices, pointing to the role of professional collaboration in enhancing instructional quality.

Effective technology integration requires not only access to tools but also thoughtful implementation, inclusivity, and collaborative efforts among educators. These are the answers of the participants:

"Using the right tools, with proper support of the teacher and with clear purpose of the activity to have more flexible and inclusive learning." (P2)

"Schools should also support the use of interactive and learner-centered tools." (P8)

"Blending technology with traditional methods ensures inclusivity they should also design interactive activities and collaborate with other teachers to share effective practices." (P10)

Recent studies emphasize that effective technology integration depends on the purposeful selection and use of digital tools aligned with pedagogical goals. The use of appropriate technologies, when guided by clear instructional objectives, enhances teaching effectiveness and promotes meaningful learning experiences (Panakaje, 2024; Abedi, 2024; Adler, 2025). Furthermore, research indicates that interactive, learner-centered tools

support active engagement and facilitate flexible learning environments that cater to diverse student needs (Yavich, 2024; Lai, 2023; Akram, 2022). These findings align with the insights of P2 and P8, who emphasized the importance of using appropriate tools and institutional support to promote inclusive and effective learning.

In addition, the literature underscores the importance of inclusivity in technology integration, particularly through blended approaches that combine digital and traditional teaching methods. Such approaches ensure that all learners, regardless of access or ability, can participate in the learning process (Adler, 2025; Buschmann, 2025; Brackett, 2024). Moreover, collaborative practices among teachers, including sharing strategies and co-developing instructional materials, have been shown to enhance the effectiveness of technology integration and improve teaching outcomes (Panakaje, 2024; Yavich, 2024; Lai, 2023). These findings support P10's perspective, which emphasized inclusivity through blended methods and the value of collaboration among educators.

The findings imply that strengthening effective, inclusive, and collaborative practices is essential for maximizing the benefits of technology integration in Basic Education. Schools should promote the use of appropriate and learner-centered digital tools that support diverse learning needs. Additionally, institutions should encourage blended teaching approaches to ensure inclusivity for all students, regardless of their access to technology. Professional learning communities and collaborative platforms should also be established to allow teachers to share best practices and improve their instructional strategies. Ultimately, fostering purposeful, inclusive, and collaborative use of technology can lead to more equitable, effective, and engaging learning environments.

Exhaustive Description

Technology integration in Basic Education emerges as a powerful enabler of teaching, particularly through its capacity to enhance engagement, support interactive learning, and simultaneously improve teaching efficiency and instructional support. Teachers' experiences reveal that digital tools transform lessons into dynamic, multimedia-rich experiences that capture learners' attention and promote active participation. At the same time, technology simplifies instructional processes such as lesson preparation, content delivery, and assessment, allowing teachers to organize their work more effectively and respond to learners' needs with greater precision. These dual benefits highlight how technology not only enriches instruction but also reduces teachers' cognitive and administrative load, enabling them to focus more on facilitating meaningful learning experiences. In this sense, technology functions as both a pedagogical enhancer and an instructional support system, laying the foundation for more responsive and engaging teaching practices.

Building on this foundation, technology integration reshapes instructional practices and classroom routines by promoting a shift toward learner-centered, interactive teaching strategies, enhancing classroom management efficiency, and fostering engaging, memorable learning experiences. Teachers increasingly move away from traditional, teacher-directed approaches toward more flexible, participatory methods that encourage collaboration, discussion, and exploration. Digital tools facilitate differentiated instruction, allowing teachers to tailor learning experiences to diverse student needs while maintaining structured and organized classroom routines. Furthermore, integrating multimedia and interactive activities not only simplifies complex concepts but also makes learning more

enjoyable and memorable for students. As classroom routines become more streamlined through technology, teachers are better able to manage time, monitor progress, and sustain an engaging learning environment that supports both instructional effectiveness and student satisfaction.

These transformations in teaching practices are closely linked to enhanced learner engagement and participation, as reflected in increased interest and motivation, and in improved attention, understanding, and the overall learning experience. Technology-based activities create immersive learning environments that spark curiosity and encourage learners to take an active role in their education. Students become more motivated and participative when exposed to interactive and multimedia-rich content, leading to deeper cognitive engagement and improved comprehension. Additionally, the use of visual and interactive elements supports a better understanding of complex topics and enhances information retention. These outcomes demonstrate that technology not only changes how teachers teach but also fundamentally influences how students learn, making the learning process more meaningful, accessible, and effective.

However, integrating technology is not without challenges, as highlighted in Theme Cluster 4, which focuses on navigating constraints through adaptive teaching strategies. Teachers encounter various infrastructural and technical constraints, including limited access to devices, unstable internet connectivity, and occasional power interruptions, which can disrupt the flow of instruction. In response, teachers demonstrate adaptability and resilience by employing alternative strategies, such as preparing offline materials, simplifying instructional activities, and blending digital with traditional teaching methods. These adaptive practices reflect teachers' commitment to ensuring continuity of learning

despite limitations and underscore the importance of flexibility and innovation in technology-enhanced education. Teachers' ability to navigate these constraints effectively is crucial to sustaining the benefits of technology integration in diverse, often resource-constrained educational contexts.

Finally, the successful integration of technology is sustained through strengthening teacher capacity and supportive learning environments, including continuous professional development, reliable technological infrastructure, and the promotion of effective, inclusive, and collaborative practices. Ongoing training equips teachers with the digital competencies and pedagogical skills to meaningfully integrate technology into their instruction. At the same time, access to reliable infrastructure and resources ensures that technological tools can be used consistently and effectively. Collaborative practices among teachers further enhance the sharing of strategies and innovations, fostering a culture of continuous improvement. Together, these elements create an enabling environment where technology integration is not only possible but sustainable, ultimately leading to more inclusive, effective, and future-ready educational practices.

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This study explored teachers' experiences in enhancing students' engagement through technology integration in Basic Education. It answered the following questions: In what ways has technology influenced your teaching strategies or daily classroom routines? How do learners typically respond to technology-based activities or lessons? Have you noticed changes in their engagement levels? What challenges or limitations do the

respondents encounter in integrating technology into teaching and learning? How do the respondents deal with these challenges? What insights do the respondents have to improve the integration of technology in Basic Education, thereby enhancing both teacher performance and learner engagement?

The study employed a qualitative phenomenological design, utilizing semi-structured interviews with ten teachers from the Grade School of one of the universities in Ozamiz City during the School Year 2025–2026. Data were analyzed using Colaizzi's Seven-Step Method to identify significant statements, formulate meanings, and generate thematic clusters.

Findings

The following are the findings of the study:

1. *Enabling Teaching Through Technology Integration.* Technology integration enhances instructional delivery by making teaching more interactive, efficient, and responsive to diverse learner needs.

2. *Transforming Instruction and Classroom Routines Through Technology.* Technology reshapes teaching practices and classroom routines by promoting flexible, learner-centered, and well-organized instructional approaches.

3. *Experiencing Increased Learner Engagement and Participation Through Technology.* The use of technology fosters higher levels of student engagement, motivation, and active participation in the learning process.

4. *Navigating Constraints Through Adaptive Teaching Strategies.* Teachers address technological and contextual challenges by employing flexible, innovative, and resourceful instructional strategies.

5. *Strengthening Teacher Capacity and Supportive Learning Environments for Effective Technology Integration.* Effective technology integration is sustained through continuous teacher development, reliable infrastructure, and collaborative, supportive educational environments.

Conclusions

Based on the findings, the following are the conclusions:

1. Technology serves as a vital tool in enhancing the quality and effectiveness of teaching by supporting interactive, efficient, and learner-responsive instruction.
2. Technology transforms traditional teaching into more flexible, organized, and learner-centered practices that improve overall classroom dynamics.
3. Technology plays a crucial role in fostering active engagement and participation, leading to more meaningful and motivating learning experiences.
4. Teachers' adaptability and innovative strategies are essential for overcoming challenges and ensuring continuous, effective instruction.
5. Strengthening teacher capacity and providing supportive environments are key to sustaining effective and impactful technology integration in education.

Recommendations

Based on the findings and conclusions, it is recommended that:

1. Schools may provide teachers with access to user-friendly, pedagogically relevant digital tools, along with training on integrating them effectively to enhance interactive, efficient, and learner-responsive instruction.

2. Educational institutions may encourage the adoption of flexible, learner-centered teaching approaches by integrating technology into daily classroom routines, including lesson planning, content delivery, and assessment practices.

3. Teachers may incorporate multimedia, gamified, and interactive digital activities into their lessons to sustain student interest, increase motivation, and promote active participation in the learning process.

4. Teachers may be supported in developing adaptive strategies, such as preparing offline materials, using blended learning approaches, and creating contingency plans to ensure learning continuity despite technological limitations.

5. School heads and administrators may prioritize continuous professional development, reliable technological infrastructure, and collaborative learning communities to support teachers in effectively integrating technology into their instruction.

6. Future researchers are encouraged to explore the long-term impact of technology integration on student learning outcomes across different educational contexts, and to investigate innovative models and frameworks that can further enhance teacher effectiveness and learner engagement in technology-rich environments.

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Chapter 4

SYNTHESIS OF THE STUDY

This research is composed of quantitative and qualitative studies. The quantitative study investigated the relationship between technology integration, teachers' teaching performance, and learners' engagement in Basic Education. This employed a descriptive-correlational design. It was conducted among 121 teachers selected through simple random sampling. Data were collected using a researcher-made and validated questionnaire covering technology integration, teaching performance, and learners' engagement, each measured using a Likert scale. The instrument underwent validation and reliability testing prior to data collection. Ethical procedures were observed, including securing permissions, ensuring voluntary participation, and maintaining confidentiality of responses. Statistical analyses included mean and standard deviation to describe the extent and levels of the variables, and Spearman's rho correlation to determine the significant relationships among them.

Findings revealed that teachers demonstrated a very high level of technology integration, characterized by strong competence, consistent use, and adequate access to digital tools, although institutional support was comparatively less emphasized. Teachers exhibited an excellent level of teaching performance across instructional delivery, adaptability to technology, classroom management, and assessment practices. Learners showed a very high level of engagement, reflected in strong emotional, cognitive, and behavioral involvement in classroom activities. Technology integration was significantly associated with teaching performance primarily through frequent use, while access to

technology and support systems contributed specifically to assessment practices, and mere availability of technology and teacher competence showed no significant relationship. Technology integration was also significantly related with learners' cognitive engagement through frequent use and access, while no significant relationship was found with behavioral and emotional engagement, indicating that meaningful use is more influential than mere availability.

It is concluded that technology integration is already embedded in teaching practices, but its sustainability depends on stronger institutional support. Teachers effectively translate their knowledge into classroom practice. Pedagogical strength remains the key driver of instructional success even in technology-rich environments. Learners are meaningfully engaged, showing both active participation and deeper learning involvement. Technology improves teaching performance when it is applied consistently and purposefully. Learner engagement is shaped by how technology is integrated into instruction rather than by its presence alone. Pedagogical design plays a crucial role in maximizing the benefits of technology in education.

The study recommends that schools may strengthen institutional support systems by providing continuous technical assistance, structured training, and accessible digital resources to sustain effective technology integration. Teachers may continue enhancing pedagogical practices through ongoing professional development and collaborative learning to maintain high levels of teaching performance. They may also design more interactive, learner-centered activities that sustain students' cognitive, emotional, and behavioral engagement in classroom learning, while they integrate technology meaningfully into instructional design by using interactive strategies and relevant digital

tools to enhance learners' engagement. Schools may encourage consistent and purposeful use of technology through targeted training and monitoring to further improve teaching performance. Future researchers may conduct further studies exploring additional factors and contexts to better understand how technology integration influences teaching performance and learner engagement.

The qualitative study explored the experiences of teachers in enhancing students' engagement through technology integration in Basic Education. It employed a phenomenological design, utilizing semi-structured interviews with ten teachers from the Basic Education in one of Universities in Ozamiz City during the School Year 2025–2026. Data were analyzed using Colaizzi's Seven-Step Method to identify significant statements, formulate meanings, and generate thematic clusters.

The findings revealed the following themes: Enabling Teaching Through Technology Integration; Transforming Instruction and Classroom Routines Through Technology; Experiencing Increased Learner Engagement and Participation Through Technology; Navigating Constraints Through Adaptive Teaching Strategies; and Strengthening Teacher Capacity and Supportive Learning Environments for Effective Technology Integration. *Enabling Teaching Through Technology Integration.* Technology integration enhances instructional delivery by making teaching more interactive, efficient, and responsive to diverse learner needs.

Technology serves as a vital tool in enhancing the quality and effectiveness of teaching by supporting interactive, efficient, and learner-responsive instruction. It transforms traditional teaching into more flexible, organized, and learner-centered practices that improve overall classroom dynamics. It also plays a crucial role in fostering

active engagement and participation, leading to more meaningful and motivating learning experiences. Teachers' adaptability and innovative strategies are essential in overcoming challenges and ensuring continuous and effective instruction. Strengthening teacher capacity and providing supportive environments are key to sustaining effective and impactful technology integration in education.

Based on the findings and conclusions, it is recommended that schools may provide teachers with access to user-friendly and pedagogically relevant digital tools, along with training on how to integrate these tools effectively to enhance interactive, efficient, and learner-responsive instruction. Educational institutions may encourage the adoption of flexible, learner-centered teaching approaches by integrating technology into daily classroom routines, including lesson planning, content delivery, and assessment practices. Teachers may incorporate multimedia, gamified, and interactive digital activities into their lessons to sustain student interest, increase motivation, and promote active participation in the learning process. Teachers may be supported in developing adaptive strategies, such as preparing offline materials, using blended learning approaches, and creating contingency plans to ensure continuity of learning despite technological limitations. Policymakers and school administrators may invest in continuous professional development, reliable technological infrastructure, and collaborative learning communities to support teachers in effectively integrating technology into their instruction. Future researchers are encouraged to explore the long-term impact of technology integration on student learning outcomes across different educational contexts, as well as investigate innovative models and frameworks that can further enhance teacher effectiveness and learner engagement in technology-rich environments.

Appendix A

TECHNOLOGY INTEGRATION QUESTIONNAIRE

Directions: Please answer each question by checking one of the following options: Always, Often, Sometimes, Rarely, or Never. Your honest responses will help us understand and improve the support provided to you.

- 5 - Always (A)
- 4 - Often (O)
- 3 - Sometimes (S)
- 2 - Rarely (R)
- 1 - Never (N)

Indicators	Responses				
Type of Technology Used	5	4	3	2	1
1. I use a variety of digital tools (e.g., computers, tablets, projectors) in my teaching.					
2. Educational software and apps are regularly part of my classroom instruction.					
3. I integrate online resources (e.g., videos, simulations, e-books) into lesson delivery.					
4. I utilize communication tools (e.g., email, chat, messenger, online platforms) for instructional purposes.					
5. I incorporate interactive technologies such as smart boards or learning management systems.					
Frequency of Use					
6. I use technology in my classroom on a daily basis.					
7. I frequently incorporate multimedia presentations in my lessons.					
8. Students are given regular opportunities to use technology for learning activities.					
9. I assign tasks that require students to use digital tools for research or collaboration.					
10. Technology is consistently used for both teaching and assessment purposes.					
Teacher Training and Competence					
11. I have received adequate training on how to effectively integrate technology in teaching.					
12. I feel confident in troubleshooting basic technical problems during class.					

13. I continuously update my knowledge and skills in educational technology.					
14. I understand how to align technology use with curriculum goals.					
15. Training programs have improved my competence in using technology effectively.					
Access to Technology					
16. I have sufficient access to the technological tools needed for instruction.					
17. My classroom is equipped with reliable internet connectivity.					
18. Students have access to devices when technology-based activities are assigned.					
19. The school provides enough digital resources to support teaching and learning.					
20. I can easily access the technology I need without delays or restrictions.					
Support System					
21. The school provides technical support when problems with technology arise.					
22. I receive support from colleagues in integrating new digital tools.					
23. There is a dedicated team or personnel to assist with instructional technology needs.					
24. I feel encouraged by school leadership to use technology in my teaching.					
25. Professional learning communities or peer groups support my growth in technology integration.					

Appendix B

TEACHERS' TEACHING PERFORMANCE QUESTIONNAIRE

Directions: Please answer each question by checking one of the following options: Always, Often, Sometimes, Rarely, or Never. Your honest responses will help us understand and improve the support provided to you.

- 5 - Always (A)
- 4 - Often (O)
- 3 - Sometimes (S)
- 2 - Rarely (R)
- 1 - Never (N)

Indicators	Responses				
Instructional Delivery	5	4	3	2	1
1. I clearly explain lessons using appropriate teaching methods.					
2. I organize my lessons effectively to meet learning objectives.					
3. I use engaging strategies to maintain students' attention throughout the lesson.					
4. I provide relevant examples that help students understand the topic better.					
5. I adjust my teaching methods based on students' responses and needs.					
Adaptability to Technological Tools					
6. I can quickly learn how to use new educational technologies.					
7. I adapt my lesson plans to include digital tools when needed.					
8. I troubleshoot minor technical issues independently during instruction.					
9. I explore new ways to integrate technology to enhance learning outcomes.					
10. I feel comfortable using various technological platforms for teaching.					
Classroom Management with Technology					
11. I maintain student discipline while using technology in the classroom.					
12. I set clear rules for proper use of digital devices during class.					

13. I monitor student activities when using technology to keep them on task.					
14. I use technology in ways that reduce distractions and increase engagement.					
15. I manage time effectively when using technological tools during lessons.					
Assessment Strategies					
16. I use technology to design and administer assessments.					
17. I regularly evaluate students' learning through quizzes, digital tools, or online platforms.					
18. I provide timely and constructive feedback using digital means.					
19. I align assessments with learning objectives and instructional content.					
20. I use assessment data to modify or improve future instruction.					

Appendix C

LEARNERS' ENGAGEMENT QUESTIONNAIRE

Directions: Please answer each question by checking one of the following options: Always, Often, Sometimes, Rarely, or Never. Your honest responses will help us understand and improve the support provided to you.

- 5 - Always (A)
- 4 - Often (O)
- 3 - Sometimes (S)
- 2 - Rarely (R)
- 1 - Never (N)

Indicators	Responses				
Cognitive Engagement	5	4	3	2	1
1. I observe my students trying to make connections between what they learn and what they already know.					
2. I see my students enjoying the exploration of complex ideas and challenging problems in class.					
3. I notice my students putting effort into understanding lessons, even when they are difficult.					
4. I find that my students ask questions when they don't understand a topic.					
5. I see my students using different strategies to help them remember and understand what they learn.					
Behavioral Engagement					
6. I observe my students paying attention and actively listening during class discussions.					
7. I see my students completing and submitting assignments on time.					
8. I notice my students participating regularly in class activities and tasks.					
9. I observe my students following classroom rules and instructions during lessons.					
10. I see my students staying focused and avoiding distractions during learning sessions.					
Emotional Engagement					
11. I notice my students feeling excited and interested in the subjects we study.					
12. I see that my students enjoy participating in classroom activities.					

13. I feel that my students have a sense of belonging in my class.					
14. I observe that my students feel comfortable sharing their thoughts and ideas during lessons.					
15. I believe my students feel motivated to do well in school.					

Appendix D

INTERVIEW GUIDE

Before the interview begins, the participants will be informed that

- The interview will be digitally recorded.
- Their identity will remain confidential during the whole course of the study and in the written report of the study.
- They can discontinue their participation any time.

A. Opening Question

1. How can you describe your overall experience with using technology in the Basic Education setting?

B. Core Questions

2. In what ways has technology influenced your teaching strategies or daily classroom routines?

3. How do learners typically respond to technology-based activities or lessons? Have you noticed changes in their engagement levels?

4. What challenges or limitations have you encountered in integrating technology into teaching and learning, and how have you addressed them?

C. Closing Questions

5. Based on your experience, what recommendations would you give to improve the integration of technology in Basic Education to enhance both teacher performance and learner engagement?

TRANSCRIPTIONS

Participant 1

It helps me make my lessons more interactive and engaging. Aside from that, it allows me to organize my lessons more easily and makes my work lighter. Technology has greatly influenced my teaching techniques/strategies by helping me improve my instruction/lesson. It also helps me expand my knowledge, making me a more effective teacher. Pupils tend to become more interested when I incorporate technology into my instruction/lesson. They get excited about seeing new things through media. Slow internet connection and lack of access to digital materials. To address these issues, I tried to prepare my lesson ahead of time and downloaded the necessary materials needed for my lesson. Seminars/Training workshops for teachers on how to properly integrate technology into teaching. This will also help teachers to refresh their knowledge when it comes to technology and will help teachers as well to improve their teaching strategies and create an interactive and engaging lessons.

Participant 2

Makes my work easy, engaging, and efficient. Lessons more interactive and student-centered, improved organization and efficiency, supports differentiated instruction, communication faster and more flexible. I can provide extra materials for those pupils who need more help. Reduces paperwork and saves time. Pupils attention and motivation change, encourages greater participation, learners respond positively and enthusiastically. Technical difficulties like slow systems, login issues, I always have backup plan, not all pupils have reliable gadgets or stable internet so I make sure to provide offline options and pupils distraction to games or social media so therefore I set clear rules and expectations, see to it that my lessons are interactive. Using the right tools, with proper support of the teacher and with clear purpose of the activity to have more flexible and inclusive learning.

Participant 3

My overall experience with using technology in the Basic Ed. setting has been positive. It has made lessons more interactive and engaging. Technology has encouraged me to adopt more learner-centered strategies such as interactive discussions. It has also improved my classroom routines by making it easier to prepare my lessons. Learners generally respond positively to technology-based activities. They show increased interest, participation and motivation during lessons. Some challenges include limited access to devices and unstable internet connectivity. I prepare backup plans such as offline materials and simplified activities. I recommend providing reliable internet access and sufficient technological resources in schools. Teachers should be given continuous training on effective technology integration.

Participant 4

Technology has helped me become more efficient and responsive to the needs of my learners. I regularly use technology for preparing lessons, presenting content and creating learning materials. It has influenced my teaching strategies by making my lessons more interactive and learner-centered. It also helps me organize my daily tasks such as preparing

materials and communicating with parents. Learners generally respond positively to technology-based activities because they find them enjoyable and engaging. They participate more actively and show greater interest when lessons involve multimedia and interactive tasks. Limited access to devices and limited access to the school's internet connection. Technical problems like power interruptions can also affect the flow of the lesson. To address this, I prepare alternative materials to ensure that learning continues. Schools should ensure the availability of reliable internet connection especially inside the classroom, and provide adequate digital resources.

Participant 5

Using technology in the Basic Education setting enhances learning experiences among learners. It also helps improve technological skills and knowledge among teachers to cope with the changes and needs during this technological age. Technology helps in making teaching strategies and daily classroom routines fun and engaging, and easy for both me and my pupils. My pupils tend to remember technology-based activities and routines better than just plainly saying/explaining it directly to them. Learners tend to engage more on technology-based activities. They find it more fun and easy which makes them want to participate more. Integrating technology into teaching and learning is fun until you experience problem on your device and internet connection. These problems limits the activities that I can use/apply during the teaching and learning process since my classroom doesn't have an internet connection and my device sometimes lags. To improve the integration of technology in the Basic Education, I would recommend to have internet connection in each classroom. Additional training or seminar about current apps or activities that are technology-based could also be helpful for teachers to gain new knowledge and ideas on what we could use during the teaching and learning process.

Participant 6

In terms of the use of technology in classroom setting, I can say that it is really helpful most especially in holding pupil's attention. Dealing with smaller kids with very low attention span, technology is so useful. Daily classroom routine can be boring but with the help of different videos, different ice breakers, learning will be enhanced. Absolutely. Technology-based activities are more interactive and given that pupils are tech-savvy, their engagement increases as they find these activities fun and engaging. Some limitations include the difficulty in seeing what's being flashed on the screen due to the seating arrangement. Limited number of TV, the size of the TV can be linked to this. Strong internet connection in every classroom would probably improve the integration of technology to enhance teacher performance. School's subscription to different digital platforms would also be nice to boost student engagement.

Participant 7

My overall experience with using technology in the Basic Education setting has been very positive and meaningful. In today's generation technology plays a vital role in making teaching and learning more effective. My students are highly engaged when lessons are supported with videos, presentation, and interactive activities. Because they are already familiar with gadgets and digital tools, they can easily understand the lesson compared to the traditional method of teaching alone. Technology also helps me present ideas more

clearly and creativity which keeps the class active and interested. Integrating technology in the classroom makes learning more dynamic, enjoyable and easier for students to grasp. Technology has significantly influenced my teaching strategies and daily classroom routines by making them more interactive, organized and student-centered. I now use digital tools for presentations, videos, and quick assessments, which help simplify complex topics and keep students engaged. It also allows faster communication, easier lesson planning, and more efficient monitoring of students' progress. Overall, teaching helps me deliver lessons more effectively and adapt to the needs of today's learners. Learners generally respond very positively to technology-based activities. They become more active, interested and eager to participate in class. I've noticed a clear increase in their engagement levels—students pay more attention, interact more during discussions, and understand lessons faster. Technology also encourages collaboration and confidence, making the overall learning experience more enjoyable and effective. One challenge I encountered is difficulty connecting my device to the TV, which sometimes takes time and delays the lesson. There are also unexpected power interruptions that disrupt technology-based activities. Based on my experience, I recommend ensuring reliable internet connection and functional equipment to avoid delays in lessons. Schools should also provide regular training for teachers so they can confidently use different digital tools. It is important to have back up resources, especially during technical issues or power interruptions.

Participant 8

My overall experience with using technology in Basic Education has generally been positive. It has made lessons more interactive and accessible for both teachers and learners. However, its effectiveness still depends on paper access and teacher preparedness. Technology has allowed me to use multimedia presentations, online quizzes, and digital resources in my teaching. It has also helped streamline daily routines like attendance, grading, and lesson delivery. As a result, lessons are more organized and engaging. Learners usually respond with enthusiasm to technology-based activities. They tend to be more participative and motivated, especially when lessons involve videos, games, or interactive platforms. I have noticed a significant increase in their engagement and attention. Some challenges include limited access to devices, unstable internet connection, and lack of technical skills. To address these, I prepare back up plans like offline materials and continuously improve my digital skills. I also adapt activities to fit available resources. I recommend providing more training for teachers on technology integration and ensuring access to reliable devices and internet. Schools should also support the use of interactive and learner-centered tools. Continuous support and proper planning can greatly enhance both teaching performance and student engagement.

Participant 9

Based on my experience, using technology in the Basic Education setting, it enhances both teaching and learning experiences and helps prepare students/pupils for more digital future. Technology has made teaching more flexible, efficient, and student-centered. It shifts the classroom from a one-size-fits-all approach to a more dynamic learning environment. When technology is used meaningfully, learners often feel more motivated. Since pupils now a days, are highly engaged with technology. They often find it easier to grasp and understand complex topics when incorporate multimedia presentations or digital tools into

their lessons. Integrating technology into teaching and learning can be powerful, but it often comes with real challenges such as some pupils they don't have interest in listening your discussions even if you are using powerpoint. To addressed this problem I will encourage the pupils have their own book, and let them read. Afterwards, I will asked them, if what is easier for them to listen and watch the presentation or to have their book alone. The challenges I have encountered include limited access of devices, unstable internet connection, and varying levels of students' digital skills. To cope with these, I do prepare printed/offline materials as alternatives, simplify instructions, and provide guidance to students who need support. I also remain flexible and use a mix of digital and traditional methods to ensure learning effectively. Based on my own experience, my recommendation that improve the integration of technology in Basic Education to enhance both teacher performance and learner engagement. Provide continues, hands-on professional development, like additional training/seminar for the teacher.

Participant 10

My experience using technology in teaching young learners has been very positive and meaningful. It makes lessons more engaging through videos, presentations, and interactive activities, which help learners improve their understanding. It also helps in assessing and monitoring their progress more efficiency. However challenges such as limited devices, and internet issues sometimes arise. Generally, technology has enhanced my teaching and supported more effective learning. Technology has influenced my teaching strategies by making my lessons more interactive and learner-centered through the use of videos, presentations, and digital activities. It also helps me differentiate instruction to meet the diverse needs of students. In my daily classroom routines, I use technology for preparing lessons, presenting content, giving assessments, and tracking student progress more efficiently. Learners have become more interested and it really boasted their engagement and participation in the class. This contributes to their class performance. The challenges I have encountered include limited access of devices, unstable internet connection, and varying levels of students' digital skills. To cope with these, I do prepare printed/offline materials as alternatives, simplify instructions, and provide guidance to students who need support. I also remain flexible and use a mix of digital and traditional methods to ensure learning effectively. Teachers should improve their digital skills through training and use simple, appropriate tools for students. Blending technology with traditional methods ensures inclusivity they should also design interactive activities and collaborate with other teachers to share effective practices.

Appendix F

SIGNIFICANT STATEMENT AND FORMULATED MEANING

Significant Statements (SS)	Formulated Meanings (FM)	Theme
“It helps me make my lessons more interactive and engaging makes my work lighter.” (P1)	Technology enhances engagement and reduces teacher workload	Enabling Teaching Through Technology Integration
“It has made lessons more interactive and engaging.” (P3)	Technology promotes interactive learning experiences	
“I regularly use technology for preparing lessons, presenting content and creating learning materials.” (P4)	Technology supports lesson preparation and instructional delivery	
“Technology also helps me present ideas more clearly keeps the class active and interested.” (P7)	Technology improves clarity of instruction and sustains student interest	
“It is really helpful in holding pupils’ attention.” (P6)	Technology increases students’ attention and participation	
“My students are highly engaged when lessons are supported with videos, presentations, and interactive activities.” (P7)	Multimedia tools enhance learner engagement	
“Makes learning more dynamic, enjoyable and easier for students to grasp.” (P7)	Technology facilitates better understanding and meaningful learning	
“It makes lessons more engaging help learners improve their understanding.” (P10)	Technology strengthens comprehension through interactive strategies	
“Makes my work easy, engaging, and efficient.” (P2)	Technology improves efficiency and ease of teaching tasks	
“Technology has helped me become more efficient and responsive to the needs of my learners.” (P4)	Technology supports responsive and adaptive teaching	

Significant Statements (SS)	Formulated Meanings (FM)	Theme
“It also helps in assessing and monitoring their progress more efficiently.” (P10)	Technology enhances assessment and monitoring processes	
“It also helps improve technological skills and knowledge among teachers ” (P5)	Technology promotes teachers’ digital competence and professional growth	
“It enhances both teaching and learning experiences prepare students for a more digital future.” (P9)	Technology prepares learners for future digital demands	
“However, its effectiveness still depends on access and teacher preparedness.” (P8)	Technology integration depends on resources and teacher readiness	
“Challenges such as limited devices and internet issues sometimes arise.” (P10)	Technological limitations affect effective implementation	
“It helps me make my lessons more interactive and engaging makes my work lighter.” (P1)	Technology enhances engagement and reduces teacher workload	Enabling Teaching Through Technology Integration
“It has made lessons more interactive and engaging.” (P3)	Technology promotes interactive learning experiences	
“I regularly use technology for preparing lessons, presenting content and creating learning materials.” (P4)	Technology supports lesson preparation and instructional delivery	
“Technology also helps me present ideas more clearly keeps the class active and interested.” (P7)	Technology improves clarity of instruction and sustains student interest	
“It is really helpful in holding pupils’ attention.” (P6)	Technology increases students’ attention and participation	
“My students are highly engaged when lessons are supported with videos, presentations, and interactive activities.” (P7)	Multimedia tools enhance learner engagement	
“Makes learning more dynamic, enjoyable and easier for students to grasp.” (P7)	Technology facilitates better understanding and meaningful learning	

Significant Statements (SS)	Formulated Meanings (FM)	Theme
“It makes lessons more engaging help learners improve their understanding.” (P10)	Technology strengthens comprehension through interactive strategies	
“Makes my work easy, engaging, and efficient.” (P2)	Technology improves efficiency and ease of teaching tasks	
“Technology has helped me become more efficient and responsive to the needs of my learners.” (P4)	Technology supports responsive and adaptive teaching	
“It also helps in assessing and monitoring their progress more efficiently.” (P10)	Technology enhances assessment and monitoring processes	
“It also helps improve technological skills and knowledge among teachers ” (P5)	Technology promotes teachers’ digital competence and professional growth	
“It enhances both teaching and learning experiences prepare students for a more digital future.” (P9)	Technology prepares learners for future digital demands	
“However, its effectiveness still depends on access and teacher preparedness.” (P8)	Technology integration depends on resources and teacher readiness	
“Challenges such as limited devices and internet issues sometimes arise.” (P10)	Technological limitations affect effective implementation	
“Technology has greatly influenced my teaching techniques ” (P1)	Technology improves instructional strategies	Transforming Instruction and Classroom Routines Through Technology
“Lessons more interactive and student-centered ” (P2)	Technology supports learner-centered and differentiated instruction	
“Adopt more learner-centered strategies ” (P3)	Technology promotes interactive and participatory teaching	
“Making lessons more interactive and learner-centered.” (P4)	Technology enhances engagement in instruction	
“Teaching more flexible, efficient, and student-centered.” (P9)	Technology enables flexible and efficient teaching	

Significant Statements (SS)	Formulated Meanings (FM)	Theme
“Daily classroom routine can be boring videos, ice breakers ” (P6)	Technology enhances routine engagement	
“Use multimedia presentations, online quizzes ” (P8)	Technology integrates diverse instructional tools	
“Easier to prepare my lessons.” (P3)	Technology improves lesson preparation	
“Organize daily tasks communicate with parents.” (P4)	Technology improves organization and communication	
“Streamline routines like attendance, grading ” (P8)	Technology streamlines classroom management	
“Reduces paperwork and saves time.” (P2)	Technology increases efficiency and reduces workload	
“Fun and engaging easy for pupils.” (P5)	Technology enhances engagement and ease of learning	
“Learners remember technology-based activities better.” (P5)	Technology improves retention and memory	
“Provide extra materials ” (P2)	Technology supports additional learning resources	
“Differentiate instruction ” (P10)	Technology supports inclusive and differentiated teaching	
“Pupils tend to become more interested ” (P1)	Technology increases learner interest	Experiencing Increased Learner Engagement and Participation Through Technology
“Learners respond positively ” (P3, P8)	Technology promotes positive learner response	
“Learners engage more ” (P5)	Technology increases participation	
“Participate more actively ” (P4, P8)	Technology enhances active involvement	
“Encourages greater participation ” (P2)	Technology improves motivation and engagement	
“Learners become more interested ” (P10)	Technology boosts engagement levels	
“Students pay more attention ” (P7)	Technology improves attention and interaction	
“Easier to grasp concepts ” (P9)	Technology enhances understanding	
“Enjoyable and engaging ” (P4, P6)	Technology creates enjoyable learning experiences	

Significant Statements (SS)	Formulated Meanings (FM)	Theme
“Slow internet connection and lack of access ” (P1)	Limited resources hinder technology use	Navigating Constraints Through Adaptive Teaching Strategies
“Limited access to devices ” (P3, P4)	Lack of devices affects implementation	
“Difficulty connecting device ” (P7)	Technical issues disrupt lessons	
“Power interruptions ” (P4, P7)	External disruptions affect instruction	
“System lag and login issues ” (P2)	Technical problems affect lesson flow	
“Learners distraction ” (P2)	Student behavior affects technology use	
“Varying digital skills ” (P10)	Differences in learner readiness affect instruction	
“Prepare backup plans ” (P3)	Teachers use alternative strategies	
“Provide offline materials ” (P2, P10)	Offline strategies ensure continuity	
“Set clear rules ” (P2)	Classroom management supports technology use	
“Improve digital skills ” (P8)	Teachers engage in professional growth	
“Use mix of digital and traditional methods ” (P10)	Flexible teaching ensures effectiveness	

VALIDATION

Exhaustive Description

Technology integration in Basic Education emerges as a powerful enabler of teaching, particularly through its capacity to enhance engagement and support interactive learning while simultaneously improving teaching efficiency and instructional support. Teachers' experiences reveal that digital tools transform lessons into dynamic, multimedia-rich experiences that capture learners' attention and promote active participation. At the same time, technology simplifies instructional processes such as lesson preparation, content delivery, and assessment, allowing teachers to organize their work more effectively and respond to learners' needs with greater precision. These dual benefits highlight how technology not only enriches the quality of instruction but also reduces the cognitive and administrative load on teachers, enabling them to focus more on facilitating meaningful learning experiences. In this sense, technology functions as both a pedagogical enhancer and an instructional support system, laying the foundation for more responsive and engaging teaching practices.

Building on this foundation, technology integration reshapes instructional practices and classroom routines by promoting a shift toward learner-centered and interactive teaching strategies, enhancing efficiency in classroom management and fostering engaging and memorable learning experiences. Teachers increasingly move away from traditional, teacher-directed approaches toward more flexible, participatory methods that encourage collaboration, discussion, and exploration. Digital tools facilitate differentiated instruction, allowing teachers to tailor learning experiences to diverse student needs while maintaining

structured and organized classroom routines. Furthermore, the integration of multimedia and interactive activities not only simplifies complex concepts but also makes learning more enjoyable and memorable for students. As classroom routines become more streamlined through technology, teachers are better able to manage time, monitor progress, and sustain an engaging learning environment that supports both instructional effectiveness and student satisfaction.

These transformations in teaching practices are closely linked to the enhanced engagement and participation of learners, as reflected in the stimulation of interest, motivation, and active participation and the improvement of attention, understanding, and overall learning experience. Technology-based activities create immersive learning environments that spark curiosity and encourage learners to take an active role in their education. Students become more motivated and participative when exposed to interactive and multimedia-rich content, leading to deeper cognitive engagement and improved comprehension. Additionally, the use of visual and interactive elements supports better understanding of complex topics and enhances retention of information. These outcomes demonstrate that technology not only changes how teachers teach but also fundamentally influences how students learn, making the learning process more meaningful, accessible, and effective.

However, the integration of technology is not without challenges, as highlighted in Theme Cluster 4, which focuses on navigating constraints through adaptive teaching strategies. Teachers encounter various infrastructural and technical constraints, including limited access to devices, unstable internet connectivity, and occasional power interruptions, which can disrupt the flow of instruction. In response, teachers demonstrate

adaptability and resilience by employing alternative strategies, such as preparing offline materials, simplifying instructional activities, and blending digital with traditional teaching methods. These adaptive practices reflect teachers' commitment to ensuring continuity of learning despite limitations and underscore the importance of flexibility and innovation in technology-enhanced education. The ability of teachers to navigate these constraints effectively plays a crucial role in sustaining the benefits of technology integration in diverse and often resource-constrained educational contexts.

Finally, the successful integration of technology is sustained through strengthening teacher capacity and supportive learning environments which include continuous professional development provision of reliable technological infrastructure and the promotion of effective, inclusive, and collaborative practices. Ongoing training equips teachers with the necessary digital competencies and pedagogical skills to integrate technology meaningfully into their instruction. At the same time, access to reliable infrastructure and resources ensures that technological tools can be used consistently and effectively. Collaborative practices among teachers further enhance the sharing of strategies and innovations, fostering a culture of continuous improvement. Together, these elements create an enabling environment where technology integration is not only possible but sustainable, ultimately leading to more inclusive, effective, and future-ready educational practices.

Conformed by:

Participant 1:		Participant 6:	
Participant 2:		Participant 7:	
Participant 3:		Participant 8:	
Participant 4:		Participant 9:	
Participant 5:		Participant 10:	



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MU-REB-010/03 March 2022

INFORMED CONSENT FORM (PORMA SA NASABTAN NGA PAGTUGOT)

Name of the Researcher/Investigator

(Nagtuon): LOVELIE B. CENTINO

Course: EDD

College: GRADUATE SCHOOL

Email / Contact Number: 09260147599

Dissertation Title: “TECHNOLOGY INTEGRATION IN BASIC EDUCATION
IN RELATION TO TEACHERS’ TEACHING PERFORMANCE AND LEARNERS’
ENGAGEMENT”

PART I. INFORMATION SHEET

Introduction (Pasiuna)	Good day! I am <u>Lovelie B. Centino</u>, the principal researcher/investigator of the study entitled <u>“Technology Integration in Basic Education in Relation to Teachers’ Teaching Performance and Learners’ Engagement.”</u> I am a graduate student under the program <u>Doctor of Education</u> at Misamis University in Ozamiz City. I am to conduct the research with <u>Basic Education teachers</u> as participants. In this vein, I am respectfully seeking your voluntary participation, being qualified to give your informed consent to take part in this study. Before you decide whether to participate or not in this study, please read the succeeding information about the study and feel free to ask questions anytime should there be anything you do not understand or want to clarify. If you agree to answer the interview, you will be asked to affix your name and signature on this form for which you will be given a copy. <i>(Maayong adlaw! Ako si <u>Lovelie B. Centino</u>, ang nagpahigayon sa pagtuon kabahin sa <u>“Pag-integrar sa Teknolohiya sa Bata kang Edukasyon Kalabot sa Abilidad sa Pagtudlo sa mga Magtutudlo ug sa Partisipasyon sa mga Estudyante.”</u> Ako usa ka estudyante sa <u>Misamis</u></i>
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	<i>University sa Doctor of Education. Ako nagapili kanimo isip participant nga maoy mutubag sa gikinahagnglang impormasyon niining gihimong pagtuon. Ako matinahurong naghangyo sa inyong bulontaryo nga pag-apil niini nga pagtuon. Gikinahanglan nga ikaw naa sa saktong edad ug naay kakayahan nga mohatag sa pagtugot aron makaapil niini nga pagtuon. Sa dili pa ka mohukom sa pag-apil niini nga interview, palihug sa pagbasa sa mga impormasyon sa ubos ug gawasnong ka nga makapangutana kon adunay wala nimo nasabtan o gusto nimong iklaro. Kung motugot ka sa pagahimoon nga interview, papirmahon ka niini nga porma ug tagaan usab ka ug imong kaugalingong kopya.</i>
Purpose (Katuyoan)	The purpose of this study is to <u>explore the experiences of teacher in students' engagement through technology integration during the school year 2025-2026. This research is significant as it provides insights into how technology integration influences students' engagement and supports teachers in enhancing their instructional practices.</u> (Indicate the significance). <i>(Ang katuyuan niini nga pagtuon mao ang pagsusi sa mga kasinatian sa magtutudlo sa pakiglambigit sa mga estudyante pinaagi sa pag-integrar sa teknolohiya. Kini nga pagtuon makahatag og lawom nga pagsabot kung giunsa sa integrasyon sa teknolohiya pagpalambo sa pakiglambigit sa mga estudyante sa proseso sa pagkat-on. Dugang pa, makatabang kini sa mga magtutudlo sa pagpaayo sa ilang mga pamaagi sa pagtudlo pinaagi sa epektibong paggamit sa teknolohiya aron mapalambo ang kalidad sa pagkat-on. (kaayuhan).</i>
Type of Research Intervention (Matang sa Interbensyon sa Pagtuon)	This study will be conducted through interviews. The gathering of data will be conducted in person. <i>(Kining pagtuon pagabuhaton pinaagi sa interview. Personal ang pagkuha sa datos.)</i>
Selection of Participants (Pagpili sa mga Partisipante)	The selection of the participants is based on the following inclusion criteria: <u>teachers in Basic Education, and be willing to participate voluntarily.</u> (Indicate as applicable to your study.) <i>(Ang mga partisipante niini nga pagtuon mao ang indibidwal nga naga-angkon sa mosunod: <u>Mga magtutudlo sa Batakanng Edukasyon nga boluntaryong moapil o moboluntaryonh sa interview.</u>)</i>

Voluntary Participation (<i>Boluntaryo nga Partisipasyon</i>)	Your participation has to be voluntary and will not affect your situation or status in any way, including your relationship with the researcher. You are free to decide if you will take part or not. If you decide to participate, you are free not to answer any questions that you do not prefer to answer. (<i>Boluntaryo ang imong pag-apil ug kini dili makaapekto sa imong sitwasyon o estado apil na imong relasyon sa nagtuon. Gawasnon ka nga modesisyon kung kung moapil ka niini nga pagtoon o dili. Kung mo-desisyon ka nga moapil, gawasnon ka nga dili motubag sa bisan asa nga pangutana nga dili nimo gusto nga tubagon.</i>)
Procedure (<i>Pamaagi</i>)	The participants will be given ample time when to undertake the interview. The interviews will be undertaken once or several times when necessary. The researcher will transcribe the interviews to be used for the analysis of the data. The information and data provided by you as a participant will be utilized for this study alone and will be treated with the utmost confidentiality. (<i>Ang mga partisipante pagahatagan og igong panahon sa pag-apil sa interview. Ang interview pwedeng himoon kausa nga higayon o sa makadaghan depende sa panginanghalanon. Isulat sa nagtuon ang interviews para sa pag-analisa sa datos. Ang mga impormasyon ug datos nga nakuha gikan kanimo isip ka partisipante gamiton lamang niining research og hatagan og tumang pag-amping nga dili mabutyag.</i>)
Duration (<i>Gidugayon</i>)	The gathering of data through the interview will last for 45 minutes to 1 hour. (<i>Ang pagkuha sa datos pinaagi sa interview mokabat ngadto sa <u>45 minutos ngadto isa ka oras.</u></i>)
Risks and Discomforts (<i>Risgo ug Kahasol</i>)	The respondents will be protected from physical, social, or economic risks. In case the items in the survey instrument are too personal and make you feel uncomfortable, you may decline to answer any or all questions and may terminate your involvement at any time you choose. (<i>Ang mga partisipante ginaprotektahan sa pisikal, sosyal o ekonomikanhong risgo. Kung pananglitan adunay mga pangutana nga personal ra kaayo o kung dili ka komportable, mamahimong dili ka motubag o mobalibad sa pagtubag sa bisan asa o sa tanang mga pangutana ug moatras sa pag-apil sa bisan unsang panahon nga imong gusto.</i>)
Benefits (<i>Kaayohan</i>)	This study will enable you to shed light or provide understanding about <u>the experiences of teachers in enhancing students'</u>

	<u>engagement through technology integration.</u> Thus, your responses shall be highly valued being deemed important in the <u>field of basic education and educational technology.</u> <i>(Kini nga pagtuon makapahimo kanimo paghatag og katin-awan o pagpasabot kabahin sa <u>mga kasinatian sa mga magtutudlo sa pagpalambo sa pakiglambigit sa mga estudyante pinaagi sa integrasyon sa teknolohiya.</u> Ang imong mga tubag hatagan og dakong bili nga giisip nga importante sa linya sa <u>bataakang edukasyon ug teknolohiyang pang-edukasyon.</u>)</i>
Reimbursements (Hulip nga bayad)	There will be no monetary expenses or costs on your part as a respondent, nor any monetary compensation for your participation in this study. However, personal protective equipment (PPE) like face masks, alcohol and face shields may be provided during the gathering of the research data. <i>(Wala kay magasto sa imong pag-apil niini nga pagtuon ug dili usab ka bayaran ug kwarta sa imong pag-apil niini nga pagtuon. Apan adunay nga personal protective equipment (PPE) sama sa face masks, alcohol ug face shields nga pwede nga mahatag sa panahon sa pagkuha sa mga datos)</i>
Confidentiality of Data (Pag-amping sa Datos)	Only the researcher will have access to the information and responses of the participants. The personal identifying information of the participants will only be used for research analysis and will be treated with the utmost confidentiality. During the study, all data will be kept in a locked, secure filing cabinet, of which will be discarded 6 months after the publication of the results. <i>(Ang nagtuon lamang ang makakita sa mga impormasyon ug tubag sa respondents. Ang mga datos nga makuha i-analisa ug hatagan og tumang pag-amping aron dili ibutyag. Sa panahon sa pagtuon, ipahimutang sa usa ka selyadong filing cabinet ang tanang datos nga pagagub-on human sa 6 kabulan gikan sa pag-publish sa resulta.)</i>
Sharing of Findings (Pagpaambit sa Nakaplagan)	The results of this study will be presented during the thesis/dissertation final defense of the researcher. Also, the research findings may be shared through publications and conferences with the assurance that the identities of the respondents will remain confidential. A printed copy of the completed study will be provided to the participants. <i>(Ang mga resulta niini nga pagtuon ipresenta sa panahon sa final defense sa thesis/ dissertation sa nagtuon. Ang mga nakaplagan sa pagtuon posible nga ipaambit pinaagi sa mga publications ug conferences nga adunay kapanigurohan nga dili mabutyag ang</i>

	<i>pagkatawo sa mga partisipante. Pagahatagan og isa ka giimprinta nga kopya sa kumpleto nga pagtuon ang mga partisipante.)</i>
Rights to Refuse or Withdraw (<i>Katungod sa Pagpalibabad o Pag-undang</i>)	You are free to withdraw or terminate participation at any stage of the study, without the need to give any reason. You will not be penalized in case of termination of participation. <i>(Gawasnon ka nga moatras or moundang sa pag-apil sa bisan asa nga punto sa pagtuon nga dili na magkinahanglan pa ug rason. Dili ka ipamulta sa pag-a-tras o pag-undang.)</i>
Who to Contact (Kinsa ang Kontakon)	Should there be any queries as a parent, you can contact the researcher through the following details: <i>(Kung adunay mga pangutana, mamhimo nga mokontak pinaagi aning mga detalye:)</i> Name of the Researcher (Ngalan sa Nagtuon): <u>Lovelie B. Centino</u> Cellphone Number/s: <u>09260147599</u> e-mail ad: <u>loveliebalambao@gmail.com</u> STATEMENT BY THE RESEARCHER (PAGPADAYAG SA NAGTUON) I will read the Information sheet to the potential participant. With the best of my ability, I make sure that the participant will understand the interview questions and that possible follow-up interviews may be undertaken. <i>(Akong pagabasahon ang mga nasulat niining Information Sheet ngadto sa potensyal nga partisipante. Kutob sa akong mahimo siguroon nako nga masabtan sa partisipante ang mga pangutana sa interview ug ang possible nga follow-up nga interviews.)</i> I can assure that the participant will be given an opportunity to ask questions about the study, and all the questions raised will be answered fully. I can likewise assure that the participant will not be coerced into giving consent that must be free and voluntary. <i>(Gisiguro ko nga ang partisipante mahatagan og panahon sa pagpangutana kabahin niining pagtuon og ang tanang pangutana nga iyang gihatag matubag sa hingpit. Siguroon ko usab ang maong partisipante dili mapugos sa paghatag sa pagtugot nga kinahanglan nga gawasnon og boluntaryo.)</i>

	A copy of this Informed Consent Form will be provided to the participant. <i>(Ang kopya sa niining Informed Consent Form ihatag ngadto sa respondent.)</i> Print Name of Researcher (Ngalan sa Nagtuon): LOVELIE B. CENTINO
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PART II. CERTIFICATE OF CONSENT
This research entitled “<u>Technology Integration in Basic Education in Relation to Teachers’ Teaching Performance and Learners’ Engagement.</u>” by <u>Lovelie B. Centino</u> with the aim of gathering information and data pertaining to <u>the level and practices of technology integration in basic education</u>, as well as its relationship to teachers’ teaching performance and learners’ engagement, has been presented and explained to me clearly. Since the study involves <u>teachers in Basic Education</u>, I am chosen as one of the participants. <i>(Kini nga pagtuon gititulohan, “ <u>Pag-integrar sa Teknolohiya sa Bata kang Edukasyon Kalabot sa Abilidad sa Pagtudlo sa mga Magtutudlo ug sa Partisipasyon sa mga Estudyante</u> ” ni <u>Lovelie B. Centino</u>, nga adunay tumong sa pagkuha og impormasyon ug datos kabahin sa <u>lebel ug mga pamaagi sa integrasyon sa teknolohiya sa bata kang edukasyon</u>, ingon man sa <u>relasyon niini sa performance sa mga magtutudlo ug pakiglambigit sa mga estudyante</u>, gipresenta ug gipasabot og klaro kanako. Tungod kay ang pagtuon kay kabahin sa <u>magtutudlo sa Bata kang Edukasyon</u>, ako napilian isip usa sa mga partisipante.</i> I have read the foregoing Informed Consent Form, or it has been read to me. I had the opportunity to ask questions, which were subsequently answered fully. I consent voluntarily to be a participant of this study. <i>(Akong nabasa ang nauna nga Informed Consent Form, o gibasa kini kanako. Natagaan ako og higayon nga makapangutana nga natubag sa hingpit. Ako mosugot nga boluntaryo nga mahimong participant sa niining pagtuon.)</i> Print Name of Participant (Ngalan sa Partisipante): _____ Signature of Participant (Pirma sa Partisipante): _____ Date: [MM/DD/YYYY]_____

If Illiterate (Kung dili makasulat ug makabasa)

If the respondent is illiterate, a witness who is literate will sign. The respondent will choose him/ her and who is without connection with the researcher or the research group to attest this undertaking. The respondent will affix his thumb print.

[Kung ang participant kay dili makabasa o makasulat, mopirma ang usa ka makabasa ug makasulat nga testigo. Ang respondent ang mopili kaniya nga walay koneksyon sa nagtuon o sa iyang grupo para mopamatuod sa gimbuhaton. Ang respondent mobutang sa iyang tamla (thumb print)].

Name and Signature of the Witness
(Ngalan ug Pirma sa Testigo)

Thumb
mark

CURRICULUM VITAE

PERSONAL DATA

Name : Lovelie B. Centino
Age : 37 years old
Birthdate : August 05, 1988
Civil Status : Married
Religion : Roman Catholic
Home Address : P-4, Catadman-Manabay, Ozamiz City
Parents : Mr. and Mrs. Agripino A. Balambao
Spouse : Eduardo M. Centino Jr.



EDUCATION

Post Graduate: Doctor of Education
Major in Educational Management
Misamis University
Ozamiz City
May 2026

Graduate : Master of Arts in Education
Major in Filipino
Misamis University
Ozamiz City
March 2020

College : Bachelor of Elementary Education
Major in General Education
Misamis University
Ozamiz City
March 2010

Secondary : Ozamiz City National High School (OCNHS)
Lam-an, Ozamiz City
April 2005

Elementary : Catadman Elementary School
 Honors: Fifth Honorable Mention
 Bongabong St., Catadman, Ozamiz City
 March 2001

PROFESSIONAL ELIGIBILITY : Professional Licensure Examination for
 Teacher -Elementary Level

WORK EXPERIENCE

June 28, 2011- Present : Faculty
 Basic Education Department
 Misamis University
 Ozamiz City

SEMINARS/TRAINING ATTENDED

- 54th PAFTE National and 15th International Convention with the theme “Quality Teacher Education Through the SDGs: Empowering Teachers to Transform the World through the SDGs” via Microsoft Live
 October 9-10, 2025
- 4th International Conference on Biodiversity and Climate Change 2025 (IConBaCC 2025) – Misamis University, Ozamiz City
 September 25-26, 2025
- 2025 In-Service Training for K-6 Teachers “Realigning the Teaching of K to 6 with the Revised Curriculum” – Lourdes College, Cagayan De Oro City
 May 10-11, 2025
- CDGS WEBINAR: From Graduate Thesis to Publication
 March 1, 2025
- Bridging Learning Gaps and Building Learner Resilience through Phoenix-Sibs MATATAG Curriculum Compliant Instructional Resources – Kong Hua School, Cagayan De Oro City
 January 20, 2024
- Empowering Private Education Stakeholders for a Successful MATATAG Curriculum Implementation – La Salle University, Ozamiz City
 April 13, 2024

- Surfing the Tide of Innovation in the MATATAG Curriculum Through LXD
April 27, 2024
- International WEBICON 2024 with the theme “Innovation and Responsive Graduate Research in the Age of Artificial Intelligence”
May 11, 2024
- 14th PAFTE Midyear Convention with the theme “Bridging Cultural Divides: Best Practices and Innovative Strategies for Inclusive and Global Education” via Microsoft Live
June 13-14, 2024
- Capacitating the Private Education Sector for the Effective Implementtton of the MATATAG Curriculum – Xavier University, Cagayan De Oro City
July 2024
- Building Learner Resilience through Effective Use of Phoenix-Sibs MATATAG Curriculum Compliant Instructional Resources – N Hotel, Cagayan De Oro City
September 7, 2024
- Strengthening Global Collaboration in International Education: Forging Strategic partnerships with Business and Industries Across Europe – Grand Pavilion, Ozamiz City
October 8, 2024
- 53rd PAFTE National and 14th International Convention with the theme “Towards New Directions in Teacher Education: Adapting to a Changing Landscape” via Microsoft Live
October 10-11, 2024
- Communicative Language Tests and CEFR Levels – via Zoom conference
October 18, 2024
- Seminar on the Use of SPSS Software for Statistical Tools
Misamis University, Ozamiz City
January 20, 2023
- Seminar on the Use of Minitab Software as Statiistical Tools
Misamis University, Ozamiz City
February 10, 2023
- Seminar on Qualitative Research
Misamis University, Ozamiz City
February 24, 2023

- Learning Recovery to Learning Resilience in the Classrooms through Effective Teaching Strategies for Grade School Filipino
Misamis University, Ozamiz City
March 11, 2023
- Mind/Bridge the Gaps: Instructional Solutions and Strategies to Identify and Address Learning Gaps
Mallberry Suite Business Hotel, Cagayan De Oro City
April 22, 2023



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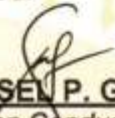
ACCREDITED: Philippine Association of Colleges and Universities Commission on Accreditation (PACUCOA)

CERTIFICATION ON PLAGIARISM SCANNING

This is to certify that the thesis/dissertation paper of **LOVELIE B. CENTINO** entitled **TECHNOLOGY INTEGRATION AMONG TEACHERS IN BASIC EDUCATION IN RELATION TO THEIR TEACHING PERFORMANCE AND LEARNERS' ENGAGEMENT** has undergone a content checking on plagiarism on **May 16, 2026** and that the plagiarism score/similarity index is **25%**.

Issued this 29th day of June, 2026 at Misamis University, Ozamiz City.

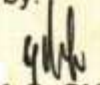
Signed:


RUSSEL P. GALINDO

Person Conducting the Plagiarism Test

Date: Jun 29, 2026

Attested by:


CYNTHIA S. SUPERABLE, Ed.D., DScN.

Dean, Graduate School

Date: Jun 29, 2026

SSS ID No. 08-792000-8

SUBSCRIBED AND SWORN to before me this ____ day of JUN 30 2026 2026 at Ozamiz City, Philippines.

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ATTY. RABINDRANATH S. POLITO

Notarial Commission No. 2025-02

Notary Public for Ozamiz City and Clarin

Until 31 December 2026

Roll of Attorneys No. 76977; TIN 948-122-314

IBP No. INV 583305; 02 January 2026, Mis. Occ. Chapter

PTR No. 6007867; 05 January 2026, Ozamiz City

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