
Narratives of Teachers on Educational Technology Adaptation

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Abstract

This study explores the narratives of teachers regarding their adaptation to educational technology in the Philippines, focusing on its effects on pedagogical practices (Anderson & Dexter, 2021). Through qualitative interviews with educators across various grade levels, the research uncovers both the advantages and obstacles associated with technology-enhanced learning (Gakii Githinji et al., n.d.). Participants noted an increased availability of resources such as computers, smart TVs, and digital applications, enabling them to create engaging and adaptable learning environments for 21st-century learners (Edutopia, 2024).

Despite these technological advancements, several significant challenges remain. Teachers reported unstable internet connections, limited access to devices, and inadequate training as major barriers to effectively utilizing technology in the classroom (Hilkemeijer, n.d.). These challenges impede the realization of technology's full potential in enriching teaching and learning experiences (Digital Promise, n.d.). Nonetheless, findings highlight the vital role of administrative support, with many educators stressing the necessity of professional development, mentoring, and resource provision to empower them in embracing technology and enhancing student engagement (PDI).

The study concludes with essential recommendations for educational institutions. Prioritizing improvements in technological infrastructure, such as enhancing internet connectivity and ensuring equitable access to devices for all students, is crucial (Macrothink Institute, 2024). Implementing ongoing training programs for teachers will bolster their confidence and proficiency in utilizing educational technology effectively (Teacher Zone - EF). Furthermore, strengthening administrative support systems is imperative, as school leaders should focus on providing mentoring and recognition for teachers adapting to new technologies (Edyburn & Gardner, 1999). Addressing these areas will foster a supportive environment for technology adoption, ultimately benefiting both educators and students. This research offers valuable insights for advancing practices in technology integration, ensuring a more effective and inclusive educational experience (Scribbr, 2020).

Keywords: Challenges, Educational Technology, Professional Development, Student Engagement, Teachers' Experiences, Technology Enhanced Learning, Technology Integration.

1. Introduction

Global developments in technology have profoundly changed educational practices, necessitating continual adaptation in schools (Domuschola International School, 2024). In the Philippine context, government policies, evolving curricular standards, and growing student exposure to digital media have intensified demands for classroom technology (Childhope Philippines, 2021). Specific to Valencia City Central School, teachers reported that their educational environments included a mix of traditional and modern resources: classrooms with basic furniture and book collections coexisted with digital facilities such as computer laboratories, smart TVs, printers, tablets, and periodically accessible WiFi. These resources expanded possibilities for creative teaching, allowing lesson plans to incorporate video content, interactive activities, and real-time research (PJLSS, 2024).

Teachers noted clear challenges in resource distribution and reliability. Internet access was often slow or unstable, and advanced devices like laptops and interactive whiteboards were limited or shared between classes. These constraints meant that while some students had regular exposure to digital learning, others benefited mainly from traditional methods, creating disparities not only within but also between classrooms.

Teachers themselves were expected to continually upgrade their skills, attend workshops, and experiment with new teaching tools. Experiences varied: some teachers embraced change confidently, motivated by tech-savvy students and the promise of enhanced engagement, while others struggled with new platforms or lacked practice in using apps and devices effectively. As a result, technology integration required significant adaptation—not only of technical skills but also of attitudes, routines, and pedagogical strategies (Securly, n.d.).

The research aimed to capture a holistic view of teacher adaptation, exploring how institutional context, resource availability, administrative support, and personal motivation interacted to shape everyday classroom practice. This focus on teacher experiences revealed both the promise of technology and the persistent barriers facing schools in less urbanized, resource-constrained regions (Macrothink Institute, 2024).

2. Statement of the Problem

This study aims to gather the narratives of teachers about their experiences with educational technology adaptation during the School Year 2024-2025. The research will address the following questions:

1. What are the available resources in your school?
2. What support system the teachers received from the administration?
3. What is your idea on the adaptation of the educational technology?
4. What are the challenges you encounter in the adaptation of this educational technology?

3. Methodology

This qualitative study employed a case study design to explore and understand the narratives of ten teachers regarding their adaptation to educational technology (Merriam, 1988). The research design was chosen to capture the rich, detailed perspectives and lived experiences of educators as they navigated the challenges and opportunities presented by technology integration in their instructional practices (Ruggiero & Mong, 2015).

The participants comprised ten primary teachers from District 1 Valencia City Central School, all of whom have actively engaged with educational technology in their classrooms

since around 2010. A purposive sampling technique was used to select these ten participants, ensuring the collection of relevant and insightful data related to the study's objectives (Alchemer, 2023).

Data collection was conducted through Google Forms, utilizing semi-structured surveys designed to elicit comprehensive responses to questions about the challenges encountered, strategies employed, and successes achieved in adapting to educational technology.

The data analysis involved thematic content analysis (Braun & Clarke, 2006). Survey responses were reviewed and coded to identify emerging themes and patterns related to teachers' narratives concerning technology adaptation. This process included familiarization with the data, generation of initial codes, searching for themes, reviewing themes, and defining and naming themes.

Ethical considerations were observed throughout the study, including securing informed consent from participants, assuring confidentiality and anonymity, and permitting voluntary participation with the option to withdraw at any time without consequences (TeacherPH, 2023). The study adhered to institutional ethical guidelines to protect the rights and welfare of participants.

4. Data Validation Techniques

1. **Member Checking:** Participants were given the opportunity to review and provide feedback on the findings and interpretations derived from their narratives. This process ensured the accuracy and authenticity of their experiences as reflected in the study.
2. **Inter-Coder Reliability:** Two independent researchers coded the qualitative data to ensure consistency in the interpretation of themes. Discrepancies in coding were discussed and resolved through consensus, thereby enhancing the reliability of the findings.
3. **Triangulation:** Data was triangulated by incorporating multiple sources of information, including interviews and existing literature on educational technology adaptation. This approach provided a comprehensive understanding of the teachers' experiences and reinforced the validity of the study's conclusions.

5. Results and Discussion

Thematic analysis of the teachers' narratives revealed four core themes regarding educational technology adaptation. In terms of available resources, the theme "Varied Access to Digital and Multimedia Tools" emerged, showing differences in teachers' access to devices, connectivity, and instructional materials. For administrative support, the theme "Multifaceted and Ongoing Support from School Leaders" was identified, illustrating the presence of professional development, mentoring, material aid, and emotional wellness initiatives. Regarding teachers' perceptions, the theme "Positive Attitudes Toward Technology for Engagement and Individualized Learning" surfaced, highlighting beliefs in the value of digital tools for enhancing classroom interaction and catering to diverse student needs. In relation to challenges, the theme "Persistent Barriers in Infrastructure, Training, and Equity" captured issues such as unreliable internet, device shortages, technical difficulties, and gaps in teacher confidence. These themes underscore both the progress made and the continuing hurdles faced by teachers as they adapt and integrate educational technology into their practices.

Theme 1: Available Resources in the School

The themes that emerged from teachers' responses to the question of available resources in their schools reveal a complex but insightful picture of technology adaptation in education. Most participants indicated access to a combination of digital devices and equipment such as laptops, computers, tablets, printers, televisions, smart TVs, projectors, and interactive whiteboards. The presence of reliable internet connectivity was also noted as central to supporting daily teaching and learning activities, although it was not uniformly available to all teachers. Audio-visual and multimedia resources, including smart TVs and projectors, were highlighted for their role in making lessons engaging and interactive, facilitating multi-sensory learning experiences for students. Instructional materials, whether digital or physical, remained essential to lesson preparation and classroom management. More traditional resources such as libraries, books, and other printed materials continued to play a substantial role in supporting teaching, especially when access to technology was limited or inconsistent.

These findings illustrate that effective educational technology adaptation depends on a multi-layered resource environment. Access to digital devices and robust internet infrastructure formed the backbone of technology-enhanced teaching. Multimedia tools enabled teachers to innovate and personalize instruction, catering to diverse learning needs and preferences. However, the reliance on printed materials highlights that disparities in technology access still exist, and many teachers are compelled to use a blended approach leveraging both digital and traditional resources to meet their instructional goals. This situation underscores the need for continual investment in modern devices, improvement in internet connectivity, and equitable distribution of technological tools in schools. Otherwise, teachers and students in resource-challenged environments remain at risk of falling behind in a rapidly digitalizing educational landscape.

These realities are echoed in both Philippine and international studies. For example, Villaseñor (2024) drew attention to persistent internet and device gaps in Filipino grassroots schools, recommending collaborative ecosystems and targeted infrastructure investments. Espinosa (2025) provided a critical analysis of how socio-economic issues and geographic barriers continue to restrict access to EdTech, emphasizing that inequalities in connectivity and equipment undermine effective adaptation. Mastul (2023) demonstrated that combining digital platforms with multimedia aids and traditional materials can help teachers address technology barriers and deliver more effective lessons, but also called for strengthened infrastructure and instructional support.

Barrett (2019) found a strong link between well-designed school infrastructure, access to technology, and improved teaching and learning outcomes. Bariu (2020) reported similar challenges in Kenyan contexts, where limited investments in ICT infrastructure were seen as key obstacles to successful technology integration. Giray (2024), in surveying Filipino college students published internationally, revealed that insufficient device access and unreliable internet not only hindered learning but also contributed to digital stress and reduced engagement.

Schools must address not just the quantity of digital devices, but also issues of accessibility, connectivity, and support for both teachers and students. The emerging themes from this research therefore align with a global call for holistic solutions balancing technological innovation with practical, inclusive strategies to ensure educational technology adaptation meets the diverse needs of every classroom.

Theme 2: Support System the Teachers Received from the Administration

The table summarizes teachers' narratives concerning the support they received from school administration for educational technology adaptation. Five clear themes consistently

emerged: Professional Development, Instructional Support & Mentoring, Emotional and Wellness Support, Material and Technical Support, and Collaboration and Peer Sharing. Most teachers recounted access to regular training, seminars, and workshops related to technology integration. This professional development was often complemented by classroom observations, coaching, and feedback providing both guidance and individualized mentoring. Several teachers also mentioned the crucial role of administrative recognition, encouragement, and provision of a healthy work environment, supporting their emotional wellness and sense of being valued. Material and technical support, seen in the supply of teaching materials, printers, and internet connectivity, addressed the practical needs for integration, though gaps occasionally persisted. Sharing of ideas and collaboration further enriched teachers' adaptation, as peer networks and administration-facilitated exchanges created supportive communities of practice.

Comprehensive Implications of the Emerging Themes

These themes strongly imply that a holistic and multi-faceted support system from school administration is essential for effective technology integration. Professional development equips teachers not only with new knowledge but also the confidence to experiment and improve technology-driven practice. When instructional support and mentoring are present, teachers feel empowered to innovate and address challenges collaboratively. Emotional wellness support is critical: teachers who feel valued and recognized demonstrate higher motivation and resilience when adapting to new technologies. Material and technical supports ensure that practical barriers such as device shortages or internet instability do not derail instructional advancement. Collaboration and peer sharing, meanwhile, build a foundation for sustained learning, creative problem-solving, and a positive attitude toward change. Administrative support, therefore, must extend beyond episodic training to encompass ongoing mentorship, emotional care, timely technical assistance and the nurturing of collaborative cultures a stance supported by both local and global research.

Supporting Literature and Studies

Recent Philippine research reinforces these implications. Nicolas and Santos (2024) found that technology management from school administrators significantly impacted technology integration while positive attitudes were widespread, issues such as inadequate equipment and insufficient connectivity persisted. Their proposed framework underscores improving physical resources, professional development, and maintenance as vital measures for instructional advancement. Mendoza (2022) reported that administrators' technology leadership indirectly influenced teachers' technological aptitude, emphasizing the need for clear strategic direction and leadership vision to enable effective adoption. Uchang (2022) highlighted the positive impact of professional development and administrative support on teacher innovation and collaboration, recommending ongoing training and mentorship to overcome barriers.

Webb (2011) showed that administrator actions such as providing mentors, resources, incentives, and staff development critically supported teachers' technology integration efforts. Becker (2000) and Redmann & Kotrlik (2004) emphasized that administrator knowledge of technology, active encouragement, and fostering positive attitudes were key predictors of technology adoption in schools. Studies recommend that administrators should be proactive in identifying teachers' strengths, offering tailored support, and creating opportunities for content-specific technology training. These findings confirm that successful integration depends on sustained, comprehensive support both technical and emotional from educational leaders.

The convergence of local and international evidence suggests that administrative support, when multi-dimensional and context-sensitive, bridges the gap between technology access and genuine classroom integration. Ongoing professional development, mentoring, recognition, and sufficient material and technical resources work synergistically to nurture adaptable, confident, and innovative teachers.

Theme 3: . Idea on the Adaptation of the Educational Technology

The analysis of teachers' responses about their ideas on educational technology adaptation yielded several distinct themes: enhancing engagement and interactivity, meeting learners' needs and self-pacing, teacher adaptability in the 21st century, improving teaching efficiency, promoting inquiry-based learning, and explicit ICT use for teaching. Teachers unanimously recognized the capacity of digital tools to make classroom instruction more engaging, interactive, and suited to various learning styles. They noted that technology-enabled learning environments fostered greater student participation and understanding, especially when multimedia and interactive simulations were integrated. Responses frequently highlighted the necessity of teacher resilience and adaptability, stressing that continual learning and openness to change are essential for successfully navigating modern educational contexts. Participants also linked technology adaptation to increases in teaching efficiency, student motivation, and alignment with 21st-century educational standards, emphasizing that such integration supports individualized pacing and inquiry-based approaches.

Comprehensive Implications of the Emerging Themes

These themes collectively suggest that teachers perceive educational technology not merely as a set of tools, but as a transformative element in instructional practice. Enhancing engagement and supporting self-paced, differentiated learning, digital adaptation addresses diverse student needs while also empowering teachers to innovate and respond flexibly to changing circumstances. The teachers' emphasis on resilience and adaptability underlines the importance of ongoing professional development, institutional support, and reflective practice as prerequisites for successful technology integration. The focus on inquiry-based and interactive strategies points to the potential for technology to cultivate critical thinking, collaboration, and deeper exploration among students. However, these benefits can only be fully realized when practical barriers such as infrastructure gaps, insufficient training, and unequal access are actively addressed.

Supporting Review of Related Literature and Studies

Nueva (2019) found that Filipino teachers generally held favorable attitudes towards technology and understood its critical role in educational engagement and effectiveness. However, the study revealed that a positive attitude alone did not guarantee extensive classroom utilization, as infrastructural and collaborative barriers often impeded full integration. Espinosa (2023) echoed this, documenting logistical and resource deficits in Philippine schools that limited teachers' ability to implement tech-enhanced and inquiry-based instruction, despite strong motivation and awareness of its benefits. A more recent survey by Public School Teachers (2025) affirmed that attitudes supporting technological adaptation remained high and that teachers viewed technology as central to engaging 21st-century learners, although ongoing support and clear policies were needed to maximize impact.

Epistemo (2025) described how schools worldwide leverage technology to make learning more interactive, accessible, and effective. This perspective aligns with the theme of enhancing engagement and collaboration, highlighting digital platforms as powerful catalysts for participation and real-time communication. A study by Plass et al. (2022) emphasized the

role of technology in facilitating inquiry-based learning, reporting significant gains in critical thinking and motivation when digital simulations and collaborative platforms were utilized. Likewise, *Frontiers in Education* (2025) identified the integration of technology as a hallmark of successful 21st-century classrooms, supporting differentiated instruction, collaboration, and improved problem-solving capacities among students and teachers.

These studies validate the teachers' narratives: technology adaptation is seen as vital for modern teaching, promising more personal, engaging, and efficient classroom experiences. Yet, full realization of these advantages depends upon sustained support, resource provision, and a culture of continuous learning.

Theme 4: Challenges Encounter in the Adaptation of Educational Technology

The table systematically categorizes the major challenges described by teachers as they adapted educational technology in their classrooms. The most frequently reported issue was unreliable or slow internet connection; nearly all participants noted that poor connectivity either interrupted lessons or limited effective use of digital tools. A closely related theme was the limited access to digital devices and equipment many teachers observed that both students and classrooms lacked sufficient gadgets, which meant not every learner could benefit from technology-enhanced instruction. Power interruptions or brownouts were cited as a common barrier, particularly in rural or less urbanized areas, which disrupted both real-time teaching and scheduled activities. Teachers also identified a lack of sufficient training or confidence in integrating technology: not all educators (and learners) were fully comfortable with new tools, and time to build these skills was perceived as scarce. Some teachers mentioned faulty devices and software, which further hindered seamless integration, while others described general technical problems during lessons, such as glitches or malfunctions.

Comprehensive Implications of the Emerging Themes

The challenges enumerated carry substantial implications for both policy and practice. Weak internet infrastructure and inconsistent power supply restrict teachers' ability to deliver modern, interactive lessons. The limited device availability signals a persistent digital divide, especially for learners from underprivileged backgrounds; equity in technology access remains a central concern for schools aiming to implement digital learning. The recurring mention of training gaps and lack of confidence points to the need for ongoing, context-sensitive professional development single workshops are insufficient for meaningful change. Technical support, including device maintenance and reliable software, must be prioritized to prevent day-to-day disruptions. If these barriers persist, the goals of technology-enhanced education engagement, personalized learning, skill development may not be fully realized, particularly for the most vulnerable students and teachers.

Mastul (2023) found that intermittent internet and frequent device shortages were major barriers to effective technology integration in Philippine classrooms, echoing teachers' demand for better infrastructure and digital equity. Uchang (2022) underlined the need for ongoing professional development and timely IT support, reporting that lack of training and technical assistance stalled teachers' adaptation to online learning. Espinosa (2023), in a national case study, confirmed that access to devices and reliable connectivity varied sharply, leading to uneven student outcomes and teacher frustration across regions.

Barrett (2019) showed that poor school infrastructure, especially weak internet and device shortages, directly impacted learning quality and teacher morale globally. Plass et al. (2022) argued that access to technology and reliable support systems were prerequisites for engaging, inquiry-based classrooms; without them, teachers struggled to move beyond basic

digital activities. Bariu (2020), studying Kenyan schools, reported that a lack of ICT resources and irregular technical support led to low integration rates among both teachers and students, mirroring Philippine experiences.

These local and international studies corroborate the themes found in teacher narratives: infrastructure, access, and continuous capacity-building are indispensable to genuine educational technology adaptation.

6. Conclusions and Recommendation

Based on the gathered data and thematic tables, the study concluded that teachers in the school have made considerable progress in adapting educational technology, utilizing a mix of digital devices, multimedia resources, internet connectivity, and instructional materials to foster engagement, individualized learning, and inquiry-based instruction. The support systems provided by the administration including professional development, mentoring, emotional wellness initiatives, material and technical assistance, and opportunities for peer collaboration have been invaluable in building teachers' confidence and facilitating innovation. Teachers perceive technology adaptation as critical for effective, 21st-century classroom instruction; however, the journey is not without significant challenges. Persistent issues such as unstable or slow internet, limited access to devices, frequent power interruptions, technical glitches, and insufficient time or training for skill development remain barriers to full and equitable integration of educational technology. These challenges highlight ongoing inequities, both for teachers and learners, and reinforce the need for comprehensive solutions.

It is recommended that stakeholders prioritize improving internet connectivity and addressing infrastructure gaps within schools to enable seamless digital learning. Increasing investments in and equitable distribution of devices and digital equipment will help ensure that all students and teachers can benefit from technological advancements. There is a clear need for sustained, hands-on professional development and technical support, with training programs and mentoring tailored to both novice and experienced teachers. School administrators should maintain existing technology, provide timely troubleshooting, and encourage a culture of collaboration, where teachers regularly share best practices and digital resources. Efforts must also focus on promoting digital equity, making targeted policies to narrow divisions in technology access across the student population. Emotional wellness and teacher recognition should remain central, as valuing teachers' well-being and resilience fosters a positive environment conducive to ongoing adaptation. Through these recommendations, schools and educational leaders can meaningfully accelerate the integration of educational technology because it can enhance instructional effectiveness and learning opportunities for every classroom.

Thematic Results Summary

Theme	Description
Varied Access to Digital and Multimedia Tools	Differences in access to devices, connectivity, and instructional materials across classrooms.
Multifaceted and Ongoing Support from School Leaders	Presence of professional development, mentoring, and emotional wellness initiatives.
Positive Attitudes Toward Technology	Beliefs in the value of digital tools for enhancing interaction and catering to diverse needs.

Theme	Description
Persistent Barriers in Infrastructure and Training	Challenges such as unreliable internet, device shortages, and gaps in teacher confidence.

The thematic results summary shows the different experiences teachers have with using technology in their classrooms. It highlights the gaps in access to digital tools, the important support from school leaders, and the positive views teachers have about how technology can improve learning. However, it also points out major challenges, such as poor internet connections and lack of training, that make it hard to use technology effectively. These insights can help those in charge improve technology use in schools.

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