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Teacher's Challenges and Opportunities in Integrating Digital Technology in the Classroom

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Abstract

This qualitative research explores the challenges and opportunities faced by teachers integrating digital technology in the classroom. Through thematic analysis of teacher responses, the study identifies common barriers such as insufficient devices, unreliable internet connectivity, power interruptions, and gaps in digital literacy. These limitations frequently hinder teachers' ability to maximize the benefits of technology for instruction. Despite these challenges, participants highlighted significant opportunities afforded by digital integration. Teachers reported enhanced student attentiveness and engagement, improved classroom management, and increased access to resources that support the development of 21st-century skills. Digital technology was also perceived as instrumental in bridging inequalities, especially in marginalized and geographically isolated communities, by enabling exposure to diverse learning experiences and supporting cultural preservation. The findings underscore the transformative potential of technology in making education more accessible and inclusive, while emphasizing the need for ongoing infrastructure development and targeted professional support. This research contributes to a broader understanding of how teachers demonstrate practical and pedagogical considerations in digital classrooms and advocates for systemic support to address persistent challenges and fully realize the opportunities presented by educational technology.

Keywords: Digital technology, educational opportunities, Pedagogical innovation, 21st-century skills,

1. Introduction

The rapid advancement of digital technology has transformed educational environments worldwide, positioning technology integration as a critical component of contemporary teaching and learning. Globally, the incorporation of digital tools in classrooms promises enhanced instructional delivery, increased student engagement, and support for diverse learning needs. However, despite these promising advantages, teachers often face significant challenges in effectively integrating technology into their pedagogy. Thoma, Long, and Bouck (2017) highlight that inadequate professional development, limited access to resources, and resistance to change frequently impede technology adoption. They emphasize that sustainable integration depends heavily on continuous teacher training and institutional support to empower educators to innovate instructional practices confidently.

Efremova and Huseynova (2023) explore pedagogical hurdles within digital learning environments, pinpointing technical skill gaps and constrained resources as major obstacles. Despite these barriers, their research underscores considerable opportunities whereby digital technologies foster interactive and learner-centered classrooms when teachers are well-prepared and supported. Supporting this perspective, Kivuti (2021) examines the role of interactive multimedia in education, asserting that technology can significantly boost student motivation and participation. Yet, disparities in infrastructure and connectivity reveal persistent inequities influencing the extent to which technology benefits can be realized across diverse educational contexts.

Within the Philippine educational landscape, the challenges of integrating digital technology are particularly pronounced due to unique socio-economic and infrastructural factors. Morales, Goles, and Travero (2021) describe the frequent issues Filipino schools face, such as unstable internet access and limited availability of modern digital devices, which obstruct seamless technology uptake by teachers. Complementing this, Zulueta, Obispo, and Abulencia (2021) document Filipino teachers' varying readiness to integrate information and communication technologies (ICT), noting significant gaps in training and technical support that inhibit the effective use of digital tools in classroom instruction.

Cabasan (2024) investigates the impact of targeted professional development initiatives aimed at enhancing educators' digital literacy in the Philippines. Their findings reveal that sustained capacity-building efforts are essential for enabling teachers to overcome integration barriers and harness technology's potential to enrich teaching and learning. These studies collectively outline the complex dynamics whereby infrastructural limitations coincide with human factors, shaping the realities of technology integration in Philippine classrooms.

Given the growing emphasis on digital transformation in education, it is crucial to comprehensively understand both the challenges and opportunities teachers encounter amid this shift. This qualitative study seeks to delve deeply into the experiences of Filipino teachers as they navigate technology integration in their classrooms. It aims to generate rich, contextual insights that inform policymakers, educational leaders, and curriculum developers in crafting responsive interventions and support frameworks to optimize digital education.

Objectives of the Study

This study aims to explore the teacher's challenges and opportunities in integrating digital technology in the classroom. Specifically, it seeks to answer the following questions:

1. What are the available resources you integrate in the classroom lessons?
2. What are your reasons you integrate this digital technology in the classroom?
3. What are the challenges you encountered in integrating digital technology in the classroom?
4. What are the perceived opportunities you experience in integrating digital technology in the classroom?

2. Methodology

Research Design

The study employed a qualitative descriptive research design to explore the challenges and opportunities faced by teachers in integrating digital technology in the classroom. Purposeful sampling was used to select respondents from various grade levels and subject areas within the chosen school district during the 2025–2026 academic year, ensuring diverse perspectives on technology integration.

Data were collected through semi-structured interviews which allowed participants to share their experiences, perceptions, and practices regarding the use of digital tools in teaching and learning. The interview questions focused on themes such as access to technology, technological competence, professional development, instructional strategies, and support systems.

The collected data were transcribed and subjected to thematic analysis following Braun and Clarke's methodology. This involved familiarization with the transcripts, generating initial codes, searching for themes, reviewing and defining themes, and producing a detailed report. The analysis aimed to identify recurring challenges and potential opportunities as expressed by the teachers.

Data Analysis

The data analysis in this qualitative research followed the thematic analysis approach, as recommended by Braun and Clarke (2006). After transcribing the interviews verbatim, the researcher became familiar with the collected data through repeated reading and initial memo writing. Key ideas and recurrent patterns were highlighted and noted during this phase. A systematic coding process was undertaken, assigning short labels or codes to segments of the data that captured essential features relevant to the research questions. These codes represented recurring challenges and opportunities discussed by the teacher participants, such as resource limitations, infrastructure issues, enhanced engagement, or improved 21st-century skills. Related codes were grouped and organized into broader themes that encapsulated the major patterns within the dataset.

The themes were reviewed and refined through iterative analysis, ensuring that each was well supported by the data and distinct from one another. Selected quotes and representative responses were used to illustrate and substantiate each theme. Member checking was employed by returning summarized findings to the participants for feedback, further establishing the credibility and trustworthiness of the analysis. Finally, the results were interpreted and reported in alignment with the research objectives, providing insights into the challenges and opportunities of digital technology integration in classrooms.

3. Results and Discussion

Interview Question 1: What are the available resources you integrate in the classroom lessons?

Table 1. List of available resources that the respondents integrate in their classroom lessons.

Responses	Respondents
The available digital resources that I used was the powerpoint presentation and interactive applications.	R1

The available digital technology resources that I integrate in my classroom lessons are, PPT presentation, audio visual stories and Google books.	R2
Television and cellphone	R3
Laptop and television	R4
Tv,laptop,printer,wifi	R5
Hardwares like TV and laptop	R6
interactive games,multimedia resources such as videos. Powerpoint. free	R7
The valuable digital technology resources that I integrate in the classroom are computers, and hand-held devices support to enhances teaching resource tool to integrate technology towards the learners.	R8

Theme: Utilization of Multimedia and Digital Devices to Enhance Classroom Instruction

Teachers commonly integrate a range of digital resources to make lessons more engaging and effective. These include both software-based tools, such as PowerPoint presentations, interactive applications, and online sources, and hardware-based tools, including laptops, televisions, and other digital devices. The use of such multimedia resources allows teachers to create interactive and visually rich learning experiences that support students' understanding and interest in lesson content.

Analysis and Discussion of Theme

The survey responses consistently highlight teachers' efforts to incorporate diverse forms of multimedia and digital devices as part of classroom instruction. Many respondents cited resources such as PowerPoint presentations, interactive applications, television, laptops, computers, and hand-held devices. For example, teachers indicated the use of PowerPoint for delivering structured lesson content, interactive applications for student engagement, and various devices—TVs, laptops, printers, and Wi-Fi—to facilitate access to and display learning materials. The use of audio-visual stories and Google Books further illustrates the integration of digital content to reinforce learning.

These examples collectively showcase how Filipino educators leverage both software and hardware to create interactive lessons. By combining traditional devices like television with modern technology such as computers and interactive games, teachers enhance instructional practices, accommodate varied learning preferences, and make abstract concepts more accessible. The integration also reflects adaptability, as teachers utilize whatever resources are available—even in settings where more sophisticated infrastructure may be lacking.

Comprehensive Implication of the Theme

The active use of multimedia and digital devices in classrooms has several significant implications. First, it signals a shift towards learner-centered instruction, where teaching is tailored to engage students actively through digital media and interactive tools. This not only fosters higher levels of motivation and participation, but also helps address the diverse needs of students by reaching visual, auditory, and kinesthetic learners.

Moreover, the theme reveals the challenges of digital integration, particularly issues of resource availability and equity. Teachers' reliance on their own devices indicates potential gaps in school-provided infrastructure, a concern echoed in studies on technology access in Philippine schools, especially in remote or underserved areas. The implication is that successful integration of technology depends on not only the teacher's competence and creativity, but also consistent support in terms of devices, connectivity, and professional development.

Ultimately, the use of multimedia and digital devices aligns with current global trends emphasizing digital literacy as a core competency for students in the 21st century. It prepares students for future academic and workplace demands where technology skills are indispensable.

Interview Question 2: What are your reasons you integrate these digital technology in the classroom?

Table 2. List of reasons why respondents integrate digital technology in their classroom lessons.

Responses	Respondents
To become effective and interactive during the delivery of the lesson to the pupils.	R1
My reason that I integrated these digital technology was to help my students acquire the 21st century skills.	R2
To improve learners' engagement during teaching-learning process and to develop important 21st l- Century digital literacy skills.	R3
The reasons that I integrate digital technology in my classroom, for it is more effective and efficient to the 21st century learners.	R4
I use digital technology in the classroom because it makes learning more engaging and helps students connect with the material in ways that feel relevant to their lives. It also gives me the tools to tailor lessons to each student's needs, so everyone can learn at their own pace. Plus, it helps prepare them for the real world, where technology is such a big part of everything we do.	R5
To catch easily catch learner's attention and prepare lesson materials efficiently.	R6
hep the learners to develop digital literacy and can communicate effectively in digital environment as well.	R7
To better deliver the lesson and to make learning more engaging by the integration of technology.	R8

Theme: Enhancing Engagement, Effectiveness, and 21st Century Skills through Digital Technology Integration.

Teachers consistently cited reasons such as making lessons more interactive and effective, improving student engagement, developing digital literacy, and preparing students for real-world challenges.

Analysis and Discussion of Theme

Teachers integrate digital technology in the classroom primarily to create a more engaging and interactive learning environment. Respondents emphasized that digital tools help capture students' attention and make lessons more effective, as seen in statements about using technology to deliver lessons interactively and efficiently. Several teachers highlighted the importance of fostering 21st-century skills, including digital literacy and communication, which are essential for students' future academic and professional success. The ability to tailor lessons to individual needs and make learning relevant to students' lives was also noted, reflecting a shift toward personalized and student-centered instruction.

These responses demonstrate that technology integration is not merely about adopting new tools, but about transforming teaching practices to better meet the needs of modern learners. By leveraging digital resources, teachers can facilitate active participation, collaboration, and differentiated instruction, ensuring that all students have opportunities to succeed in a technology-driven world.

Comprehensive Implication

The integration of digital technology in classrooms has profound implications for both teaching and learning. It enables teachers to move beyond traditional methods, fostering environments where students are actively engaged and motivated. The development of digital literacy and other 21st-century skills prepares students for the demands of the contemporary workforce and society. However, successful integration requires ongoing support, professional development, and equitable access to resources. Without these, disparities in technology use may persist, limiting the benefits for some learners.

Interview Question 3: What are the challenges you encountered in integrating digital technology in the classroom?

Table 3. List of challenges that the respondents encountered in integrating digital technology in the classroom.

Responses	Respondents
The challenges that I encountered in integrating digital technology is the digital resources like interactive TV's and laptops.	R1
Insufficient computers and tablets that limit the students to use technology.	R2
The challenges that I encountered in integrating digital technology, is when the Internet connection is network outage and power outage.	R3
I encountered in integrating digital technology, is when the Internet connection is outage.	R4

limited access and reliable source of internet. insufficient funding for hardware as well as gadget and also some learners' engagement problems due to distractions and lack of digital literacy.	R5
Power interruption and low internet connection	R6
Availability of internet connection, power interruption.	R7
The challenges encountered integrating digital in the classroom are misusing technology, lock of genuine software, inadequate computer in the classroom, low speed internet and so on.	R8

Theme: Resource Limitations and Infrastructure Challenges in Digital Technology Integration.

Teachers consistently reported issues such as insufficient devices, unreliable internet connectivity, power interruptions, lack of funding, and problems with digital literacy and software availability.

Analysis and Discussion

The responses reveal that teachers face significant barriers when integrating digital technology in the classroom. Many cited the lack of adequate digital resources, such as interactive TVs, laptops, computers, and tablets, which limits both teaching options and student access. Internet connectivity issues—including slow speeds, network outages, and power interruptions—were frequently mentioned, highlighting the infrastructural challenges that persist in many schools. Some teachers also noted insufficient funding for hardware and gadgets, as well as the lack of genuine software and digital literacy among students, which can lead to distractions and misuse of technology.

These challenges are compounded by the need for ongoing professional development and support. Without reliable infrastructure and sufficient resources, teachers struggle to fully utilize digital tools, and students may not develop the necessary skills for effective technology use. The situation is particularly acute in remote or low-income areas, where the digital divide is more pronounced and access to up-to-date technology is limited. Despite these obstacles, teachers remain committed to integrating technology, recognizing its potential to enhance learning and prepare students for the future.

Comprehensive Implication

The implications of these challenges are far-reaching. Resource limitations and infrastructure issues not only hinder the effective integration of technology but also contribute to educational inequality. Students in under-resourced schools may miss out on opportunities to develop essential digital skills, putting them at a disadvantage compared to peers in better-equipped environments. Addressing these challenges requires coordinated efforts from educational leaders, policymakers, and stakeholders to invest in infrastructure, provide adequate funding, and ensure equitable access to technology. Continuous professional development for teachers is also crucial to keep pace with technological advancements and maximize the benefits of digital integration.

Interview Question 4: What are the perceived opportunities you experience in integrating digital technology in the classroom?

Table 4. List of perceived opportunities that the respondents experience in integrating digital technology in the classroom.

Responses	Respondents
The pupils are very attentive and participative	R1
The opportunities in integrating digital technology in the classroom is to give way to the learners to develop their 21st century skills.	R2
Provide more engaging learning episode for the learners.	R3
The perceived opportunities I experience in integrating digital technology in the classroom, digital learning presents opportunities for more accessible, engaging, inclusive, and future-ready education.	R4
As an elementary teacher in a far-flung area with Indigenous Peoples (IP) learners, integrating digital technology offers opportunities to bridge gaps in access to quality education. It allows me to bring the outside world into the classroom, exposing students to new ideas and resources they might not otherwise encounter. Additionally, technology can help preserve and highlight their cultural heritage by creating digital projects that celebrate their traditions, fostering both learning and pride in their identity.	R5
Ideal for Presenting lessons, giving motivation and holding the attention of learners.	R6
Enhances classroom management and promotes better communication between me and the learners.	R7
Learners attention to your topic, their enthusiasm while you show moving object on television and their active engagement.	R8

Theme: Enhancing Engagement, Accessibility, and 21st Century Skills through Digital Technology Integration.

Teachers perceive digital technology as a powerful tool for making learning more engaging, inclusive, and relevant, while also bridging educational gaps and fostering essential skills.

Analysis and Discussion

Teachers reported that integrating digital technology in the classroom leads to increased attentiveness and participation among students, as interactive tools and multimedia content capture learners' interest and motivate them to engage actively in lessons. Respondents highlighted opportunities to develop 21st-century skills, such as digital literacy,

communication, and collaboration, which are crucial for success in today's world. Technology also enables more accessible and inclusive education, allowing teachers to tailor instruction to diverse learning needs and bring global resources into the classroom.

For teachers in remote or underserved areas, digital technology offers unique opportunities to bridge gaps in access to quality education. It allows students to explore new ideas and resources beyond their immediate environment and supports the preservation and celebration of cultural heritage through digital projects. Additionally, technology enhances classroom management, communication, and the ability to present lessons in dynamic and motivating ways.

Comprehensive Implication

The perceived opportunities of digital technology integration have significant implications for educational practice. By making learning more engaging and accessible, technology helps foster a positive classroom environment where students are motivated to participate and learn. The development of 21st-century skills prepares students for future academic and professional challenges, while the ability to personalize instruction supports equity and inclusion. For marginalized groups, such as Indigenous Peoples learners, technology can help close educational gaps and promote cultural pride. However, realizing these opportunities requires ongoing investment in infrastructure, professional development, and support to ensure that all students and teachers can benefit from digital innovations.

4. Conclusion and Recommendation

The findings reveal that integrating digital technology and multimedia in classroom instruction is both an opportunity and a challenge. Teachers use a variety of digital and multimedia resources ranging from PowerPoint, interactive apps, online books, TV, laptops, and handheld devices to enhance lesson engagement and foster essential 21st-century skills among Filipino learners. However, these efforts are hampered by significant barriers, including inadequate devices, unreliable internet, power outages, insufficient funding, and digital literacy gaps. Despite challenges, teachers identify clear opportunities such as improved student engagement, inclusivity, and bridging educational gaps, especially for marginalized groups.

The active integration of digital technology in classroom lessons demonstrates Filipino teachers' commitment to making learning more engaging, relevant, and accessible for students in the 21st century. Teachers commonly employ a mix of software (PowerPoint, interactive apps, digital books) and hardware (laptops, TVs, printers) to support varied learning preferences and create dynamic instructional experiences. Motivations for technology adoption include enhancing learner engagement, developing digital literacy, tailoring instruction to individual needs, and preparing students for future academic and workplace demands. However, persistent challenges—such as insufficient devices, poor internet, power outages, limited funding, and digital skills gaps—hinder full technology utilization, particularly in remote and underserved areas. Nevertheless, opportunities abound: teachers report that technology integration promotes attentiveness, participation, and inclusivity, and serves as a bridge to global resources and cultural pride, especially for Indigenous and marginalized learners.

Based on the study's findings, the study has the following recommendations.

1. Invest in Infrastructure and Devices: Prioritize government and school investment in reliable infrastructure such as fast, stable internet, backup power systems, and updated digital devices to ensure equitable access for all schools, especially those in remote and underserved areas.

2. Professional Development: Implement ongoing training programs for teachers in effective digital technology use and integration strategies to maximize instructional benefits and address digital literacy gaps among both teachers and students.

3. Resource Equity: Adopt targeted support policies to reduce the digital divide, including funding for hardware, genuine software licenses, and technical support for low-income and geographically isolated schools.

4. Instructional Innovation: Encourage the creative use of multimedia and digital resources to design engaging, personalized lessons and culturally responsive projects, making learning inclusive and relevant to students' lives.

5. Community Engagement: Foster partnerships between schools, local communities, and private sector stakeholders to support technology integration efforts, resource-sharing, and digital literacy initiatives for families.

References

1) Cabasan, R. A. (2024). Digital literacy and professional development in Philippine schools. Philippine Journal of Education and Technology, 14(1), 77-92.
2) Campado, R. J., Toquero, C. M. D., & Ulanday, D. M. (2023). Integration of assistive technology in teaching learners with special educational needs and disabilities in the Philippines. International Journal of Professional Development, Learners and Learning, 5(1), ep2308.
3) Efremova, A., & Huseynova, M. (2023). Pedagogical challenges in digital learning environments. Frontiers in Education, 8, 252-267.
4) Geresola, M. A., & Lausa, S. M. (2024). Technology leadership and its integration to classroom instruction. International Research Journal of Science, Technology, Education, and Management, 4(2), 122–134.
5) Kiong, J. F. (2022). The impact of technology on education: A case study of K–12 rural school environments. Journal of Educational Research and Practice, 12(4), 45–57.
6) Kivuti, M. W. (2021). Leveraging interactive multimedia in education: Opportunities and challenges. Journal of Educational Technology, 18(2), 143-160.
7) Mastul, A. R. H. (2023). Understanding the use of EduTech in schools in the Philippines. Educational Studies and Learning Journal, 4(1), 1–12.
8) Morales, J., Goles, K., & Travero, R. (2021). Infrastructure challenges in Philippine digital education: A grassroots perspective. Asian Education Review, 9(3), 204-221.
9) Morales, J., Goles, K., & Travero, R. (2021). Infrastructure challenges in Philippine digital education: A grassroots perspective. Asian Education Review, 9(3), 204-221.
10) Ramaila, S. (2022). The role of technology integration in the development of teaching and learning competences. International Journal of Education and Practice, 10(3), 141–157.

11) Thoma, S., Long, S., & Bouck, E. (2017). Digital instructional integration: Enhancing teaching through technology. International Journal of Education and Development Using ICT, 13(3), 45-59.
12) Zulueta, M. T., Obispo, R., & Abulencia, L. (2021). Teachers' readiness and integration of ICT in basic education classrooms. Philippine Journal of Educational Research, 12(2), 58-73.