A QUALITATIVE STUDY OF EMERGING CHALLENGES AND OPPORTUNITIES IN DIGITAL PEDAGOGY

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ABSTRACT

This study examined teachers' experiences, practices, and challenges in implementing digital pedagogy to enhance learners' engagement and academic performance. Using a qualitative descriptive approach, data were gathered from educators who integrate digital tools, online platforms, and technology-supported strategies in their daily instruction. Thematic analysis revealed that teachers recognize digital pedagogy as a powerful means of enriching instructional delivery, promoting interactive learning, and supporting differentiated instruction. However, its implementation is shaped by several factors, including the availability of devices, teachers' digital competence, internet stability, and learners' varied levels of technological literacy.

Findings indicate that teachers employ a range of digital strategies such as multimedia-assisted lessons, virtual simulations, gamified activities, and collaborative online tasks. These approaches foster learner motivation and improve comprehension, particularly in concept-heavy subjects. Despite the benefits, teachers cited challenges such as inconsistent access to reliable technology, limited technical support, and the need for sustained professional development. They emphasized the importance of strengthening digital infrastructure, providing continuous ICT training, and developing accessible digital learning materials tailored to learners' needs.

The study highlights the critical role of digital pedagogy in modern classrooms and underscores the need for systemic support to ensure effective, equitable, and meaningful technology integration in teaching and learning.

Keywords: *Digital Pedagogy, Emerging Challenges and Opportunities, Qualitative Research Design, Technology Integration, Educators' Experiences, Municipality of Kabacan.*

INTRODUCTION

Around the world, educators have witnessed declining learner achievement, especially in literacy, prompting schools to explore new ways to support learning. One growing response has been the integration of digital pedagogy using technology to enhance teaching and learning. Research such as that of Kasperski, Blau, and Ben-Yehudah (2022) shows that teachers recognize the value of digital literacy but often struggle to align digital teaching strategies with established pedagogical models. This highlights the global need for clearer guidance and support as digital tools become more central to education.

In the Philippines, digital pedagogy has become increasingly relevant, especially following the shift to remote learning. Hennessy (2023) found that while a majority of teachers believe digital tools improve engagement and instruction, many still face obstacles such as low learner participation, unstable internet, and the challenge of recreating interactive classroom experiences online. These realities reveal that although technology has great potential, its impact varies depending on context, resources, and teacher readiness.

Early childhood education research, including the work of Holzer and Garreau (2024), further emphasizes the need for strong professional development to help teachers use digital tools appropriately and meaningfully. Across all levels, educators may encounter gaps in training, mismatches between digital theories and practice, and difficulties with access and equity. These issues underscore the need for more localized studies that capture the voices of teachers working in diverse learning environments.

This study addresses that gap by exploring teachers' perceptions, challenges, and opportunities in integrating digital pedagogy in the Municipality of Kabacan. As a rural area, Kabacan faces unique barriers such as limited connectivity and uneven access to devices, yet teachers continue to adapt, innovate, and embrace technology in their classrooms. Through qualitative interviews and discussions, this research seeks to provide insights that can guide future programs, support equitable learning, and strengthen digital pedagogy in similar communities.

METHODS

This chapter outlines the methods employed in human and social sciences, including the selection of co-researchers, ethical considerations, the gathering of lived experiences, and the process of conducting phenomenology used in this study.

Research Methods

This study adopts a qualitative case study design, which is an appropriate strategy for exploring the lived experiences and perspectives of teachers navigating the challenges and opportunities in digital pedagogy. A qualitative approach is suitable when the researcher aims to gain a deep understanding of a

social phenomenon from the viewpoint of the participants (Creswell, 2008). Unlike quantitative methods, which focus on measurable variables, qualitative research emphasizes rich descriptions and meaning-making based on human experiences within specific contexts.

The case study design, as defined by Yin (2018), is a form of inquiry that investigates a contemporary issue within its real-life context, especially when the boundaries between the phenomenon and the context are not clearly defined. It originated from disciplines such as psychology, education, and sociology, and has been widely applied in educational research to examine a “bounded system” (Stake, 1995) in this case, the teachers at Kabacan Pilot Central School. This design enables the researcher to explore how digital pedagogy is understood, practiced, and experienced within a specific school setting.

The intended outcome of using a qualitative case study is to generate in-depth, contextualized insights into the central phenomenon: the integration of digital pedagogy. It seeks to understand how teachers perceive digital teaching tools, adapt to technological change, and identify both the benefits and constraints in their teaching practices. Through detailed narratives and analysis of participant experiences, this study will offer a nuanced portrayal of the realities of digital pedagogy in a public elementary school environment.

This approach will shape the research questions, focusing on *how* and *why* teachers experience certain challenges or opportunities. Questions will be open-ended to allow participants to elaborate on their experiences. The data collection methods will include semi-structured interviews, allowing for flexibility and depth, and may be supplemented by observations and document analysis (e.g., lesson plans or digital teaching records). For data analysis, the study will use thematic analysis, a process of coding and identifying patterns or themes within qualitative data, allowing the researcher to interpret meaning and uncover insights directly from the participants' words.

By utilizing a qualitative case study, this research aims to offer authentic, grounded, and richly descriptive findings that can inform teacher training, digital resource development, and school-level digital learning strategies in the Philippine elementary education context.

Participants

For the purposes of this research, 17 teacher-participants were chosen from different learning institutions in Kabacan, North Cotabato. They will be chosen on the basis of their digital pedagogy experience to enable them to contribute useful information about the upcoming challenges and opportunities for technology-enabled education. Purposeful sampling will be employed to select teachers with firsthand knowledge of integrating digital tools into their teaching, who are representative of a broad array of subjects, grade levels, and school environments.

As for the qualitative approach, purposive criterion-based stratified random sampling will be used, whereas there will be approximately fifteen (15) to twenty-five (17) participants (Creswell, 2018), were selected based on the criteria below:

1) a regular elementary teacher of the Department of Education, specifically within the Kabacan South District schools.

2) at least 3 years of teaching experience and in service; and

3) evaluated through the challenges and opportunities using digital pedagogy.

Out of the 17 participants, 10 teachers will be selected for in-depth interviews to explore in greater detail their own personal *views,* challenges and opportunities using the digital pedagogy. Meanwhile, 7 teachers will be included in focus group discussions (FGDs) to have successive exchanges, so that educators can share their collective experiences, challenges, and best practices. This choice methodology guarantees an even blend of individual stories and group dynamics, creating a well-rounded overview of how teachers in Kabacan are able to manage the dynamic nature of digital pedagogy.

Data Collection Tools

This study utilized a researcher-developed semi-structured interview guide as the primary data collection instrument. The interview guide was designed specifically for this qualitative case study to elicit in-depth responses from participants regarding their experiences, perceptions, and insights related to the integration of digital pedagogy in their classroom practices.

The semi-structured interview guide includes a series of open-ended questions aimed at exploring the emerging challenges and opportunities teachers encounter in implementing digital teaching strategies. The development of the instrument was influenced by prior literature on digital pedagogy, including the works of Mishra and Koehler (2006) on Technological Pedagogical Content Knowledge (TPACK), and Ertmer and Ottenbreit-Leftwich (2013) on teacher beliefs and technology integration. The questions are designed to allow flexibility and encourage elaboration, enabling participants to share detailed personal experiences and insights.

To ensure the validity and clarity of the instrument, the interview guide was reviewed by a panel of experts in the field of education and qualitative research. The panel included two experienced teacher-educators and one qualitative research methodologist. Feedback focused on the alignment of questions with the study objectives, the clarity of language, and the appropriateness for the target participants (elementary teachers). Based on the feedback received, revisions were made to improve the sequencing and wording of the questions.

The instrument was piloted with two elementary school teachers who were not included in the actual study sample. The pilot interviews helped refine the guide, particularly in terms of timing, flow of questions, and the need for follow-up prompts. Based on the pilot, minor adjustments were made to improve the depth and relevance of responses during actual data collection.

Procedures

The Procedures section was based directly on the research questions to address the central question regarding the emerging challenges and opportunities in digital pedagogy. This qualitative case study followed a systematic process. The researcher began by seeking ethical approval from the appropriate institutional review board and securing written permission from the Schools Division of Cotabato and the school head of Kabacan Pilot Central School. Once approvals were granted, informed consent was obtained from the teacher-participants, with clear communication about their rights, including voluntary participation, confidentiality, and the option to withdraw from the study at any time.

Participants were selected through purposive sampling, specifically targeting Grades 1 to 6 teachers who had experience in integrating digital tools in their instruction. A total of 10 to 17 participants were invited to provide diverse yet manageable insights. Data were primarily collected through semi-structured interviews, each lasting approximately 10 to 15 minutes. These interviews were guided by a researcher-developed instrument, designed to elicit rich, descriptive responses about their experiences with digital pedagogy. With consent, all interviews were audio-recorded and later transcribed verbatim. Additional data sources included teacher-created digital lesson plans and classroom materials, as well as field notes taken during informal observations or conversations, depending on access and approval.

After data collection, interview transcripts and related documents were organized and anonymized to ensure participant confidentiality. Participants were given the opportunity to review their transcripts for validation through member checking. Thematic analysis was then conducted following Braun and Clarke's (2006) six-phase framework: familiarization with the data, coding, theme development, theme review, theme definition, and final write-up. Codes and themes were developed inductively based on participants' narratives and experiences.

Data Analysis

The analysis of qualitative data in this case study followed a thematic approach to identify, analyze, and report patterns within the data. After data collection, all interviews were transcribed verbatim by the researcher. Each transcript was reviewed for accuracy

and shared with participants for member checking to validate the content and ensure the authenticity of their responses.

The process of data analysis was guided by Braun and Clarke's (2006) six-phase framework for thematic analysis. First, the researcher familiarized themselves with the data by reading and rereading the transcripts while noting initial impressions. Second, the researcher generated initial codes manually or using NVivo by identifying meaningful segments of data related to the study's research questions. Coding focused on repeated ideas, language use, and references to specific experiences related to digital pedagogy implementation.

In the third phase, the researcher began searching for themes by grouping related codes and looking for overarching patterns in the data that responded to the central phenomenon. Themes emerged around areas such as teacher preparedness, access to resources, student engagement, and pedagogical innovation. The fourth phase involved reviewing the themes by checking their relevance to the coded data and the overall dataset. Redundant or weak themes were refined or merged.

In the fifth phase, the researcher defined and named themes, providing clear descriptions of each and how they related to the research questions. Themes were contextualized within the real-life experiences of the participants, and excerpts from the interviews were used to support each theme. Finally, in the sixth phase, the researcher produced the report, weaving together the thematic findings with interpretations and relevant literature to generate insights about the challenges and opportunities in digital pedagogy.

Throughout the analysis, the researcher maintained a reflective stance, acknowledging their role in interpreting the data. Field notes and memos were used to document analytical decisions, emerging insights, and questions that arose during the analysis. The use of a case study design meant that themes were discussed both within individual cases (teachers) and across cases to identify common patterns and divergent experiences.

Ethical Considerations

In the conduct of the study, the following ethical components were considered:

Social Value. The study presented valuable information to guide mentors of would-be leaders in educational institutions. Based on the findings, they could develop targeted interventions to address deficiencies in the subject under study.

Informed Consent. The researcher sought permission from the participants through written consent forms, which were used for all data collection methods, including surveys, in-depth interviews (IDI), and focus group discussions (FGD). Participants were oriented about the purpose of the study and the reasons for their participation so they could make informed decisions regarding involvement. It was made clear that participation was entirely voluntary;

participants were assured that they could refuse or withdraw at any time without consequence. The researcher ensured that participants understood the procedures involved in each method and guaranteed that their identities would remain confidential in the presentation and analysis of findings.

Vulnerability of Research Respondents. Participants were not considered vulnerable, as they were professionals with experience in digital pedagogy. However, the researcher acknowledged that some participants might experience emotional discomfort during reflective interviews or discussions about their teaching challenges. Such situations were handled with sensitivity, and participants were reminded that they could decline to answer any question or withdraw at any point without consequence. A respectful and supportive environment was maintained throughout data collection.

Risk, Benefits, and Safety. To safeguard participants' psychological and social well-being, the researcher explained the potential impact and significance of the study. Participants' time was considered valuable, and surveys, interviews, and FGDs were scheduled at their convenience. The researcher acknowledged that sharing unpleasant experiences could be a potential risk and ensured that all interactions were conducted respectfully.

Privacy and Confidentiality. All records were secured to protect participants' privacy, and no information was released that could reveal individual identities. Participants were allowed to withdraw statements or participation at any time. Research assistants, documenters, and transcribers were oriented on maintaining privacy and confidentiality.

Justice. The researcher was impartial in selecting participants. All qualified teachers with experience in digital pedagogy were treated as potential participants and were provided equal opportunities to participate in the study. Tokens of appreciation were given to acknowledge participants' time.

Transparency. The researcher ensured the proper implementation of research methods, included supporting documents for data analysis, and maintained objectivity in analyzing data and presenting results.

Qualification of Researcher. The researcher acknowledged her limited exposure to qualitative method approaches and sought guidance from mentors, panelists, and peers proficient in the method. Moral courage, cultural sensitivity, professionalism, and integrity were maintained throughout the study.

Adequacy of Facilities. All necessary facilities, including library and internet resources, audio recorders, and cameras, were ensured to be available and accessible. Feedback from experts was incorporated to support effective data collection and presentation of results.

Community Involvement. Participants were exclusively from the Kabacan community. Coordination with school officials and stakeholders was conducted to secure permissions and foster support. Data collection activities were scheduled based on participants' availability, and findings were shared with the community to acknowledge their contributions and support future educational improvements.

Gathering of Lived Experiences

Data collection of lived experiences entailed face-to-face interactions with teachers through semi-structured interviews and focus group discussions. These qualitative tools allowed teachers to express their perspectives on how technological access affected learning outcomes. In-depth interviews provided participants with the opportunity to describe individual experiences, challenges, and how technology assisted or hindered learning. Focus group discussions offered further depth by facilitating mutual sharing of perspectives and prompting participants to compare their experiences. Through these narratives, the research captured the varied ways technology influenced learning outcomes, providing a nuanced understanding of its educational role.

RESULTS AND DISCUSSIONS

This phenomenological research analyzed the study explores how educators and school leaders navigate the integration of technology in classrooms, manage workload, foster learner-centered instruction, and address accessibility issues. By examining these experiences, the research provides insights into both the challenges faced and the opportunities presented by digital pedagogy, with implications for policy, training, and practice in contemporary education.

Educators perceive the impact of digital pedagogy on their roles and responsibilities

The first research question aimed to identify how educators perceive the impact of digital pedagogy on their roles and responsibilities. After analyzing the data, five significant themes were discovered as presented in Table 1, which include: Workload and role adaptation, Professional development needs, Evolving teacher identity, and Balancing benefits and burdens.

Table 1. Educators perceive the impact of digital pedagogy on their roles and responsibilities

Issues Proved	Codes/Category	Significant Statements	Theme	Meaning
Increased workload, work flexibility	Workload and role adaptation	"As a teacher, I have seen how digital pedagogy has changed my role in many ways. First, I no longer function only as a classroom instructor; I	Role strain from digital pedagogy due to added tasks and responsibilities.	Workload increased with digital demands; flexibility is an advantage.

		have become a facilitator, a guide, and even a tech navigator who helps learners move through online and digital spaces." *(IDI 1)*		
Need for training, lack of support	Improved time management	"I am expected to use digital platforms confidently, yet I was never fully trained to handle them. And "Digital pedagogy has added pressure to my role because I was not given proper training, so I often feel unprepared and stressed."." *(IDI 2)*	Role strain from digital pedagogy due to inadequate training and increased workload.	Lack of adequate training causes trial-and-error teaching.
Role redefinition, facilitator role	Evolving teacher identity	"It redefined my role, from just being a lecturer to a facilitator of digital learning." *(IDI 5)*	Transformation of teacher identity coupled with the need for institutional support.	Role shift from lecturer to facilitator in the digital space.
Innovation, increased workload	Balancing benefits and burdens	"It added innovation but doubled the	Innovation benefits tempered by	Innovation improves teaching but adds

	workload." *(FGD 2)*	workload challenges.	significant workload.

Workload and role adaptation. Most of the participants claimed that the integration of digital pedagogy has significantly reshaped their workload and roles as educators. Educators perceive that digital pedagogy has significantly transformed their professional roles. Teachers no longer function solely as classroom instructors; instead, they take on multiple responsibilities, acting as facilitators, guides, and technology navigators who support learners in navigating online and digital spaces. This shift expands their workload and introduces new challenges, requiring adaptation of teaching strategies to manage both in-person and digital learning environments. At the same time, the flexibility offered by digital tools enables teachers to innovate in instruction and respond more dynamically to learners' needs, highlighting both the opportunities and demands associated with integrating digital pedagogy into teaching practice.

Additionally, teachers expressed that their roles have shifted from being sole content deliverers to facilitators and content creators, requiring them to balance instructional delivery with technical tasks such as troubleshooting digital platforms, managing submissions, and monitoring online participation. While this shift has empowered teachers to be more dynamic and innovative, it has also caused role strain, as they juggle between pedagogical responsibilities and digital management.

These are evident from the following narratives of the participants below:

> *"Digital pedagogy made my work more flexible but also heavier. I need to prepare digital content aside from traditional lessons." (IDI 1)*
>
> *My daily responsibilities have increased because I now spend more time preparing digital learning materials, checking platforms, and making sure all tools work properly (IDI, 2)*
>
> *Digital pedagogy empowered me but also made me realize the gap in resources and learners like visuals but tend to copy-paste answers. I guide them to think critically.". (IDI, 5)*
>
> *That makes sense. It made teaching both exciting and exhausting and Learners are motivated with gamified lessons, but some lose focus.". (IDI, 5)*

In support, Patel (2020) investigated the manner in which technology integration within the classroom helps bring about more participatory and engaging learning experiences. Patel discovered that where teachers are successfully

integrating digital technologies, students reflect greater motivation and engagement in learning, leading to enhanced overall attainment. Wang and Zhang (2021) noted that teachers proficient in technology-enhanced instruction can more effectively personalize lessons to respond to varied students' needs, creating a more inclusive learning culture. In addition, Nguyen (2022) emphasized teachers' professional development, demonstrating that when teachers receive proper training on how to use technology, they are better able to incorporate digital resources into the classroom, producing improved learning outcomes for learners.

In addition, technology integration in teaching has become a core part of contemporary pedagogic practice. Santos and Tan (2020) centered their attention on how technology, when integrated strategically by educators, has the potential to increase the depth and breadth of students' engagement. Their study highlighted that teachers' capability to leverage technology tools for developing interactive lessons leads to increased levels of student engagement and greater subject matter understanding. Zhou (2021) built on this concept by considering how the fluid integration of technology in the classroom can enable collaborative learning opportunities.

Improved time management. Most of the participants claimed that their capacity to effectively integrate digital pedagogy is hindered by insufficient training and limited institutional supportEducators report that inadequate training and limited institutional support exacerbate the challenges of implementing digital pedagogy. Teachers expressed that they are expected to use digital platforms confidently, yet many have not received proper guidance or formal training. As a result, they often rely on trial-and-error approaches, which can increase stress and workload. Despite these difficulties, teachers recognize that developing competence with digital tools improves time management and can enhance instructional delivery, but the lack of structured support remains a significant barrier.The participants further highlighted the need for continuous, hands-on, and context-based professional development. They stressed that workshops on effective online teaching strategies, classroom management in virtual spaces, and updated digital trends are essential for sustaining their growth. Equally important is the availability of peer mentoring and collaborative learning opportunities, which they believe could lessen teacher burnout and encourage the sharing of best practices. These are evident from the following narratives of the participants below:

> *"Proper training on LMS would help. Without it, I feel like I'm just experimenting." (IDI 2)*

> *Using digital tools has actually helped me organize my lessons better; I can prepare materials in advance and schedule activities, which saves me time during class. (IDI, 7)*

> *I've learned to batch my tasks, like creating multiple online quizzes at once, so I spend less time every day preparing for lessons. (IDI, 9)*

> *Digital platforms allow me to track student submissions and grades automatically, which frees up time I used to spend manually recording everything. (FGD, 1)*
>
> *By recording lectures and uploading them online, I can focus more on interacting with students during class rather than repeating content multiple times. (IDI, 10)*

In support, Yu and Lim (2020) carried out a study that established that students show increased levels of engagement when the lessons are taught using multimedia and interactive tools. Their study established that digital tools not only make learning more fun but also clarify complex ideas, resulting in enhanced academic performance. Chua (2021) also reinforced the findings, pointing out that the application of digital platforms in the classroom promotes independent learning. By allowing students to use technology, they are able to learn subjects independently, thus acquiring more control in learning and having improved material retention. Tappan (2022) further contributed that frequent use of technology by teachers makes it easier for them to measure and comment instantaneously, an aspect that boosts students' development and increases their performance.

In support, Iqbal (2022) found that digital transformation in educational settings helped school leaders gain better control over their schedules and day-to-day responsibilities. The research highlighted how digital dashboards, performance tracking tools, and real-time notifications allowed administrators to quickly address issues, delegate responsibilities, and monitor progress with minimal disruption. This contributed not only to better time management but also to enhanced productivity and lower stress levels among leaders. The evidence affirms that digital innovations can directly impact how school administrators manage their time, reflecting the lived experiences shared by participants in this study.

Evolving Teacher Identity. The integration of digital pedagogy has led to a redefinition of teachers' professional identities. Educators describe a shift from being traditional lecturers to facilitators of digital learning, which requires new skills and approaches to guide students in virtual and hybrid environments. This transformation emphasizes the evolving nature of teacher identity, highlighting the importance of institutional support in helping teachers adapt to their expanded roles and responsibilities. This evolution illustrates how technology has expanded the teacher's role beyond traditional boundaries, offering growth opportunities but also intensifying role strain. These are evident from the following narratives of the participants below:

> *I used to see myself only as a lecturer delivering content, but now I feel more like a facilitator, guiding*

> *students through online and blended learning experiences. (FGD 7)*
>
> *Digital teaching has expanded my role I'm not just teaching anymore; I'm creating content, moderating discussions, and supporting students' learning journeys. (IDI, 6)*
>
> *I feel more dynamic in my role because I can incorporate technology to make lessons interactive, but it also challenges me to continuously learn new skills. (IDI, 2)*
>
> *The shift to digital pedagogy made me realize that being a teacher now involves mentoring, troubleshooting, and designing learning experiences, not just delivering lectures. (IDI, 4)*

In support, Lickona (2020), access to digital devices has been identified as a significant factor influencing students' learning outcomes, particularly in terms of their engagement and achievement in educational settings. Lickona's study highlighted that students with consistent access to digital devices were more likely to participate actively in online learning environments, demonstrating higher levels of engagement and academic performance compared to their peers who had limited access to technology. Similarly, Eisen and Helwig (2019) examined the impact of digital device access on students' ability to complete assignments and engage in independent learning. Their findings revealed that students who had access to tablets, laptops, and other digital tools were better equipped to search for information, collaborate with peers, and complete tasks with greater efficiency. Vitaglione (2021) also found that providing digital devices to students led to improved learning outcomes by fostering a more interactive and personalized learning experience, which allowed students to learn at their own pace and according to their individual needs.

Balancing Benefits and Burdens. Most of the participants noted that while digital pedagogy introduced innovative teaching strategies, it also significantly increased their workload. They emphasized that although innovation enhanced learner engagement and allowed for creative instructional approaches, the additional responsibilities such as preparing digital materials, managing online platforms, and troubleshooting technical issues created a dual challenge. This perception reflects how educators must balance the benefits of innovation with the practical demands and pressures associated with implementing digital pedagogy.

Educators perceive that digital pedagogy introduces both benefits and challenges in their professional roles. They recognize that integrating innovative

digital tools and methods enhances teaching practices by making lessons more engaging and interactive. However, they also report that these innovations come with increased responsibilities, such as designing digital content, monitoring online activities, and troubleshooting technical issues. As a result, teachers experience a tension between the advantages of innovation and the additional workload it creates. This dual effect demonstrates that while digital pedagogy can improve instructional quality, it simultaneously demands careful balancing of time, effort, and resources to manage the expanded responsibilities effectively. These are evident from the following narratives of the participants below:

> *Digital teaching allows me to engage students with interactive activities and multimedia, but it also means I spend extra hours preparing lessons. (IDI, 10)*
>
> *I enjoy the creativity that online tools give me, yet the workload can be overwhelming when I must manage both digital and traditional lessons. (IDI, 3)*
>
> *Learners are more motivated with gamified assessments but ensuring everyone stays focused online requires constant monitoring. (FGD 4)*
>
> *Technology makes learning exciting and accessible, but connectivity issues and lack of resources sometimes make teaching more stressful. (FGD, 7)*

In support, Davis and Stone (2020) that the integration of digital pedagogy, emphasizing that it enhances teaching effectiveness and student engagement. Teachers noted that digital tools, such as learning management systems, multimedia content, and gamified assessments, allow them to deliver lessons in more interactive and creative ways. Several participants shared that students respond positively to these approaches, showing higher motivation and active participation both online and in hybrid classroom settings. They also highlighted that digital pedagogy enables more flexible scheduling, allowing them to manage class materials, assignments, and feedback efficiently while accommodating diverse learner needs.

In addition, Lickona (2020) that teachers acknowledged that embracing digital pedagogy encourages them to develop professionally and expand their skillsets. They appreciated that learning to navigate online platforms, create digital content, and monitor student progress has strengthened their role as facilitators and mentors rather than just content deliverers. While challenges exist, such as the need for proper training and adequate resources, participants viewed these as manageable hurdles and stressed that institutional support, ongoing professional development, and collaboration among teachers can maximize the benefits of

digital pedagogy. Overall, the majority of educators affirmed that the advantages outweigh the difficulties, and they remain committed to integrating technology to improve teaching and learning outcomes.

The most significant challenges educators face when implementing digital pedagogy in their classrooms

The second research question aimed to investigate what the most significant challenges educators face are when implementing digital pedagogy in their classrooms After analyzing the data, four significant themes were discovered as presented in Table 2, which include: Connectivity and Infrastructure, Professional Development, Workload and Time Management, and Engagement and Classroom Management.

Table 2. The most significant challenges educators face when implementing digital pedagogy in their classrooms.

Issues proved	Codes/Category	Significant Statements	Themes	Meaning
Unreliable internet and connectivity gaps	Connectivity and Infrastructure	"The biggest challenge is unreliable internet." "Some learners couldn't attend synchronous classes." *(IDI 2)*	Connectivity and access issues hinder learning continuity	Unstable internet prevents smooth lesson delivery and causes inequality in student participation.

Lack of training and technical support	Professional Development	"Digital pedagogy is limited by lack of training." "I struggled to use Google Classroom at first and relied on colleagues to guide me."*(IDI 11)*	Need for professional development and support systems	Teachers need hands-on, continuous training and institutional technical support to manage digital tools effectively.
Increased workload and preparation time	Workload and Time Management	"I once stayed up all night editing a video lesson." "Balancing digital tasks with traditional lessons is exhausting." *(FGD, 4)*	Workload strain from digital pedagogy demands	Preparing digital lessons and managing multiple platforms significantly increases teacher workload.
Learner engagement and online discipline	Engagement and Classroom Management	"A learner pretended to be present but was actually logged out." "Learners sometimes misuse gadgets for games." *(IDI,5)*	Challenges in maintaining learner engagement and classroom management	Students' varying digital literacy and behavior online make it difficult to maintain participation and discipline.

Connectivity and Infrastructure. Most of the participants claimed that unreliable internet and limited access to digital devices were among the biggest challenges they faced when implementing digital pedagogy. Teachers reported that unstable Wi-Fi often disrupted online lessons and assessments, forcing them to switch to paper-based alternatives or postpone activities. Some learners were unable to attend synchronous classes due to connectivity issues, which created inequalities in participation and learning outcomes. Educators emphasized that these technological gaps not only affected lesson flow but also increased stress for both teachers and students, as they struggled to maintain continuity in learning.

Participants also highlighted that access to appropriate devices was uneven among learners. While some students were tech-savvy and had personal gadgets, others lacked basic tools like tablets or laptops, making it difficult for them to fully engage in digital learning. Teachers suggested that stable internet connections, school-provided devices, and offline-ready modules could help mitigate these challenges. Overall, connectivity and infrastructure issues were perceived as critical barriers to effectively implementing digital pedagogy, requiring urgent attention from schools and policymakers to ensure equitable learning opportunities. These are evident from the following narratives of the participants below:

> *The biggest challenge is unreliable internet; sometimes the connection drops in the middle of a lesson, and I must repeat everything. (IDI, 7)*
>
> *Some of my learners cannot attend synchronous classes because they don't have stable Wi-Fi or devices at home. (IDI, 11)*
>
> *During an online quiz, the system crashed, and I had to quickly provide a paper-based alternative to ensure fairness." (IDI, 4)*
>
> *Even when learners have gadgets, slow internet often prevents them from submitting assignments on time or accessing digital resources smoothly. (FGD, 1)*

In support that connectivity and infrastructure are critical determinants of successful digital pedagogy. Reliable internet access and availability of digital devices are essential for ensuring continuous learning, especially in online and hybrid classrooms (Selwyn, 2020). Teachers frequently report that unstable Wi-Fi or lack of access to devices disrupts lesson delivery, assessment, and real-time interaction with learners. Such connectivity gaps create inequalities in participation, as some learners are unable to join synchronous classes or access

learning materials on time, thereby affecting their overall academic performance (DiPietro et al., 2020).

Furthermore, studies emphasize that adequate infrastructure extends beyond internet access, including school-provided devices, learning management systems, and technical support. Without these resources, learners face challenges in completing tasks, submitting assignments, or engaging with digital content effectively (Trust & Whalen, 2020). Educators note that these limitations place additional strain on teaching, as they must create alternative solutions, such as offline-ready modules or paper-based activities, to ensure equitable learning opportunities. Therefore, policymakers and school administrators are encouraged to invest in robust infrastructure and learner-centered technology access, ensuring that all learners can participate fully in digital learning environments.

Professional Development. Most of the participants claimed that a lack of training and technical support significantly hindered their ability to implement digital pedagogy effectively. Teachers expressed that while they were expected to manage online lessons and tools such as Google Classroom or learning management systems, many received limited or purely theoretical training, forcing them to rely on trial-and-error or support from colleagues. This gap not only affected their confidence but also impacted the quality of instruction. Participants suggested that hands-on workshops, step-by-step guides, and continuous professional development programs would help teachers acquire the necessary skills to navigate digital platforms effectively, thereby enhancing teaching and learning outcomes. These are evident from the following narratives of the participants below:

> *Most of the training we received was theoretical; I needed hands-on workshops to feel confident in applying digital tools. (IDI, 4)*
>
> *Learning to navigate new apps and platforms on my own has been challenging and time-consuming. (IDI, 2)*
>
> *Continuous professional development and mentoring would help me and other teachers keep up with evolving digital teaching demands. (IDI, 8)*
>
> *I struggled to use Google Classroom at first and had to rely on colleagues to guide me through the platform."*
> *(IDI, 7)*

In support that effective professional development is critical for teachers to successfully implement digital pedagogy. Studies indicate that many educators lack sufficient training in using learning management systems, digital tools, and online instructional strategies (Ertmer & Ottenbreit-Leftwich, 2010). Without proper guidance, teachers often rely on trial-and-error approaches or peer support, which can lead to inconsistent lesson delivery and reduced confidence in managing online classes. Hands-on, continuous professional development is therefore necessary to equip teachers with the skills to design engaging digital lessons, integrate technology meaningfully, and troubleshoot technical issues efficiently (Darling-Hammond et al., 2017).

Moreover, professional development programs have a direct impact on learner outcomes and engagement. Teachers who receive ongoing training in digital pedagogy are better able to create interactive content, monitor learner progress, and provide timely feedback, resulting in more motivated and participative learners (Harris et al., 2020). Scholars emphasize that effective professional development should combine practical workshops, mentorship, and access to resources that support collaborative learning among teachers. Such support systems ensure that educators not only keep up with evolving technology but also apply digital tools in ways that enhance learner-centered teaching and equitable learning opportunities.

Workload and Time Management. Most of the participants claimed that digital pedagogy increased their workload and demand for extra preparation time. Teachers reported spending hours creating interactive lessons, recording videos, preparing online quizzes, and managing multiple platforms alongside traditional teaching duties. This additional workload often blurred the boundaries between work and personal time, causing stress and fatigue. Several participants emphasized that shared repositories of ready-to-use materials, efficient scheduling, and time-saving digital tools could help balance the workload. Despite these challenges, teachers acknowledged that effective time management strategies allowed them to organize tasks more efficiently and make better use of class time. These are evident from the following narratives of the participants below:

> *I spend hours creating interactive lessons and preparing online quizzes in addition to my regular classroom plans, which makes my workload heavier. (FGD ,2)*

> *Sometimes I stay up late editing videos or organizing digital content, which blurs the line between work and personal time. (IDI, 4)*

> *Managing multiple platforms and digital tasks alongside face-to-face teaching requires careful planning to avoid feeling overwhelmed. (IDI, 7)*
>
> *Using shared repositories of ready-to-use materials and scheduling tasks efficiently has helped me save time and manage my workload better. (IDI, 11)*

Studies have shown that the integration of digital pedagogy significantly increases teachers' workload and demands careful time management. Preparing digital lessons, creating interactive content, recording lectures, and managing multiple online platforms require substantially more effort than traditional teaching methods (Trust & Whalen, 2020). Educators often report extended working hours, as they balance online and face-to-face instruction, monitor student progress, and troubleshoot technical issues. The additional workload not only affects teachers' professional efficiency but can also blur the boundary between work and personal life, leading to stress and fatigue (Bond, 2021). Effective time management strategies, such as batching tasks, using ready-to-use materials, and scheduling digital activities in advance, have been suggested to mitigate these challenges.

Moreover, research highlights that teachers' ability to manage time effectively directly impacts learner engagement and learning outcomes. When teachers allocate sufficient time for lesson preparation and online monitoring, learners benefit from well-structured and interactive digital lessons (Hodges et al., 2020). Conversely, insufficient preparation or overextension of teachers can result in delayed feedback, inconsistent lesson delivery, and reduced learner participation. Scholars recommend that schools support teachers by providing shared digital resources, clear scheduling guidelines, and professional development focused on digital lesson planning and time management (Kimmons & Hall, 2021). Such institutional support enables teachers to balance workload demands while maintaining high-quality instruction for all learners.

Engagement and Classroom Management. Most of the participants claimed that maintaining learner engagement and discipline in online environments was a major challenge. Teachers observed that some students pretended to participate in online classes, became distracted by unrelated activities, or misused devices for non-learning purposes. Differences in digital literacy among learners further complicated classroom management, as some could multitask effectively while others lagged behind. Participants suggested that interactive digital resources, monitoring tools, clear expectations, and training on online class management strategies were necessary to foster engagement and maintain order. Ultimately, sustaining active participation and proper conduct in digital learning environments was seen as essential for achieving meaningful educational outcomes. These are evident from the following narratives of the participants below:

> *Some learners pretend to participate in online classes but are actually logged out or distracted by other activities. (IDI, 9)*
>
> *Learners sometimes misuse their gadgets for games or unrelated apps during lessons, which disrupts the flow of teaching. (IDI, 4)*
>
> *Digital literacy varies among learners; some can multitask effectively online while others struggle to follow instructions. (IDI, 17)*

In support, Moreno and Mayer (2007) that digital pedagogy, when used effectively, enhances learner engagement and participation. Teachers observed that learners respond positively to interactive tools such as quizzes, polls, multimedia content, and gamified activities, which encourage them to actively participate in lessons, even in online or hybrid environments. Several educators noted that learners who are normally shy in face-to-face classes tend to express their ideas more confidently in digital platforms, contributing to richer discussions and collaborative learning experiences. These observations suggest that, with proper guidance, technology can create a more inclusive and dynamic learning environment for all learners.

In addition, Carr (2010) emphasized that digital pedagogy provides opportunities to improve classroom management strategies for learners. Teachers can monitor learner activity, track attendance, and set clear digital rules that promote focus and discipline. Although challenges like multitasking or off-task behavior among learners exist, educators noted that using interactive resources, structured instructions, and monitoring tools helps maintain learner attention while keeping them motivated. Teachers are supported digital pedagogy for its potential to increase learner engagement, foster positive behaviors, and enhance overall learning outcomes, if teachers receive adequate training and resources to manage the digital classroom effectively.

Opportunities do digital pedagogy offer to enhance teaching and learning from the perspective of educators

The third research question aimed to investigate what the opportunities does digital pedagogy offer to enhance teaching and learning from the perspective of educators After analyzing the data, four significant themes were discovered as presented in Table 3, which include: Connectivity and Infrastructure, Professional Development, Workload and Time Management, and Engagement and Classroom Management.

Table 3. Opportunities do digital pedagogy offer to enhance teaching and learning from the perspective of educators

Code	Significant Themes Category	Significant statements	Theme per participant	Meaning
Flexible access, inclusivity	Accessibility and Equity	"Absent learners still access materials online." (IDI, 6) / "Digital pedagogy will improve accessibility for learners with disabilities." (IDI, 12)	Greater inclusivity and accessibility in learning.	Digital pedagogy reduces barriers of time, distance, and learner needs.
Differentiation, personalization	Learner-Centered Instruction	"I can give remedial work to struggling learners while advanced ones get enrichment tasks." (IDI,1) / "Personalized automated quizzes adjust to learners' levels." (IDI,10)	Personalized learning pathways for diverse learners.	Digital tools allow tailored instruction based on learner ability and pace.
Innovation, creativity	Innovative Teaching Strategies	"I've used interactive simulations in Science, which were impossible in	Technology-driven innovation in pedagogy.	Digital pedagogy enables creative and innovative teaching methods.

		a traditional setup." (IDI1) / "I created virtual field trips through online platforms." (IDI,17) "We did a virtual debate with another school." (IDI, 4) /		
Collaboration, global connections	Collaborative Learning	"Group projects become easier through online platforms." (IDI 11)	Expanded collaboration and global engagement.	Digital platforms expand collaboration beyond classroom and borders.
Independent, lifelong learning	Learner Autonomy	"Learners set their own pace with online modules." (IDI 15) / "Future classes will be learner-driven, with teachers as facilitators." (IDI 5)	Empowered and self-directed learners.	Digital pedagogy nurtures independence, self-regulation, and lifelong learning skills.

Accessibility and Equity. Most of the participants claimed that digital pedagogy has opened opportunities to make learning more inclusive and equitable by breaking barriers of time, distance, and learner needs. Teachers shared that absent learners or those who missed classes due to health or personal reasons could still access recorded lectures, modules, or online resources. This flexibility ensures continuity of learning even beyond the traditional classroom. Likewise, participants emphasized that digital pedagogy enhances inclusivity for learners with disabilities by providing tools such

as captioning, audio lessons, and visual aids tailored to different learning styles and challenges.

Additionally, participants highlighted that accessibility extends beyond classroom walls, allowing learners to access global resources, virtual laboratories, and online libraries that were once unavailable in traditional teaching. While connectivity issues and lack of gadgets remain challenges, teachers recognized the potential of digital pedagogy to reduce educational gaps when adequate infrastructure and resources are provided. Thus, accessibility and equity emerged as a central opportunity in digital pedagogy, enabling learners of diverse contexts and abilities to engage meaningfully in education. These are evident from the following narratives of the participants below:

> *Even if some learners are absent, they can still access recorded lessons and online modules, which ensures they don't get left behind. (FGD, 5)*
>
> *Digital pedagogy makes learning more inclusive because learners with hearing difficulties can use captioning tools, while others benefit from audio or visual aids. (IDI, 1)*
>
> *Through online platforms, my learners can connect to global resources and experts, which gives them opportunities beyond the classroom. (IDI, 7)*
>
> *Although connectivity remains a challenge, digital pedagogy has the potential to reduce educational gaps if schools provide reliable internet and gadgets. (IDI, 13)*

In support, UNESCO (2020), equitable access to quality education is critical in bridging gaps caused by socio-economic status, disability, and geographic location. Digital pedagogy, while offering vast learning opportunities, also highlights disparities in access to devices, stable internet connectivity, and digital skills. Warschauer and Matuchniak (2010) emphasize that the digital divide continues to be a major barrier to equity in learning, particularly in marginalized communities where infrastructure and resources are limited.

To address these challenges, educators must adopt inclusive practices and advocate for systems that prioritize equity. Ladson-Billings (2006) argues that culturally relevant pedagogy and learner-centered approaches can help dismantle inequities by valuing diverse perspectives and experiences. In addition, the integration of accessible tools, such as captioning, screen readers, and multilingual content, supports learners with disabilities and those from linguistically diverse backgrounds (Al-Azawei, Serenelli, & Lundqvist, 2016). In the Philippine context, Delos Santos (2021) points out that equitable education requires targeted

interventions, such as government-subsidized gadgets, community-based learning hubs, and teacher training in inclusive digital practices. Thus, ensuring accessibility and equity is not only a moral responsibility but also a practical necessity for achieving meaningful and inclusive digital education.

Learner-Centered Instruction. Most of the participants claimed that digital pedagogy provides avenues for personalized and differentiated learning. Teachers shared that struggling learners can be given remedial tasks while advanced learners can receive enrichment activities, ensuring that no one is left behind. Digital platforms also allow adaptive tools, such as automated quizzes and progress dashboards, that adjust to each learner's level and pace. This flexibility enables teachers to cater to diverse learning needs and styles more effectively compared to a one-size-fits-all traditional approach.

Furthermore, learner-centered instruction fosters ownership of learning. Participants mentioned that learners are now more engaged when they are given choices in how they complete their tasks, whether through videos, slides, or written outputs. This personalization not only boosts learner motivation but also nurtures independence, creativity, and accountability. In this sense, digital pedagogy enhances the teacher's role as a facilitator of learning rather than solely a source of knowledge. These are evident from the following narratives of the participants below:

> *I can give remedial tasks to struggling learners while advanced one's work on enrichment activities, so everyone learns at their own level. (IDI, 8)*
>
> *Using adaptive quizzes online, learners can progress at their own pace, which wasn't possible in traditional classes. (IDI, 1)*
>
> *I allow learners to choose whether they want to present their work through videos, slides, or essays. (IDI, 14)*
>
> *Digital pedagogy helps me shift focus from teaching the lesson to facilitating the learner's growth and progress. (IDI, 11)*

In support, Weimer (2013) explains that this approach allows learners to construct their own understanding by engaging in critical thinking, collaboration, and self-directed tasks. Unlike traditional teacher-centered methods, learner-centered instruction positions the teacher as a facilitator, guiding students to explore knowledge through problem-solving, discovery, and application of real-world contexts. Research has shown that this approach not only improves

academic performance but also strengthens higher-order thinking skills and lifelong learning habits (Cornelius-White, 2007).

Moreover, learner-centered strategies integrate differentiation and inclusivity, making them suitable for diverse classrooms. According to McCombs and Vakili (2005), aligning instruction with learners' prior knowledge, interests, and needs creates meaningful learning experiences that enhance motivation and retention. In the context of digital pedagogy, learner-centered approaches are further strengthened by technology that provides opportunities for personalization, interactive learning environments, and access to global resources (O'Neill & McMahon, 2005). In the Philippine setting, Santos (2021) highlights that learner-centered instruction plays a crucial role in addressing gaps in remote and blended learning by encouraging student participation and accountability. Hence, learner-centered instruction remains essential in fostering student engagement, equity, and adaptability in 21st-century education.

Innovative Teaching Strategies. Most of the participants claimed that digital pedagogy allows them to explore innovative and creative teaching approaches that were not possible in a purely face-to-face setup. Teachers shared that they were able to implement interactive simulations, virtual laboratories, and augmented reality tools to explain complex concepts, making lessons more engaging and meaningful. These innovations also improve comprehension by presenting abstract topics in more visual, interactive, and learner-friendly ways.

Participants also pointed out that innovation extends to lesson delivery, such as flipped classrooms and gamified quizzes, which make learners more active participants in the process. By leveraging digital tools, educators can design dynamic and immersive learning experiences that go beyond traditional lecture-based teaching. Thus, innovation in pedagogy not only sparks curiosity but also transforms the learning environment into one that is more interactive, flexible, and motivating. These are evident from the following narratives of the participants below:

> *I use interactive simulations in Science to explain abstract concepts that were difficult in a chalk-and-board setup. (IDI, 11)*
>
> *Gamified quizzes like sudoku and online puzzles make learners more motivated and excited to participate. (FGD, 2)*
>
> *I introduced flipped classrooms where learners watch my recorded lectures first and use class time for discussion. (IDI, 5)*

> *Through virtual labs and augmented reality, my learners can explore experiments and places that are otherwise inaccessible. (IDI, 11)*

In support, Trilling and Fadel (2009), innovation in teaching involves the integration of digital tools, interactive methods, and learner-centered practices that go beyond traditional lecture-based instruction. Strategies such as flipped classrooms, gamification, and problem-based learning have been found to increase learner motivation and improve knowledge retention (Bishop & Verleger, 2013). Similarly, Anderson (2016) highlights that innovative approaches allow educators to design more flexible, adaptive learning environments where students take a more active role in constructing their knowledge.

In addition, innovative strategies are closely linked to effective integration of technology in pedagogy. Mishra and Koehler's (2006) Technological Pedagogical Content Knowledge (TPACK) framework emphasizes that innovative instruction requires not just digital tools, but also thoughtful alignment of pedagogy and content knowledge. Research shows that when teachers adopt innovative approaches, learners demonstrate higher engagement, deeper understanding, and improved collaboration skills (Kintu, Zhu, & Kagambe, 2017). In the Philippine context, Dela Cruz and Javier (2021) argue that innovative strategies are critical in bridging learning gaps, particularly in blended and distance learning settings where active participation is often a challenge. Thus, adopting innovative teaching strategies ensures that instruction remains relevant, interactive, and aligned with the evolving demands of the digital age.

Collaborative Learning. Most of the participants claimed that digital pedagogy enhances opportunities for collaboration inside and beyond the classroom. Teachers shared that group projects became easier to manage through digital platforms where learners could share documents, brainstorm ideas, and co-create outputs. Online platforms also encouraged quieter learners to participate more actively in written discussions and collaborative boards, providing a more balanced learning environment.

In addition, participants emphasized that digital pedagogy opened global connections, such as virtual debates with learners from other schools or online collaborations with experts. These opportunities not only broaden learners' perspectives but also prepare them for future workplaces where collaboration is often digital and global in scope. Hence, digital pedagogy fosters a culture of teamwork, inclusivity, and communication that transcends classroom walls. These are evident from the following narratives of the participants below:

> *Online platforms make group projects easier because learners can co-edit files and brainstorm ideas together. (FGD, 1)*

> *Even my quiet learners actively contribute in chat boxes or collaborative boards, which balances participation. (IDI, 1)*
>
> *We once held a virtual debate with another school, giving learners the chance to collaborate beyond their peers. (IDI, 8)*
>
> *Digital tools prepare learners for teamwork in future workplaces where collaboration is mostly digital. (IDI, 5)*

In support, Collaborative learning is a pedagogical approach that emphasizes learners working together to achieve shared goals and deepen their understanding of subject matter. Johnson, Johnson, and Smith (2014) describe it as a structured form of group learning where interaction and interdependence are central to achieving meaningful outcomes. Research suggests that collaborative learning enhances critical thinking, communication, and problem-solving skills as learners actively engage in dialogue, exchange perspectives, and co-construct knowledge (Laal & Ghodsi, 2012). With the rise of digital pedagogy, collaborative platforms such as online discussion forums, breakout rooms, and interactive learning management systems have expanded opportunities for learners to work together, regardless of geographical boundaries.

Moreover, collaborative learning fosters inclusivity and peer support, which are vital in enhancing student motivation and academic performance. Slavin (2015) emphasizes that when students learn collaboratively, they are more likely to persist in difficult tasks because of shared responsibility and mutual encouragement. A study by Vygotsky (1978) also highlights the social constructivist view that knowledge is co-created through social interaction, making collaboration essential for deeper learning. In the Philippine context, Magno (2020) underscores that collaborative learning strategies align with the Department of Education's thrust toward learner-centered instruction, particularly in developing 21st-century skills such as teamwork, adaptability, and digital communication. Thus, collaborative learning not only enhances academic outcomes but also prepares learners to thrive in dynamic and interconnected environments.

Learner Autonomy. Most of the participants claimed that digital pedagogy nurtures independent and lifelong learning by encouraging learners to take control of their own learning journey. Teachers observed that learners can set their own pace using online modules, revisit recorded lectures for review, and explore supplementary digital resources based on their interests and needs. This freedom empowers learners to become more self-directed and reflective about their learning progress.

Additionally, participants emphasized that digital pedagogy shifts the teacher's role from being the primary source of knowledge to a facilitator and guide. With this change, learners are given more responsibility to navigate learning platforms, manage their time, and develop critical thinking skills through independent exploration. As a result, digital pedagogy cultivates not only academic growth but also essential life skills such as resilience, adaptability, and self-motivation preparing learners to become lifelong learners in a rapidly evolving digital world. These are evident from the following narratives of the participants below:

> *Learners set their own pace with self-directed online modules, which makes them more responsible for their progress. (FGD, 1)*
>
> *Recorded lessons allow learners to review as many times as they need without relying solely on class time. (FGD, 3)*
>
> *I've noticed learners exploring supplementary resources online, showing curiosity beyond what I assign. (IDI, 1)*
>
> *Digital pedagogy turns my role into a facilitator, while learners take charge of their own learning journey. (IDI, 3)*

In support, little (2020) found that autonomy involves learners' ability to set goals, monitor their progress, and evaluate outcomes, thereby fostering lifelong learning skills. The integration of digital tools has further supported this shift by providing platforms where learners can access resources, track their growth, and engage in self-paced activities. Benson and Huang (2018) highlighted that learner autonomy is not only about independent learning but also about making informed decisions and exercising responsibility in the learning journey. This is particularly relevant in 21st-century classrooms, where technology facilitates opportunities for self-directed exploration and personalization of learning pathways.

Moreover, Deci and Ryan's (2000) Self-Determination Theory underscores that autonomy is a fundamental psychological need that, when supported, increases intrinsic motivation and engagement. In a study by Lai, Yeung, and Hu (2016), students who exercised greater control over their learning exhibited higher confidence, persistence, and satisfaction with academic outcomes. In the Philippine context, Bernardo (2021) emphasized that promoting autonomy among learners aligns with the K to 12 Curriculum's goal of developing independent and critical thinkers. Thus, learner autonomy is not only a pedagogical strategy but also a key competence in preparing learners for both academic and real-world success.

This study recommended that schools and educational stakeholders invest in robust digital infrastructure and equitable access to technology to ensure all

learners can fully participate in digital learning. Providing stable internet connections, school-provided devices, and offline-ready modules will help bridge the digital divide and promote inclusivity for learners from diverse backgrounds. It is also recommended that teachers receive continuous professional development and hands-on training in digital pedagogy, including the use of learning management systems, interactive tools, and innovative instructional strategies. This will enhance teachers' confidence, reduce workload-related stress, and improve the quality of online and blended instruction.

Furthermore, the study recommended that schools adopt learner-centered approaches that support personalization, differentiation, and learner autonomy. By allowing learners to engage with content at their own pace, explore creative formats, and collaborate digitally, educators can foster independent, motivated, and lifelong learners. Finally, the study recommended that policies and guidelines be established to support effective classroom management, work-life balance for teachers, and responsible use of digital platforms by learners. Clear rules, monitoring tools, and parental engagement programs can help maintain discipline, ensure learner safety, and optimize the overall benefits of digital pedagogy.

Based on the findings, it is recommended that schools and educational stakeholders strengthen digital infrastructure and ensure equitable access to technology. This includes providing stable internet connections, school-owned devices, and offline-ready learning materials to support learners from diverse socio-economic backgrounds and bridge the digital divide. It is further recommended that teachers receive continuous and hands-on professional development focused on digital pedagogy, including training in learning management systems, interactive tools, and innovative instructional strategies. Such support will enhance teachers' confidence, improve lesson quality, and help manage workload effectively.

Additionally, schools should implement learner-centered approaches that promote personalization and learner autonomy. By allowing learners to engage with content at their own pace, choose formats for assignments, and collaborate online, educators can foster independent, motivated, and lifelong learners. Finally, it is recommended that schools establish policies and guidelines to support online classroom management, teacher work-life balance, and responsible digital use. This includes monitoring tools, clear conduct rules, and parent engagement programs to ensure safe, productive, and disciplined learning environments.

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