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EDUCATIONAL TECHNOLOGY ADOPTION AMONG BASIC EDUCATION LEADER SCHOOLS IN THE DAVAO REGION

Sharra Mae S. Tagaro[1]*, Leo D. Rayon, Jr.[2]
[1,2]*Institute of Advanced Studies, Davao del Norte State College*

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ABSTRACT

Educational technologies are integral part of basic education, serving a key role in improving teaching methods and learning experiences. However, many schools still lack clear systems for using educational technology, highlighting the need to study how it is adopted and managed in schools. This study investigated the practices of basic education leader schools in educational technology adoption. A case study with a multiple perspective approach was employed, involving in-depth interviews with 11 school heads and 11 teachers from selected central elementary schools in the Davao Region. Data were analyzed using Braun and Clarke's (2006) thematic analysis to identify emerging themes. The findings revealed that adoption practices are marked by improving educational technology adoption, utilizing innovative resources in teaching and learning, mobilizing platforms for communication and information dissemination, and simplifying administrative tasks with technology. Basic education leader schools in the Davao Region demonstrated efficient adoption of educational technology. As outcome, this study proposes the creation of an EdTech Partnership Council that may provide inputs to the Basic Education Development Plan and the DepEd Computerization Program. This output may provide a formal system for coordinating resources, policy support, and establishing an environment conducive to EdTech adoption in basic education.

KEYWORDS: *Educational Technology, Adoption, Practices, School Heads, Philippines*

INTRODUCTION

Educational technology refers to the broad application of information and communication technology (ICT) in education (Assar, 2015). These innovations are instrumental in enhancing teaching and learning outcomes (Guaña-Moya et al., 2022). Educational technology encompasses a diverse array of tools and platforms—both online and offline—intended to enrich instruction (Khambali, 2023). These include mobile phones, augmented and virtual reality applications, and collaborative learning environments (Huang et al., 2019).

However, the use of educational technologies also raises concerns about exacerbating existing inequalities (Wagner, 2017). Disparities in internet access, influenced by factors such as race, occupation, and gender, remain a global issue (Afzal et al., 2023). For example, digital inequities in the United States and the United Kingdom have disproportionately impacted students from low-income families (Greenhow et al., 2020). In Spain, the digital divide, coupled with a lack of devices and support, hindered students' ability to engage in online learning (Albó et al., 2020).

The positive outcomes associated with educational technology have encouraged many teachers to integrate it into their instructional practices (Perry, 2018). However, teacher competency remains a critical determinant of successful technology integration (Espinosa & Pañares, 2023). Teachers are increasingly eager to develop digital competencies and incorporate technology to create more engaging and interactive learning experiences (Beardsley et al., 2021; Jena & Barard, 2023). Research over the last few decades has emphasized the pedagogical benefits of educational technology in enhancing student outcomes (Pischetola, 2021; Hopkins et al., 2018).

Locally, however, several barriers exist. In Tagum City, the low computer-to-student ratio—approximately one device for every three students—limits access to digital tools (Lupina, 2022). Furthermore, Kormos and Wisdom (2021) found notable differences in rural educators' perceptions of various web-based tools. Such disparities highlight the contrast in technology integration between urban and rural schools (Ewing & Cooper, 2021).

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Indeed, technology integration in education represents both an opportunity and a challenge in this digital age (Bhat, 2023). Petko et al. (2016) emphasized the need to rethink existing research methodologies in educational technology. While much research has explored adaptive learning technologies and their individualized instruction benefits (Schmid et al., 2022), there remains a lack of systematic strategies for managing educational technology initiatives in schools (Tyson & Sauers, 2021).

Critically, the existing body of literature is largely concentrated on higher education or on teachers' pedagogical use of educational technologies, with limited focus on basic education settings. The perspectives of school administrators, who play a pivotal role in the adoption of educational technologies, have been insufficiently explored. This gap underscores the need for focused research on school-level leadership practices in basic education, particularly in the context of technology adoption.

With all of these, this study sought to address this gap by investigating the practices of school heads in adopting educational technologies in central elementary schools in the Davao Region. By examining both school head and teacher perspectives, the study aimed to uncover effective practices and identify recurring themes within the local context. The findings are expected to contribute valuable insights into improving the quality of education through informed leadership and sustainable technology integration in basic education.

METHODS

Research Design

This study employed a qualitative case study design to explore and understand the adoption of educational technologies by school heads in public central elementary schools in Davao Region. The purpose of this design was to generate an in-depth understanding of the practices they employed. A multiple-perspective approach was utilized by including not only the school heads but also the teachers who worked with them, enriching the data with complementary insights and strengthening the study's credibility through data triangulation.

Research Participants

A total of 22 participants were involved in the study, comprising 11 school heads and 11 public school teachers working directly under their leadership. Participants were selected through purposive sampling, with the following criteria: participants must be school heads and teachers within the jurisdiction of Davao Region for at least three years in their current position, regardless of gender and age. The participants represented various public central elementary schools across Davao Region.

Data Gathering Procedure

Rigorous steps were taken in the data collection procedure. Data were collected through in-depth, semi-structured interviews guided by validated interview protocols. Separate sets of questions were designed for school heads and teachers, aligned with the central research question regarding educational technology adoption. This study utilized the researcher-made interview guide based on the research questions. Probing questions were also formulated for each of the research questions to gather substantial data from the perspectives of school heads and teachers. Roberts (2020) stated that all the questions and topics the participants addressed in the interview are included in the interview guide.

Requirements were also submitted for the Ethics Review to receive Ethical Clearance from an Institutional Research Ethics Committee. All interviews were conducted either face-to-face or via secure online platforms, depending on accessibility and safety. It was also recorded and transcribed in verbatim with participants' consent.

Data Analysis

In this study, the Thematic Analysis steps developed by Braun and Clarke (2006) served as the structure for the data analysis. The steps were: familiarizing with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. To ensure the trustworthiness of the study, Yin (2017) stated that it is important to ensure the following conditions: (i) construct validation, which allowed the researcher to accurately assess the concepts studied; (ii) internal validity, which ensured that the conclusions drawn from the data were adequate; (iii) external validity, which stemmed from the results' ability to accurately represent the phenomenon studied; and (iv) reliability, which allowed the possibility of the study being replicated by another researcher.

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Ethical Considerations

This study followed Hassan's (2023) ethical guidelines to ensure the protection and respect of participants. Ethical considerations include informed consent, confidentiality, harm reduction, cultural sensitivity, and conflict of interest management. These principles are essential for sustaining research integrity and creating trust between the researcher and participants.

This methodology aimed not only to capture the technical practices of educational technology adoption but also to surface the dimensions of Innovative Leadership Measure (ILM) and Unified Theory of Adoption and Use of Technology (UTAUT), highlighting how educational technology is adopted and perceived within the context of public central elementary schools in basic education.

RESULTS AND DISCUSSION

Practices Employed by Basic Education Leader Schools in Adopting Educational Technologies

Adopting educational technology into basic education continued to influence how school heads managed schools. Knowing about the lived experiences of school heads, through the perspectives of school heads and teachers, offers significant insights into how these technologies are being used. Their experiences served as a reminder that effective technology use in the classroom depended on people, not just on resources or internet connectivity. It largely depended on their dedication to education, their willingness to adapt to change, and their common objective of improving every student's learning experience.

Table 1

Practices Employed by Basic Education Leader Schools in Adopting Educational Technologies

School Heads' Perspectives	Teachers' Perspectives	Emerging Themes
▪ Establishment of a computer laboratory ▪ Provision of functional computer units ▪ Access to the internet	▪ Schedule for computer laboratory use ▪ Availability of usable computers ▪ Provision of internet access	**Improving Educational Technology Adoption**
▪ Usage of offline learning resources ▪ Availability of television in classrooms ▪ Utilization of interactive virtual platforms	▪ Use of PPT and offline e-library ▪ Existence of TV and projector in the class ▪ Adoption of Game-based learning	**Utilizing Innovative Resources in Teaching and Learning**
▪ Conduct of virtual meetings ▪ Information dissemination through GCs.	▪ Attendance to online conference ▪ Collaboration through Messenger	**Mobilizing Platforms for Communication and Information Dissemination**
▪ Utilize digital assessment tools ▪ Use of online storage for school reports ▪ Assess the effectiveness of implementation	▪ Adopt electronic recording ▪ Submit and store reports ▪ Responsible technology management	**Simplifying Administrative Tasks with Technology**

Table 1 shows the four emerging themes perceived by school heads and teachers as practices employed by basic education leader schools in adopting educational technologies. These themes included improving educational technology adoption; utilizing innovative resources in teaching and learning; mobilizing platforms for communication and information dissemination; and simplifying administrative tasks with technology. These themes showed an increasing awareness of the changing needs of schools nowadays.

Theme 1: Improving Educational Technology Adoption

School heads improved educational technology adoption. Their practices centered on developing computer labs, supplying functional computer units, and ensuring reliable internet connectivity. These efforts sought to establish a helpful digital environment for teaching and learning. These enhancements were planned and implemented with accessibility in mind. School heads addressed infrastructure shortcomings to ensure efficient technological integration.

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Teachers acknowledged the importance of these activities in regular education. They highlighted the need to follow a planned schedule when using the computer lab. The availability of functioning computers remained critical for class delivery. The availability of internet access was also regarded as crucial for accessing digital resources. Teachers' perspectives reflected the practical impact of the school heads' actions. Their observations aided in aligning administration activities with classroom requirements.

School Heads' Perspective: Establishment of a Computer Laboratory

A crucial phase in integrating technology into elementary education is the establishment of a computer lab in elementary schools. A computer lab is a helpful setting for improving accessibility to educational technology and enhancing the readiness of the school's stakeholders. The establishment of computer laboratories and their initiative to make them functional is evident in the following excerpts:

> [P6_S1] *Our school has this **computer laboratory**.*
>
> [P9_S21] *We also have **Project EXPLORE which means Experiencing eXciting Places of Learning and Observational Resourceful Environments** where all students will get the chance to visit our **facilities like our ICT**, our library, our laboratory and our reading center.*
>
> [P11_S12] *We have the **computer laboratory** which are already present during my manning in the school.*

The excerpts highlighted that the setup of a computer lab indicated a strong commitment to increasing educational technology use through enhanced accessibility. As seen in [P6_S1], the school already has a computer lab, suggesting that the necessary technological infrastructure is in place. [P9_S21] emphasized the goal of accessibility by highlighting Project EXPLORE, which ensured that all students have access to technological and learning facilities such as the ICT center and computer lab. This endeavor exemplified a purposeful effort to incorporate digital technologies into the larger classroom environment. Furthermore, [P11_S12] emphasized that the computer laboratory was already there before they assumed position in the school, implying a continued institutional commitment to technical growth.

Teachers' Perspective: Schedule for Computer Laboratory Use

For all students to have equal opportunity for technology-based learning in elementary school, a well-organized schedule for laboratory use is necessary. A carefully thought-out schedule enabled teachers to incorporate computer use into their classes successfully. It is evident in the following excerpts:

> [T2_S26] *So in our school we have our ICT laboratory which can be **accessed by all the students in their schedule**.*
>
> [T3_S2] *So the teachers and the administrator agree that **we will be having our schedule to use our E-classroom** by grade level, by sections.*
>
> [T9_S1] *Starting this school year, through the flagship program of our school principal, our students, particularly those in grades four, five, and six, will have more learning experiences within their learning environment by **visiting the ICT Room**.*

The excerpts demonstrated a planned and inclusive approach to increasing educational technology adoption through fair accessibility. According to [T2_S26], the ICT laboratory was made available to all students on a set schedule, ensuring consistent access to technology resources. [T3_S2] stated that this was further reinforced by a collaborative agreement between teachers and administration to organize the use of the E-classroom by grade level and department, promoting orderly and equitable use of digital learning spaces. Furthermore, [T9_S1] stated that the school head will introduce a program at the start of the school year to improve opportunities for students in grades four through six to engage in technology-enhanced learning in the ICT Room.

In comparison, the establishment of the computer lab was viewed by the school heads as a significant step in raising the standard of instruction by providing students with access to digital learning and technology. On the other hand,

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teachers concentrated more on how the school head created schedules for the computer lab, which complemented their regular lessons. Each perspective is significant, and effective communication between teachers and school heads guaranteed that the computer laboratory was not only properly equipped but also utilized to enhance student learning.

School Heads' Perspective: Provision of Functional Computer Units

Building a solid foundation in educational technology adoption among young students requires elementary schools to have functional computer units. Students can participate in interactive learning activities more effectively when they have access to functional computers. It is evident in the following excerpts:

> [P2_S3] *Schools invest in ICT infrastructure, **such as computers**, projectors, and internet connectivity.*
>
> [P3_S12] *And we have also our functional ICT room with **functional and usable computer units**.*
>
> [P7_S9] *We also have this ICT room where in our pupils can **utilize the computers** and also **we provide tablets for our learners**, especially those who don't have the capacity to buy devices.*

The excerpts showed that there is a need to provide schools with accessible and operational ICT infrastructure to encourage the use of educational technology. As stated by [P2_S3], the school had invested in critical ICT resources such as computers, projectors, and internet access, demonstrating a strategic commitment to digital preparedness. [P3_S12] exclaimed that this investment resulted in a fully working ICT room complete with usable computer units, allowing students to participate in meaningful technology-supported learning experiences. Furthermore, [P7_S9] mentioned that to address concerns of digital inequality, the school increased accessibility by distributing tablets to students who did not have the financial resources to purchase personal devices.

Teachers' Perspective: Availability of Usable Computers

In elementary school, having functional computers is essential for fostering students' educational technology adoption and facilitating interactive learning. Usable computers in schools give students early access to technology, which improves their engagement, fosters educational technology adoption, and gets them ready for future technological and academic challenges. It is evident in the following excerpts:

> [T1_S3] *Another one is that the **ICT was also open for all the teachers**, especially during the encoding of grades, online training, and other **work for the teachers using the computer**.*
>
> [T4_S7] *She also **improved the facilities in the ICT room**.*
>
> [T7_S16] *In our school, **we have computers in our laboratory**, used by the classes, especially in competencies about technology.*

The excerpts highlighted the importance of accessible digital resources in increasing educational technology adoption. [T1_S3] said that the school made sure that ICT facilities were available not just to students, but also to teachers for important duties. Furthermore, [T4_S7] expressed that the changes to the ICT room facilities under the school head's direction improved the functionality and utility of these digital tools. [T7_S16] explained that the presence of computers in the school's laboratory, which were actively used by classes, particularly for technology-related competencies, showed a conscious effort to match infrastructure availability with curriculum objectives.

In comparison, school heads prioritized purchasing and maintaining enough dependable computers for both teachers and students because they believed that having functional computer units is essential to enhancing instruction. Teachers, on the other hand, agreed that these computers were available and useful for their everyday classroom tasks. They used these resources to enhance their instruction, particularly when instructing students in digital skills. A productive learning environment is produced when there is collaboration between school heads and teachers.

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School Heads' Perspective: Access to the Internet

Internet access in elementary school promotes digital learning, increases information availability, and improves teaching methods. Students may explore interactive resources with an accessible internet connection, and teachers can use online tools to design more effective classes that develop critical 21st-century skills. It is evident in the following excerpts:

> [P1_S3] *We also **have an internet connection** here in our school.*
>
> [P5_S13] *Our **school has an internet connection**, so they can connect directly to the internet.*
>
> [P9_S6] *I see to it that the **internet connection is stable** and the teachers can utilize it in the making of the PowerPoint that they will be using in teaching.*

The excerpts showed that a proactive approach to increasing educational technology adoption is through dependable digital connectivity. Both [P1_S3] and [P5_S13] said that the school had internet connectivity, allowing students and staff to connect directly to online resources as part of their learning and teaching activities. [P9_S6] mentioned that the school head emphasized the importance of maintaining a stable internet connection so that teachers could effectively use digital tools like PowerPoint presentations for classroom instruction, indicating a practical integration of technology into teaching practices. This purposeful emphasis on internet accessibility demonstrated the school head's understanding that reliable connectivity was critical for creating a technology-supported learning environment.

Teachers' Perspective: Provision of Internet Access

It is essential to provide internet connectivity in elementary school to promote educational technology adoption and improve learning chances. Integrating technology into the classroom gives students access to innovative resources that facilitate tailored and interactive learning. It is evident in the following excerpts:

> [T1_S11] *So that is why we have a **separate internet connection in the administrative office and other internet connections for our ICT room**.*
>
> [T7_S21] *We also **have internet connection**, which is available for every student.*
>
> [T10_S15] *We also **have internet connection throughout our school**.*

The excerpts demonstrated that a planned and inclusive effort to encourage instructional technology use was made by assuring widespread digital connectivity. [T1_S11] mentioned that the school took an organized approach, establishing separate internet connections for the administrative office and the ICT room to avoid network congestion and ensure dedicated access for both instructional and operational needs. Furthermore, [T7_S21] stated that internet access was made available to all students, demonstrating an inclusive policy focused on closing digital access gaps and providing fair opportunities for online study and research. [T10_S15] stated that the existence of internet connectivity across the school demonstrated the school head's dedication to creating a digitally connected environment.

In comparison, school heads concentrated on making sure the school had the necessary resources. Teachers, however, were more focused on the implementation. To organize lessons, conduct research, and interact with parents and kids, they required reliable internet connectivity. To ensure that the internet genuinely helps successful teaching, open communication of concerns should be done.

School heads established an environment for digital learning by providing schools with internet connections and computer labs that have computers to cater the students. Well-equipped labs facilitated hands-on activities and fostered stimulating learning environments (Hilmiati, 2021). Students also gained critical digital skills, enhanced their problem-solving capabilities, and learned how to collaborate in a positive setting (Masdaudi et al.,2024). Access to computers enabled students to participate fully in class, which enhanced the effectiveness and interactivity of learning (Mason & Rich, 2020).

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In line with this, computer laboratories with modern technology enhanced instruction and increased teacher and student use of digital resources (Ali et al., 2020). Also, the internet and current technologies provide several benefits in everyday life (Matkovic et al., 2020). Students' academic performance was greatly improved by internet access, and teachers have given favorable feedback regarding the incorporation of online resources into the teaching and learning process, as highlighted by (Cai et al.,2020). Likewise, Dastyari and Jose (2024) emphasized the significance of digital inclusion for fair education, emphasizing the necessity of ongoing assistance to ensure both teachers and students benefit from educational technology.

Furthermore, the lab schedule boosted overall teaching quality and laboratory operations, in addition to an increase in the lab usage efficiency (Lin, 2024). Children who had a set timetable performed better academically since they stayed focused and consistent when using technology, thanks to scheduled access to computer-based learning (Marciniak et al., 2022). Also, the advantages of computer-assisted learning can endure for up to ten years after the initial exposure (Bianchi et al., 2022). This strategic approach not only provided students with necessary technical abilities but also fostered an environment in which technology became an integrated part of the learning process (Suwarto et al., 2022).

Moreover, school-based internet access has been demonstrated to produce small short-term boosts in test scores, which highlights its potential for long-term academic benefits (Lakdawala et al., 2023). On the other hand, teachers stressed the value of having an established schedule for using the computer lab, access to functional computers, and reliable internet. Bhandari et al. (2021) stressed that school-provided computers play a role in narrowing the digital divide and ensuring equal educational opportunities. Thus, innovative leadership management would be able to offer a ray of hope for enhancing the condition of education nowadays (Ali, 2022).

The theme *Improving Educational Technology Adoption* is consistent with the UTAUT model's facilitating conditions and establishing mechanisms for innovation from Innovative Leadership Measure. Elementary school heads who implemented supportive mechanisms improved access to educational technologies. These innovative approaches removed barriers and facilitated the inclusive integration of tools into instructional practices. The interaction of innovative leadership activities and enabling conditions laid the groundwork for long-term adoption. Thus, expanding accessibility required not only the availability of resources but also the deliberate development of resources that enabled their effective use in educational environments.

Theme 2: Utilizing Innovative Resources in Teaching and Learning

School heads used innovative tools to improve teaching and learning. Their approaches included the utilization of offline learning materials, the presence of televisions in the classroom, and the incorporation of interactive virtual platforms. These strategies were intended to increase instructional delivery and student engagement. School heads emphasized resource availability to meet varied learning needs.

Teachers adopted these methods through actual classroom implementations. They used PowerPoint slideshows and offline e-libraries to supplement lessons. The use of televisions and projectors improved content delivery. Game-based learning systems were also used to boost student motivation and engagement. Teachers saw these improvements as effective in expanding the learning experience. Their evaluation verified the school heads' activities in real-world teaching settings.

School Heads' Perspective: Usage of Offline Learning Resources

In basic education, offline learning materials are still crucial, particularly in places with poor internet connectivity. Despite issues with technology or connectivity, resources like electronic libraries, PowerPoint presentations, and videos saved on local devices facilitate efficient instruction and guarantee ongoing learning. It is evident in the following excerpts:

> [P2_S15] *We also have **offline E-library STARBOOKS** (Science and Technology Academic and Research-Based Openly Operated Kiosk StationS) provided by our partner agency.*

> [P3_S1] *So here in our school, we are **using PowerPoint presentation**.*

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> [P9_S3] *And then I also capacitated our teachers by teaching them on **downloading videos from YouTube** and also using **snipping tool to make it easy for them to make a PowerPoint** for their lessons.*

The excerpts highlighted that a dedication to using innovative methods to improve teaching and learning was observed. [P2_S15] shared that the school used STARBOOKS, an offline E-library that functioned as a valuable resource for science and technology content for both students and teachers. [P3_S1] mentioned that the school also supported the use of PowerPoint presentations as a common instructional tool to support visual and interactive learning experiences. [P9_S3] also shared that the school head played an active part in teacher capacity building by teaching educators how to download instructional films from YouTube and use simple tools like the snipping tool, allowing them to create personalized and interesting lesson materials offline.

Teachers' Perspective: Use of PPT and Offline E-library

In elementary education, the use of offline e-libraries and PowerPoint presentations facilitates interactive, resource-rich instruction, particularly in environments with limited internet connectivity. By providing students with useful learning resources and assisting teachers in delivering courses more effectively, these tools improve student engagement and comprehension in the classroom. It is evident in the following excerpts:

> [T4_S19] *We are **using PowerPoint presentations**.*

> [T6_S38] *The **STARBOOKS is about when a student want to learn more about a certain topic**, they go to STARBOOKS.*

> [T7_S34] *We also use all the **Microsoft software like Word, Excel and PowerPoint**.*

The excerpts showed that teachers indicated a positive acceptance and active incorporation of innovative resources into their teaching practices. [T4_S19] reported using PowerPoint presentations as instructional aids consistently, showing congruence with the school's promotion of technology-supported teaching. [T6_S38] also recognized the importance of the STARBOOKS offline E-library, stating that it acted as a supplement for students looking to improve their comprehension of specific topics. Furthermore, [T7_S34] used a variety of Microsoft software products, such as Word, Excel, and PowerPoint, to improve class preparation and delivery, demonstrating their engagement with digital tools promoted by school heads. These practices demonstrated the school heads' successful use of new yet accessible teaching tools, which were embraced and implemented by the teaching staff.

In comparison, teachers' use of offline e-libraries and PowerPoint, and school heads' views on the use of offline learning resources, showed a similar dedication to making the most of the technology available for efficient instruction. School heads stressed the value of ensuring that offline resources are usable and available. In turn, teachers used these tools—especially PowerPoint and the e-library—to improve the way they teach, motivate their students, and facilitate independent learning. Working together to integrate educational technology that fits the local context was demonstrated by the alignment of classroom implementation and leadership support, particularly in areas with poor internet connectivity.

School Heads' Perspective: Availability of Television in Classrooms

Televisions in primary schools facilitated multimedia learning by enabling the incorporation of audio-visual resources into regular lessons. In addition to improving student engagement and comprehension, particularly in visual courses, this represents school heads' increasing efforts to implement modern and easily accessible teaching resources in basic education. It is evident in the following excerpts:

> [P5_S11] ***Audio-visual materials are helpful-** TV, laptops, and we have also speakers in the classrooms in the delivery of the lesson especially reading literacy, short stories, and **they play it on the TV**.*

> [P6_S4] *There are also **television sets which are distributed to the classrooms** so that teachers could use them in the teaching learning process.*

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> [P10_S5]*So in order for us to adopt to this educational technology, we allow them to* ***search from the Google, from YouTube*** *or make their own educational devices educational instructional materials using computers at home* ***so they can use the TV****.*

The excerpts highlighted a systematic approach to incorporating audio-visual resources into the teaching and learning process. [P5_S11] stated that classrooms were equipped with television sets, laptops, and speakers to aid in instruction delivery. [P6_S4] shared that the placement of these television sets in classrooms was done purposefully to guarantee that teachers have access to crucial multimedia resources that may improve their educational methods. Furthermore, [P10_S5] stressed that the school encouraged teachers to augment classroom instruction that could be efficiently seen on classroom televisions. This indicated the school heads' dedication to using new resources to create a dynamic, technology-enhanced learning environment.

Teachers' Perspective: Existence of TV and Projector in the Class

By facilitating the use of multimedia content, televisions and projectors in elementary schools improved the teaching and learning process. These resources facilitated interactive education by providing visual and audio reinforcement to help young students better absorb lessons, particularly in subjects that require storytelling and demonstration. It is evident in the following excerpts:

> [T2_S29]*And another is that* ***we have projectors provided****, which can also* ***help for those classrooms without TV*** *but have laptops.*

> [T5_S4]*Our school is an advocate of the usage of ICT in the delivery of instruction because among the 7 grade levels here in the elementary school,* ***all the classrooms have a television****.*

> [T10_S18]*Most of the time, the students are* ***more participative and more attentive with the Smart TV****.*

The excerpts highlighted that teachers expressed strong support for the school heads' efforts to employ innovative tools to improve teaching and learning. [T2_S29] identified the use of projectors as an important alternative for schools without televisions, allowing for ongoing multimedia instruction via laptops. [T5_S4] applauded the school's commitment to ICT in education, noting that all classrooms across the seven grade levels were equipped with televisions, which significantly enhanced lesson delivery. Furthermore, [T10_S18] found that the use of Smart TVs had a positive impact on student involvement, with students demonstrating increased participation and focus during audiovisual content-rich sessions.

In comparison, it was evident that a common effort to improve education by providing televisions and projectors in classrooms was demonstrated by the perspectives of school administrators and teachers. School heads understood the value of providing classrooms with these audio-visual aids to enhance instruction. Teachers appreciated these tools provided by the school head because they made classes more interesting and visually appealing, which increased student engagement and attention. The importance of educational technology in enhancing classroom experiences was highlighted by both viewpoints.

School Heads' Perspective: Utilization of Interactive Virtual Platforms

Interactive virtual platforms facilitate digital collaboration, communication, and participation. These platforms foster computer literacy and improve their entire academic experience in a setting that continues to grow more digitally advanced. It is evident in the following excerpts:

> [P4_S7]*Some teachers in the gifted and talented sections* ***use this Kahoot****.*

> [P7_S12]*We also* ***use interactive platforms like the Kahoot, quizzes, interactive platforms*** *so that the pupils will really be engaged in all the learning activities.*

> [P11_S22]*There's also* ***virtual learning*** *includes also the* ***involvement of parents****, encouraging them to have internet connection in their homes.*

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The excerpts demonstrated that the school heads' perspective represented a proactive commitment to increasing student involvement and improving the teaching-learning experience using innovative methods. [P4_S7] stated that teachers, particularly those in charge of gifted and talented sections, were urged to use platforms like Kahoot to enhance interactive learning activities that promote critical thinking and active engagement. [P7_S12] explained that the integration of various virtual platforms, such as online quizzes and games, was viewed as a strategy for making classes more engaging and fun for students, hence encouraging greater participation in classroom activities. Furthermore, [P11_S22] stated that the school administration broadened the reach of virtual learning outside the classroom by including parents and encouraging them to secure home internet access, ensuring continuity of learning and support in the digital learning environment.

Teachers' Perspective: Adoption of Game-based Learning

In elementary education, game-based learning is becoming more popular as an innovative way to increase motivation and student involvement. This method encourages active engagement and supports the growth of critical thinking abilities in an enjoyable way by incorporating learning content into interactive games. It is evident in the following excerpts:

> [T2_S2] *So basically,* ***most of the teachers in our school download apps*** *which help them in their discussions or during their lessons.*
>
> [T4_S57] *I am currently* ***using the ClassPoint app in my class and utilizing game-based learning*** *using interactive PowerPoint.*
>
> [T6_S17] *She is always saying that* ***we should be innovative in teaching our students****, not just more on paper and pencil, but we must also use new technology, new approaches, even cellphones.*

The excerpts showed that the teachers shared with the school head's advocacy for innovative educational practices. [T2_S2] shared that teachers actively used educational applications to supplement their classes, suggesting a practical acceptance of technology-enhanced instruction. [T4_S57] noted using the ClassPoint app and interactive PowerPoint tools to conduct game-based learning, demonstrating the incorporation of engaging, student-centered approaches in the classroom. [T6_S17] highlighted that the school head was also recognized as a consistent supporter of innovation, urging teachers to move beyond traditional paper-and-pencil methods by incorporating new technologies and creative teaching strategies, such as the usage of mobile devices. These personal accounts demonstrated how the school heads' leadership fostered an innovative culture, inspiring teachers to experiment with and incorporate game-based learning into their instructional practices.

In comparison, teachers' enthusiasm for game-based learning and school heads' opinions on the use of interactive virtual platforms demonstrated a common dedication to creating dynamic, technologically driven learning environments. School heads understand the importance of virtual learning resources and interactive platforms like Kahoot in encouraging student engagement and fostering closer ties between the home and the school. In response, teachers use educational applications and game-based learning platforms like ClassPoint to boost student engagement and make classes more engaging. Thus, a cooperative approach to the adoption of educational technology is highlighted by this alignment between classroom practice and administrative support.

School heads stressed interactive virtual platforms, classroom televisions, and offline learning resources to support successful instructional delivery. 85% of participants in the STARBOOKS program reported that it had a favorable influence on lesson planning and student participation in rural Philippine schools (Farren et al., 2024). Similarly, students' comprehension and academic performance have improved when offline video lectures have been incorporated (Batilantes, 2022). Also, teachers successfully used PowerPoint to sustain student engagement and learning quality (Li & Shan, 2020). Lesson delivery has also improved because of tools like Prezi, which enabled teachers to produce more dynamic and visually appealing presentations that increased the significance of learning experiences (Sanchez et al., 2020).

Furthermore, school heads supported game-based learning approaches that include students in fun and participatory exercises. Felix et al. (2024) mentioned that resources, like Kahoot and other quiz-based platforms, offered individualized and engaging experiences that increased student motivation and engagement. Among other factors, the implementation of game-based learning boosted students' enthusiasm for learning and literacy (Septianing et al.,

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2024). Also, teachers viewed game-based learning as a useful avenue for developing their teaching abilities, increasing their self-confidence, and refining their pedagogical practices (Ragni et al., 2023).

In line with this, the evidence of using innovative resources in teaching and learning was supported by the availability of televisions and projectors in classrooms. When used properly, LED TVs enhance instruction while also boosting teachers' competence and confidence (Averion et al., 2020). Similarly, projectors enabled teachers to deliver lectures more clearly, which improved student focus and comprehension of difficult subjects (Sari et al., 2024). Also, PowerPoint and other offline tools facilitated more accurate student assessments, assisting teachers in efficiently assessing student learning while maintaining academic integrity (Alzubi et al., 2022).

In addition, research conducted in Uzbekistan indicated that the successful integration of technology into the classroom fostered the growth of student skills and aided students in acquiring critical skills (Khayitov et al., 2024). When properly incorporated, these platforms enhance the educational process and support the balance between traditional teaching techniques and digital innovation, both of which enhance the quality of education (Shvardak, 2023). Facilitating conditions, like sufficient IT support and technical resources, were also deemed important elements in technology integration concerning the Unified Theory of Adoption and Use of Technology (Saal et al., 2020). Ultimately, school heads' and teachers' shared perspectives highlighted how educational technology, when used carefully in elementary schools, may have a profoundly positive impact.

The theme *Utilizing Innovative Resources in Teaching and Learning* is consistent with implementing innovation ideas from the Innovative Leadership Measure and performance expectancy from the UTAUT model. Implementing innovation ideas were observed in school heads who applied innovative ideas in adopting educational technologies to improve teaching and learning experiences. This supported practical application of digital tools, which enabled teachers to deliver instruction more effectively. This was consistent with the concept of performance expectancy, as teachers were more willing to use technologies when they anticipated they would improve the quality of their teaching. The school heads' dedication to innovation influenced teachers' perceptions of technology's role in accomplishing educational goals. School leaders played an important role in developing an innovative culture in elementary education by focusing on both implementation and performance outcomes.

Theme 3: Mobilizing Platforms for Communication and Information Dissemination

School heads used digital tools to improve communication and information dissemination in basic education. They conducted virtual sessions to guarantee constant collaboration among parties. Information was effectively disseminated via group chats (GCs), allowing for fast updates and responses. These principles were designed to ensure clear and consistent communication among the school community. Digital tools have become vital for administrative and instructional communication.

Teachers actively took part in these communication efforts. They frequently attended online sessions hosted by school heads. They also collaborated and discussed using services such as Messenger. These methods enabled professional engagement and rapid information exchange. Teachers acknowledged the efficacy of these methods in preserving connectedness. Their involvement demonstrated the effective use of digital communication technologies in school operations.

School Heads' Perspective: Conduct of Virtual Meetings

In elementary schools, holding virtual meetings has become an important practice that promotes effective communication and cooperation between stakeholders, teachers, and school administrators. In situations where in-person meetings are few or difficult to arrange, this digital method facilitates prompt decision-making, professional growth, and coordination. It is evident in the following excerpts:

[P1_S10]*We also **do virtual meetings** so that classes will not be cancelled.*

[P4_S3]*Even in school time, **we have our virtual orientation**.*

[P4_S14]*We also **use Microsoft Teams, google meet, and zoom**.*

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[P7_S30] *And also, **we use learning platforms like the Microsoft Teams, the Zoom**, especially during their collaborative projects.*

The excerpts demonstrated the strategic use of digital channels to ensure continuous communication and avoid disruptions to academic activity. [P1_S10] stated that virtual meetings were arranged to guarantee that lessons were not cancelled, demonstrating a proactive approach to sustaining instructional time. Furthermore, [P4_S3] shared that virtual orientations were held during school hours, demonstrating the school's versatility in moving important gatherings to online platforms. [P4_S14] also mentioned the usage of numerous communication tools such as Microsoft Teams, Google Meet, and Zoom to allow smooth contact among stakeholders. [P7_S30] also stressed that these platforms were used for collaborative student projects, emphasizing their importance in improving communication and involvement within the school community.

Teachers' Perspective: Attendance to Online Conference

In elementary school, participating in online conferences has become a crucial part of teachers' professional development. Teachers and school administrators can stay educated and connected in an increasingly digital learning environment by participating in these virtual meetings, which provide easily accessible forums for knowledge sharing, collaboration, and exposure to innovative teaching strategies. It is evident in the following excerpts:

[T4_S9] *She also **attends online conferences and trainings** with her laptop.*

[T7_S65] *Because the **meetings of the school heads now are online**, especially the regional meetings.*

[T11_S27] *For those who are far, **we do video call via google meet and email** with them.*

The excerpts demonstrated that active engagement in online conferences was part of a larger plan to use digital platforms for communication and information sharing. [T4_S9] saw that the school head frequently used her laptop to participate in virtual conferences and training sessions, demonstrating her dedication to ongoing online professional development. Additionally, it was noted by [T7_S65] that many administrative meetings, particularly those held at the regional level, had switched to virtual forms, in which the head of the school often took part. Additionally, [T11_S27] shared that the school used email and video chats through Google Meet to communicate with those who were far away, exhibiting a flexible and approachable strategy for sustaining efficient communication amongst multiple stakeholders.

In comparison, there was a shared commitment to using digital tools for professional engagement and cooperation, as evidenced by the perspectives of school heads regarding virtual meetings and teachers regarding online conferences. School heads make strategic use of digital platforms for leadership roles by using virtual meetings to maintain coordination, planning, and communication without interfering with daily operations. Similarly, teachers acknowledged the value of online conferences for ongoing professional growth and networking, which helped the school heads keep up with changes in educational policy and practices. When taken as a whole, these strategies show how school heads used technology to improve instructional abilities and sustain successful communication, creating a more responsive and connected learning environment in elementary schools.

School Heads' Perspective: Information Dissemination through GCs

Group chats have emerged as a crucial communication tool in elementary education. By facilitating prompt updates, task collaboration, and cooperative planning, these systems foster a more responsive and interconnected school community. It is evident in the following excerpts:

[P1_S9] *If we have meetings, instead of writing a memo, I usually **inform them through the GC (group chat)**.*

[P5_S26] *During the pandemic or as of this time, **we utilize messenger or the GC**, if there are suspension of classes.*

[P7_S31] *For now, we have Google Microsoft, **group chats** and simple interactive gamified activities.*

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[P9_S8] *I have also **created GCs for every grade level and also for the PTA**.*

The excerpts highlighted a proactive approach to information dissemination by efficiently using group chats (GCs) as a key communication medium. For convenience and timeliness, [P1_S9] said that major news and meeting notices were frequently transmitted using GCs rather than regular memos. [P5_S26] shared that during critical periods, such as the pandemic, the school head relied on Messenger and GCs to announce class suspensions and keep stakeholders informed. Furthermore, [P7_S31] mentioned that the utilization of numerous platforms such as Google, Microsoft, and group chats, as well as interactive gamified activities, demonstrated a versatile and adaptable communication strategy. [P9_S8] stressed that the development of separate GCs for each grade level and the PTA demonstrated an organized and inclusive approach to ensuring that communication was targeted and accessible to all relevant parties.

Teachers' Perspective: Collaboration through Messenger

Use of Messenger in elementary school has become a popular and useful digital strategy for encouraging teacher collaboration and communication. To improve instructional preparation and promote a collaborative culture in the school, this platform enables real-time engagement, idea exchange, and collaboration. It is evident in the following excerpts:

[T5_S11] *So in terms of community linkages, the teachers are empowered to **create group chats so that they can have this constant collaboration** in terms of the academic performance of students, and meetings.*

[T7_S2] *We use of example **messenger, email**, also use of cloud storage and many more application that we can use.*

[T10_S7-S8] *Another is that **we are using Messenger** so that our school head can manage us even if she is not around our school. She **messages us about important information** that needs to be disseminated to the public.*

The excerpts demonstrated the use of Messenger as an efficient way to create collaboration and maintain contact. [T5_S11] highlighted that Messenger enabled teachers to create group chats, allowing for regular discussion on student achievement and meeting coordination. [T7_S2] stated that Messenger's integration with other systems, such as email and cloud storage, was viewed as part of a larger attempt to improve communication and resource access. [T10_S7] also remarked that the school principal used Messenger to oversee staff remotely, guaranteeing leadership presence even while physically absent. Furthermore, [T10_S8] shared that the school head constantly used the platform to disseminate critical public information, demonstrating her dedication to timely and effective communication.

In comparison, the perspectives of school heads regarding the sharing of information via group chats (GCs) and the usage of Messenger by teachers for collaboration show a common dependence on digital communication technologies to improve instructional assistance and school operations. School heads use GCs to provide timely announcements and updates, and teachers use Messenger to maintain collaboration and cooperation. By demonstrating a shared dedication to effective communication, this mutual use of mobile platforms supports the incorporation of technology into elementary school administrative and instructional procedures.

School heads used virtual meetings and messaging apps to ensure smooth teacher coordination and prompt dissemination of important updates. Technology-enhanced virtual meeting planning models encouraged significant teacher engagement, fostering leadership growth and shared learning (Charteris et al., 2021). To solve problems such as students not relaying messages, mobile apps have also shown their potential in closing communication gaps between parents and schools (Sari et al., 2020). Furthermore, interactive school websites have been created to manage procedures like newsletters, comments, and admissions, providing an economical and effective way to disseminate information (Sadiku et al., 2020).

Moreover, school heads acknowledged social media and chat platforms as useful resources for administrative coordination and stakeholder involvement (Neiroukh et al., 2024). To facilitate communication between the school and the community, these platforms have become indispensable for providing immediate updates, particularly during disruptions like class suspensions (Bylieva et al., 2023). Additionally, these platforms served as efficient channels for

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promptly disseminating educational updates, policies, and best practices, encouraging ongoing education and well-informed decision-making among school stakeholders (Kim et al., 2022).

Undoubtedly, messenger collaboration facilitated real-time academic discussions and effective task coordination among teachers and school heads. Messenger served as a tool to engage students in academic tasks by providing instant feedback (Samani & Noordin, 2020). It also encouraged group conversations and collaborative planning (Acharya Kamal & Acharya Milan, 2022). Virtual mentoring and coaching (VMC) support school leaders with organized chances to improve their instructional capacity through cooperation, presentation, and reflective planning (Irby et al., 2022).

The theme *Mobilizing Platforms for Communication and Information Dissemination* is closely tied to Innovative Leadership's thinking creatively and UTAUT's social influence. School heads who used innovative thinking found and used a variety of digital tools to improve communication among stakeholders, including teachers, parents, and students. Their creative approach enhanced communication and collaboration throughout the school community. This effort was reinforced by social influence, as school heads' public support and modeling of technology use encouraged others to follow. Peer influence and administrative endorsement helped to increase people's positive perceptions of technology's utility and importance.

Theme 4: Simplifying Administrative Tasks with Technology

School heads used technology to streamline administrative work in basic education. They used digital evaluation tools to effectively track student achievement. School reports were managed and securely stored using online storage technologies. They also evaluated the efficacy of these projects to ensure ongoing improvement. These methods were intended to streamline operations and reduce manual workload.

Teachers contributed to these initiatives through practical implementation. They implemented electronic recording to monitor student achievement and classroom activity. Reports were submitted and saved digitally for ease of access and retrieval. Teachers also used responsible technology management to ensure system integrity. Their participation exhibited alignment with the goals of the school leadership. These coordinated projects improved administrative efficiency using technology.

School Heads' Perspective: Utilize Digital Assessment Tools

Data-driven instruction is becoming increasingly common in elementary school due to the use of digital assessment tools. These meet the growing need for technology-enhanced teaching and assessment methods in basic education. It is evident in the following excerpts:

> [P1_S41]*In addition, we are **using the E-Pindot**, the school paid for this tool, which is used for the grades of the children.*
>
> [P2_S10]*The school actively **monitors student progress using digital assessment tools**.*
>
> [P10_S65]*Another, if we have trainings, our monitoring and evaluation is **through Google Form** or through Google Drive.*

The excerpts showed that school heads displayed a clear commitment to streamlining administrative work using digital assessment tools, which is consistent with the theme of technology integration for administrative efficiency. [P1_S41] stressed the usage of E-Pindot, a paid digital platform designed exclusively for handling student marks, demonstrating institutional involvement in expediting grading operations. [P2_S10] emphasized how the school constantly tracked student achievement using multiple digital assessment tools, demonstrating a proactive approach to data-driven educational management. Furthermore, [P10_S65] said that digital platforms such as Google Forms and Google Drive were used to monitor and evaluate training sessions, which demonstrated how technology was integrated into administrative processes beyond classroom education.

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Teachers' Perspective: Adopt Electronic Recording

Using electronic recording systems in elementary school improves efficiency in administration by making paperwork and data management procedures easier. School heads promoted more efficient initiatives using digital tools to keep accurate records, lessen manual effort, and ensure prompt access to important data. It is evident in the following excerpts:

> [T1_S12-S13] *Teachers are using the **E-Class record** for the encoding and computing of grades provided by the Department of Education. And in our school, we also **use the e-platform where in all teachers are engaged in encoding their grades** per subject.*

> [T5_S12] *At the same time, we have this **online evaluation** in which parents can evaluate services offered by the school.*

The excerpts showed that the use of electronic recording systems is a successful technique for streamlining administrative work with technology. [T1_S12] said that the use of the Department of Education's E-Class Record allowed teachers to rapidly encode and compute student grades, expediting the grading process. Furthermore, [T1_S13] said that the usage of a school-wide e-platform guaranteed that all teachers were regularly engaged in digitally encoding grades for each subject, demonstrating a standardized and systematic approach to academic record-keeping. Furthermore, [T5_S12] mentioned that administrative processes were made available to stakeholders, with parents allowed to participate in online assessments of school services, demonstrating the use of digital tools in feedback collecting and service monitoring.

In comparison, there is a shared commitment to using technology to streamline educational procedures, as seen by the perspectives of school heads regarding the use of digital assessment tools and the acceptance of electronic recording by teachers. While teachers' perspectives concentrated on effective student achievement tracking and recording, school heads stressed the value of data-driven decision-making. This alignment demonstrated a cooperative strategy for enhancing educational quality and administrative effectiveness through integrated digital platforms. These strategies promoted a more structured, adaptable, and goal-oriented learning environment.

School Heads' Perspective: Use of Online Storage for School Reports

In elementary education, the use of online storage for school reports represents a move toward digital data management, which improves efficiency, accessibility, and organization. In line with changing needs in reporting systems and educational administration, this technique facilitates prompt submission, safe storage, and cooperative access to important records. It is evident in the following excerpts:

> [P4_S20] *And, we have our programs like whenever teachers request for the SF10 of students, **there is an online storage for that so it can be forwarded right away** to the requesting school.*

> [P8_S5] *Our school forms and our school records are included in the encoded system, **we have a storage for the SF10 of our learners in the Google drive** for easy access of our assigned administrative staff.*

> [P10_S68] *All the reports that we need, **we have a bank where they upload, including their DLL.***

The excerpts highlighted that the usage of online storage systems is a big step forward in simplifying administrative work through technology. [P4_S20] said that the school was able to support the timely and effective transmission of records to requesting organizations by keeping digital archives for important documents such as the SF10 student forms. [P8_S5] mentioned that this technology also improved accessibility by storing school forms and data on platforms such as Google Drive, allowing designated administrative professionals to easily download necessary documents. Furthermore, [P10_S68] shared that all necessary reports, including Daily Lesson Logs (DLL), were systematically uploaded to a central digital repository, simplifying the setup and submission of required documents.

Teachers' Perspective: Submit and Store Reports

In elementary education, digital report submission and storage have become essential, fostering accuracy, accessibility, and efficiency in school operations. The improvement in technology facilitated administrative processes,

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reduced paperwork, and made it possible for teachers and school heads to submit and retrieve crucial documents on time. It is evident in the following excerpts:

> [T5_S2] *She requires all the teachers to **submit soft copies of SF10**, which I will safekeep it.*

> [T5_S37] *And on the administrative side, **we created a system in which all the children in school and all the records are there**.*

> [T7_S4] *We use it for learning and also **for submission of reports**.*

The excerpts show that teachers recognized the school heads' strategic use of digital technology to streamline administrative processes, particularly report submission and storage. [T5_S2] said that teachers were obliged to produce soft copies of important documents such as the SF10, which were then stored securely for convenient access and record management. In addition, [T5_S37] stated that a computerized system was built to contain all student-related records, improving data organization and retrieval. [T7_S4] also reported using digital tools not only for instruction, but also for quick report filing, demonstrating an integrated approach to administrative and academic activities.

In comparison, teachers and school heads agreed that educational technologies are essential for handling school data and reports. The usage of online storage platforms was stressed by school heads to guarantee prompt access and well-organized preservation of student records and other school documents. Similarly, teachers emphasized their responsibility to turn in soft copies of necessary paperwork as mandated by the school head, which expedited reporting and enhanced administrative supervision.

School Heads' Perspective: Assess the Effectiveness of Implementation

Evaluating the success of implementation in elementary school is essential to ensuring that educational programs and technology produce the desired results. Through this method, teachers and school administrators can assess student development, recognize gaps, and make well-informed decisions that improve instruction and student performance. It is evident in the following excerpts:

> [P4_S2] *This is to **improve teaching strategies and streamline administrative tasks.***

> [P7_S3] *So actually we have this **needs assessment to identify what are the learning challenges** as well as the learning **objectives for us to choose the right technology for our learners**, for our diverse learners.*

> [P11_S6] *Then with this constant evaluation, we will be able to **measure the impact of technology in learning** so that we could adjust as per necessity in the teaching learning process needed by our learners.*

The excerpts demonstrated that a methodical approach to evaluating the success of technological implementation to improve educational tactics and reduce administrative responsibilities. According to [P4_S2], the incorporation of technology sought to improve methods of instruction while also making administrative operations more efficient. [P7_S3] mentioned that this was aided by the implementation of needs assessments to identify unique learning obstacles and objectives, allowing the selection of appropriate technology tools for varied learners. Furthermore, [P11_S6] emphasized the necessity of ongoing evaluation to assess the influence of technology on learning outcomes, enabling appropriate adjustments to suit students' changing requirements during the teaching-learning process.

Teachers' Perspective: Responsible Technology Management

In elementary education, responsible technology management ensures the moral, secure, and efficient use of digital resources to enhance instruction and administration. It places a strong emphasis on data protection, appropriate online behavior, and fair access, creating a safe and welcoming environment for teachers and students in the age of technology. It is evident in the following excerpts:

> [T7_S110] *It is already **stated in the SIP** so someday if there is a problem later to ICT, we have **spare funds that can be used for that**.*

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[T8_S1]*Practices employed by our school heads is, first, she **assessed the needs of teachers** in terms of adopting educational technology.*

[T9_S22]*Looking ahead to next year, we aim to **improve the implementation of the ICT program** to provide students with more time for hands-on learning.*

The excerpts showed that the teachers praised the school heads' responsible approach to technology management for simplifying administrative work. As previously stated, [T7_S110] ensured that funds had been allocated in the School Improvement Plan (SIP) to address possible ICT-related difficulties, displaying foresight and preparedness. Furthermore, [T8_S1] shared that the school head conducted assessments to determine teachers' technical needs, allowing for more effective implementation of teaching technologies. [T9_S22] also stated that they intend to improve the implementation of the ICT program in the coming academic year, with a focus on giving students more opportunities for hands-on experience with technology, in line with larger efforts to optimize both learning and administrative processes.

In comparison, teachers' perspectives on school heads' responsible technology management and school heads' views on evaluating implementation effectiveness were interconnected. They reflected a common commitment to sustainable and intentional use of educational technology. While teachers stressed ethical usage to maximize impact and encourage student well-being, school heads placed a high priority on continuous evaluation to match digital tools with learning needs.

School heads were implementing educational technology to accelerate administrative tasks. Their proactive leadership promoted successful technology integration, which enhanced teaching strategies and student achievement (Reis-Andersson, 2023). To meet the needs of modern education, school heads actively participated in the formation of policies, planned professional development, and adopted blended learning systems (Torrato et al., 2021). Hence, improved educational achievements and increased operational efficiency were supported by the integration of technology in school management.

Additionally, digitally submitting and storing reports improved data management and communication effectiveness. Online report submission platforms changed how reports were submitted, enhancing communication between administrators and parents (Timotheou et al., 2022). This digital strategy also improved the efficacy and efficiency of school operations by making it easier to generate school forms and reports quickly (Ronquillo et al., 2022). Hence, institutional performance was positively impacted by data security, correctness, and system quality (Mukred & Yusof, 2019).

Moreover, technology encouraged positive behavior and emotional well-being in students and increased engagement (Savia et al., 2021). Evaluating the effect on performance and instructional practices also gave a foundation for strategic interventions to improve adoption (Quintos, 2024). Teachers were found to benefit from guided procedures that enable timely intervention and data-driven decision-making (Owens et al., 2022). Thus, effective leadership has a positive effect on teachers' beliefs about educational technology, their technical skills, and their abilities to teach with educational technologies (Schmitz et al., 2023). Together, these protocols ensured that classroom technology is not only used efficiently but also ethically and sustainably.

The theme *Simplifying Administrative Tasks with Technology* is best exemplified by Innovative Leadership's holding the willpower to be innovative and the UTAUT model's effort expectancy. School heads with strong innovative willpower actively explored and implemented digital solutions to streamline administrative operations, including scheduling, reporting, and data management. Their effort to increase efficiency resulted in the implementation of user-friendly solutions that reduced workload and errors. This was consistent with effort expectancy, since the perceived ease of utilizing technology influenced its acceptance by teachers and students. Staff were more likely to consider these technologies accessible and effective when school heads demonstrated confidence and persistence in their use. Finally, their leadership not only increased operational efficiency but also fostered a more responsive and adaptable administrative culture.

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Conclusions

The emerging themes of this study were anchored on the Innovative Leadership dimensions and UTAUT components for better understanding. Practices of school heads showed the presence of facilitating conditions, performance expectancy, social influence, and effort expectancy aligned with the UTAUT component. On the other hand, establishing mechanisms for innovation, implementing innovation ideas, thinking creatively, and holding the willpower to be innovative were the Innovative Leadership dimensions.

The practices used by school heads demonstrated efficient technology adoption in education. Improving educational technology adoption showed strategic preparation for digital readiness. Curriculum improvement and instructional leadership were supported using innovative teaching resources. Mobilizing communication platforms ensured effective communication and stakeholder participation. Using technology to simplify administrative tasks promoted data-driven decision-making and more efficient operations. These programs emphasized how important it is for school heads to oversee resources, direct innovation, and sustain the use of technology in basic education.

Implications

There are advantages and disadvantages to adopting educational technology. The implications that follow list crucial factors that different stakeholders should consider in facilitating successful technology adoption:

Teachers may be supported in educational technology adoption by boosting communication within the school community, simplifying administrative duties, and improving the delivery of instruction. However, barriers like outdated technology, unstable internet, and lack of digital skills may make it difficult for teachers to adopt technology into their lessons effectively. If these obstacles are not appropriately addressed, they may result in frustration, lower-quality training, and increased workload. Stakeholder collaborations, enhanced resources, and training in educational technology adoption are some encouraging approaches that may help teachers adapt and succeed in using educational technologies.

School administrators are essential to the effective use of educational technology because they offer the necessary resources and strategic guidance. However, administrators must deal with obstacles such as limited funding, outdated technology, and differences in stakeholders' digital readiness. If these issues are not resolved, they may impede the efficient use of technology and increase inequalities in access and education. They may set a good example and provide robust support for educational technology. Using data-driven methods is essential for overcoming obstacles and promoting ongoing development. Thus, decisions about sustainability, resource availability, and training may be guided by innovative leadership.

The Department of Education Officials may need to develop policies that support funding for resources, capacity building, and equitable access to educational technology in elementary schools. Although technology may improve communication, learning delivery, and school administration, its effectiveness is constrained by differences in digital skills, obsolete equipment, and resources. These issues may worsen educational disparities and lessen the effectiveness of technology-based programs if they continue. DepEd may increase teacher training, support investments in sustainable resources, and strengthen collaborations to provide fair access and assistance to all schools.

Future researchers may investigate the relationship between technology adoption and leadership styles to understand the factors influencing innovation in learning environments. Incorporating the TPACK (Technological Pedagogical Content Knowledge) framework into these kinds of studies may yield more profound understandings of how school administrators integrate technology with content and pedagogy to improve instructional leadership. A comprehensive picture of how technology affects student learning and engagement may also be obtained through mixed methods research. Thus, researchers may help establish theories and policies that guide more sustainable and strategic approaches to educational technologies.

This study was very relevant to the Sustainable Development Goals (SDGs), especially SDG 4, which called for universal access to high-quality, inclusive education and opportunities for lifelong learning. This study looked at how school administrators incorporated technology into instructional and school administration. It supported goals aimed at raising the standard of education and ensured that every student gained useful abilities for the digital age. Additionally, by emphasizing the importance of leadership in promoting an innovative and digitally inclusive culture,

the study may help in capacity-building initiatives. As a result, it may influence practices and policies intended to achieve transformative and sustainable educational growth.

Implications to Practice. School heads may implement evidence-based and contextually appropriate techniques to manage the adoption of educational technology in elementary education, as shown by the Innovative Leadership Measure (ILM) and Unified Theory of Acceptance and Use of Technology (UTAUT). This involves encouraging inclusive access to educational technologies, enhancing resources, and cultivating an innovative culture. School heads may also provide personnel with the skills they need to meet the demands of the digital age by investing in consistent, comprehensive professional development and setting an example of innovative leadership. Thus, educational technology may be used as an avenue to enhance student engagement, instructional delivery, and overall school success when school administrators are proactive and responsive.

As the main implementers, teachers may also embrace educational technology adoption and continuous capacity building to optimize the use of educational technologies in the classroom. In addition to improving student-centered learning, the use of innovative tools and platforms may encourage teamwork, creativity, and critical thinking. However, limitations like outdated technology or a lack of digital skills may be addressed with ongoing guidance and support.

Implications for Policy. One of the implications this study can provide is the creation of the EdTech Partnership Council. The emphasis on innovation, inclusion, and stakeholder participation may help to speed the accomplishment of DepEd Order No. 24, s. 2022, or the Basic Education Development Plan (BEDP) 2030 targets, particularly in terms of reforming education to be more future-ready and learner-centered. This study may also provide inputs to the DepEd Computerization Program (DCP), which is communicated by DO 78, s. 2010. This study can recommend strategies to address challenges and highlight the need to partner with the community when it comes to educational technology adoption.

The creation of an EdTech Partnership Council is particularly relevant to ILM's creative thinking and UTAUT's facilitating conditions. Creative thinking entails devising unconventional methods and collaborative approaches towards problem solving; creating a council exhibit this by bringing together diverse parties to design and implement creative educational technology solutions. Meanwhile, facilitating conditions are the beliefs that organizational and technical resources promote system use. The council provides a formal system for coordinating resources, policy support, and infrastructure, thereby establishing an environment conducive to EdTech adoption. Thus, the EdTech Partnership Council exemplifies both visionary leadership through creative cooperation and the creation of favorable conditions for effective technology integration in education.

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