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Utilization of Educational Technology Materials in Classroom Instruction

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Abstract: This study, entitled *The Utilization of Educational Technology Materials in Classroom Instruction,* examines how primary teachers utilize educational technology in their teaching practices. It specifically aims to determine the different educational technology materials used, the extent of their utilization, how these materials support classroom instruction, the challenges teachers encounter, and the capacity-building activities that may strengthen teachers' competencies and confidence in integrating technology. By addressing these areas, the study provides a comprehensive perspective on the role of educational technology in enhancing instructional delivery in rural school settings.

The study employed a mixed methods research design that integrated both quantitative and qualitative approaches to obtain a holistic understanding of the topic. Survey questionnaire and interviews served as the primary data-gathering tools, enabling the collection of both numerical data and narrative insights. Thirty primary teachers from elementary schools in Bulusan participate as respondents. Data are analyzed using frequency, percentage, and thematic analysis to capture patterns, trends, and recurring themes related to teachers' technology use.

Findings reveal that laptops and televisions are the most frequently utilized educational technology materials, followed by printers, internet connectivity, smartphones, and flash drives. These technologies are commonly used to support lesson delivery, enhance learner engagement, and provide access to online instructional resources. Teachers acknowledge that educational technology improves classroom interactivity and elevates the quality of teaching and learning experiences. However, despite its benefits, the study identifies persistent challenges including unstable internet connectivity, limited availability of digital resources, inadequate technical assistance, and insufficient funding, all of which hinder efficient technology integration.

Overall, the study concludes that educational technology is highly valued and widely used among teachers, yet its full potential is constrained by infrastructural, financial, and training-related limitations. To address these concerns, it is recommended that schools strengthen capacity-building initiatives such as Learning Action Cell (LAC) sessions, provide continuous professional development on technology integration, allocate adequate funds for digital resources, and improve technological infrastructure. Enhancing these support systems will better equip the teachers in rural schools to deliver effective, engaging, and technology-enhanced instruction.

Keywords: *Educational Technology Materials, Classroom Instruction, Technology Integration, Primary Education.*

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I. INTRODUCTION

In today's rapidly changing world, education is critical in developing learners to be adaptive, creative, and critical thinkers who can face the challenges of the modern age. The 21st century expects learners who are equipped not only with knowledge but also with the skills to purposefully use their knowledge effectively in real-life situations. To achieve this, teachers must go beyond traditional approaches and seek innovative ways of providing and delivering instruction. One of the most efficient methods for achieving this is through educational technology that improves teaching and learning by making lessons more interactive, engaging, and relevant to the needs of learners today.

According to Almazroa and Alotaibi, traditional teaching strategies and methods alone are no longer enough to equip learners with the competencies required for success in an increasingly interconnected and complex world. This realization has led to a paradigm shift in education, prompting

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the emergence of 21st century teaching, where technology is essential in transforming classroom instruction and enhancing learning outcomes.

As cited by Hernawati and Jailani, the goal of education in the 21st century is to create a knowledge-based society through technology integration in classroom instruction. Technological knowledge is an essential component of the Technological Pedagocical Content Knowledge (TPACK) framework, which explains the three fundamental parts of teacher expertise namely technology, pedagogy and content knowledge. This implies that the presence of technology in the classroom is a significant contribution to improve the delivery of instruction across different subject areas. The use of technology is not just an added feature of instruction but a central driver in developing learners' critical thinking, problem-solving, and collaborative skills.

The integration of technology has been a significant development in the 21st century teaching and learning process, revolutionizing the way educators deliver instruction and learners engage and participate with content. Technology serves as a powerful tool that enhances the educational experience, promotes creativity, and prepares learners for the digital age (ATC21S & World Bank. (n.d.). As technology continues to transform the lives of people, education must keep pace to ensure that learners are prepared to navigate the digital environments, solve complex problems, think critically, unleash their creativity, and collaborate effectively. Educators can make an engaging learning experience by adopting innovative teaching approaches that empower students to become active participants in shaping their future and foster lifelong learning.

Incorporating technology into the classroom and utilizing it in the teaching and learning process offers many benefits for both teachers and learners. It simplifies personalized learning experiences that allow the learners to delve into concepts at their own pace while catering to diverse learning styles. Technology provides access to vast array of educational resources such as simulations, interactive multimedia, and online research tools, promoting deeper understanding and enriching the learning process. Moreover, technology promotes learner engagement by creating interactive and collaborative environments. It enables learners to actively participate in their education through multimedia presentations, online discussions, and virtual collaborations with peers. By leveraging technology, educators can create dynamic and interactive lessons that captivate students' attention, fostering their enthusiasm for learning and improving overall academic achievement.

According to Eslit, technological advancements in education have transformed traditional classrooms into innovative learning spaces. Some of the most notable innovations include Learning Management Systems (LMS), educational applications and tools, online learning platforms, and emerging technologies such as Augmented Reality (AR) and Virtual Reality (VR). These tools illustrate how technology has transformed the education landscape, enhanced the learning experiences, and prepared learners for the challenges of the 21st century. The presence of technology in the k – 12 classrooms has consistently increased in recent years (Hill & Florez). Teachers are continually adapting to new technologies to improve learner engagement, instructional delivery, and academic achievement.

In the Philippine context, the Department of Education (DepEd) has emphasized the integration of technology into the K–12 curriculum to align with global education standards. Various initiatives, such as the DepEd Computerization Program (DCP) and the use of online learning platforms during the COVID-19 pandemic, have highlighted the role of digital tools in ensuring the continuity of learning. However, while urban schools often have better access to technological resources, rural schools still face challenges such as limited infrastructure, insufficient internet connectivity, and inadequate teacher training. This uneven distribution of resources underscores the need to study how teachers in rural areas utilize available educational technology materials in their instruction, particularly in the early grades.

Education in the 21st – century education is anchored not only on Content Knowledge and Pedagogical Knowledge, but also with the integration of technology in classroom instruction (Ambrose & Lorente). Teachers must therefore be equipped with knowledge and skills with the TPACK framework to design, implement, and evaluate lessons effectively using technology. TPACK provides a dynamic model of teacher competence that combines subject matter expertise, instructional strategies, and digital tools. This implies that strengthening teachers' TPACK can improve academic performance, especially in foundational areas such as reading and mathematics. However, some of the teachers are still not fully equipped with knowledge and skill in integrating technology in their practice.

Integrating technology in primary education is especially crucial since the early grades serve as the foundation for lifelong learning. Primary learners are in the stage of developing essential skills such as reading, writing, and numeracy, which can be significantly enhanced through the strategic use of technology. Interactive e-books, phonics applications, and mathematics drill programs, for instance, provide engaging and individualized practice for young learners. Studies by Cabanilla and Buot emphasized that technology-supported instruction helps reduce learning gaps by catering to diverse learning paces and needs, particularly in literacy and numeracy development. Moreover, technology can stimulate curiosity and creativity among younger children, transforming abstract concepts into concrete experiences through visual and interactive aids. For teachers, this means that technology is not simply an add-on but an essential tool in ensuring that primary learners master fundamental skills in a more engaging, inclusive, and efficient manner.

The integration of technology in teaching and learning process has been proven to be effective in increasing the interests, motivations, and achievements of the students (Muhazir & Retnawati). In addition, it promotes inclusion and nurturing digital literacy skills, extends learning beyond the

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text and four corners of classroom, and exposes teachers and students to the online global communities. Some of the effects of using technology in classrooms are engaging students in the learning process, allowing students to have a higher accuracy with computational tasks, help to make a less-anxious environment for students, help motivate students, and help the students to have a better and deeper understanding of various content (Murhpy).

However, despite the opportunities presented by technology for teachers and learners, there are still challenges in integrating technology into education. According to Atabek, there were no correlations between age, sex, level of education, year of experience in other careers, job position and any categories of perceived obstacle. Some of the factors that can be constituted in problems in integrating technology are insufficiency of in-service and pre-service training, content support, and how specific technological device or tools will be used. In addition, teachers stressed the lack of education in teacher training institutions about the present technologies required or suggested to be used as part of their jobs.

In addition, Kibirige, mentioned that the obstacles of teachers in implementing technology in classroom instruction includes (1) learning materials was less suitable for the use of technology, (2) infrastructure, facilities and support provided by schools were inadequate, (3) the level of teacher skills in utilizing technology in class. While the factors influencing the emergence of these challenges are the teachers' point of view towards the effectiveness of the utilization of technology, unequal access to education services, and lack of information and trainings provided to the teachers.

Because of the contributions of utilizing technology in education, the researcher therefore will conduct a study that will explore educational technology materials as an integral part of modern education, and how these resources are being integrated into the classroom environment. This study aims to address questions that will shed light on different aspects of educational technology materials being utilized in primary education, determining the extent to which these resources are integrated into teaching practices, and examining the methods employed by teachers to effectively incorporate technology into lessons. Moreover, this study seeks to investigate various challenges that teachers encountered in utilizing different and how these educational technology materials issues affect the classroom instruction and the teaching and learning process. Finally, it aims to identify potential capacity-building activities that could be conducted to enhance the teachers' skills and competencies in using these materials. The findings of this study may contribute to the development of strategies particularly in the locale of the study – selected elementary schools in the municipality of Bulusan, Sorsogon to optimize the use of educational technology materials in primary education and improve both classroom instruction and overall teaching and learning outcomes.

II. STATEMENT OF THE PROBLEM

The present study aimed to explore on the utilization of educational technology materials in classroom instruction. Specifically, it sought to answer the following questions:

- What are the different educational technology materials utilized in teaching primary learners?
- What is the extent of utilization of educational technology materials in teaching primary learners?
- How do teachers employ educational technology materials in teaching primary learners?
- What are the challenges encountered by teachers in utilizing educational technology materials?
- What capacity building activities could be designed in the utilization of educational technology materials to improve the competencies of teachers in teaching?

III. METHOD

This study employed a Mixed Methods research design. The quantitative component gathered data through survey questionnaire to summarize, average, find patterns, make predictions, and test causal associations, as well as generalize results to wider populations. It allowed the researcher to quantify effect sizes, determine the strength of associations, rank priorities, and weigh the strength of evidence of effectiveness. Meanwhile, the qualitative component involved interviews to gain deeper insights into teachers' experiences, challenges, and perceptions in using educational technology materials.

The respondents of this study were thirty (30) identified primary teachers from Bulusan, Sorsogon who utilized educational technology materials in classroom instruction. Table A presents the name of the school and the corresponding number of respondents per school.

IV. PRESENTATION, ANALYSIS, AND INTERPRETSTION OF DATA

A. Educational Technology Materials Utilized in Teaching Primary Learners

The generation of today's learners has been considered as digital natives. These learners are often exposed to digital technology and find comfort in engaging with this advancement in technology. Exposing primary learners to the varied forms of educational materials has been found beneficial. Teachers considered these educational tools as a factor affecting the learning outcomes and the engagement of the primary learners. Hence, the use of educational technology materials has become a vital part of classroom instruction as it addresses different learning styles and keeps young learners actively engaged.

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Table 1. Educational Technology Materials Utilized in Teaching Primary Learners

Educational Materials	Frequency	Percentage (%)
Laptops	30	100
Television	30	100
Printer	29	97
Internet	29	97
Smart Phone	27	90
Flash Drive (USB)	27	90
Audio Device	16	53
Computer Set	10	33
Projector	8	27
Tablet/iPad	1	3

Table 1.0 shows that the most commonly used educational technology materials were laptops and televisions, each with a frequency of 30 or 100%. This means that all respondents used these tools in their classroom instruction. Printers and internet connection followed, both with a frequency of 29 or 97%, showing that these materials were also widely used in preparing lessons and accessing online resources. Smartphones and flash drives had a frequency of 27 or 90%, indicating that many teachers depended on portable devices for storing and sharing teaching materials. Audio devices had a frequency of 16 or 53%, while computer sets and projectors had frequencies of 10 and 8, corresponding to 33 % and 27% respectively. The least used educational technology material was the tablet or iPad, with a frequency of 1 or 3%. These results showed that teachers preferred tools that were accessible, portable, and practical for classroom use.

The results implied that teachers in elementary schools rely greatly on accessible and practical educational technology materials such as laptops, televisions, printers, and internet connectivity in delivering classroom instruction. These tools have become indispensable in facilitating lesson planning, content presentation, and learner engagement. Their consistent use indicates teachers' preference for visual and multimedia-based instruction, which helps maintain learners' attention and improve understanding, especially among young learners who benefit from concrete and visual learning experiences.

Furthermore, the high utilization of smartphones and flash drives demonstrates teachers' adaptability and resourcefulness in addressing technological challenges such as limited internet access and insufficient school equipment. These portable devices enable them to access, store, and share instructional content effectively despite infrastructure limitations. On the other hand, the low utilization of computer sets, projectors, and tablets reveals the existing digital divide in rural schools, where access to modern and advanced educational technologies remains limited. This suggests that teachers maximize what is available to them, prioritizing tools that are easy to use, maintain, and transport.

These findings are supported by Villanueva and Ignacio, who emphasized that visual learning tools such as televisions, projectors, and computer-based presentations improve comprehension and engagement among learners. Their study found that technology-enhanced visuals make abstract concepts more concrete and help sustain the interest of young students. Likewise, UNESCO highlighted that access to both printed and digital learning resources promotes more inclusive and effective classroom instruction. This supports the current finding that teachers in rural areas use a combination of traditional and modern tools such as printers, laptops, and the internet, to ensure that learning remains meaningful even with limited technological resources.

B. Extent of Utilization of Educational Technology Materials in Teaching Primary Learners

Teaching primary learners is a challenging task for teachers, requiring them to adopt strategies that sustain interest and engagement among young learners. One of these strategies is the use of educational technology materials, which is essential in enhancing the learning process. Table 2.0 presents the extent of utilization of these educational technology materials as indicated by the teacher respondents. The analysis reveals varying levels of integration and highlights how teachers maximize available resources in classroom instruction.

Table 2. Extent of Utilization of Educational Technology Materials in Teaching Primary Learners

Indicators	Weighted Mean	Description
Laptops and computer sets are used to create and present instructional materials such as Power Point presentations and worksheets.	4.77	Very High
Televisions are used to present stories and other concepts that stimulate discussion.	4.70	Very High
Printers are used to produce learning materials such as handouts, worksheets, and activity sheets to reenforce classroom instruction.	4.90	Very High
Internet resources (e.g., educational web sites, You Tubes, etc.) are integrated into lesson discussions to supplement learning materials.	4.37	High
Smartphones are utilized as teaching tools with the educational apps, reading materials and interactive learning platforms.	3.77	High

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Collected files and downloaded instructional resources are stored in the flash drive	4.43	High
Audio device is used to amplify audio materials such as songs, jingles, and story narratives	3.77	High
Projectors are used to display visual aids, videos, and lessons to enhance engagement and understanding	2.83	Moderately High
Average	4.19	High

Table 2.0 shows the extent of utilization of educational technology materials in teaching primary learners. Among the indicators, the printer obtained the highest weighted mean of 4.90, followed by laptops, with a weighted mean of 4.77 and televisions, with a weighted mean of 4.70, all described as Very High. These results indicate that teachers consistently rely on these tools for lesson planning, material preparation, and presentation. The data suggest that teachers prefer technologies that are practical, accessible, and easy to operate, making them indispensable in daily teaching. In contrast, projectors received the lowest weighted mean of 2.83, indicating limited usage of more advanced tools due to availability and maintenance issues in rural schools. The overall weighted mean of 4.19, interpreted as High shows that teachers extensively used educational technology materials in classroom instruction.

The printer, being the most utilized material, demonstrates that printed learning materials remain a central component of classroom instruction. Teachers frequently produce handouts, worksheets, and activity sheets that reinforce lessons and serve as tangible learning aids for pupils. This finding reveals that despite the increasing presence of digital resources, printed outputs continue to play an important role, especially in rural areas where learners have limited access to gadgets and the internet. The laptop and television are also highly used tools because they allow teachers to integrate multimedia presentations and educational videos that enhance learner engagement. Teachers often connect laptops or flash drives to televisions to display visual lessons, showing their adaptability and practical use of technology in the classroom.

In addition, the internet, with a weighted mean of 4.37, flash drives, with a weighted mean of 4.43, smartphones and audio devices each obtained 3.77, all described as High, showing that teachers use them regularly to access, store, and present instructional materials. These technologies help teachers enrich their lessons with updated and interactive content. Their frequent use also reflects teachers' creativity and flexibility in addressing connectivity issues by preparing materials offline or through portable storage devices. On the other hand, the projector, with a weighted mean of 2.83 was only Moderately High in utilization, indicating that while teachers recognize its instructional value, limited access and technical challenges prevent its regular use. This pattern of utilization highlights how teachers in rural schools rely more on practical and self-managed tools rather than on expensive or maintenance-heavy technologies.

These findings show that primary teachers in rural schools display strong dedication and adaptability in integrating educational technology despite limited resources. They maximize the tools available to create meaningful and engaging learning experiences for their learners. The high extent of utilization further reflects teachers' commitment to improving classroom instruction through both traditional and modern means. However, the lower use of advanced devices like projectors highlights the continuing need for school-level support, funding, and training to strengthen technology integration in rural education settings.

The findings are supported by Rumirang, Mission, and Medenceles, who noted that teachers maximize the use of familiar and reliable technology to ensure smooth lesson delivery, especially in areas with limited resources. Similarly, Cabunoc and Ubayubay emphasized that accessibility and practicality are key factors influencing teachers' adoption of technology, with portable and multifunctional devices being the most utilized. These studies confirm the present observation that teachers consistently choose tools that are easy to use, maintain, and transport. The high utilization of laptops, televisions, and printers reflects teachers' creativity in integrating both digital and printed materials to enhance learner understanding, engagement, and retention, despite existing technological limitations.

C. How Teachers Employ Educational Technology Materials in Teaching Primary Learners

The landscape of teaching and learning has been evolving with the advancement of ICT and the growing presence of educational technology materials. Teachers seize the value of these educational technology materials as they provide learning experiences to learners. These teachers take advantage offered by these educational technology materials in teaching primary learners.

- *Utilizing Educational Technology Materials to Enrich and Supplement Learning Resources*

Teachers consistently shared that educational technology materials have become indispensable in enriching and supplementing the limited resources in their classrooms. Participant 1 stated, *"Using the laptop and television helps me show pictures and PowerPoint slides that the books do not have. Our textbooks are sometimes outdated or incomplete, so digital materials help fill in those missing parts."* This response illustrates how teachers use technology to compensate for the inadequacies of printed materials. In many schools, textbooks may be outdated, lacking visuals, or insufficient in number. By projecting images and slides, teachers enhance lesson clarity and provide learners with visual support that is especially important for primary pupils who rely heavily on concrete representations. This also shows teachers' awareness of their learners' developmental needs, as young children learn best when content is presented in a multisensory and visually appealing way.

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Participant 4 mentioned, *"Technology allows me to show updated information to my pupils. The lessons become more meaningful because they see real examples. When I teach weather or disasters, I play short clips so they can see what really happens, not just drawings in the book."* This response highlights the value of technology in keeping lessons relevant and current. Traditional printed resources often do not reflect recent events or updated knowledge, especially in science. By using videos, photos, and online materials, teachers make lessons relatable and grounded in real-world contexts. This deepens learners' conceptual understanding and helps them connect classroom concepts to what they see in their environment. The teacher's emphasis on "real examples" also indicates that technology helps bridge the gap between abstract ideas and concrete experience, which is crucial for early grade learners.

Participant 9 added, *"Sometimes, we don't have enough printed materials, so I download videos and digital storybooks to use during discussions. There are days when the books for one grade level are not enough, so I rely on digital copies and online resources. I save them offline because our internet connection is not always stable.* "This statement demonstrates teachers' initiative and adaptability in addressing material shortages. Instead of relying solely on limited textbooks, teachers proactively search for digital resources and prepare them in advance and sometimes even saving them offline due to unstable internet access. This practice reflects a strong sense of responsibility and resourcefulness. It also shows that digital content serves as an alternative form of instructional support that ensures lesson continuity and quality even in the absence of complete printed materials.

Participant 13 shared, *"I create my own slides to match the needs of my pupils. I customize the examples, add familiar objects, and insert pictures from our community so they can relate better."* This reveals the teachers' willingness to customize learning materials to better suit their pupils' levels and backgrounds. Rather than using generic or poorly aligned materials, teachers design their own digital content to ensure that lessons are relevant, age-appropriate, and culturally appropriate. The act of creating slides also shows the teacher's competence in integrating ICT skills with pedagogy, demonstrating both creativity and a learner-centered approach.

Participant 17 explained, *"When the TV turns on, the children's eyes light up. They love watching videos and looking at colorful presentations. They become more attentive and behave better during lessons."* This highlights how technology directly supports classroom management and engagement. Primary pupils tend to have shorter attention spans; thus, the use of multimedia materials captures their interest more effectively than traditional chalkboard instruction. The teacher's observation also reflects how digital tools increase learner motivation and participation, making instruction smoother and more interactive.

Participant 20 shared, *"Some pupils struggle with reading. But when I use videos or audio stories, they can still follow the lesson. Technology gives them another way to learn without feeling left behind."* This response shows how technology helps address diverse learning needs. Pupils with reading difficulties or learning delays benefit from audio-visual materials because these provide alternative ways of accessing information. Instead of depending solely on text, learners can understand content through sounds, movements, and images. This indicates that technology promotes inclusivity by allowing all learners regardless of ability level to participate meaningfully in class.

Based on the participants' responses, it is believed that educational technology serves as both a solution and a bridge to address instructional gaps in rural learning environments. Teachers' creativity and initiative in maximizing limited digital tools reflect their strong commitment to providing quality education despite existing challenges. Their experiences demonstrate resilience and innovation, which are essential qualities of 21st-century educators who continuously adapt to the evolving educational landscape. While access to technology remains uneven, the willingness of teachers to integrate available resources indicates that successful technology utilization relies not only on the presence of devices but also on teachers' competence, motivation, and dedication to improving learning outcomes. Moreover, the employment of educational technology materials enriches instruction, enhances learner engagement, and supports the development of essential skills necessary for lifelong learning.

- *Making Lessons More Engaging Among Primary Learners*

Teachers highlighted that integrating technology into classroom instruction significantly enhances learner engagement and participation. They emphasized that educational technology materials are not merely teaching aids but powerful tools that sustain learners' interest and enthusiasm throughout the lesson.

Participant 23 shared, *"When I play videos related to the lesson, the children become more excited and focused. Even those who usually fidget at their seats watch carefully, and sometimes they ask questions about what they saw in the video."* This response reflects the teacher's observation that visual and auditory materials immediately capture learners' attention and stimulate curiosity. Videos present concepts in a concrete and relatable way, which is especially important for young learners who have limited attention spans and rely on visual cues to understand abstract ideas. By connecting lesson content to real-world scenarios through multimedia, teachers are able to create learning experiences that are both engaging and meaningful.

Similarly, Participant 6 noted, *"Television and PowerPoint presentations help a lot because my pupils easily get bored with lectures alone. I can show animations of letters or numbers, and they get excited trying to answer questions after watching."* This statement emphasizes that technology transforms lessons from passive lectures into interactive activities. The use of animated slides and videos helps sustain attention and encourages participation by turning abstract concepts into something tangible. For primary learners, this

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approach not only enhances comprehension but also motivates learners to participate actively, ask questions, and discuss what they observed, fostering a more dynamic classroom environment.

Participant 10 added, *"Even my restless pupils pay attention when I show pictures and moving visuals. They love it when lessons are fun. Sometimes they even start sharing their own experiences related to what they see on the screen."* This response demonstrates that technology encourages a multisensory learning environment, where sound, movement, and color complement the lesson content. It enables pupils to visualize concepts and relate them to real-life situations, which is crucial for learners in primary. The response also illustrates that engagement is not only about attention but about creating opportunities for learners to interact, connect, and contribute to discussions, thereby strengthening both understanding and retention.

Teachers further observed that technology promotes participation among learners who are typically shy or inattentive during traditional instruction. Participant 12 shared, *"Some of my pupils are very quiet during reading or writing activities, but when I use songs or short interactive games on the computer, even the quietest ones join in and answer questions."* This highlights how digital resources can level the playing field in classrooms by motivating all learners to participate. Interactive elements reduce the pressure of speaking in front of peers while maintaining engagement, thus promoting collaboration and reinforcing positive social and cognitive behaviors in the classroom.

Based on the responses, it is believed that the integration of technology in classroom instruction significantly enhances learner engagement, motivation, and participation. Teachers utilize videos, animations, and multimedia presentations to create interactive lessons that cater to different learning styles, particularly for young learners with shorter attention spans. These tools do more than capture attention; they stimulate curiosity, encourage collaboration, and foster positive attitudes toward learning. When lessons are made enjoyable through technology, pupils begin to associate learning with fun, discovery, and achievement, which strengthens their desire to actively engage in learning tasks.

Furthermore, the findings reveal that when teachers intentionally integrate educational technology materials into classroom instruction, they transform traditional, teacher-centered approaches into dynamic and multisensory learning experiences. This practice aligns with learner-centered pedagogy and 21st-century learning competencies, which emphasize active participation, creativity, critical thinking, and collaboration. Additionally, the results underscore the importance of enhancing teachers' access to technological resources and providing continuous professional development to ensure that technology is used not only for entertainment but also purposefully applied to deepen understanding, reinforce concepts, and promote long-term learning success among primary learners.

- *Reinforcing Concepts Through Educational Technology*

Teachers emphasized that educational technology plays a crucial role in reinforcing key concepts, particularly for pupils who need additional support. Digital tools provide repeated exposure, self-paced learning, and interactive opportunities that help ensure mastery of lessons.

Participant 3 shared, *"I let my pupils watch the same video again if they did not understand the first time. Sometimes, they need to see the examples two or three times before they can answer questions confidently."* This demonstrates that technology allows teachers to revisit lessons in response to learners' comprehension levels. Repetition through videos or animations helps pupils internalize concepts, particularly those who struggle with initial exposure. It also supports multisensory learning, allowing students to process information both visually and auditorily until mastery is achieved.

Participant 11 noted, *"I use recorded lessons or slides to help my slow learners review the topics until they master them. They can pause, replay, or watch as many times as they need."*
This highlights the role of technology in differentiated instruction. Slow learners can review content at their own pace, which reduces frustration and promotes self-directed learning. It also ensures that more advanced learners can continue with the lesson without slowing down, maintaining a balanced classroom pace.

Participant 8 explained, *"Some pupils need more time, so I repeat the lesson using digital resources. It helps build their confidence. They feel proud when they can finally answer correctly after watching the video again."* This statement illustrates the emotional benefits of technology. Beyond cognitive reinforcement, repeated exposure via digital materials fosters learners' confidence and motivation. Pupils experience a sense of accomplishment when they achieve mastery after self-paced review, which can encourage a positive attitude toward learning.

Participant 14 added, *"I ask my pupils to watch the video again at home if they didn't understand the lesson in class. Some of them even share what they learned with their siblings, which shows they are processing the content well."* This highlights how technology supports learning beyond the classroom, extending opportunities for practice and reinforcement. It also demonstrates how pupils become active participants in their own learning and can take on informal teaching roles, reinforcing understanding through explanation.

Participant 10 shared, *"For topics that are difficult to grasp, like science experiments or math problems, I show step-by-step videos multiple times. Pupils who usually struggle can follow along better than with just verbal instructions."* This emphasizes how technology simplifies complex ideas and provides multiple entry points for understanding. Step-by-step demonstrations allow pupils to visualize processes, promoting conceptual understanding and

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reducing the cognitive load for learners who may have difficulty following oral explanations alone.

Participant 3 added, *"Some pupils enjoy using interactive slides with quizzes. They can try again until they get the answers right. It's fun for them, and I can see their improvement immediately.* "This response reflects how interactive technology not only reinforces content but also engages learners actively. Immediate feedback and the opportunity to retry encourages mastery learning while making reinforcement enjoyable.

It is believed that educational technology materials play a critical role in reinforcing key concepts and supporting learners who require additional guidance. Based on the responses, teachers strategically utilize recorded lessons, videos, and multimedia slides to allow pupils to review content at their own pace, fostering deeper comprehension and skill mastery. The ability to repeat lessons and replay visual materials strengthens understanding and boosts learners' confidence, particularly among slow learners. These practices highlight the adaptability, patience, and learner-centered mindset of teachers who strive to ensure that no pupil is left behind. Furthermore, the integration of educational technology in reinforcement activities demonstrates how digital tools can facilitate personalized and inclusive learning experiences,

- *Accessing Online Learning Resources Through Educational Technology*

The integration of educational technology in primary classrooms has transformed how teachers access and utilize instructional resources. With the increasing availability of digital tools and online materials, educators can supplement traditional textbooks, enhance lesson planning, and create more engaging learning experiences for their pupils. Access to online resources not only broadens teachers' instructional strategies but also allows them to provide updated, interactive, and contextually relevant content, which is particularly beneficial in rural areas where printed materials may be limited. Moreover, the use of technology supports learner-centered approaches, catering to diverse learning styles and fostering active participation in the classroom.

Teachers acknowledged the significant advantage of accessing online materials through educational technology in improving lesson preparation and delivery. Participant 8 shared, *"With the internet, I can find different teaching ideas and worksheets for my lessons. Sometimes I even find worksheets that match what my pupils are struggling with."* This response demonstrates that online resources enable teachers to supplement traditional textbooks and address learning gaps effectively.

Similarly, Participant 11 stated, "*I often download storybooks and teacher guides from educational websites. They help me prepare activities and examples that are more relatable for my pupils."* This highlights that online content allows teachers to design lessons that are contextually relevant, promoting better understanding and engagement among primary learners.

Participant 16 added, *"Sometimes I watch teaching videos online to see how other teachers explain the lesson, then I adapt it for my class. It helps me explain concepts in a way my pupils can understand."* This shows that technology facilitates professional learning and instructional improvement, enabling teachers to incorporate new strategies that enhance comprehension.

Participant 18 mentioned, *"I also use free educational apps and websites that have interactive games or quizzes. My pupils enjoy them and it helps reinforce the lesson."* This illustrates how online resources can make lessons interactive, engaging, and multisensory, supporting retention and active participation.

In schools where internet connectivity is often unstable, teachers demonstrated remarkable adaptability in managing access to online materials. Participant 12 explained, *"When the internet is strong, I download videos and save them on my laptop or USB for offline use during class. That way, even if the connection drops, I can still use the materials."* This highlights teachers' resourcefulness in overcoming technological challenges to ensure uninterrupted learning.

Participant 14 shared, *"Sometimes I download slides, worksheets, and videos at home before coming to school. Even if there is no Wi-Fi in class, pupils can still follow the lesson."* Similarly, Participant 20 noted, *"If the connection is slow, I focus on what I can download in advance and create simple presentations using saved images or clips. This keeps the lesson interesting for the pupils."* These responses emphasize strategic planning and creativity, showing how teachers bridge technological gaps while maintaining lesson quality and learner engagement.

It is believed that accessing online learning resources through educational technology significantly enhances instructional planning and delivery. Teachers' ability to download digital materials and incorporate them into lessons allows for continuous improvement of classroom instruction. Even in areas with unstable connectivity, teachers demonstrate resilience by preparing offline copies of resources to maintain lesson continuity. These practices highlight not only their commitment to teaching excellence but also their adaptability in the face of resource limitations. The integration of online materials underscores the vital role of technology in making learning more interactive, learner-centered, and responsive to diverse educational needs.

The thematic findings reveal that teachers in rural schools strategically use educational technology not only to supplement limited learning resources but also to enhance learner engagement, reinforce key concepts, and access diverse online materials. Their responses indicate a preference for practical, accessible tools that can be adapted to their specific teaching contexts. The teachers' collective practices demonstrate resilience, innovation, and a learner-centered mindset. For them, technology is more than a mere instructional aid; it serves as an integral component of effective pedagogy that supports differentiated instruction,

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accommodates varying learner needs, and bridges resource gaps commonly faced in rural schools.

The results of this study are consistent with several previous works emphasizing the transformative potential of educational technology in improving teaching and learning outcomes. Villanueva and Ignacio found that the use of visual and multimedia materials enhances comprehension and motivation, particularly among younger learners who benefit from visual-rich instruction. This supports the participants' accounts of using PowerPoint slides, educational videos, and visual aids to maintain pupils' attention and deepen understanding.

Moreover, the findings suggest that effective technology integration extends beyond mere access to devices; it requires providing equitable learning opportunities for all students. This is aligned with UNESCO's assertion that digital equity should be prioritized over simple technological presence. In the current study, teachers demonstrated this principle by compensating for the lack of textbooks and printed materials through the use of downloaded videos and digital content. Their adaptability mirrors the view of Tondeur et al., who highlighted the importance of teacher flexibility and innovation in addressing educational disparities.

Despite these positive outcomes, the findings also revealed ongoing challenges in achieving full digital integration due to financial and infrastructural limitations. This reality echoes Soriano's observation that digital inequalities persist in rural schools and continue to hinder the use of advanced technologies. Nevertheless, the teachers in this study exhibited strong determination, resourcefulness, and creativity in maximizing available devices and online materials. Their practices demonstrate that even in contexts of constraint, committed educators can effectively harness technology to create meaningful, equitable, and engaging learning experiences for their pupils.

- *Challenges Encountered by Teachers in Utilizing Educational Technology Materials*

Despite the advantages offered by the educational technology materials in the school setting, these teachers are not spared to some hindering issues while using the said learning resources. These issues create undesirable impact among teachers, particularly on the delivery of the lessons. Table 3.0 has the list of the challenges encountered by teachers in utilizing educational technology.

Table 3. Challenges Encountered by Teachers in Utilizing Educational Technology

Challenges	Frequency	Rank
Poor internet connectivity	24	1
Limited access to updated and high-quality digital learning contents	23	2
Inadequate technical support for troubleshooting technology-related issues	22	3
Limited fund intended for procuring educational technology materials	20	4
Limited training and professional development on the use of educational technology	16	5
Time constraint in preparing and integrating technology-based instructional activities	15	6
Insufficiency of educational technology tools and resources in the school	14	7

Table 3.0 presents the challenges encountered by teachers in utilizing educational technology materials in teaching primary learners. The data reveal that poor internet connectivity emerged as the most pressing challenge, with a frequency of 24 and ranked first. This indicates that unstable or slow internet connection remains the primary barrier to effective technology integration, particularly in rural schools. Following this, limited access to updated and high-quality digital learning contents with a frequency of 23 and ranked second, signifying that teachers struggle to find relevant and reliable online resources suited to their learners' needs.

Inadequate technical support for troubleshooting technology-related issues ranked third with a frequency of 22 showing that teachers often experience difficulty addressing hardware and software problems without immediate assistance. The fourth challenge, with a frequency of 20, is limited funding for procuring educational technology materials, which restricts schools from acquiring modern and efficient instructional tools. Furthermore, limited training and professional development on the use of educational technology, with a frequency of 16 and ranked fifth, implies that teachers need more opportunities to enhance their digital skills and pedagogical competencies. Time constraint in preparing and integrating technology-based instructional activities, with a frequency of 15 and ranked sixth, shows that teachers struggle to balance their workload with the time needed for preparing technology-enhanced lessons. Lastly, insufficiency of educational technology tools and resources in the school, with a frequency of 14 and ranked seventh, reflects the limited availability of devices and materials that can support effective teaching and learning.

The findings imply that while teachers recognize the importance of educational technology in improving instruction, they face numerous barriers that limit its effective use. The challenges identified are interconnected. Poor internet connectivity and lack of updated digital materials hinder lesson preparation; insufficient technical and financial support restricts access to tools; and limited training and preparation time reduce teachers' confidence in integrating technology. These factors collectively affect the consistency and quality of technology-driven instruction. Moreover, the findings suggest that the rural school context plays a significant role in shaping these limitations, as teachers often rely on personal initiative to overcome infrastructural and resource-related constraints. The results indicate that the successful utilization of educational technology materials is not solely dependent on teachers' willingness to use them but

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also on the adequacy of institutional, infrastructural, and technical support provided to them.

Poor internet connectivity was identified as the foremost challenge by the teacher-respondents. In many rural schools, weak or unstable internet signals remain a major barrier to utilizing online educational materials and platforms. Teachers reported that slow connectivity disrupts the flow of instruction, delays downloading of resources, and prevents access to online teaching aids. Some teachers resorted to pre-downloading videos or saving materials offline to compensate for the unreliable connection. However, this still limits their ability to conduct interactive, web-based lessons. The findings indicate that access to stable internet is a crucial factor in maximizing the benefits of educational technology.

Another major concern is the limited availability of updated and high-quality digital content. Teachers rely on the internet to supplement textbooks and other printed materials, but many expressed difficulty finding age-appropriate and curriculum-aligned digital resources. In some cases, online materials are outdated or designed for foreign learners, requiring teachers to modify or localize content before use. This not only consumes time but also affects the quality and effectiveness of instruction. The lack of reliable educational resources prevents teachers from fully enriching their lessons through digital means.

Many teachers also reported a lack of technical support in addressing technology-related problems. When computers, projectors, or other devices malfunction, there are often no available personnel to assist immediately. Teachers are forced to fix issues on their own, consuming valuable instructional time and sometimes leading to further technical difficulties. The absence of designated ICT support staff in schools results in frequent interruptions during technology-based lessons and discourages teachers from incorporating digital tools regularly.

Financial constraints emerged as another major barrier to technology integration. Most public schools, especially those in rural areas, operate with limited budgets that prioritize basic needs such as books and classroom supplies. Consequently, schools cannot always afford to purchase or upgrade digital tools like laptops, projectors, or smart TVs. Some teachers even reported using their personal funds to acquire materials necessary for instruction. This situation underscores the importance of adequate funding to sustain technology integration in teaching and learning.

The lack of training and professional development also affects the effective use of educational technology. While most teachers recognize the value of using technology in teaching, many lack the confidence and skills to fully utilize available tools. Some teachers have only attended brief orientations or one-time seminars, which are insufficient to develop mastery of digital teaching strategies. Continuous and hands-on professional development is essential to help teachers integrate technology meaningfully into their lessons and adapt to new platforms and applications.

Integrating technology into lessons requires substantial preparation, including creating digital presentations, downloading multimedia materials, and ensuring equipment functionality. However, teachers often have limited time due to heavy workloads, paperwork, and other administrative duties. As a result, they may choose to revert to traditional methods that require less preparation. This challenge shows the need for institutional support in allocating planning time and providing ready-to-use digital resources to ease the teachers' workload.

The lack of sufficient technological tools remains a persistent issue. Many schools only have a few shared devices, such as one projector or a single functional computer unit, which limits the frequency and quality of technology integration. In some cases, equipment is outdated or no longer operational. This scarcity of resources prevents teachers from delivering multimedia-enhanced lessons and hinders learners' exposure to technology-supported activities. Addressing this issue requires both increased resource allocation and maintenance of existing tools.

The findings of this study indicate that teachers face several obstacles in integrating educational technology, particularly in rural schools with limited resources. Many respondents noted challenges such as unstable internet connectivity, lack of updated digital materials, and insufficient technical support. These observations are consistent with the findings of Alpuerto and Olita & Orong, who highlighted that teachers often struggle to access appropriate digital content and resources, which affects lesson planning and delivery.

Teachers also reported a need for continuous professional development to improve their digital competence. Ghavifekr and Rosdy underscored the importance of adequate availability of ICT tools and resources, noting that schools lacking these materials encounter difficulties in achieving meaningful integration.

In addition, the participants demonstrated creativity and adaptability in overcoming these barriers, reflecting strategies observed by Rumirang et al. and Arnado & Aviles. For instance, teachers downloaded videos and digital storybooks for offline use when internet access was limited, and they maximized mobile devices and laptops to deliver lessons despite infrastructural constraints. Such practices highlight the resourcefulness of teachers in ensuring learning continuity and engagement, even in under-resourced contexts.

D. Proposed Capacity Building Activities for Primary School Teachers on the Utilization of Educational Technology Materials

- *Proposed District-Based Learning Action Cell (LAC) Sessions on the Utilization of Educational Technology Materials in Classroom Instruction*

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- *Rationale*

In the early grades, the utilization of educational technology materials is essential in enhancing the teaching and learning process. These tools help to address the diverse needs and learning styles of the learners by making lessons more engaging, interactive, and accessible. Teachers can create dynamic learning environments that stimulate curiosity and improve learner participation through the integration of technology into classroom instruction.

However, many teachers face challenges in utilizing these tools effectively due to limited training, insufficient access to resources, and lack of institutional support. To address these concerns, this District-Based LAC Session is designed to equip primary teachers with the knowledge, skills, and support needed to maximize the use of educational technology in classroom instruction. Through LAC, teachers collaborate, share best practices, and support one another in addressing challenges related to digital integration. LAC sessions also provide opportunities to troubleshoot common issues, explore new educational tools, and reinforce continuous professional development among teachers.

- *Objectives:*

✓ Conduct training for primary teachers to improve their skills in utilizing educational technology materials in classroom instruction.

✓ Strengthen teachers' competence and confidence in integrating technology tools to enhance learner engagement and achievement.

V. CONCLUSION AND RECOMMENDATIONS

Based on the findings, the following conclusions are drawn:

- The different educational technology materials utilized by teachers include laptops, televisions, and printers.
- The extent of utilization of educational technology materials is very high.
- The teachers employ educational technology materials through the use of laptops and computers for presentations, televisions and multimedia devices to engage learners, downloaded and online resources to supplement lessons, and interactive digital tools to reinforce key concepts and accommodate diverse learning needs.
- The challenges encountered by teachers in utilizing educational technology materials are poor internet connectivity, limited access to updated and high-quality digital learning contents and inadequate technical support for troubleshooting technology-related issues.
- Capacity-building activities such as LAC sessions are vital in ensuring that teachers remain equipped with the necessary skills and confidence to utilize educational technology effectively and continuous professional learning promotes collaboration, reflection, and innovation among teachers, leading to improved teaching practices and better learning outcomes for pupils.

Based on the conclusion, the researchers recommend the following:

- Schools ensure the continuous provision, maintenance, and upgrading of basic educational technology materials, particularly laptops, televisions, and internet connections.
- Teachers to continue integrating educational technology across all learning areas and grade levels to sustain engagement and learning effectiveness.
- Teachers innovate and diversify their instructional approaches through the use of multimedia presentations, videos, and online educational resources and schools to foster professional collaboration among teachers through peer mentoring, where they can share best practices in technology integration.
- Sufficient funds for the procurement, maintenance, and upgrading of technological tools be provided along with regular technical support for teachers, consistent training programs and mentoring sessions to enhance teachers' digital skills and confidence.
- Schools to institutionalize regular LAC sessions focused on the integration of educational technology in classroom instruction.
- Future researchers are encouraged to explore related topics that will further strengthen the use of educational technology in primary education. These may include:
- Best practices in the utilization of educational technology materials in teaching primary learners.
- The impact of educational technology on the literacy and numeracy skills of early grade learners.
- Innovative ways of employing educational technology in multigrade or resource-limited classroom settings.
- The role of educational technology in enhancing learner engagement and motivation in the early grades.

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