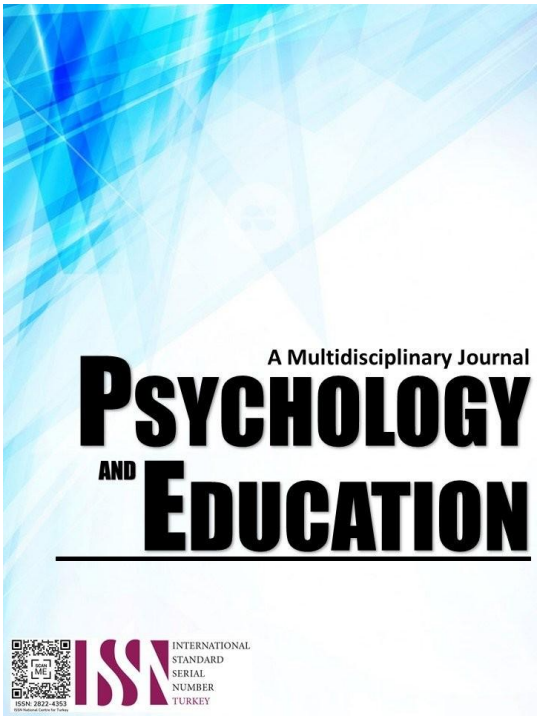
LEARNERS' PERSPECTIVE ON TEACHERS' PRACTICES IN INTEGRATING ICT: BASIS FOR AN INSTRUCTIONAL IMPROVEMENT PLAN



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Research Article

Learners' Perspective on Teachers' Practices in Integrating ICT: Basis for an Instructional Improvement Plan

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Abstract

This study aimed to assess learners' perspectives on teachers' practices in integrating ICT into their lessons among Junior High School Teachers in the Tagoloan District, School Division of Lanao del Norte, for the school year 2024-2025. The researcher obtained diverse responses from the 260 respondents, focusing on their demographic profiles, the gadgets they had used, and internet availability. The researcher's findings revealed that the majority of respondents were aged 14 years, with a higher representation of female students. This highlighted the significant insights into the teacher's practices in ICT integration. The results indicated that teachers often utilize ICT tools to enhance their instructional strategies, fostering student engagement and collaboration. In addition, the researcher revealed that access to gadgets negatively impacts students' performance, indicating that students without such access may perform better academically. Therefore, this study designed an instructional improvement plan to enhance teachers' ICT Integration Practices as a Strategic Approach Based on students' perspectives on teachers' practices in integrating ICT. It has been observed that while some educators effectively utilize digital tools, others face challenges in accessibility, proficiency, and implementation strategies. This action plan aims to address these gaps by providing targeted interventions to improve ICT integration in instruction, ensuring that teachers are equipped with the necessary skills and resources.

Keywords: *students' perspective on teachers' practices in integrating ICT, performance, descriptive-correlational research design*

Introduction

The rapid advancement of Information and Communication Technology (ICT) has significantly transformed education, reshaping teaching and learning methodologies. Educators have had to adapt to digital tools, incorporating them into their instructional strategies to meet the evolving needs of 21st-century students. The Department of Education (DepEd) in the118 Philippines has continuously emphasized ICT integration in classrooms to enhance learning experiences and improve academic outcomes. However, the extent to which teachers effectively integrate ICT in their teaching practices remains a crucial issue, particularly in rural and developing areas where resources and technical support are limited.

The integration of Information and Communication Technology (ICT) in education has revolutionized teaching and learning processes, offering new opportunities for interactive and student-centered instruction. However, despite its growing adoption, the effective implementation of this approach remains a challenge, particularly in secondary education, where students' technological exposure and teachers' digital competencies vary significantly. Schools continue to grapple with issues such as resource availability, technical support, and pedagogical adaptation, all of which affect the extent to which ICT enhances student learning experiences. In the Philippines, while the Department of Education has strongly advocated for ICT integration, disparities in implementation persist across different schools, particularly in areas with limited access to digital resources. Understanding how students perceive their teachers' use of ICT in instruction is essential in assessing the effectiveness of technology-driven learning and identifying potential areas for improvement.

The impact of ICT integration extends beyond simple technological adoption; it influences student engagement, academic performance, and overall learning experiences. Studies suggest that when used effectively, ICT can foster greater student participation, improve comprehension, and enhance motivation in the classroom. However, challenges such as inadequate teacher training, insufficient digital literacy among students, and the lack of proper infrastructure can hinder its success (Espinosa & Pañares, 2023; PALOMA, 2023; Dayaday & Galleto, 2022; Naga et al., 2020). In some cases, rather than facilitating learning, technology becomes a source of distraction, emphasizing the need for structured and well-implemented ICT-based instructional strategies (Reyes et al., 2023; Boholano et al., 2021; Cadorna et al., 2022). The disparities in students' access to digital tools further exacerbate the digital divide, underscoring the importance of equitable and strategic ICT integration in education (Que, 2021; Mastul et al., 2023; Gamit, 2023).

The existing literature highlights both the advantages and challenges of integrating ICT in education. Studies indicate that when effectively implemented, ICT enhances student engagement, learning outcomes, and teaching quality. For instance, Azeem (2023) found that students with higher ICT self-efficacy perform better in e-learning environments, while Najera and Osorno (2023) emphasized the role of professional development in improving instructional practices. However, research also points to significant barriers, particularly in rural areas, where inadequate training, insufficient infrastructure, and varying levels of digital literacy among students hinder effective implementation (Villegas & Buquia, 2023; Tomaro, 2018). Sulisworo et al. (2017) highlighted that teachers' competencies and attitudes toward ICT have a significant influence on student learning experiences. Addressing these challenges

requires structured professional development programs and improved access to ICT resources, as emphasized by Lausa et al. (2024) and Tomaro (2018). Strengthening teacher training and resource availability is crucial for maximizing the potential of ICT in education.

This study aimed to assess students' perspectives on how their teachers integrate ICT in instruction and its implications for learning. Specifically, it sought to analyse the extent to which teachers use ICT tools in lesson delivery, assess its impact on student engagement and academic performance, and identify the challenges and opportunities in ICT-based instruction. By addressing these concerns, the study aimed to provide insights that can inform instructional improvement plans, professional development programs, and policy recommendations to enhance ICT integration in education.

The study was conducted during the 2024–2025 school year, focusing on secondary school learners in the Tagoloan District, Lanao del Norte. The timeframe allowed for a comprehensive analysis of students' experiences, ensuring that data collection and interpretation accounted for different instructional strategies and school contexts. The findings of this study served as a foundation for long-term improvements in ICT-based teaching, with recommendations designed to enhance both student learning outcomes and teacher competency in digital instruction.

The credibility of this research is grounded in the researcher's academic background, professional experience, and adherence to rigorous research methodologies. As an educator with expertise in instructional strategies and ICT integration, the researcher brings knowledge and practical insights into the study. The research follows established ethical and academic standards, ensuring objectivity, reliability, and relevance. Through systematic data collection and analysis, the study aims to contribute valuable knowledge to the ongoing discourse on ICT in education, ultimately supporting efforts to create more effective, technology-enhanced learning environments.

Research Questions

This study aimed to assess learners' perspectives on teachers' practices in ICT Integration and their influence on performance in the Tagoloan District, Division of Lanao del Norte, for the School Year 2024-2025. The results of this study served as the basis for an instructional improvement plan. Specifically, this study sought to answer the following questions:

1. What is the demographic profile of the learners in terms of:
    1.1. age;
    1.2. sex;
    1.3. grade Level;
    1.4. ICT gadget used; and
    1.5. availability of internet connection?
2. What is the assessment level of Teachers' Practices in ICT Integration as perceived by the respondents in terms of:
    2.1. video lesson presentation;
    2.2. powerPoint presentation;
    2.3. assessment of learning; and
    2.4. information dissemination?
3. What is the learners' performance in terms of:
    3.1. class participation; and
    3.2. academic performance?
4. Is there a significant relationship between the demographic profile, the assessment level of Teachers' Practices in ICT Integration as perceived by the respondents to video lesson presentation, Power Point presentation, assessment of learning and information dissemination and students' performance?
5. Which among the demographic profile and learners' perspectives on teaching practices best predict learners' performance?
6. Based on the findings of the study, what instructional plan on Teachers' Practices in ICT Integration can be designed.

Methodology

Research Design

This study employed a descriptive-correlational research design to examine the relationship between teachers' ICT integration practices and students' academic performance. The descriptive aspect of the study aimed to present a detailed profile of the students and assess the extent to which teachers integrate ICT in their instructional methods. The correlational component sought to determine the relationship between ICT integration and students' performance, analyzing potential trends and patterns that may emerge from the data.

Respondents

The respondents in this research were carefully selected to ensure a representative and diverse sample. Two hundred sixty (260) randomly selected students from (5) schools in Tagoloan District, such as Tumple Integrated School, Kiasar Integrated School, Tagoloan Integrated School, Tagoloan National High School, and Lininding Integrated School. The students' respondents evaluated their teachers' use of ICT in instructional plans during the 2024-2025 academic year.

This study employed a random sampling procedure to gather a comprehensive perspective on students' views of teachers' practices in

integrating ICT as teaching tools to improve academic performance. This method was used to prevent bias and ensure fairness.

Instrument

To measure the relationship between students' performance and their perspectives on teachers' ICT integration practices, this study utilized a self-made questionnaire as the primary data collection instrument. Additionally, the Classroom Observation Tool (COT) Rating Sheet served as the basis for developing the questionnaire, which was crafted to align with instructional standards. The instrument gathered data on learners' perspectives regarding teachers' ICT integration practices in four key areas: video lesson presentation, PowerPoint presentation, assessment of learning, and information dissemination. It also assessed students' academic performance and class participation. Furthermore, the questionnaire collected demographic data, including age, sex, grade level, ICT gadget use, and internet connection availability, to provide a comprehensive background on the respondents.

To ensure the validity and reliability of the research instrument, a panel of experts was consulted to evaluate its content, structure, and appropriateness. Their feedback and recommendations were incorporated to refine the questionnaire, enhancing its clarity, coherence, and effectiveness in measuring the intended variables. This validation process was crucial in ensuring that the instrument was suitable for data collection. Following the expert validation, a pilot testing phase was conducted involving twenty-five (25) students from a different school who were not included in the actual study. The purpose of the pilot test was to assess the internal consistency and reliability of the questionnaire before its full implementation.

Procedure

In gathering data, the following procedures were followed in this study. The Junior High School learners and teachers of Tagoloan District, Division of Lanao Del Norte, were provided with informed consent forms that explained the purpose of the study, the expected duration of the survey, the confidentiality of information shared, and the voluntary nature of their participation. The study adhered to ethical considerations, including obtaining consent, maintaining confidentiality, and ensuring voluntary participation.

The researcher personally visits the five Junior High schools covered in the study to administer and retrieve the questionnaires. To facilitate data collection, permission to conduct the study was obtained from the school's division superintendent, school principal, and teachers. All communication was signed and approved by the relevant personalities, including the administrative personnel of St. Peter's College. During the distribution of the questionnaire to the respondents, the researcher further explained the importance and mechanics of answering some parts of it. Afterwards, the collected questionnaires were tabulated and statistically analyzed with the other data.

Data Analysis

The following statistical tools were employed for computation to present and determine the students' perspectives on the teacher's practices of integrating ICT.

For Problems 1, 2, & 3, the frequency, mean, percentages, and standard deviation were used to describe the data on learners' perspectives of the teacher's practices integrating ICT.

For Problem 4, Person's r Correlation is used to determine the relationship between on students' performance.

For Problem 5, linear was used to determine the significant influence of the demographic profile and learners' perspectives on teaching practices best predict learners' performance.

Results and Discussion

This section features the interpretation and analysis of each data point derived from the enthusiasm of the respondents in providing their responses.

Problem 1: What are the demographic profile of the students in terms of age, sex, grade level, ICT gadget used and Availability of internet connection?

Table 1. *Age*

Age	*Respondents*	
	Frequency count	*Percentage*
11 years old	9	3.5
12 years old	34	13.1
13 years old	61	23.5
14 years old	61	23.5
15 years old	60	23.1
16 years old & above	35	13.3
Total	260	100.00

Table 1 presents the age of the respondents. The result shows that the majority of the respondents are 13 and 14 years of age with both

having 23.5%.

The demographic profile of learners, particularly their age distribution, is critical in understanding their interaction with ICT-integrated teaching strategies. Recent studies indicate that a significant proportion of students fall within the 13- to 16-year-old age range, a group that is typically more familiar with and engaged in digital learning environments. This aligns with findings from Yersel et al.(2023), who emphasize that younger learners are often more adept at utilizing digital tools, which can enhance their educational experiences during remote learning scenarios. Furthermore, the adaptability of this age group to technology is supported by the notion that they have grown up in a digital age, fostering a natural inclination towards ICT integration in education, as highlighted by Adeleye et al. (2024). However, it is essential to recognize that a smaller percentage of students are aged 11 to 12 years, indicating a potential need for tailored support in digital literacy. Younger students often encounter challenges in navigating digital platforms independently, necessitating differentiated instructional strategies that cater to varying levels of technological proficiency.

In addition to age, the availability and type of ICT gadgets used by students, along with internet connectivity, significantly influence the effectiveness of ICT-integrated teaching. Research by Werfhorst et al. (2022) underscored that students with access to personal digital devices and stable internet connections demonstrate higher levels of engagement and improved academic performance. This suggests that adequate technological resources are crucial for maximizing the benefits of ICT-enhanced learning. Conversely, Assefa's (2024) work illustrates that disparities in technology access can exacerbate the digital divide, resulting in gaps in digital literacy and academic achievement among students. This disparity is particularly relevant in the context of educational equity, as students lacking sufficient ICT resources may struggle to keep pace with technology-based instructional strategies (Bhoyar et al., 2024).

While the integration of ICT in education is widely acknowledged as a means to enhance learning outcomes, its effectiveness is contingent upon proper implementation. Assefa (2024) cautions against an over-reliance on digital tools, arguing that excessive exposure to technology without appropriate pedagogical frameworks can lead to cognitive overload, diminishing students' ability to retain and process information effectively. Similarly, technology should be viewed as a medium of instruction, with the quality of pedagogy being the most critical determinant of student learning outcomes. These perspectives underscore the necessity for careful planning in ICT implementation to ensure that technology acts as an enabler of learning rather than a potential distraction.

The findings of this study emphasize the importance of developing an instructional improvement plan that accounts for the diverse levels of technological accessibility and digital literacy among students. Given that most students are within an age range conducive to ICT-based learning, instructional strategies should be designed to optimize engagement while addressing the needs of younger learners who may require additional support. Furthermore, efforts to bridge the digital divide must ensure equitable access to ICT resources for all students, regardless of socioeconomic background. Lastly, teacher training programs should prioritize not only the technical aspects of ICT integration but also the development of pedagogically sound strategies that balance traditional and digital instructional methods. By addressing these factors, the instructional improvement plan can effectively enhance teaching practices and promote better learning outcomes in ICT-integrated education.

Table 2. *Sex*

Sex	*Respondents*	
	Frequency count	*Percentage*
Male	107	41.2
Female	153	58.8
Total	260	100.00

Table 2 presents the sex distribution of the respondents, indicating that the majority are female (58.8%), while male respondents comprise 41.2% of the sample. The sex composition of students in educational settings has significant implications for the integration of Information and Communication Technology (ICT) in teaching strategies. The findings of this study align with global trends in educational participation, where female students often outnumber their male counterparts, particularly in secondary education (Šabić et al., 2021).

Research suggests that gender differences in learning preferences and technology usage may influence the effectiveness of ICT-integrated teaching. For instance, female students tend to engage more actively in technology-enhanced learning environments when instructional strategies align with their collaborative and structured learning preferences (Mlambo et al., 2023). In contrast, male students often prefer exploratory and self-directed learning approaches, as noted by Vekiri and Chronaki (2008) and supported by Günüç et al. (2019). These findings underscore the importance of educators adopting gender-responsive ICT strategies that cater to the diverse learning needs of both male and female students.

Furthermore, studies indicated that female students, despite their active participation in ICT-integrated learning, may experience higher levels of digital literacy anxiety (Onwuagboke, 2023). This anxiety can undermine their confidence in utilizing technology, which is crucial for effective learning. Conversely, while male students generally exhibit greater confidence in using technology, they may not always leverage ICT for academic purposes as effectively as their female counterparts (Prieto & Mulenga, 2019). This disparity highlights the need to develop instructional improvement plans that not only provide equitable access to technology but also consider gender-based differences in ICT usage and perceptions to optimize learning outcomes for all students.

The results of this study emphasize the need to incorporate gender-sensitive approaches in ICT integration. Teachers should design instructional strategies that mitigate disparities in digital confidence and engagement between male and female students. Ensuring equal opportunities for technology-based activities, fostering digital literacy skills, and promoting inclusive learning environments are essential steps in maximizing the benefits of ICT-enhanced instruction (Günüç et al., 2022). Additionally, existing literature suggests that teacher training programs should emphasize the role of gender dynamics in technology use, enabling educators to create more equitable and effective learning experiences (Şenyiğit & Serin, 2022). By addressing these factors, ICT integration in education can better support the diverse learning needs of students, fostering both academic success and digital competence.

Table 3. *Grade Level*

Grade Level	*Respondents*	
	Frequency count	*Percentage*
Grade 7	68	26.2
Grade 8	69	26.5
Grade 9	63	24.2
Grade 10	60	23.1
Total	260	100.00

Table 3 shows the grade level of the respondents. The data reveal a relatively balanced representation among students from Grades 7 to 10, with Grade 8 comprising the largest percentage (26.5%), followed closely by Grades 7 (26.2%), 9 (24.2%), and 10 (23.1%). This distribution highlighted the need for ICT integration in teaching practices to cater to the diverse learning needs, cognitive abilities, and levels of digital literacy among secondary education students (Apeanti, 2015). Research indicates that students' grade levels have a significant influence on their readiness for ICT-based learning. For instance, Piaget's theory of cognitive development posits that students in Grades 7 and 8 typically operate within the concrete operational stage, where structured learning experiences and guided interactions with technology are essential (Socol & Iuga, 2024). In contrast, students in Grades 9 and 10 transition into the formal operational stage, allowing for abstract thinking and independent problem-solving, which are crucial for maximizing ICT integration (Mooij, 2007).

Moreover, Prensky (2001) introduced the concept of "digital natives," suggesting that students who have grown up with technology exhibit varying degrees of ICT proficiency based on their level of exposure and educational background (Alazzam et al., 2012). Lower-grade students may still be developing their digital literacy skills, while upper-grade students often demonstrate greater familiarity and confidence in using digital tools for learning. However, Van Deursen and Van Dijk (2014) caution that older students' actual ability to utilize technology for academic purposes is contingent upon the quality of ICT instruction they received in earlier years (Kihoza et al., 2016). This highlights the importance of a solid foundation in digital literacy for younger students to ensure their readiness for more complex ICT applications as they progress through their education.

The implications of these findings indicate a need for a differentiated approach in ICT integration. Teachers must tailor their instructional strategies according to the cognitive and digital readiness of students at different grade levels. For younger students, structured digital activities and interactive learning tools may be more beneficial, while older students can be encouraged to engage in higher-order thinking tasks using ICT (Francisca & Samsudin, 2018). Furthermore, continuous ICT training and scaffolding learning experiences across grade levels will ensure a progressive enhancement of students' digital literacy skills, ultimately supporting their academic development in an increasingly technology-driven educational landscape (Bakay et al., 2011).

Table 4. *ICT gadget used*

ICT Gadget Used	*Respondents*	
	Frequency count	*Percentage*
Laptop	2	0.8
Smart Phone	226	86.9
Smart Phone & Laptop	1	0.4
None	31	11.9
Total	260	100.00

Table 4 presents the distribution of respondents' ICT gadgets used. The results revealed a significant reliance on smartphones among students for ICT-related learning activities, with 86.9% primarily using smartphones, while only 0.8% depended solely on laptops. This trend aligns with global patterns in digital learning, where mobile technology has emerged as the most accessible medium for education, particularly among younger populations (Sari et al., 2020). Smartphones facilitate educational engagement by providing convenience, portability, and connectivity, enabling students to access educational resources and participate in online discussions (Criollo-C et al., 2021). However, the limitations of smartphones, such as smaller screens and potential distractions, may impede deep learning and productivity compared to traditional computers (Taskin & Ok, 2022).

The finding that 11.9% of students lack access to any ICT device highlights a critical issue of digital exclusion. This segment of the population may face significant barriers to participating in technology-based instructional activities, which can exacerbate disparities in digital literacy and academic performance (Halim et al., 2024). Research indicates that the "digital divide" remains a pressing concern in education, where unequal access to devices and the internet contributes to inequitable learning opportunities (Nooorrizki et al., 2022).

Students without ICT gadgets may struggle to develop essential digital skills, which are increasingly necessary for success in contemporary educational environments (Bae, 2022).

To address these challenges, it is crucial for educators to design ICT-based activities that are mobile-friendly, ensuring that learning materials are accessible on smartphones. Furthermore, alternative solutions should be explored to support students without access to ICT devices. Initiatives such as providing shared digital resources, offering device loans, or establishing learning hubs with ICT access could be beneficial (Singh-Pillay, 2023). Additionally, integrating digital literacy training into instructional practices is essential to help students maximize the educational potential of their available devices while minimizing distractions (Karagül et al., 2021).

In conclusion, the findings highlight the need to address both the opportunities and limitations presented by students' use of ICT gadgets. By ensuring equitable access to technology and fostering effective ICT integration strategies, educational institutions can enhance the learning experiences of all students, regardless of their digital resources. This approach not only promotes inclusivity but also prepares students for the demands of a digitally-driven world (Bahrini & Qaffas, 2019).

Table 5. *Availability of internet connection*

Availability of internet connection	*Respondents*	
	Frequency count	*Percentage*
Yes	154	59.2
No	106	40.8
Total	260	100.00

Table 5 presents the respondent's availability of internet connection. The data indicated that while a majority of students (59.2%) have access to an internet connection, a significant portion (40.8%) lack such access. This disparity in internet availability is a critical issue in ICT-integrated education, as reliable internet connectivity is fundamental for digital learning and accessing online educational resources. Students with stable internet access can leverage online learning platforms, digital research tools, and interactive educational content, which can significantly enhance their academic performance (Jackson et al., 2006). Conversely, those without access may struggle to retrieve online materials, participate in virtual discussions, or submit digital assignments, leading to an uneven learning experience (Dhir et al., 2015).

The concept of the digital divide extends beyond mere device ownership to encompass the quality and accessibility of internet services, as noted by Deursen and Dijk (2013). This divide can severely limit students' ability to engage with ICT for academic purposes, thereby impacting their educational outcomes. Research indicates that students with unreliable or no internet connection often resort to offline learning methods, which may not align with ICT-integrated teaching strategies. Such limitations can hinder students' exposure to digital literacy skills, placing them at a disadvantage in an increasingly technology-driven education system.

To address these challenges, instructional improvement plans must consider alternative strategies for students lacking internet access. Educators can incorporate offline digital resources, such as pre-downloaded educational content, interactive multimedia stored on USB drives, or learning management systems that function without real-time internet connectivity (Uzun et al., 2020). Schools may also explore policies to provide subsidized or shared internet access, such as school-based WiFi hotspots, digital learning hubs, or partnerships with local government units to enhance connectivity (Kołodziejczyk et al., 2020).

While ICT integration has the potential to improve student learning, its effectiveness is contingent on equitable access to the necessary digital infrastructure. Addressing the gap in internet availability is crucial to ensuring that all students, regardless of their connectivity status, can fully benefit from technology-enhanced instruction. By implementing targeted interventions, schools can bridge the digital divide and foster a more inclusive learning environment for all students (Baticulon et al., 2021).

Problem 2. What is the assessment level of Teachers' Practices in ICT Integration as perceived by the respondents to Video Lesson Presentation, Power Point Presentation, Assessment of Learning, Information Dissemination?

Table 6 presents the assessment level of teachers' practices in ICT integration as perceived by the respondents in relation to video lesson presentations. The findings of this study indicate that teachers' integration of ICT in video lesson presentations, as perceived by students, averages a mean score of 2.70, categorized as "Often" (Madalas). This suggests that while teachers frequently utilize ICT tools and strategies in their instructional practices, there is a clear need for enhancement to optimize effectiveness and foster a more engaging digital learning experience. The highest mean score of 2.79 indicates that teachers provide opportunities for students to give feedback on video lessons, aligning with best practices in digital pedagogy. George and Ogunniyi (2016) emphasized the importance of student feedback in the learning process, as it enhances engagement and allows educators to refine their instructional methods. This learner-centered approach is vital in ICT-integrated education, yet it is crucial that the feedback collected is effectively utilized to improve the quality of video lesson presentations.

Conversely, the lowest mean score of 2.48 pertains to the use of a variety of ICT tools and platforms (e.g., Zoom, Google Classroom, Edpuzzle) for delivering video lessons. This indicates that while teachers are integrating ICT into their instruction, their use of diverse digital platforms is inconsistent. Factors such as limited training, lack of access to technology, or a preference for familiar instructional methods may contribute to this gap. The necessity of equipping educators with the technological competencies required to utilize

various digital tools for instructional purposes effectively is underscored in the literature (Miskiah et al., 2019). The limited integration of diverse ICT platforms could restrict students' exposure to varied learning experiences, thereby impacting their digital literacy skills and overall engagement.

Table 6. *Lesson Presentation*

Indicators	*Mean*	*Description*
1. The teachers use of ICT (Information and Communication Technology) enhances the effectiveness of his/her video lesson presentations.	2.67	Often
2. The teachers incorporate multimedia elements such as images, videos, and audio into his/her video lesson presentations.	2.69	Often
3. The teachers provide clear instructions and explanations in his/her video lessons to facilitate understanding.	2.90	Often
4. The teachers use interactive elements such as quizzes, polls, or discussions in his/her video lessons to engage students.	2.64	Often
5. The teachers regularly assess the effectiveness of his/her video lesson presentations and make adjustments as needed.	2.68	Often
6. The teachers ensure that his/her video lesson presentations are accessible to all students, including those with disabilities or limited internet access.	2.69	Often
7. The teachers encourage student participation and collaboration through group activities or projects in his/her video lessons.	2.72	Often
8. The teachers integrate real-world examples or case studies into his/her video lesson presentations to make content relevant and relatable.	2.77	Often
9. The teachers use a variety of ICT tools and platforms (e.g., Zoom, Google Classroom, Edpuzzle) to deliver video lessons.	2.48	Sometimes
10. The teachers provide opportunities for students to provide feedback on my video lesson presentations to improve their learning experience.	2.79	Often
Mean	2.70	Often

Legend: *3.50–4.00 = Always, 2.50–3.49 = Often, 1.50–2.49 = Sometimes, 1.00–1.49 = Never.*

Furthermore, although teachers often incorporate multimedia elements such as images, videos, and audio into their lessons (Mean = 2.69), the relatively lower mean score for interactive features like quizzes, polls, and discussions (Mean = 2.64) suggests that while educators recognize their importance, they may not consistently implement them. Research on multimedia learning highlights the effectiveness of interactive elements in enhancing student retention and motivation (Aslan & Zhu, 2016). The moderate level of interactivity in video lesson presentations indicates a need for instructional improvement in this area to maximize the potential of ICT in education.

These findings have significant implications for instructional improvement. While teachers consistently demonstrate an effort to integrate ICT into their video lessons, the effectiveness of such integration can be further enhanced by expanding the use of digital tools and platforms, increasing interactivity, and ensuring equitable access to ICT resources. Comprehensive ICT training programs should be implemented to equip teachers with the necessary skills to utilize a broader range of educational technologies (Baya'a et al., 2019). Additionally, educators should be encouraged to diversify their use of ICT platforms, leveraging both synchronous (e.g., Zoom, Google Meet) and asynchronous (e.g., Google Classroom, Edpuzzle) tools to cater to different learning needs. A greater emphasis should also be placed on incorporating interactive features, such as quizzes, discussions, and real-time feedback mechanisms, to enhance student engagement and learning outcomes (Cooke & Dawson, 2012).

In conclusion, while the study confirms that teachers frequently incorporate ICT into their video lesson presentations, there is a pressing need for further refinement in terms of platform diversity, interactivity, and accessibility. Strengthening ICT integration through targeted professional development and strategic resource allocation will enhance the effectiveness of digital learning and contribute to a more inclusive and student-centered educational environment. As educational institutions continue to adopt technology-driven pedagogy, it is essential to continually evaluate and enhance teachers' ICT practices to meet the evolving demands of 21st-century learning (Lai et al., 2018).

Table 7 presents the assessment level of teachers' practices in ICT integration as perceived by the respondents to the point presentation. The results yielded an overall mean of 2.73, categorized as "Often". This result indicates that teachers frequently utilize PowerPoint as a teaching tool, incorporating various elements to enhance student engagement and learning. However, while the findings affirm the regular use of PowerPoint in classroom instruction, they also highlight areas that require further enhancement to maximize its effectiveness.

Among the evaluated indicators, the highest mean score of 2.83 was recorded for the statement "The teachers provide step-by-step instructions or tutorials within PowerPoint presentations to aid student understanding." This suggests that students recognize the clarity and structured nature of the teachers' instructional approach when using PowerPoint. The provision of step-by-step explanations aligns with the principles of effective instructional design, as emphasized by Kumar et al. (2018) who asserted that well-structured multimedia presentations facilitate comprehension and retention This finding underscores the importance of maintaining a systematic and guided approach in designing PowerPoint-based instruction to support student learning, particularly in subjects requiring sequential

understanding.

Table 7. *Power Point Presentation*

Indicators	*Mean*	*Description*
1. The teachers use PowerPoint presentations to enhance visual learning in their classrooms.	2.78	Often
2. The teachers integrate interactive elements like quizzes or polls in their PowerPoint presentations to engage students.	2.73	Often
3. The teachers provide step-by-step instructions or tutorials within PowerPoint presentations to aid student understanding.	2.83	Often
4. The teachers integrate multimedia elements such as videos or audio clips in their PowerPoint presentations.	2.65	Often
5. The teachers encourage students to create their own PowerPoint presentations as part of their assignments.	2.74	Often
6. The teachers regularly update and modify their PowerPoint presentations to reflect current information or teaching strategies.	2.68	Often
7. The teachers provide opportunities for peer collaboration through group PowerPoint presentations.	2.77	Often
8. The teachers assess student learning through activities embedded within PowerPoint presentations.	2.62	Often
9. The teachers provide training or workshops to improve their own ICT skills for PowerPoint presentation creation.	2.65	Often
10. The teachers seek feedback from students regarding the effectiveness and clarity of PowerPoint presentations in enhancing their learning experience.	2.82	Often
Mean	2.73	Often

Legend: *3.50–4.00 = Always, 2.50–3.49 = Often, 1.50–2.49 = Sometimes, 1.00–1.49 = Never.*

Conversely, the lowest mean score of 2.62 was associated with the indicator "The teachers assess student learning through activities embedded within PowerPoint presentations." This suggests that while PowerPoint is frequently used as a lecture tool, its potential as an interactive assessment medium remains underutilized. The relatively lower rating implies that students may perceive PowerPoint presentations as predominantly passive learning tools, rather than as platforms for active engagement and assessment. Suson et al., (2020) highlighted the significance of incorporating formative assessments within multimedia presentations, as doing so enhances student participation and knowledge retention. To address this gap, teachers should be encouraged to integrate assessment components such as embedded quizzes, real-time polls, and interactive activities within their presentations to promote active student engagement.

Furthermore, the results reveal that teachers frequently seek feedback from students regarding the effectiveness and clarity of PowerPoint presentations (Mean = 2.82), suggesting a willingness to adapt their teaching strategies based on student input. This finding is consistent with the principles of student-centered learning, which emphasize the role of continuous feedback in improving instructional materials (Jabeen & Ghani, 2015). However, while feedback mechanisms are evident, their effectiveness depends on the extent to which teachers incorporate student suggestions into their instructional adjustments. Ensuring the collection of structured and systematic feedback can further enhance the alignment between instructional strategies and student learning needs.

The study also indicates that teachers regularly update and modify their PowerPoint presentations to reflect current information or teaching strategies (Mean = 2.68). While this suggests a commitment to keeping instructional content relevant, there is still room for improvement in terms of integrating more multimedia elements (Mean = 2.65) and peer collaboration opportunities (Mean = 2.77). Although PowerPoint presentations often contain visual elements, the findings imply that the use of videos, animations, and simulations could be further enhanced to enrich the learning experience. Research by Mayer (2021) emphasized that multimedia learning is most effective when visual and auditory elements are optimally combined, thereby supporting the integration of more dynamic content in PowerPoint-based instruction (Prabhu et al., 2014).

The findings of this study carry significant instructional implications. To optimize the effectiveness of PowerPoint presentations in teaching, educators should focus on enhancing interactivity, developing effective assessment strategies, and promoting student engagement. Specifically, teachers should integrate more interactive components, such as quizzes, clickable activities, and gamified assessments, to foster active student participation (Kassab et al., 2015). Additionally, strengthening the use of embedded assessments within PowerPoint presentations can provide real-time feedback on student understanding, ensuring that learning gaps are promptly identified and addressed. Encouraging student collaboration through group presentations and peer assessments can further enhance engagement and critical thinking skills. Furthermore, expanding the use of multimedia elements—including videos, animations, and case studies—can make lessons more engaging and contextually relevant (Hamida & Nurdyansyah, 2024). Ultimately, establishing structured feedback mechanisms can help teachers refine their PowerPoint presentations in response to student preferences and learning needs.

The results affirm that teachers frequently employ PowerPoint as an instructional tool; however, the findings suggest that its interactive and assessment functionalities remain areas for improvement. While step-by-step instructional design is a strength, the lack of embedded assessment activities indicates a need for further enhancements. By integrating more interactive assessments, enhancing multimedia content, and encouraging student participation, educators can fully leverage PowerPoint as an effective digital learning tool that aligns with contemporary pedagogical approaches and the demands of 21st-century education.

Table 8. *Assessment of Learning*

Indicators	*Mean*	*Description*
1. The teachers use ICT tools regularly to assess students' understanding of the lesson.	2.92	Often
2. The teachers' ICT-based assessments help in gauging students' progress more effectively.	2.76	Often
3. The teachers provide feedback to students using ICT tools in a timely manner.	2.77	Often
4. The teachers' ICT-based assessments encourage student engagement in the learning process.	2.70	Often
5. The teachers integrate various types of ICT assessments, such as quizzes, online discussions, and multimedia projects.	2.66	Often
6. The teachers' ICT integration enhances the accuracy of assessment results.	2.75	Often
7. The teachers' ICT tools enable teachers to personalize assessments to meet individual student needs.	2.76	Often
8. The teachers feel confident in their ability to integrate ICT into assessment practices."	2.79	Often
9. The teachers' ICT-based assessments provide opportunities for students to demonstrate diverse skills and abilities.	2.92	Often
10. The teachers' ICT integration positively impacts students' learning outcomes.	2.85	Often
Ave.	2.79	Often

Legend: *3.50–4.00 = Always, 2.50–3.49 = Often, 1.50–2.49 = Sometimes, 1.00–1.49 = Never.*

The table presents the assessment level of teachers' practices in ICT integration as perceived by the respondents. The assessment of learning results showed that the overall mean is 2.79, categorized as "Often" (Madalas). This finding suggests that teachers frequently incorporate ICT tools in evaluating students' understanding and progress. The consistent use of ICT in assessment practices highlights the growing integration of digital tools in education, reinforcing their role in enhancing assessment accuracy, efficiency, and engagement (Arhin et al., 2024).

Among the indicators, the highest mean score of 2.92 was observed in two areas: "The teachers use ICT tools regularly to assess students' understanding of the lesson" and "The teachers' ICT-based assessments provide opportunities for students to demonstrate diverse skills and abilities." These findings emphasize that teachers actively utilize ICT to monitor student learning and recognize its role in showcasing students' diverse competencies.

The ability of ICT-based assessments to capture multiple dimensions of student learning aligns with constructivist and student-centered learning theories, which emphasize varied assessment methods to address different learning styles and abilities (Farisa et al., 2023). This supports the idea that ICT-integrated assessments can move beyond traditional testing methods, allowing students to express their knowledge through interactive and creative means such as multimedia projects, discussions, and performance-based tasks.

Conversely, the lowest recorded mean score of 2.66 pertains to the indicator "The teachers integrate various types of ICT assessments, such as quizzes, online discussions, and multimedia projects." Although still categorized under "Often," the relatively lower rating suggests that while teachers use ICT in assessments, there is still a need to diversify the types of digital assessments utilized. This implies that ICT-based assessments are often limited to traditional formats, such as online quizzes, with less emphasis on interactive or performance-based assessments.

Research by Andrade and Heritage (2018) suggests that integrating varied ICT-based assessment methods—such as gamified quizzes, digital portfolios, simulations, and collaborative online projects—can lead to a more comprehensive evaluation of students' learning progress and critical thinking skills (Ghory et al., 2024).

Another noteworthy result is the mean score of 2.85 for the statement "The teachers' ICT integration positively impacts students' learning outcomes." This confirms that students recognize the value of ICT in improving their academic performance and overall learning experience. Studies by Wang et al. (2020) suggest that technology-enhanced assessments offer instant feedback, facilitate personalized learning pathways, and enhance motivation, all of which contribute to improved learning outcomes (López & Hernández-Gutiérrez, 2023).

Moreover, the findings show that teachers feel confident in their ability to integrate ICT into assessment practices (Mean = 2.79), demonstrating their willingness to adopt digital tools to support student learning. However, confidence alone does not guarantee effectiveness; thus, continuous professional development and training programs should be implemented to equip teachers with advanced ICT skills for assessment purposes (Tang et al., 2021).

The findings confirm that teachers frequently incorporate ICT tools into their assessment practices, particularly in monitoring student progress, providing timely feedback, and enhancing learning outcomes. However, the relatively lower score in the variety of ICT-based assessments suggests that teachers could benefit from more exposure to diverse digital assessment strategies. To enhance the effectiveness of ICT in assessment, schools should provide training workshops on innovative assessment tools, such as adaptive testing, AI-driven grading systems, and interactive assessment platforms (Gubbels et al., 2020). Furthermore, teachers should be encouraged to utilize ICT tools that support formative and summative assessments, allowing for a more comprehensive and engaging evaluation process.

Table 9 presents the assessment level of teachers' practices in ICT integration as perceived by the respondents in the assessment of learning. The result indicated that the overall mean is 2.79, categorized as "Often". This finding suggests that teachers frequently

incorporate ICT tools in evaluating students' understanding and progress. The consistent use of ICT in assessment practices highlights the growing integration of digital tools in education, reinforcing their role in enhancing assessment accuracy, efficiency, and engagement (Arhin et al., 2024).

Table 9. *Information Dissemination*

Indicators	*Mean*	*Description*
1. The teachers in school use various digital tools (e.g., websites, apps) to disseminate information to students.	2.82	Often
2. The teachers integrate ICT (Information and Communication Technology) into their lesson plans to enhance information dissemination.	2.83	Often
3. Regularly use multimedia resources (e.g., videos, presentations) to convey information to students.	2.77	Often
4. The teachers encourage students to use online platforms (e.g., discussion forums, chat groups) for information exchange.	2.82	Often
5. The teachers provide training or guidance on how to effectively use ICT tools for information gathering and sharing.	2.72	Often
6. The teachers create and share digital materials (e.g., online readings, digital handouts) to supplement in-class learning.	2.78	Often
7. The teachers encourage students to conduct online research to gather additional information on topics discussed in class.	2.82	Often
8. The teachers use ICT to provide timely feedback to students on their assignments and assessments.	2.76	Often
9. The teachers collaborate with students to create digital projects that involve information dissemination.	2.84	Often
10. The teachers adapt their ICT integration strategies based on the needs and preferences of their students.	2.73	Often
Mean	2.79	Often

Legend: *3.50–4.00 = Always, 2.50–3.49 = Often, 1.50–2.49 = Sometimes, 1.00–1.49 = Never.*

Among the indicators, the highest mean score of 2.92 was observed in two areas: "The teachers use ICT tools regularly to assess students' understanding of the lesson" and "The teachers' ICT-based assessments provide opportunities for students to demonstrate diverse skills and abilities." These findings emphasize that teachers actively utilize ICT to monitor student learning and recognize its role in showcasing students' diverse competencies. The ability of ICT-based assessments to capture multiple dimensions of student learning aligns with constructivist and student-centered learning theories, which emphasize varied assessment methods to address different learning styles and abilities (Farisa et al., 2023). This supports the idea that ICT-integrated assessments can move beyond traditional testing methods, allowing students to express their knowledge through interactive and creative means such as multimedia projects, discussions, and performance-based tasks.

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The results highlighted that while ICT integration in assessment is prevalent and beneficial, further diversification and innovation in digital assessment methods are necessary to harness its potential fully. By expanding the range of ICT-based assessments, ensuring

accessibility, and continuously improving teachers' digital competencies, educational institutions can create a more dynamic, inclusive, and student-centered assessment environment that enhances learning and academic achievement in the digital age.

Problem 3. What is the students' performance in terms class participation, and academic performance?

Table 10 presents the assessment of students' performance based on their class participation. The overall mean score of 2.88, classified as "Often". Indicated that students frequently engage in classroom discussions and activities. The highest mean score (M = 2.98) was recorded for "I actively participate in class discussions and activities," followed closely by "I attend all classes regularly" (M = 2.92), indicating that students demonstrate a strong commitment to their academic responsibilities. Furthermore, the same mean score (M=2.92) was observed for "I listen attentively to my classmates when they speak" and "I take notes during lectures or discussions," which highlights students' attentiveness and engagement in knowledge acquisition. These findings align with recent literature that emphasizes the importance of active participation in enhancing learning outcomes and student satisfaction in educational settings (Jin & Peng, 2022; Fu-hai et al., 2022)

Table 10. *Class Participation*

Part III. Student Performance		
Indicators	*Mean*	*Description*
1. I actively participate in class discussions and activities.	2.98	Often
2. I ask questions when I don't understand something in class.	2.90	Often
3. I contribute thoughtful ideas and insights during class.	2.88	Often
4. I engage in group discussions and projects.	2.92	Often
5. I volunteer to present or lead discussions in class.	2.85	Often
6. I listen attentively to my classmates when they speak.	2.90	Often
7. I attend all classes regularly.	2.92	Often
8. I take notes during lectures or discussions.	2.92	Often
9. I participate in online communication and submission related to class.	2.74	Often
10. I seek feedback from my teachers on how to improve my class participation.	2.81	Often
Mean	2.88	Often

Legend: *3.50–4.00 = Always, 2.50–3.49 = Often, 1.50–2.49 = Sometimes, 1.00–1.49 = Never.*

Conversely, the lowest mean score (M=2.74) was recorded for "I participate in online communication and submission related to class," indicating that while students actively engage in face-to-face interactions, they may encounter challenges in maintaining participation in online learning environments. This result aligns with existing studies suggesting that factors such as technological accessibility, motivation, and digital literacy significantly impact students' engagement in virtual platforms (Pramadita, 2022; Rao et al., 2021).

The findings imply that although students demonstrate a strong presence in traditional classroom settings, there is a need to enhance their involvement in digital learning activities. For instance, Kohnke and Moorhouse have highlighted the effectiveness of gamified learning platforms, such as Kahoot!, in increasing student engagement, particularly in language learning contexts (Kohnke & Moorhouse, 2021).

The results highlighted the importance of creating interactive and inclusive learning environments that encourage students to take the initiative, articulate their thoughts, and actively participate in discussions. Educators should consider implementing blended learning approaches that bridge traditional and digital learning modalities, ensuring students remain engaged across different instructional platforms (Bergdahl & Bond, 2021; Thalib et al., 2023).

Moreover, integrating digital engagement strategies, such as interactive forums, gamified assessments, and collaborative online projects, may enhance students' participation beyond the physical classroom setting (NORDIN & Azahari, 2024; Xu, 2023). Recent studies have demonstrated that integrating digital tools can significantly enhance collaborative learning experiences, thereby promoting active student participation (Rao et al., 2021; Fauzi et al., 2023).

The findings suggest that educators should reinforce the integration of digital tools to improve students' engagement in online learning activities. Schools may consider providing digital literacy training to equip students with the necessary skills to navigate online platforms effectively (Pramadita, 2022; Dinh & Nguyen, 2020).

Additionally, the adoption of student-centered pedagogical approaches, such as problem-based learning and peer-led discussions, could further sustain students' active involvement in both face-to-face and online learning environments (Fu-hai et al., 2022; Yue, 2023). The importance of teacher support and the learning environment has been underscored in recent research, indicating that these factors are crucial for fostering student engagement (Jin & Peng, 2022; Fu-hai et al., 2022).

The results highlighted the evolving nature of student engagement in the digital age and underscore the need for educational institutions to adopt innovative instructional strategies that cater to modern learning needs. By enhancing both traditional and digital participation, educators can foster a more dynamic and comprehensive learning experience that supports students' academic success (Bergdahl & Bond, 2021; Rao et al., 2021). The integration of digital storytelling and collaborative tools has been shown to facilitate deeper learning and reflection among students, further enhancing their engagement (Kim et al., 2021; Thalib et al., 2023).

Table 11. *Academic Performance*

Rating Scale	*Frequency*	*Percentage*	*Description*
90 – 100	18	6.9	Outstanding
85 – 89	77	29.6	Very Satisfactory
80 -84	129	49.6	Satisfactory
75 – 79	36	13.8	Fairly Satisfactory
Below 75	0	0	Did Not Meet Expectation
Total	260	100.0	

Table 11 presents the academic performance of the respondents based on their average grades. The data reveal that a significant portion of students (49.6%) falls within the "Satisfactory" category (80–84), suggesting that while they meet the expected learning competencies, there is considerable room for improvement in their academic proficiency. This finding is consistent with the existing literature, which emphasizes the need for targeted instructional strategies to enhance student performance across varying levels of achievement (Thaanyane, 2024; Goldhaber, 2021; Wambui et al., 2022). The presence of a smaller group of students (6.9%) achieving an "Outstanding" rating (90–100) highlights the potential for exceptional mastery of subject content among some learners, which can be further nurtured through differentiated instruction and enrichment activities (Haymon & Wilson, 2020).

Conversely, the data indicate that 13.8% of students are categorized as "Fairly Satisfactory" (75–79), suggesting that these learners may require additional academic support to enhance their performance. This aligns with research that underscores the importance of providing targeted interventions for students who are struggling academically (Ekberg & Gao, 2018; Otiang'a, 2022). Notably, the absence of students scoring below 75 indicates that all respondents met at least the minimum passing standard, which may reflect the effectiveness of the educational strategies employed in the institution (Ramadan & Chen, 2018).

The integration of Information and Communication Technology (ICT) in education has been shown to impact student performance significantly. Studies indicate that effective ICT integration can enhance student engagement, comprehension, and retention of knowledge (Goldhaber, 2021; Wambui et al., 2022). However, the varying levels of academic achievement among students suggest that the effectiveness of ICT integration is contingent upon its implementation by educators. Research highlights that teachers' technological pedagogical content knowledge (TPACK) plays a crucial role in translating ICT tools into improved student learning outcomes (Bedin et al., 2023; Machkour et al., 2023). If ICT is not effectively utilized, its impact on academic performance may be minimal, which could explain why some students still struggle despite technological advancements in teaching (Sain & Lama, 2024).

Moreover, some studies argue that the mere presence of technology in classrooms does not guarantee higher academic performance. For instance, Clark (2018) posited that technology must be complemented by effective instructional strategies and student-centered approaches to yield positive outcomes (Al-Ansi, 2021). The findings in this study support this view, as the presence of ICT does not appear to have eliminated performance disparities among students. Therefore, it is imperative that ICT use is aligned with differentiated instruction, formative assessments, and interactive learning strategies to cater to students across various proficiency levels (Sintema & Jita, 2022; Uslu & Usluel, 2019; Andriamihavana, 2023).

Given these insights, it is crucial for educators to continuously assess the effectiveness of ICT-based teaching strategies and identify areas where students may require additional instructional support. Schools should provide professional development programs focused on enhancing teachers' ICT skills and integrating technology in ways that directly support student learning outcomes. By doing so, ICT can be leveraged not just as a tool for content delivery, but as a means to foster deeper engagement, critical thinking, and academic success (Thaanyane, 2024; Al-Ansi, 2021; Sain & Lama, 2024).

Problem 4. Is there a significant relationship between demographic profile, the assessment level of Teachers' Practices in ICT Integration as perceived by the respondents to video lesson presentation, Power Point presentation, assessment of learning and information dissemination and students' performance?

Table 12. *Relationship Between the Teachers' Practices in ICT Integration and Students' Performance*

	r	*p-value*	*Level of Significance*	*Decision*
Students' Performance vs Age	0.044	0.476	Not Sig.	Accept H0
Students' Performance vs Gender	0.045	0.472	Not Sig.	Accept H0
Students' Performance vs Grade Level	0.125	0.044	Sig.	Reject H0
Students' Performance vs ICT Gadget Used	-0.248	0.000	Sig.	Reject H0
Students' Performance vs Internet Availability	0.026	0.681	Not Sig.	Accept H0
Students' Performance vs Video Lesson Presentation	0.500	0.001	Sig.	Reject H0
Students' Performance vs Power Point Presentation	0.459	0.001	Sig.	Reject H0
Students' Performance vs Assessment of Learning	0.408	0.001	Sig.	Reject H0
Students' Performance vs Information Dissemination	0.428	0.001	Sig.	Reject H0
Students' Performance vs Class Participation	0.544	0.001	Sig.	Reject H0

Furthermore, the negative correlation between ICT gadget usage and academic performance ($r = -0.248$, $p = 0.001$) suggests that while technology is integral to education, excessive or ineffective use may hinder learning. This finding is supported by Kirkwood and Price (2016), who argue that structured and purposeful ICT integration is essential to minimize distractions and maximize educational

benefits (Gilakjani et al., 2013; Başal, 2015).

The analysis also reveals significant positive correlations between teachers' ICT integration practices and students' academic performance in various areas, including video lesson presentations ($r = 0.500$, $p = 0.001$) and PowerPoint presentations ($r = 0.459$, $p = 0.001$). These results underscore the importance of interactive and student-centered learning environments, which are enhanced by effective ICT use. The strongest correlation observed was between class participation and academic performance ($r = 0.544$, $p < 0.001$), reinforcing the notion that actively engaging students in the learning process leads to better academic outcomes (Sewell et al., 2016; Gümüş et al., 2023).

The findings resonate with the Technological Pedagogical Content Knowledge (TPACK) framework, which posits that effective integration of technology into pedagogy significantly enhances student engagement and comprehension (SALIHU & UMAR, 2020; Mlambo et al., 2020). Research by Shulman (2021) and Laurillard (2013) further supported the idea that digital tools should be employed in ways that promote deeper learning and active engagement (Gilakjani et al., 2013; Başal, 2015). The positive correlation between multimedia-based instruction and academic performance highlights the relevance of Cognitive Load Theory, which suggested that visual and auditory materials can enhance knowledge retention and comprehension (Indrašienė et al., 2015; Qiao et al., 2014).

Given these insights, it is essential for educators to adopt pedagogical strategies that maximize the effective use of ICT in classrooms. This involves ensuring that digital tools are not merely employed for content delivery but are also utilized to foster student interaction, inquiry-based learning, and critical thinking. Schools should invest in professional development programs that focus on enhancing teachers' ICT skills and integrating technology in ways that directly support student learning outcomes (Aslan & Zhu, 2016; Otieno, 2023). Additionally, the negative correlation between ICT gadget usage and academic performance indicates a need for guidelines on responsible technology use among students, ensuring that digital devices serve as effective learning aids rather than distractions (Leppink & Duvivier, 2016; Taripe & Limpot, 2022).

The result highlighted the transformative potential of ICT integration in education when implemented effectively. While demographic factors do not directly dictate student success, the manner in which teachers utilize technology in lesson delivery, assessment, and information dissemination has a significant influence on student engagement and academic achievement. This reinforces the necessity for evidence-based instructional improvement plans that integrate digital pedagogy, promote interactive learning environments, and address potential barriers to effective ICT use in education.

Problem 5. Which of the demographic profile and learners' perspectives on teaching practices best predict the learners' performance?

Table 13. *Demographic Profile Variables that Best Predict the Student's Performance*

Indicator	*Unstandardized Coefficients*			*Standardized Coefficients*	
	B	*Std. Error*	*Beta*	*T*	*Sig.*
(Constant)	69.598	2.314		30.083	0.001
Age	-0.029	0.068	-0.023	-0.421	0.674
Gender	0.384	0.362	0.053	1.060	0.290
Grade Level	0.219	0.185	0.068	1.179	0.239
Gadget	-1.137	0.322	-0.211	-3.536	0.001
Connectivity	1.330	0.406	0.184	3.281	0.001
Video Lesson Presentation	0.131	0.058	0.185	2.252	0.025
Power Point Presentation	0.062	0.056	0.091	1.108	0.269
Assessment of Learning	0.000	0.058	0.001	0.008	0.994
Information Dissemination	0.018	0.062	0.025	0.283	0.777
Class Participation	0.217	0.052	0.327	4.164	0.001
R = 0.624	R2 = 0.390		F = 15.843	Sig. = 0.000	

Table 13 presents the results of the multiple regression analysis, identifying the demographic profile variables and students' perspectives on teachers' ICT integration practices that best predict academic performance. The regression model yielded an R-value of 0.624 and an R^2 value of 0.390, indicating that the combined influence of the predictors can explain 39.0% of the variance in students' academic performance. The overall model was statistically significant ($F = 15.843$, $p < 0.001$), demonstrating a meaningful relationship between the independent variables and students' academic performance.

Among the demographic variables, gadget usage ($B = -1.137$, $p < 0.001$) was found to be a significant negative predictor of academic performance. This suggests that increased reliance on digital devices without structured educational engagement may hinder students' learning outcomes. This finding aligns with the study by Kirkwood and Price (2016), which emphasized that excessive or unregulated gadget use can lead to cognitive overload, distractions, and reduced academic focus (Wei et al., 2016). In contrast, internet connectivity ($B = 1.330$, $p = 0.001$) showed a significant positive relationship with students' academic performance, implying that students with stable and reliable internet access tend to perform better in their studies. This result supports the findings of Selwyn (2020), who argued that improved digital access enhances opportunities for research, collaboration, and engagement with online learning resources, ultimately fostering academic success (Ghory et al., 2024).

Among the teachers' ICT integration practices, video lesson presentation (B = 0.131, p = 0.025) and class participation (B = 0.217, p < 0.001) emerged as the strongest predictors of academic performance. The significant influence of video lesson presentations highlights the effectiveness of multimedia-based instructional strategies in enhancing student learning. Cognitive Load Theory, as proposed by Sweller (2011), supports the idea that video-based instruction improves retention and comprehension by integrating multiple sensory inputs, making learning more engaging and accessible for students (Muñoz-Repiso & Tejedor, 2012). Similarly, the positive effect of class participation reinforces Vygotsky's (1978) Social Constructivist Theory, which posited that learning occurs through meaningful interactions with peers and instructors. This suggests that active engagement in discussions, collaborative tasks, and interactive learning experiences significantly contributes to students' academic success (Alalwan et al., 2019).

Conversely, PowerPoint presentation (B = 0.062, p = 0.269), assessment of learning (B = 0.000, p = 0.994), and information dissemination (B = 0.018, p = 0.777) did not significantly predict academic performance. These findings suggest that while ICT tools are valuable in classroom instruction, their effectiveness depends on how they are implemented and whether they promote active learning rather than passive content delivery. Technology must be integrated with interactive pedagogy to maximize its impact on student learning outcomes (Eguavoen, 2016; Hakimi et al., 2024). The insignificant results for these variables suggest that using PowerPoint presentations, assessments, and information dissemination tools without proper engagement strategies may not necessarily lead to improved academic performance.

Overall, the findings suggest that students' academic performance is influenced by both their digital learning environment and the instructional strategies employed by teachers. While ICT tools such as video lessons and interactive participation significantly enhance learning outcomes, unregulated gadget use may negatively impact performance. These results underscore the importance of structured digital learning environments, teacher training in ICT-driven pedagogical strategies, and institutional policies that foster responsible technology use in education.

Given these findings, several implications can be drawn for instructional improvement. First, educators should encourage structured ICT integration by focusing on interactive video lessons and participatory learning rather than relying solely on static presentations. Second, fostering active classroom participation should be prioritized to ensure students engage in meaningful discussions and collaborative tasks that enhance their understanding. Third, implementing digital literacy programs can help guide students in responsible gadget usage and effective online learning habits. Lastly, improving internet accessibility should be considered to ensure all students have equal opportunities to engage with ICT-based learning materials. By refining digital teaching strategies and addressing barriers to effective technology use, educational institutions can create more engaging and inclusive learning environments that optimize student performance.

Conclusions

Based on the study's findings, it can be concluded that while ICT integration in classroom instruction is widely acknowledged as beneficial, its effectiveness is largely dependent on three key factors: teachers' digital competence, institutional support, and access to ICT resources. Students perceive ICT as an essential component of modern education, particularly in enhancing interactivity, accessibility, and engagement. However, gaps in teachers' proficiency and the availability of digital tools hinder its full potential.

The study also concludes that without a structured and well-supported ICT integration plan, disparities in implementation will persist, limiting the overall impact of technology in education. While some educators are proactive in utilizing ICT effectively, others require further training and guidance to maximize its benefits.

In light of these findings, the following recommendations are proposed to enhance ICT integration in classroom instruction: Professional Development Programs for Teachers — implement regular and structured ICT training programs focused on pedagogical integration, digital literacy, and innovative teaching strategies, and provide teachers with opportunities to attend workshops, webinars, and certification programs related to ICT in education. Strengthening Institutional Support and Infrastructure — schools should invest in modern and reliable ICT infrastructure, ensuring accessibility for both teachers and students, and establish a technical support system to assist teachers in troubleshooting and maintaining ICT resources. Developing a Standardized ICT Integration Framework — the institution should adopt a structured ICT integration plan that outlines clear guidelines on how and when technology should be incorporated into teaching, and encourage collaborative lesson planning where teachers can share best practices and ICT-based instructional strategies.

Enhancing Student Engagement through Interactive ICT Tools — encourage the use of student-centered ICT applications, such as gamified learning, virtual simulations, and interactive assessments, and promote blended learning approaches that complement face-to-face instruction with online resources. Further Research and Continuous Assessment — future studies should investigate the long-term effects of ICT integration on student performance across various subject areas, and conduct periodic assessments to evaluate the effectiveness of ICT implementation and make necessary adjustments.

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