Use of Technological Devices in Teaching and Learners' Academic Performance
DOI: https://doi.org/10.56738/issn29603986.geo2026.7.209
ISSN 2960-3986
GEO Academic Journal Vol. 7 No. 3 – 2026 series

USE OF TECHNOLOGICAL DEVICES IN TEACHING AND LEARNERS' ACADEMIC PERFORMANCE

Jose Kenneth C. Yba and Henriquito C. Tepacia
Cabcaban Elementary School, Bindoy, Negros Oriental, Philippines
Department of Education, Philippines
josekenneth.yba@deped.gov.ph
heniriquito.tepacia@deped.gov.ph

Abstract

The use of technological devices has emerged as a crucial tool for educators to enhance instruction and enrich learners' educational experiences. Along this line, the key purpose of this study is to determine the extent of the use of technological devices in teaching and learners' academic performance in clustered schools in the central Philippines for the school year 2025–2026. Descriptive research was conducted, and a 40-item survey questionnaire was used to gather data from thirty-four (34) teachers. The statistical tools used were the mean, the Mann-Whitney U test, and Spearman's rho. Overall, the extent of the use of technological devices in instructional learning delivery was very great, whereas learners' engagement and assessment of learning were great. The level of learners' academic performance was satisfactory. There was a significant difference in the extent of technological device use in teaching, in terms of learners' engagement and assessments of learning, across age groups. Furthermore, there was no significant relationship between the extent of technological device use and learners' academic performance. The study suggests that the education authorities may spearhead seminars and trainings to assist and help teachers in the successful inclusion of technology in the classroom and allocate adequate funding for the provision of additional technological equipment in schools.

Keywords: *Technological devices, learners' academic performance, instructional learning delivery, learners' engagement, assessment of learning*

Bio-profile

Jose Kenneth C. Yba is a public elementary school teacher in the Bindoy 1 district under the Schools Division of Negros Oriental. He holds a bachelor's degree in Secondary Education from Villaflores College. He is currently pursuing a Master of Arts in Education, majoring in Administration and Supervision at the STI West Negros University School of Graduate Studies. One of his interests is conducting classroom-based research and related topics in education.

Dr. Henriquito C. Tepacia is a faculty of STI West Negros University, Bacolod City, Philippines. He is dedicated to investigating strategies that could help improve the delivery of quality education for all.

Use of Technological Devices in Teaching and Learners' Academic Performance
DOI: https://doi.org/10.56738/issn29603986.geo2026.7.209
ISSN 2960-3986
GEO Academic Journal Vol. 7 No. 3 – 2026 series

Introduction

Rationale

Technology is one of the most powerful influences in today's educational scene (Gopo, 2022). The development and modernization of communication and information technology brought about various changes, starting with computers, which later evolved into devices such as laptops and notebooks, mobile phones, and iPads (Adriani & Asyifa, 2022). These technological devices can enhance instructional delivery, improve learners' engagement, and facilitate easier assessment of learning in schools (Haleem et al., 2022). With these, DepEd continues its commitment by promoting innovations that leverage ICTs for lifelong learning opportunities and to achieve the United Nations' Sustainable Development Goal for education, SDG 4. They look for innovative and promising approaches to fully harness ICT as a platform for teacher learning and development.

In the present research locale, most teachers are adapting to using technology as an extension of their classes. Instead of traditional pen, chalkboard, and paper, teachers use applications and tools to create instructional presentations. They incorporate projectors, computers, and other advanced digital resources, which makes learning exciting and enjoyable for students (Paradero et al., 2025). In addition, many teachers allow students to use technological devices and the internet as part of their assignment completion and performance. However, technological devices can have an impact, especially on elementary school children who use them for long periods every day. Excessive use of gadgets by children has several negative impacts, including addiction to screen time, behavioral changes, and more, which many parents seem to be unaware of (Rahayu et al., 2023). Hence, it is essential to study in greater depth the effects of using technological devices to provide more information to help learners, teachers, school counselors, school administrators, and parents start learning and acquire a deep understanding of the benefits and harmful impacts of technological device use on academic performance.

The researcher, as a public elementary school teacher and avid user of digital devices, was motivated to study the impact of digital devices on learners' academic performance. This study will provide a better understanding of the impact of using technological devices on learners' academic performance. This information may help provide effective strategies to support learners who are struggling academically.

.

Literature Review

Technological devices (TD) have been anticipated as beneficial tools for learning. These devices were widely used in schools and represented the most efficient way to deliver instruction. Technology has enhanced students' active engagement and motivation towards learning (Roy, 2019). Technological devices with various applications can display various news media, social networks, hobbies, and even entertainment (Erlita et al., 2023). These touchscreen devices were especially popular for video viewing, self-development, and gaming (Sivrikova et

DOI: https://doi.org/10.56738/issn29603986.geo2026.7.209
ISSN 2960-3986
GEO Academic Journal Vol. 7 No. 3 – 2026 series

al., 2020). Incorporating projectors, computers, and other advanced digital resources makes learning exciting and enjoyable for students (Haleem et al., 2022).

Instructional delivery is more effective when supported by technological devices. Research studies related to the use of technological devices had improved instructional learning delivery. Sayson, Guanzon, Catarus, Doromal, Caguan, and Bolante (2025) reported that teachers' competence in using multimedia platforms is high. Guanzon, Bagundol, and Azarcon (2023) reported that teachers are already accustomed to manipulating the functions of MS PowerPoint and Word, as they use them regularly to create their reports, lesson plans, and visual aids. Javier (2021) reported that teachers' practices in the use of digital teaching and learning tools are evident, with teachers eager to practice, acknowledging the benefits of these tools, and radiating best practices in the workplace regardless of their demographic backgrounds. Mayantao and Tantiado (2024) reported that teachers consistently demonstrate confidence in technology. Teachers' use of digital tools such as PPT, video/capture, and the like has a significant relationship with their confidence in technology.

Learners' engagement is considered one of the important constructs used to understand what drives students towards the teaching-learning process. Various studies related to the use of technological devices have improved learners' engagement in classroom discussions. Sultana and Hasan (2023) reported that the majority of respondents agreed on the effectiveness of technological devices for teaching management and the significance of their use in classroom management. Paradero et al. (2025) concluded that although the use of technological devices is not prevalent among elementary learners, they have exerted their best effort to engage in and accomplish academic-related activities or tasks, indicating that even limited access to technology can foster a positive learning environment and enhance student participation. Nurhabibah (2017) reported that, across age brackets, young instructors aged 21–40 had a higher level of ICT literacy than older instructors. Instructors should improve their ability in ICT literacy competence, as well as their knowledge and knowledge generation in each element of ICT literacy competence.

Technological devices also transform assessment methods, with online assessments, automated feedback, and learning analytics offering immediate updates on student progress. Related studies in the use of technological devices had improved learning assessment methods. Retnawati et al. (2024) reported that teachers who can effectively use technology for assessments are expected to maintain students' learning pace, provide adequate support for those facing challenges in achieving learning objectives, and enhance the overall quality of learning. Sajonia and Monteclaro (2024) reported that teachers' use of technology for digital assessments is significantly high. However, teachers still need to fully utilize Moodle for assessing student learning, which is currently the least-used digital assessment tool. A significant difference was also found in teachers' use of technology for digital assessment by age. Age influences how teachers incorporate digital assessment tools, leading to variations in proficiency and comfort levels between younger and older educators. Conversely, Sánchez-Mena and Martí-Parreño (2017) reported that the main barriers to teachers' use of online gamification assessments include a lack of resources, students' disinterest in gamification, teachers' beliefs about the appropriateness of gamification for their subjects, and classroom dynamics that could negatively

DOI: https://doi.org/10.56738/issn29603986.geo2026.7.209
ISSN 2960-3986
GEO Academic Journal Vol. 7 No. 3 – 2026 series

affect the classroom atmosphere. Agtarap (2024) revealed that most teachers have difficulty integrating authentic assessment into online learning and using online assessment applications. Teachers rarely use online assessment tools such as Edpuzzle, Google Classroom, Kahoot, and Quizzes to assess student learning.

Further, learners' academic performance is the knowledge gained, which is assessed by the marks of a teacher and/or educational goals set by students and teachers to be achieved over a specific period (Leander & Fabella, 2020). Atanacio & De Guzman (2020) found that technology positively impacts student learning outcomes. The use of educational technology such as tablets and online resources can improve student engagement and motivation. Providing access to necessary resources and support systems, such as training for both students and teachers on how to use technology effectively, could significantly enhance learners' ability to succeed academically. Paradero et al. (2025) reported that learners struggle to complete tasks assigned by teachers because they lack access to the necessary technology, resulting in lower performance ratings. Albarico et al. (2023) revealed that poor academic performance is affected by factors related to school, home, and personal conditions. Monserate (2018) found that students' academic performance is highly influenced by teachers' teaching effectiveness, but not by their computer literacy or competence in technology.

Theoretical Underpinning

This study is anchored in the Unified Theory of Acceptance and Use of Technology by Venkatesh, Morris, Davis, and Davis (2003) and Performance Theory by Richard Schechner (1970). The Unified Theory of Acceptance and Use of Technology is based on the user's perception of usefulness and perceived ease of use, as cited by Sharples and Modules (2014). The theory has been widely used by researchers in the field of technology in education, with various modifications and criticisms. The perceived usefulness of technology refers to users' (e.g., teachers') belief that it will improve their work, thereby enhancing job performance. This means that if teachers think that the use of computers would make their day-to-day activities, such as preparing lesson plans, lesson materials, or analyzing students' results, more organized and accurate, they would probably use them. Perceived ease of use of new or existing technology means users view it as not requiring much effort to learn to use. This suggests that teachers may adopt technology they consider easy to learn and use, with minimal need for expert consultation.

Another theory anchored in the study was Performance Theory. According to Schechner (1970), to perform is to produce valued results. A performer can be an individual or a group engaged in a collaborative effort. Developing performance is a journey, and the level of performance describes location in the journey. The current level of performance depends holistically on 6 components: context, level of knowledge, levels of skills, level of identity, personal factors, and fixed factors. Three axioms are proposed to improve performance. These involve a performer's mindset, immersion in an enriching environment, and engagement in reflective practice. As linked in the present study, performers' mindset is related to learners' learning skills and the use of technology for learning. It is the ability of learners to achieve high performance and set challenging goals. Reflective practice is related to parents' and teachers'

DOI: https://doi.org/10.56738/issn29603986.geo2026.7.209
ISSN 2960-3986
GEO Academic Journal Vol. 7 No. 3 – 2026 series

support for child's learning. It is the actions of parents, teachers, and the school that analyze the learner's attention to their learning tasks, identify strengths and areas for improvement, and improve the level of performance. Immersion can be linked to learners' learning environment. It is the physical, social, and intellectual environment which can elevate performance and stimulate learners' development.

Objectives

This study aimed to determine the extent of the use of technological devices in teaching and learners' academic performance. Specifically, it aimed to determine 1) the extent of the use of technological devices in instructional learning delivery, learners' engagement, and assessment of learning; 2) the level of learners' academic performance; 3) whether a significant difference in the extent of the use of technological devices when grouped and compared according demographic variables; and 4) whether a relationship between the extent of the use of technological devices and the level of learners' academic performance.

Methodology

This section presents a discussion of the research methodology used, the study's subjects and respondents, the research instruments, the validity and reliability of the instruments, the data-gathering procedure, and the statistical tools and procedures for data analysis.

Research Design

This study employed the descriptive research design to determine the extent of the use of technological devices and learners' academic performance. According to Aggarwal & Ranganathan (2019), descriptive research is a methodical approach to gathering and analyzing factual data. It is valuable in providing facts on which scientific judgment may be based when assessing the present study. In addition, a descriptive design is appropriate for studies that aim to discover what prevails in the present conditions, practices, held opinions and beliefs, processes and effects, and developing trends. Descriptive research design was appropriate for the present study to assess the present condition, the effects that are being felt, and the prevailing issues on use of technological devices in teaching and its effects on learners' academic performance, and to make an adequate and accurate interpretation of the data.

Study Respondents

The respondents of the study were the 34 public elementary teachers in the hinterland schools. The researcher employed purposive sampling. Purposive sampling is a form of non-probability sampling in which researchers rely on their own judgment when choosing members of the population to participate in the study. Purposive sampling allows researchers to access a specific subset of people by selecting all survey participants who meet a specified profile (Ames, 2019).

DOI: https://doi.org/10.56738/issn29603986.geo2026.7.209
ISSN 2960-3986
GEO Academic Journal Vol. 7 No. 3 – 2026 series

Instrument

This study utilized a researcher-made questionnaire. The researcher made a questionnaire has two parts. The first part comprises the personal profile of the teachers in terms of age, average family monthly income, highest educational attainment, and number of technology related trainings. The second part of the questionnaire answers the extent of the use of technological devices in teaching. The extent of the use of technological devices in teaching is divided into instructional delivery, learners' engagement, and assessment of learning. It is composed of 10 items per area with a total of 30 items. The respondents were asked to rate each item using the five-point Likert scale, which contains the following scores: 5 –Always; 4 – Often; 3 –Sometimes; 2 –Rarely; and 1 –Almost Never. The research instrument was subjected to validity (5.00-excellent) and reliability (0.943-excellent).

Data Collection Procedure

The researcher asked permission through written communication from the Schools Division Superintendent of the Department of Education of the Division of Negros Oriental, requesting to allow the researcher to distribute the questionnaires to the target respondents. Upon approval of the first request, the researcher provided the school heads of the concerned schools with a copy of the approved communication from SDS to secure their consent for the study's conduct. After granting permission, the researcher distributed the survey questionnaire to each respondent. The purpose of the study was properly explained to respondents by the researcher. The researcher gave the respondents an allowance of three weeks to ensure that all items in the questionnaires were answered. The questionnaires were personally retrieved by the researcher after the allowed time is through to ensure a 100 percent retrieval of the checklist and questionnaires.

.

Data Analysis and Statistical Treatment

Objective No. 1 used the descriptive analytical scheme and weighted mean to determine the extent of the use of technological devices in teaching in terms of instructional learning delivery, learners' engagement, and assessment of learning. Objective No. 2 used the descriptive analytical scheme and weighted mean to determine the level of learners' academic performance. Objective No. 3 used the comparative analytical scheme, Mann-Whitney U-test to determine the significant difference in the extent of the use of technological devices in teaching when grouped and compared according to demographic profiles. Objective No. 4 used the relational analytical scheme and spearman rho to determine the relationship between the extent of the use of technological devices and the level of learners' academic performance.

Ethical Considerations

The researcher prioritized the respondents' voluntary participation, informed consent, risk of harm, confidentiality, and anonymity to prevent any violations of human rights during the research process. Participation in the study was voluntary, and the respondents could withdraw at any time without any consequences. We informed them about the study's academic purpose.

DOI: https://doi.org/10.56738/issn29603986.geo2026.7.209
ISSN 2960-3986
GEO Academic Journal Vol. 7 No. 3 – 2026 series

Only the researcher(s) had access to the research data, ensuring confidentiality. Moreover, during the conduct of the study, the researcher strictly observed the governing guidelines and policies of the Data Privacy Act of 2012 to ensure security measures are in place to protect personal and sensitive information. This commitment to ethical standards not only fostered trust among participants but also enhanced the integrity of the research findings. By adhering to these guidelines, we aimed to uphold the highest level of professionalism in our research process.

Results and Discussions

In this section, the data gathered were further treated, presented, analyzed, and interpreted to focus on the specific objectives of the study.

Table 1
Extent of the use of technological devices in teaching in terms of Instructional Learning Delivery

Items	Mean	Interpretation
As a Teacher, I . . .		
1. use various teaching devices to enhance my classroom discussions.	4.68	Very Great Extent
2. integrate multimedia content (videos, animations, simulations) to help explain clearly the concepts.	4.76	Very Great Extent
3. design effective learning experiences with the support of technology and social media platforms.	4.71	Very Great Extent
4. use educational learning platforms for cooperative learning and peer interaction.	4.56	Very Great Extent
5. utilize the latest technological devices to sustain pupils' interest during classroom instructions.	4.47	Great Extent
6. apply a variety of technological devices to enhance real-life learning experiences.	4.53	Very Great Extent
7. select appropriate technological devices and educational platforms for instruction based on curriculum standards.	4.59	Very Great Extent
8. utilize technological devices in delivering differentiated instruction to accommodate diverse learners.	4.47	Great Extent
9. utilize teaching resources and educational websites (e-books, research articles, digital encyclopedias) for lesson preparation.	4.35	Great Extent
10. teach students to use various multimedia materials for the reports and presentations.	4.09	Great Extent
Overall Mean	**4.52**	**Very Great Extent**

DOI: https://doi.org/10.56738/issn29603986.geo2026.7.209
ISSN 2960-3986
GEO Academic Journal Vol. 7 No. 3 – 2026 series

Table 1 presents the extent of the use of technological devices in teaching in terms of instructional learning delivery. The respondents obtained an overall mean score of 4.52, interpreted as a very great extent. However, to deepen the analysis, the respondents obtained the highest mean of 4.76 on item No. 2, stating to integrate multimedia content to help explain clearly the concepts, and interpreted it as a very great extent. The result implies most of the teachers utilize various multimedia materials as part of their instructional learning delivery to guarantee that learners comprehend the lessons. Most of the teachers strongly agreed and supported the use of technology in simplifying the lesson presentation, because the devices and multimedia materials initiate a learner-centered approach to learning. The findings are supported by Sayson, Guanzon, Catarus, Doromal, Caguan and Bolante (2025) reported that teachers' competence in using multimedia platforms is at a high level.

On the other hand, the lowest mean score of 4.09 was on item No. 10, stating to teach students to use various multimedia materials for the reports and presentations, and interpreting it as a great extent. The result implies that the teachers need to improve more their teaching skills in the use of multimedia presentations, and this can be done by diving into advanced ICT training. Nonetheless, there was a lack of technological devices to use on the part of the learners, which is why teachers were not able to practice teaching multimedia presentations despite having knowledge in this area. This situation highlights the challenges faced by both teachers and learners in effectively integrating technology into the learning process. Consequently, the classroom fails to fully realize the potential benefits of multimedia presentations. The result agrees with that of Mayantao and Tantiado (2024), who reported teachers consistently demonstrated confidence in technology. Teachers' utilization of digital tools such as PPT, video/capture, and the like has a significant relationship to teachers' confidence in technology. In addition, Guanzon, Bagundol, and Azarcon (2023) reported that the teachers have already been used to manipulating the functions of MS PowerPoint and Word since they always deal with them in making their reports, lesson plans, and visual aids.

Table 2
Extent of the use of technological devices in teaching in terms of Learner's Engagement

Items	Mean	Interpretation
My learner's, . . .		
1. use laptop, television for class activities.	4.29	Great Extent
2. participate during lessons, instructions and peer sharing.	4.62	Very Great Extent
3. ask clarification or ask meaningful questions about the topic.	4.53	Very Great Extent
4. use technological device to watch, listen, or interact with videos, simulations, or presentation attentively.	4.68	Very Great Extent
5. utilize textbooks, handouts, or digital devices for tasks.	4.47	Great Extent
6. engage to create output (slides, digital posters, presentations) using technological devices.	3.82	Great Extent
7. complete submitting assignments, projects, activities on time.	4.06	Great Extent

DOI: https://doi.org/10.56738/issn29603986.geo2026.7.209
ISSN 2960-3986
GEO Academic Journal Vol. 7 No. 3 – 2026 series

8. apply lessons to real-life situations or personal experience.	4.29	Great Extent
9. develop curiosity, motivation, and positive attitude toward learning.	4.44	Great Extent
10. engage to be attentive and motivated in both face-to-face and tech-assisted activities.	4.44	Great Extent
Overall Mean	**4.36**	**Great Extent**

Table 2 show the extent of the use of technological devices in teaching in terms of learners' engagement in teaching. The respondents obtained an overall mean score of 4.36, interpreted as a great extent. Upon further analysis, the respondents obtained the highest mean of 4.68 on item No. 4, stating the learners use technological devices to watch, listen, or interact with videos, simulations, or presentations attentively, and interpreted it as a very great extent. This implies that the learners' use of technological devices had strengthened their academic engagement in the classroom. The technology provides a wide opportunity for accessing teaching-learning resources, increasing learners' understanding, and enabling learners to work collaboratively and facilitate learners' engagement in learning. The result is supported by Sultana and Hasan (2023), who reported that the majority of the respondents agree about the effectiveness of technological devices for teaching management and the significance of the use of technological devices in classroom management.

On the contrary, the lowest mean score of 3.82 was on item No. 6, stating the learners engage to create output (slides, digital posters, presentations) using technological devices, and interpreted it as a great extent. The result suggests that teachers to develop more learning activities and performance tasks that encourage learners to technological devices as output for their performance. However, some learners don't have a technology device to use, and the lack of technical skills hinders them in the creation of slide presentations and digital reports for classroom outputs. This limitation highlights the importance of providing equitable access to technology and training for all learners. Without these resources, some learners may struggle to fully engage with technology and digital learning tools. The result relates to that by Paradero et al. (2025), who concluded that though the use of technological devices is not prevalent among elementary learners, they have exerted their best effort in engaging and accomplishing academic-related activities or tasks.

Table 3
Extent of the use of technological devices in teaching in terms of Assessment of Learning

Items	Mean	Interpretation
As a Teacher, I		
1. design rubrics for assessing student performance using various technologies.	4.47	Great Extent
2. utilize digital platforms to conduct question-and-answer sessions that validate learners' understanding of the lesson content.	4.24	Great Extent
3. provide immediate feedback on students' performance through digital platforms.	4.15	Great Extent

DOI: https://doi.org/10.56738/issn29603986.geo2026.7.209
ISSN 2960-3986
GEO Academic Journal Vol. 7 No. 3 – 2026 series

4. use technology to conduct assessments that involve cooperative and group performance tasks.	4.38	Great Extent
5. utilize digital portfolios to track students' progress over time.	3.94	Great Extent
6. use online applications (such as Google Forms, etc.) for gathering and analyzing student responses.	3.47	Moderate Extent
7. encourage students to engage in self-assessment using digital platforms.	3.74	Great Extent
8. assess students' learning using interactive and gamified online assessments (Quizizz, Kahoot, Socrative).	3.41	Moderate Extent
9. use messenger in giving feedback to parents on the students' performance.	4.44	Great Extent
10. give online submission reports, quizzes, and graded discussions.	3.53	Great Extent
Overall Mean	**3.98**	**Great Extent**

Table 3 shows the extent of the use of technological devices in teaching in terms of assessment of learning. The respondents obtained an overall mean score of 3.98, interpreted as a great extent. Upon further examination of the table, the respondents reported the highest mean of 4.47 for item No. 1, which pertains to designing rubrics for assessing student performance using various technologies, and they interpreted this as indicating a great extent of agreement. The result implies that most of the teachers regularly use a variety of technological devices in the preparation of assessment learning tools. Technology also facilitates examination preparation and results processing for the teachers. This integration of technology enhances the efficiency of their workflow and promotes a more engaging learning environment for learners. The result agrees to that of Sajonia and Monteclaro (2024) reported that teachers' utilization of technology in terms of digital assessment is at great extent. However, the teachers still need to fully utilize the use of technology in assessing student learning with Moodle, which is the least utilized digital assessment. Whereas Retnawati et al. (2024), who reported that teachers who are able to utilize technology in conducting assessments are expected to maintain students' learning pace, provide adequate assistance for students who experience more challenges in achieving learning objectives, and improve the quality of learning.

Correspondingly, the lowest mean score of 3.41 was on item No. 7, stating to assess students' learning using interactive and gamified online assessments, and interpreted it as a moderate extent. The finding implies the teachers rarely use interactive and gamified online assessments because learners lack resources and technology. Additionally, the constraints of limited preparation time and insufficient knowledge about gamified online assessments hinder teachers from implementing these methods. These barriers prevent them from integrating more engaging assessment methods into their teaching. The finding agrees by that Sánchez-Mena and Martí-Parreño (2017), who reported the main barriers that can prevent teachers from using online gamification assessments were lack of resources, students' lack of interest in gamification, teachers' beliefs about the suitability of gamification for the subjects they teach, and classroom dynamics that eventually might harm classroom atmosphere. Whereas Agtarap (2024) revealed

DOI: https://doi.org/10.56738/issn29603986.geo2026.7.209
ISSN 2960-3986
GEO Academic Journal Vol. 7 No. 3 – 2026 series

that most teachers have difficulty integrating authentic assessment into online learning and using online assessment applications. Some online assessment applications like Edpuzzle, Google Classroom, Kahoot, and Quizzes are rarely used to assess student learning.

Table 4
Level of learners' academic performance during the first quarter of the school year 2025-2026

Variable	N	Mean	Interpretation
Academic Performance	34	82.44	Satisfactory

Table 4 presents the level of learners' academic performance during the first quarter of the school year 2025-2026. The learners obtained an overall rating of 82.44, interpreted as a satisfactory level. The results imply that there is still a need for improvement for the majority of the learners' performance. Some of the learners' experience difficulty with the submission of their assignments and performance tasks because of the lack of technological devices to use for completing the learning tasks, which resulted in satisfactory performance in the first quarter of the school year. Other factors, like personal and family issues, also contributed to the students' poor performance. Addressing these challenges will be key to creating a more conducive learning environment. Providing access to necessary resources and support systems could significantly enhance the learners' ability to succeed academically. The result is supported by Paradero et al. (2025), who reported that learners have difficulty completing the tasks assigned by teachers due to a lack of technology to use, which resulted in a low performance rating. Whereas Albarico et al. (2023) revealed that school-related aspects, home-related aspects, and personal conditions are the factors that affect their poor academic performance.

Table 5
Difference in the extent of the use of technological devices in teaching in terms of Instructional Learning Delivery when grouped and compared according to variables

Variable	Category	N	Mean Rank	Mann Whitney U	p-value	*Sig. level*	Interpretation
Age	Younger	15	15.60	114.000	0.317	0.05	Not Significant
	Older	19	19.00				
Average Family Monthly Income	Lower	22	16.86	118.000	0.610		Not Significant
	Higher	12	18.67				
Highest Educational Attainment	Lower	17	20.32	96.500	0.094		Not Significant
	Higher	17	14.68				
Number of Technology-Related Trainings	Few	9	19.33	96.000	0.515		Not Significant
	Many'	25	16.84				

Table 5 summarizes a comparative analysis of the extent of the use of technological devices in teaching in terms of instructional learning delivery according to profile variables. The computed p-values of variable age, average family monthly income, highest educational attainment, and number of technology-related trainings are 0.317, 0.610, 0.094, and 0.515, respectively, which are greater than the 0.05 level of significance and thus interpreted as not

DOI: https://doi.org/10.56738/issn29603986.geo2026.7.209
ISSN 2960-3986
GEO Academic Journal Vol. 7 No. 3 – 2026 series

significant. Therefore, the hypothesis stating there is no significant difference in the extent of the use of technological devices in teaching in terms of instructional learning delivery when grouped and compared according to age, average family monthly income, highest educational attainment, and number of technology-related trainings is accepted.

The finding implies that the extent of the use of technological devices in teaching in terms of instructional learning delivery, when compared according to ages, family income, educational attainment, and training, does not vary. Most of the teachers showed competency in using technological devices in delivering instructions to learners. This suggests that factors such as age, income, education, and training do not significantly influence how teachers utilize technological devices for teaching. The very great extent of teachers' use of technological devices for teaching indicates a shared understanding and competency among teachers, regardless of these demographic variables. The finding is supported by Javier (2021), who reported that the practices of teachers in the use of digital teaching and learning tools are evident, with teachers eager to practice and acknowledging the benefits of using the digital tools and radiating best practices in the workplace regardless of their demographic backgrounds.

Table 6

Difference in the extent of the use of technological devices in teaching in terms of Learner's Engagement when grouped and compared according to variables

Variable	Category	N	Mean Rank	Mann Whitney U	p-value	*Sig. level*	Interpretation
Age	Younger	15	13.03	75.500	0.018	0.05	Significant
	Older	19	21.03				
Average Family Monthly Income	Lower	22	15.66	91.500	0.137		Not Significant
	Higher	12	20.88				
Highest Educational Attainment	Lower	17	20.35	96.000	0.089		Not Significant
	Higher	17	14.65				
Number of Technology-Related Trainings	Few	9	18.00	108.000	0.858		Not Significant
	Many'	25	17.32				

Table 6 summarizes a comparative analysis of the extent of the use of technological devices in teaching in terms of learners' engagement in teaching according to profile variables. The computed p-values of variable average family monthly income, highest educational attainment, and number of technology-related trainings are 0.137, 0.089, and 0.858, respectively, which are greater than the 0.05 level of significance and thus interpreted as not significant. Therefore, the hypothesis stating there is no significant difference in the extent of the use of technological devices in teaching in terms of learners' engagement in teaching when grouped and compared according to average family monthly income, highest educational attainment, and number of technology-related trainings is accepted.

However, for the variable age, the computed p-value is 0.018, which is less than the 0.05 level of significance and thus interpreted as significant. Therefore, the hypothesis stating there is no significant difference in the extent of the use of technological devices in teaching by teachers in terms of learners' engagement in teaching when grouped and compared according to age was

DOI: https://doi.org/10.56738/issn29603986.geo2026.7.209
ISSN 2960-3986
GEO Academic Journal Vol. 7 No. 3 – 2026 series

rejected. The result implies that the extent of the use of technological devices in teaching in terms of learners' engagement varies when compared to their age brackets. This is because most of the younger generation teachers are more adept and open to new technologies in teaching. As much as possible, they use the latest technologies to make their classroom instructions captivating and engaging for learners. On the other hand, some older teachers, particularly those who are retireable, refuse or have no desire to use modern technological devices in their classroom instructions. The finding is supported by that of Nurhabibah (2017), who reported that when age brackets were compared, young instructors, aged 21–40, had a higher level of ICT literacy than that of the elder group. Instructors should improve their ability in ICT literacy competence, as well as their knowledge and knowledge generation in each element of ICT literacy competence.

Table 7

Difference in the extent of the use of technological devices in teaching in terms of Assessment of Learning when grouped and compared according to variables

Variable	Category	N	Mean Rank	Mann Whitney U	p-value	*Sig. level*	Interpretation
Age	Younger	15	12.57	68.500	0.010	0.05	Significant
	Older	19	21.39				
Average Family Monthly Income	Lower	22	15.68	92.000	0.147		Not Significant
	Higher	12	20.83				
Highest Educational Attainment	Lower	17	18.38	129.500	0.603		Not Significant
	Higher	17	16.62				
Number of Technology-Related Trainings	Few	9	20.61	84.500	0.272		Not Significant
	Many'	25	16.38				

Table 7 reviews a comparative analysis of the extent of the use of technological devices in teaching in terms of assessment according to profile variables. The computed p-values of variable average family monthly income, highest educational attainment, and number of technology-related trainings are 0.147, 0.603, and 0.272, respectively, which are greater than the 0.05 level of significance and thus interpreted as not significant. Therefore, the hypothesis stating there is no significant difference in the extent of the use of technological devices in teaching in terms of assessment of learning when grouped and compared according to average family monthly income, highest educational attainment, and number of technology-related trainings is accepted.

However, for the variable age, the computed p-value is 0.010, which is less than the 0.05 level of significance and thus interpreted as significant. Therefore, the hypothesis stating there is no significant difference in the extent of the use of technological devices in teaching in terms of assessment of learning when grouped and compared according to age was rejected. The result implies that the extent of the use of technological devices in teaching by teachers in terms of assessment of learning varies when compared to their ages. The reason is that most senior teachers are already richer in experience in terms of assessment of learning, be it in traditional methods or the use of technology, than younger teachers. This suggests that older teachers may

DOI: https://doi.org/10.56738/issn29603986.geo2026.7.209
ISSN 2960-3986
GEO Academic Journal Vol. 7 No. 3 – 2026 series

have developed more effective assessment strategies over time, while younger teachers might still be adapting to integrating technology into their teaching practices. The result is supported with that of Sajonia and Monteclaro (2025), revealed a significant difference found in teachers' technology use for digital assessment based on age. Wherein age influences how teachers incorporate digital assessment tools, with potential proficiency and comfort variations between younger and older educators.

Table 8

Relationship between the extent of use of technological devices in teaching and the level of learners' academic performance

Variables	N	*rho*	*p*-value	Level of Significance	Interpretation
Extent of Use of Technological Devices	34	0.068	.704	0.05	Not Significant
Level of Learners' Academic Performance	34				

As presented in the table, the computed rho was 0.068 with a p-value of 0.704, which exceeds the 0.05 level of significance; thus, it is interpreted as not significant. Therefore, the hypothesis stating there is no significant relationship between the extent of use of technological devices in teaching and the level of learners' academic performance was accepted.

The finding implies that the use of technological devices in teaching has no significant effect on the academic performance of the learners. This means that learners' academic performance is not influenced by the use of technological devices alone but rather by other factors, such as teachers' teaching effectiveness and learners' attitude toward learning. Hence, to help students achieve higher academic performance, teachers have to be effective, with or without the use of technological devices. This indicates the value of a holistic approach to education, where the quality of teaching and student engagement play crucial roles. Ultimately, enhancing academic outcomes requires a focus on these foundational elements rather than solely relying on technology. The findings supported by Monserate (2018) revealed that students' academic performance is highly influenced by the teachers' teaching effectiveness, but not by the teachers' computer literacy or competence in technology.

Conclusion

The teachers acknowledged their use of technological devices, as it added competence in instructional delivery and encouraged learners' engagement and the preparation of learning assessment tools. However, the extent of their use of technological devices has no substantial effect on learners' academic performance. The result adds to the technological devices literature and might serve as a resource for researchers who seek to investigate more on technology use in

DOI: https://doi.org/10.56738/issn29603986.geo2026.7.209
ISSN 2960-3986
GEO Academic Journal Vol. 7 No. 3 – 2026 series

teaching. Aside from that, the study's findings offer useful information to Department of Education officials, stakeholders, and even third-party training providers to accommodate better teacher training. It may assist teachers in progressively enhancing their confidence, willingness, and ability to utilize technological devices. Hence, the study recommends that the education authorities spearhead seminars and trainings to assist and help teachers in the successful inclusion of technology in the classroom and allocate adequate funding for the provision of additional technological equipment to further assist the students in their academic performance and teachers in their teaching strategies.

Acknowledgment

The researcher wishes to express profound gratitude to the people who extended their help in different ways and made this endeavor possible. His research adviser, for expert assistance, patience and support extended. The members of the oral defense panels, who provided the researcher with helpful criticisms, insights, suggestions and recommendations which contributed to be refinement of this work; To the researcher's respondents for giving their precious time and for answering the test instrument to the best of their abilities; Sincere appreciation and gratitude also to those who, in one way or another, have contributed to the realization of this work. And above all, to the Divine Providence, for giving the Holy Spirit to enlighten the researcher at all times.

Author's Contribution Statement

Yba: Data conception, literature review, data collection, data analysis, and interpretation. **Tepacia:** Refinement of research methodology, instrumentation, data-collection procedure, supervision, and editing.

Conflict of Interest

We maintain that none of the authors of this paper has a financial obligation or personal relationship with any person(s) or organization that could inappropriately influence/bias the paper's content. We do not receive funding from any person(s) or organization to carry out this research. Given this, we specifically state that "No Competing interests are at stake and there is No Conflict of Interest" with any person(s) or organizations that could inappropriately influence/bias the content of the paper.

References

Adriani, Y. & Asyifa, Ca. (2022). The use of technological devices: a descriptive study of students in university. 1-5. 10.1109/ICOSTECH54296.2022.9829086.

Aggarwal, R. & Ranganathan, Pr. (2019). Study designs: part 2 – descriptive studies. *Perspectives in Clinical Research. 10*. 34. 10.4103/picr.PICR_154_18.

Agtarap, H. J., Januto, A. C., Aglibot, K. A., & Toquero, C. M. (2024).

DOI: https://doi.org/10.56738/issn29603986.geo2026.7.209
ISSN 2960-3986
GEO Academic Journal Vol. 7 No. 3 – 2026 series

Assessment strategies and challenges of teachers in evaluating students during online learning. *Journal of Digital Educational Technology, 4*(2), ep2418. https://doi.org/10.30935/jdet/14863

Albarico, A., Blas, R., Cruz, A., & Enriquez, G. (2023). Factors affecting senior high school students' poor academic performance *International Research Journal of Modernization in Engineering Technology and Science, 5*(4), 2582-5208. 10.56726/IRJMETS37089.

Ames, H., Glenton, C. & Lewin, S. (2019). Purposive sampling in a qualitative evidence synthesis: a worked example from a synthesis on parental perceptions of vaccination communication. *BMC Med Res Methodol 19*(26) https://doi.org/10.1186/s12874-019-0665-4

Atanacio, J. A., & De Guzman, A. B. (2020). Educational technology use and student learning outcomes in Philippine K-12 classroom. *Asia Pacific Journal of Education 40*(3), 292-307

Erlita, D., Sari, S. M., & Syafii, M. (2023, April). The effect of using gadgets on students' social behavior in society 5.0 ERA. In *Proceedings of International Conference on Education* (Vol. 1, No. 1). https://tinyurl.com/3h4rh7ex

Gopo, C. (2022). The role of technology in the 21st century education of learners. *The Official Research Journal of Tagum City Division*, *18*(6), 357-361. https://tinyurl.com/3ttr7uwe

Guanzon, R., Bagundol, M.C., & Azarcon, A. B. (2023). High school teachers technological difficulties: basis for an intervention plan. *Busilak 1*(1). https://stiwnu-journals.org/index.php/Busilak

Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers, 3*, 275–285. https://doi.org/10.1016/j.susoc.2022.05.004

Javier, B. F. (2021). Practices of filipino public high school teachers on digital teaching and learning technologies during the COVID-19 pandemic: Basis for learning action cell sessions. *International Journal of Computing Sciences Research*. doi: 10.25147/ijcsr.2017.001.1.67

Leander, J. & Fabella, F. E. (2020). Parental involvement and academic performances of grade 7 students. *SSRN Electronic Journal.* 10.2139/ssrn.3630178.

Mayantao, R. & Tantiado, R (2024). Teachers' utilization of digital tools and confidence in technology. *International Journal of Multidisciplinary Research and Analysis. 07.* 10.47191/ijmra/v7-i05-16.

Monserate, C. (2018). Impact of technology on the academic performance of students and teaching effectiveness. *Intermnational Journal of Interdiciplinary Research and Innovations, 6*(1), 47-878. https://www.researchpublish.com/

Nurhabibah, S. (2017). Analysis of ict literacy competence among vocational high school teachers. *IOP Conference Series: Materials Science and Engineering. 306.* 012097. 10.1088/1757-899X/306/1/012097.

Paradero, E., Villanueva, H., & Jomuad, P. (2025). The use of technological devices among elementary learners in relation to their academic engagement. *EduLine: Journal of Education and Learning Innovation. 5.* 156-164. 10.35877/454RI.eduline3584.

Rahayu, A., Indriani, D. E., Mantovani, R., Firmansyah, A., Achmad, W., & Dewi, A. K. (2023). The risks and importance of parental supervision in children's gadget use: observations

DOI: https://doi.org/10.56738/issn29603986.geo2026.7.209
ISSN 2960-3986
GEO Academic Journal Vol. 7 No. 3 – 2026 series

on attitudes, behavior, and development in fishery neighborhood. *Journal of Survey in Fisheries Sciences*, *10*(2S), 2790-2797. https://tinyurl.com/msks46jm

Retnawati, H., Hidayati, K., Apino, E., Rafi, I. & Rosyada, M. (2024). Exploring influential factors and conditions shaping statistical literacy among undergraduate students in mathematics education. *International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE). 12*. 1-17. 10.23947/2334-8496-2024-12-1-1-17.

Roy, A. (2019). Technology in teaching and learning. *Journal of Emerging Technologies and Innovative Research (JETIR), 6*(4), 356-362.

Sajonia, J. D. & Monteclaro, G. (2024). Teachers' utilization of technology: basis for an intervention plan. *International Multidisciplinary Journal of Research for Innovation, Sustainability, and Excellence (IMJRISE)*, *1*(6), 549-565. https://risejournals.org/index.php/imjrise/article/view/496

Sanchez-Mena, A. & Marti-Parreño, J. (2017). Drivers and barriers to adopting gamification: Teachers' perspectives. *Electronic Journal of e-Learning. 15*. 434-443.

Sayson, E., Guanzon, R., Catarus, J., Doromal, M., Caguan, R., & Bolante, R. (2025). Teachers' competence in handling ict-based instructions: basis for an intervention Plan. *International Multidisciplinary Journal of Research for Innovation, Sustainability, and Excellence (IMJRISE)*, *2*(7), 605-615. https://doi.org/10.5281/zenodo.15935821

Sharples, T., & Moldeus, K. (2014). *Read or not, here ICT comes: A case study hon e-readiness and governance in Kenya's laptop project.* [Master's Thesis. Lund University]. Lund University

Sivrikova, N. V., Ptashko, T. G., Perebeynos, A. E., Chernikova, E. G., Gilyazeva, N. V., & Vasilyeva, V. S. (2020). Parental reports on digital devices use in infancy and early childhood. *Education and Information Technologies*, *25*, 3957-3973. https://tinyurl.com/yww42n9f

Sultana, R. & Hasan, N. (2023). Use of ICT devices and its impact on teaching-learning at secondary education. *International Journal of Science and Management Studies (IJSMS), 6*(i2), 8-18.