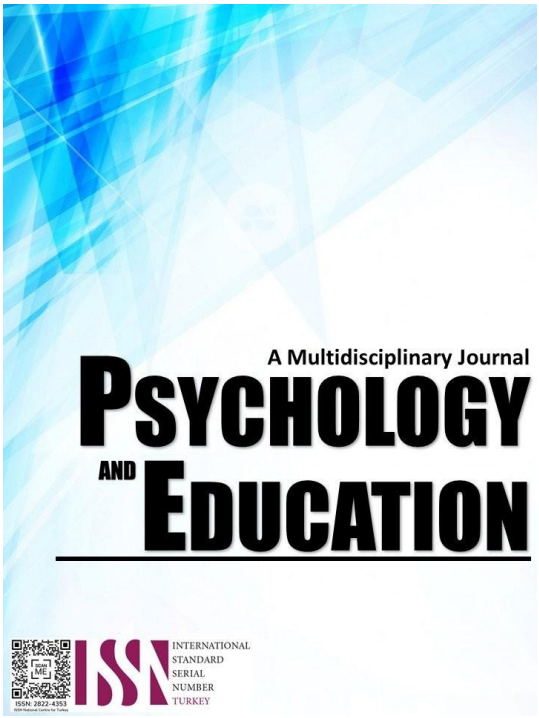
LEVEL OF USE OF TECHNOLOGY LEARNING TOOLS AND LEARNING OUTCOMES AMONG JUNIOR AND SENIOR HIGH SCHOOL LEARNERS



PSYCHOLOGY AND EDUCATION: A MULTIDISCIPLINARY JOURNAL

Volume: 47
Issue 7
Pages: 867-878
Document ID: 2025PEMJ4600
DOI: 10.70838/pemj.470704
Manuscript Accepted: 06-25-2025

Psych Educ, 2025, **47**(7): 867-878, Document ID:2025PEMJ4600, doi:10.70838/pemj.470704, ISSN 2822-4353

Research Article

Level of Use of Technology Learning Tools and Learning Outcomes among Junior and Senior High School Learners

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Abstract

This study aimed to determine the relationship between the perceived level of technology learning tools and learning outcomes among junior and senior high school learners at Mt. Nebo Integrated School, Valencia City, Bukidnon for the School Year 2024–2025. Guided by the theory of Connectivism, the research explored the learners' perceptions of technological tools in terms of accessibility, engagement, and usefulness, and how these perceptions correlated with their academic performance. A quantitative, descriptive-correlational research design was employed, utilizing a total of 166 students from Grades 7 to 12. Data were gathered using a validated researcher-made questionnaire and learners' academic records. The instrument measured learners' perceptions using a 5-point Likert scale and assessed their academic outcomes based on grade-based descriptors. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to analyze the data, while Pearson's r was applied to determine correlations between the variables. Findings revealed that learners had a very high perception of engagement and usefulness, as well as a high perception of accessibility in using technology learning tools. Their academic performance, however, was classified as "moderately high." Among the variables tested, only accessibility showed a significant positive correlation with learning outcomes, while engagement and usefulness did not display statistically significant relationships. The study concludes that while learners perceive technology tools as beneficial and engaging, their impact on academic outcomes is most influenced by the accessibility of these tools. This suggests that educational institutions should prioritize equitable access to digital learning resources to enhance student achievement. It also recommends targeted strategies for improving teacher training and infrastructure to optimize the use of educational technology.

Keywords: *technology learning tools, academic performance, learner perception, accessibility, engagement, usefulness, connectivism*

Introduction

Educational technology developments have significantly transformed educational processes for students who learn primarily through technological platforms. The COVID-19 crisis in the Philippines led to the development of learning technologies, making distance learning a vital option. Notable educational establishments that adopted online learning heavily relied on technology for their information delivery systems due to the new educational norms. The return of teachers to conventional classrooms included using various gadgets, such as PowerPoint and clips, that served as attention-grabbers for learners. Students began to perceive these standard educational tools with a certain lack of awareness regarding how they could be used to enhance their learning experience.

Technology serves as a fundamental educational element, but its primary application is through audio visualization, which caters to learners' preferences. Educational instruments are more effective than standard instructional tools, such as textbooks and blackboards, in achieving comprehensive educational outcomes and deeper subject comprehension. Combining video as an educational tool with models and concepts explained through video, rather than PowerPoint, enables students to learn more effectively than studying complicated diagrams and formulas alone (Zhuang et al., 2017). The notion of understanding and mastery functions as an essential paradox when evaluating the success rate of teaching methods.

Ananda (2019) demonstrates that technology enhances student learning and lessens their lesson resistance through innovative lesson presentation methods. Different schools throughout the Philippines employ this approach as a strong measure to create efficient educational quality through technological infrastructure. Teachers utilize television, projectors, and computers as modern tools in their classrooms, demonstrating that technology has become an integral part of contemporary educational spaces.

Digital technologies have spread widely, yet they have not provided clarity about student learning resource interactions or media effectiveness (Bayne, 2015). The number of 15- to 24-year-old students who receive technological education in the United States exceeds half a million, yet this figure does not include those who are unable to graduate from high school. The lack of consistency highlights the need to research how Learner subjects approach technology during school-based learning activities.

This research investigates the attitudes of Valencia Bukidnon learners towards technological educational aids and their educational achievements. This research aims to explore students' perceptions of technology tools and their impact on their educational activities.

Research Questions

The study sought to address the following questions:

1. What is the demographic profile of the Learners students in terms of sex, year level and preferred technology learning tools?
2. What is the level of technology usage learning tools as perceived by Junior and Senior High School learners in terms of engagement, usefulness and accessibility?
3. What is the level of learning outcomes among Junior and Senior High School learners in using technology learning tools?
4. Is there a significant relationship between the level of technology learning tools and their learning outcomes?

Methodology

Research Design

This research employed quantitative and descriptive-correlational research designs. Descriptive correlational is a methodological research approach in which the researcher describes the characteristics of variables while investigating the relationships between multiple variables. Descriptive research provides a clear profile of a phenomenon, while correlational research examines the level of association between two or more variables. This design is most appropriate within a research process in which the researcher's aim is not to establish causality among variables but to gain insight into the current state of affairs regarding the relationships between variables (Creswell & Creswell, 2017). With the design, it is possible to establish the relationship between variables. The researcher will determine the relationship between students' perceptions and learning outcomes in this study.

Respondents

The participants in this research study were 166 students aged 12-27 years, currently enrolled in Mt. Nebo Integrated School for the 2024-2025 first term. Since the school has a small number of enrollees, the researcher employed a total enumeration sampling technique, whereby all students for the given school year were the study's respondents.

Instrument

A self-made survey consisting of two (2) sections. The first section presents the demographic profile of the respondents, and the second section represents the learners' perception of technology learning tools in terms of accessibility, usefulness, and engagement, encompassing 45 indicators. The instrument underwent validity and reliability tests, yielding the following results: Accessibility (Cronbach's Alpha: 0.960), Engagement (Cronbach's Alpha: 0.835), and Usefulness (Cronbach's Alpha: 0.70). In summary, the questionnaire demonstrated reliability. Experts from the field will also examine the questionnaire to attest to its validity.

After this procedure, the researcher distributed the survey questionnaire for final administration. A 5-point Likert scale to assess students' perceptions, Deshpande (2019), with options ranging from 5 (Strongly Agree), 4 (Agree), 3 (Neutral), 2 (Disagree), to 1 (Strongly Disagree) has corresponding descriptive categories: Very High, High, Moderately High, Low, and Very Low. The researcher evaluated learning outcomes through criteria from 100-90 (Outstanding) to 75 and below (Did not meet expectations). These evaluation scales enabled the proponent to analyze research data, interpret, and present study results effectively.

Procedure

The proponent sought permission and consent from the principal before administering the study to the students by distributing questionnaires for them to complete. Likewise, to obtain the secondary data, permission from the class adviser to acquire students' grades from the previous and current semesters. The proponent personally administered the data through a two-week administration of the questionnaires. Afterward, the responses were tabulated in spreadsheets for further analysis.

Data Analysis

The researcher used three statistical tools: demographic analysis of students through frequency and count. Frequency distribution is an organized tabulation or presentation of the number of individuals in each category on the measurement scale. It allows the researcher to picture the entire data conveniently. It reveals if the observations are high or low and whether they are concentrated in one area or spread across the whole scale. Thus, a frequency distribution presents how single observations are scattered across the measurement scale (Gravetter & Wallnau, 2000), as cited in Manikandan's (2016) study.

Mean and Standard Deviation (SD) are used to analyze the students' perceptions of their learning and their level of performance. Mean is a standard measure of central tendency (Kováčová, 2022). Meanwhile, the standard deviation is the mean (average) distance between each data point and its mean. A low standard deviation (Kotronoulas et al., 2023) indicates that the values tend to be close to the mean of the set. In contrast, a high standard deviation indicates the values spread over a broader range.

Finally, Dodier (2019) employed Pearson's r correlation to identify significant relationships among the study's variables. Ye-eun (2021) Pearson's r correlation measures the strength, direction, and probability of the linear association between two interval or ratio variables.

Ethical Considerations

The proponent first got permission from the research adviser to signify that the study was ready to be carried out. It also validated that the research proposal has complied with the academic requirements and is prepared for the next stage. Secondly, a formal letter of request was written to the Principal of Bukidnon Senior High School requesting permission to conduct the study of the school perimeter.

The letter obtained the signatures of both the adviser and the Dean of the Graduate School to ensure its authenticity and that academicians developed it. Moreover, the survey instrument used in the study underwent validity and reliability testing with the assistance of experts before the actual data collection. Thirty Mt. Nebo Integrated School students who were not included in the survey participated in a pilot test.

Lastly, the proponent proceeds directly to the selected respondent to obtain their consent to participate in the study, following administrative approval. Participants were informed of the purpose, process, and role, as well as their right to opt out of the study at any time without any consequences. Questionnaires were used to collect data after confirmation from the respondents, following their understanding of the consent form provided to them.

The identities of respondents were not disclosed in the study to maintain their anonymity and keep the data private. The researcher ensured that the data collected and stored were safe from loss or leakage through standard secure means.

Results and Discussion

The section presents the analysis and interpretation of data collected from the distributed questionnaires. Researchers organized all the received information into tables to deliver a clear picture of the findings to readers.

Table 1. *Distribution of students according to sex*

Sex	*Frequency*	*Percentage*
Male	68	41
Female	98	59
Total	166	100

Table 1 shows that 98 (59%) respondents were female, while 68 (41%) were male. The data suggest that females comprise the majority of the student population in this school. Thus, this suggests a gender imbalance within the study population. Gender is typically used to denote whether a person is male or female. However, gender is also a social structure that relates to economic, political, social, and other macro structures that impact an individual's ability to live life as they see fit, with all the same opportunities as the ruling class (Few-Demo & Allen, 2020). In the past, females were not encouraged to pursue education, but now they are receiving an education equally to males. Males and females have equal rights to get an education. Now, females compete with males in any field of study (Khan et al., 2012). Garcia-Holgado et al. (2020) also support that some countries have more women attaining advanced degrees than men, like the United States, where 50.8% (United States Census Bureau, 2021) of the population are women, and 52.2% of all advanced degrees are awarded to women (United States Department of Education, 2020).

Table 2. *Distribution of students according to year level*

Year Level	*Frequency*	*Percentage*
G7	40	24.1
G8	30	18.1
G9	29	17.5
G10	28	16.9
G11	29	17.5
G12	10	6.0
Total	166	100

Table 2 shows that the largest group consists of Grade 7 (G7) students, comprising 24.1% of the total population, followed closely by Grade 8 (G8) students at 18.1%. The remaining year levels—Grade 9 and Grade 11 got the same percentage (17.5%), and Grade 10 (16.9%), while Grade 12 students form the smallest group at 6.0%. The distribution across most academic year levels is relatively equal until a minor decline occurs in higher grade levels. It implies that student-level factors like socioeconomic status, parental involvement, and peer support, and school-level factors like the sense of fairness and teacher-student relations, influence their sense of belonging to school (Ahmadi, Hassani, & Ahmadi, 2020) and considering that Mt. Nebo Integrated High School has a neighboring public school, where students may opt to enroll based on their accessibility. Geographical factors are highly relevant to school choice preferences, challenging the assumption that students only focus on academic quality in school choices (Thelin & Niedomysl, 2015).

Table 3. *Distribution of respondents according to preferred learning tools*.

Preferred Learning Tool	*Frequency*	*Percentage*
PowerPoint Presentation	126	75.9
Multi Presentation	32	19.3
Video Clips	8	4.8
Total	166	100

Table 3 illustrates the distribution of preferred learning tools among 196 respondents. The majority of respondents, 126 (75.9%), prefer the use of PowerPoint (PPT), indicating that it is the most prominent instructional learning tool used by teachers inside the classroom. Responses were followed by multi-presentation, which may include a combination of different media and teaching strategies, for which 32 students (19.3%) were selected. Meanwhile, only eight students (4.8%) chose video clips as the least preferred learning tool.

It implies that students have diverse perspectives in using digital learning tools; however, using PowerPoint presentations stood out as the most preferred tool. Students attending classes where the teacher used PowerPoint believed the lectures were more organized, clear, and engaging (Lai et al., 2011). As cited by Krašna and Bratina (2014), the use of modern media in the learning process also means taking into account different learning styles and individual settings of the learning pace, learning level, and learner's control of the repetition of educational tasks, as well as increasing the options for an extra-curricular education. Moreover, it is asserted that instructional videos can also be designed to improve accessibility for students with diverse learning needs, as noted by Bozkurt (2024). This approach accommodates different learning styles and preferences, making education more accessible and inclusive.

Table 4. *Perceived Level of Technology Learning tools in terms of Accessibility*

Statements	*Mean*	*SD*	*Qualitative Description*
1. I can easily access PowerPoint presentations and video clips whenever I need them outside of class.	3.87	1.045	Highly Perceived
2. I can view multimedia presentations on my personal devices at any time, which helps me learn at my own convenience.	3.78	.985	Highly Perceived
3. I have the flexibility to access the technology learning tools (videos, PowerPoint presentations) whenever it fits my schedule.	3.87	1.006	Highly Perceived
4. I can conveniently access class materials like PowerPoint slides and videos from home or any other location.	3.84	1.002	Highly Perceived
5. The availability of multimedia content (PowerPoint, videos) allows me to study at my own pace and time.	3.94	.980	Highly Perceived
6. I can access educational videos and multimedia presentations at any time without any restrictions.	3.87	.988	Highly Perceived
7. The platforms used for sharing PowerPoint slides and videos are available 24/7, making learning more flexible.	3.85	.988	Highly Perceived
8. I can quickly access video clips and PowerPoint slides without delay, whenever I need to review the lesson.	3.86	1.008	Highly Perceived
9. I can download multimedia materials and access them offline, which helps me study at my convenience.	3.96	.984	Highly Perceived
10. I find it easy to access video clips and multimedia presentations on my mobile devices whenever I want.	3.91	.993	Highly Perceived
11. The accessibility of multimedia tools allows me to study during times that work best for me (e.g., late at night, early morning).	3.92	.953	Highly Perceived
12. I can easily access class materials such as PowerPoints and videos, even when I am away from school.	3.89	.997	Highly Perceived
13. The technology learning tools provided by my school are always available for me to use at my convenience.	3.93	.988	Highly Perceived
14. I can access multimedia presentations from different devices (laptop, tablet, smartphone), which provides flexibility in how I learn.	3.80	1.028	Highly Perceived
15. The ability to access PowerPoint slides and videos whenever I need them allows me to plan my study sessions more effectively.	3.89	1.017	Highly Perceived
Total	3.879	0.856	Highly Perceived

Legend: *5 (4.51–5.00) Strongly Agree, Very Highly Perceived; 4 (3.51–4.00) Agree, Highly Perceived; 3 (2.51–3.00) Neutral, Moderately Perceived; 2 (1.51–2.00) Disagree, Less Perceived; 1 (1.00–1.50) Strongly Disagree, Not Perceived.*

Table 4 presents student perceptions of their multimedia learning experience, which includes PowerPoint presentations, video clips, and multi-presentations. All responses from participants showed the same degree of involvement. Three listed items stood out with the highest mean scores among students: "I can download multimedia materials and access them offline, which helps me study at my convenience" (M = 3.96, SD = 0.984) and "The availability of multimedia content (PowerPoint, videos) allows me to study at my own pace and time" (M = 3.94, SD = 0.980) and "The technology learning tools provided by my school are always available for me to use at my convenience" (M = 3.93, SD = 0.988). Students rate the accessibility features of multimedia learning tools as very high in their perception.

Learning process improvement relies heavily on making information easily accessible to students. Students who access multimedia materials, including videos and presentations, at their own pace and on their own schedule can experience more flexible, self-directed learning. The study validates the statement made by Abdulrahman et al. (2020) about how multimedia learning tools expand education experiences beyond conventional time and space constraints. The educational processes at Mt. Nebo Integrated School incorporate the use of laptops and PowerPoint presentations by teachers for lesson delivery. Educational technology has established strong roots in rural Bukidnon through these teaching practices.

The use of video-based learning improves memory storage capabilities as students can learn at their own pace according to their individual learning preferences (Torgersen & Boe, 2021). The availability of this tool ensures academic success through active engagement, as interactive multimedia practices are proven vital for educational spaces (Milovanović et al., 2013). The combination of multimedia tools creates an atmosphere that energizes students through enjoyable interactions enabled by video clips, effectively stimulating student interest and maintaining concentration (Dhivya et al., 2023). Interactive multimedia formats, such as explainer

videos, are effective for knowledge transfer due to their combination of visual and auditory elements, which reduce cognitive load and improve understanding.

The lowest average ranking was for the following indicator: "I can view multimedia presentations on my devices at any time, which helps me learn at my convenience" (M = 3.78, SD = 0.985). Student views regarding multimedia tools are generally positive, but their lower score indicates limited personal access to particular resources. Students identify ways that technology learning tools help them access information while participating in classroom discussions, but they also understand that these systems create certain challenges.

The majority of students face barriers because they cannot afford to buy high-tech personal devices, including laptops. Most schoolchildren lack sufficient funds to buy high-tech devices such as laptops. Access to clean and consistent internet represents a significant obstacle that continues to trouble students and schools worldwide. Stable internet connections remain out of reach for most residents of Nebo due to the remote location, which creates obstacles to obtaining reliable service. Digital connectivity is a fundamental component of student well-being and engagement when students learn through remote or technology-assisted systems, according to Yue et al. (2024). The findings suggest that rural students continue to be troubled by the technological divide, even though their schools implement multimedia tools.

Table 5. *Perceived Level of Technology y Learning tools in terms of Engagement*

Statements	*Mean*	*SD*	*Qualitative Description*
1. PowerPoint presentations help me organize and understand information more effectively.	4.86	.363	Very Highly Perceived
2. I find that video clips in lessons improve my comprehension of complex topics.	4.68	.514	Very Highly Perceived
3. Multimedia presentations (videos, images, sound) help clarify difficult concepts during class.	4.80	.429	Very Highly Perceived
4. The use of technology learning tools enhances my overall learning experience.	4.80	.410	Very Highly Perceived
5. PowerPoint presentations provide useful visual aids that support my understanding of the lesson.	4.82	.396	Very Highly Perceived
6. Videos shown in class are helpful in relating theoretical concepts to real-world applications.	4.86	.357	Very Highly Perceived
7. I find that multimedia presentations make it easier to retain information compared to traditional lectures.	4.88	.337	Very Highly Perceived
8. Technology learning tools, such as video clips and PowerPoint, help me better prepare for exams and assessments.	4.90	.307	Very Highly Perceived
9. Lessons that use multimedia presentations are more effective in helping me learn compared to text-based materials alone.	4.90	.307	Very Highly Perceived
10. The combination of text, images, and audio in PowerPoint presentations improves the clarity of the lessons.	4.92	.282	Very Highly Perceived
11. Video clips in class provide practical examples that make learning more relevant and useful.	4.92	.291	Very Highly Perceived
12. I find multimedia presentations to be an effective tool for summarizing key points during lessons.	4.93	.263	Very Highly Perceived
13. PowerPoint slides with visual elements help me understand and remember important details better.	4.92	.291	Very Highly Perceived
14. Technology learning tools like videos and multimedia presentations save time in grasping new concepts.	4.90	.315	Very Highly Perceived
15. The use of technology learning tools in class contributes to a more structured and organized learning experience.	4.93	.272	Very Highly Perceived
Total	4.87	.239	Very Highly Perceived

Legend: *5 (4.51–5.00) Strongly Agree, Very Highly Perceived; 4 (3.51–4.00) Agree, Highly Perceived; 3 (2.51–3.00) Neutral, Moderately Perceived; 2 (1.51–2.00) Disagree, Less Perceived; 1 (1.00–1.50) Strongly Disagree, Not Perceived.*

The results in Table 5 show how students evaluated their involvement with the technology learning tool. Students scored the two dimensions "multimedia presentations summarize lessons effectively" (M = 4.93, SD = 0.272) and "technology learning tools enhance classroom organization" (M = 4.93, SD = 0.263) with the highest mean scores. The students showed the lowest engagement level with videos in classes despite rating it as "very highly perceived." "I find that video clips in lessons improve my comprehension of complex topics" (M = 4.68, SD = 0.514).

Students believe technologically integrated instruction with multimedia presentations establishes effective methods to enhance classroom participation. Students rate video clips as practical tools for better understanding challenging subjects, even when their responses fall in the lowest category.

Mayer (2020) demonstrated that generative learning activities, such as multimedia-based summarizing, enhance student academic outcomes by facilitating the effective alignment of visual and verbal content, resulting in improved understanding and knowledge retention. According to Kerres (2013), digital learning tools make teaching and learning more efficient, providing students with unlimited access to review content.

The implementation of technology in education brings multiple benefits, as it helps students develop self-regulation abilities combined with increased self-efficacy, as noted by Alioon and Delialioğlu (2017) and Bouta et al. (2012) in their research. Additionally, it enhances student involvement within education environments and academic settings, according to findings by Junco (2012) and Salaber (2014). Also, it monitors higher levels of educational engagement through research conducted by Chen et al. (2010) and Rashid and Asghar (2016). The outcomes produced by audio-visual learning methods are fundamental to students who prefer this teaching approach. Educational tools, including video explanations, model creation, and interactive media, serve as better educational sources than traditional materials like textbooks coupled with chalkboards. Students who learn through video resources with explanations and model-building assignments achieve better learning access compared to traditional diagrammatic or formula-based lessons, according to Zhuang et al. (2017).

Table 6. *Perceived Level of Technology Learning tools in terms of Usefulness*

Statements	*Mean*	*SD*	*Qualitative Description*
1. The use of PowerPoint presentations during lessons captures my attention and keeps me engaged.	4.94	.262	Very Highly Perceived
2. I feel more motivated to participate in class when multimedia presentations (videos, graphics) are used.	4.90	.316	Very Highly Perceived
3. Video clips shown in class help me stay focused on the lesson topic.	4.93	.282	Very Highly Perceived
4. Technology learning tools like PowerPoint and videos make the lessons more interactive and interesting.	4.92	.291	Very Highly Perceived
5. I am more engaged in learning when teachers use multimedia tools compared to traditional teaching methods.	4.93	.282	Very Highly Perceived
6. The use of video clips in lessons helps me better understand complex concepts.	4.94	.262	Very Highly Perceived
7. I feel more involved in the learning process when multimedia presentations are part of the lesson.	4.96	.229	Very Highly Perceived
8. The combination of text, visuals, and audio in PowerPoint and multimedia presentations enhances my classroom experience.	4.96	.229	Very Highly Perceived
9. Watching educational videos during lessons increases my interest in the subject.	4.98	.173	Very Highly Perceived
10. I find it easier to stay engaged with lessons that include dynamic PowerPoint slides and video content.	4.97	.189	Very Highly Perceived
11. Technology learning tools make the learning experience more enjoyable and less monotonous.	4.97	.203	Very Highly Perceived
12. The use of videos and multimedia presentations encourages me to actively participate in discussions.	4.98	.173	Very Highly Perceived
13. I prefer lessons that integrate multimedia tools over those that rely solely on lectures.	4.98	.173	Very Highly Perceived
14. PowerPoint presentations with visual aids and animations keep me engaged throughout the lesson.	4.97	.203	Very Highly Perceived
15. Technology learning tools help create a more immersive and engaging classroom environment.	4.98	.173	Very Highly Perceived
Total	4.95	.171	Very Highly Perceived

Legend: *5 (4.51–5.00) Strongly Agree, Very Highly Perceived; 4 (3.51–4.00) Agree, Highly Perceived; 3 (2.51–3.00) Neutral, Moderately Perceived; 2 (1.51–2.00) Disagree, Less Perceived; 1 (1.00–1.50) Strongly Disagree, Not Perceived.*

The evaluations on the benefits of technology learning tools are displayed in Table 6. All surveyed indicators reached "very high" marks in the usefulness evaluation category. Multiple constructs scored at (M=4.98, SD=.173) points on the evaluation metrics which include both "Watching educational videos during lessons increases my interest in the subject" and "The use of videos and multimedia presentations encourages me to actively participate in discussions" and "I prefer lessons that integrate multimedia tools over those that rely solely on lectures" and "Technology learning tools help create a more immersive and engaging classroom environment". The student data indicate that technology tools play a significant role in their academic learning process. Students strongly believe that multimedia integration significantly improves their interest in lessons and enhances interactive participation, as well as creating more engaging educational settings. Students maintain positive ratings about their learning environment because technology serves as an essential component to create interactive classrooms.

Many experts in the field of literature agree on the effectiveness of educational technology. According to Park and Weng (2020), student attitudes that are positive toward ICT tools lead to better learning achievement, along with improved involvement levels. Susan Zheng, along with her colleagues (2016), examined how advanced technology classrooms enable students to undertake personalized projects, thereby enhancing their classroom involvement. Manipulative educational tools, based on virtual reality and simulations, enable students to better understand complex subjects by engaging with educational content. When technology integrates into classrooms, the involvement of students becomes stronger, resulting in improved, measurable academic outcomes and better educational dynamics. The existing research demonstrates that technology helps achieve both instructional enhancement and curriculum development, which focuses on student needs.

The statement received the lowest mean score from respondents regarding their motivation for classroom participation when using multimedia presentations (M = 4.90, SD = .316). Students appreciate multimedia tools for motivating their learning but the lower rating

indicates opportunities for better implementation or targeting with educational technology to enhance classroom motivation. The findings show that students view multimedia positively; however, more work needs to be done to maximize its motivational impact.

Multimedia tools receive recognition for their beneficial aspects, which demonstrate their ability to enhance student engagement and classroom attendance. Research currently demonstrates that interactive visual materials improve student connection in classrooms, while also fostering favorable academic behaviors among students. A study analyzing visual-based interactive learning media in science education found significant improvements in student learning outcomes. Students using interactive visuals scored an average of 75.93, compared to lower scores from traditional methods. The research highlights that visual media fosters active participation and better understanding of content (Hasanah & Sudira, 2021). Educational technology requires ongoing innovation to ensure that multimedia tools both attract students initially and maintain student engagement throughout the entire learning process.

Table 7. *Level of Students Learning Outcome*

	Mean	*SD*	*Verbal Description*	*Qualitative Description*
Academic Performance	3.50	.971	Satisfactory	Moderately High Learning Outcome

Legend: *5 (90–100) Excellent, Very High Learning Outcome; 4 (85–89) Very Satisfactory, High Learning Outcome; 3 (80–84) Satisfactory, Moderately High Learning Outcome; 2 (75–79) Fairly Satisfactory, Low Learning Outcome; 1 (75 and below) Did Not Meet Expectation, Very Low Learning Outcome.*

Students' learning outcomes are correlated with their academic performance, as indicated in Table 7. The test scores averaged 3.50 with a standard deviation of 0.971, corresponding to a "Satisfactory" or "Moderately High Learning Outcome" rating. The research indicates that students performed adequately in their learning activities by moderately reaching their educational targets. Student performance displays moderate variation, as indicated by a standard deviation of 0.971, which suggests varied achievements relative to the satisfactory outcome standards. Most students demonstrated a sufficient understanding and met their learning targets, although they did not progress beyond the "High" or "Very High" achievement levels. The scores suggest potential reasons students do or fail, which relate to how instruction is delivered, the classroom environment, and how engaged students become with the material.

The data demonstrates that combination assessments with teacher support produce better student achievements than established educational approaches (Nguyen et al., 2023). Studies show that self-efficacy and effort regulation are psychological factors that moderately impact academic performance, as personal motivation and effective teaching practices lead to satisfactory results (Richardson et al., 2022). Learning outcomes reveal varying achievements among students, as socioeconomic disparities and resource availability impact their educational experiences (Reardon et al., 2024). Students obtain enhanced academic outcomes through their access to digital educational resources, including tablets, multimedia information, and instructional software, as Smith and Dwyer (2020) explained.

Evidence suggests that students who utilize digital materials in their studies achieve better academic outcomes and perform more effectively in tests, with increased classroom participation rates (Smith & Dwyer, 2020). Students can access various out-of-class learning resources because Brown (2019) found that digital tools promote group learning activities. Utilizing available resources will help users understand their subjects more effectively, improve their memory function, and achieve enhanced academic performance. Study results displayed students' full range of technological equipment and their skill level in handling these tools (Dunlosky, 2013).

Table 8. *Correlation analysis between perceived level of technology learning tools and learning outcome*

Indicators	*Correlation coefficient*	*P-value*	*Remarks*
Accessibility	.590	0.000	Significant
Engagement	.041	.601	Not Significant
Usefulness	-.021	.792	Not Significant

The analysis of student perceptions towards the accessibility, engagement, and usefulness of technology learning tools conducted at Mt. Nebo Integrated School is presented in Table 8. The research data demonstrate a strong positive relationship between accessibility and learning outcomes, as evidenced by a significant correlation value of 0.590 ($p = 0.000$). Moreover, statistical analysis did not establish meaningful relationships between engagement and usefulness. As a result, the study rejects the null hypothesis, confirming that at least one variable—accessibility—has a significant effect on academic achievement.

Accessible technology plays a significant role in determining students' academic achievement results. Students enhance their academic performance through the availability of easy-to-use technology tools, which enable them to create personalized learning plans that help manage their review activities and time effectively. The absence of a meaningful relationship between the variables of engagement and usefulness in relation to academic achievement suggests that satisfaction with using technology does not directly lead to improved performance unless it is coupled with strong instructional design.

Criollo-C et al. (2023) reported that the suitable implementation of educational technology leads to better academic results and increased motivation within higher education settings. Akintayo et al. (2024) confirmed that when digital tools are accessible, educators achieve more personalized teaching units that deliver superior learning results. Srivastava (2024) reports that student access provides learning opportunities at their own pace, which increases their academic achievement outcomes.

Research by Akintayo et al. (2024), as well as D'Angelo (2028), found that technology increases student engagement; however, the current study produced a non-significant result. The study results are contradictory because measurement methods or the specific technological deployment in this environment could be responsible for the discrepancy. Timotheou (2023) supports the present findings by showing that the perceived usefulness of technology in relation to achievement does not produce direct links unless teaching techniques support its effective integration. Sharma (20214) clarifies that educational technology achieves its maximum effect through alignment with instructional goals based on delivery strategies.

Conclusions

The context of Mt. Nebo Integrated High School revealed that female students in Grades 7 and 8 comprised the majority of the study population. Students chose PowerPoint presentations over other learning tools since they find structured, visually attractive content more effective. The students in the study expressed positive perceptions of technology tools because they viewed them as highly engaging, extraordinarily useful, and conveniently accessible. Students demonstrated favorable perceptions of technology learning tools, and their academic results were considered satisfactory and moderately high.

The analysis revealed that the accessibility of technology learning tools was the sole factor that improved student performance. Student learning outcome improves through technology tools only when these tools remain both easily accessible and positively engaging and valuable.

Research outcomes demonstrate that access to digital learning tools has greater significance than perceived engagement, in conjunction with perceived usefulness, in achieving student academic success. Future decisions in education should prioritize infrastructure development with access to resources in rural areas, as these changes are expected to lead to improvements in learning outcomes.

The research took place at Mt. Nebo Integrated High School, which serves 166 students. The study results might show limited accuracy when applied to learners across different educational institutions and urban areas. The research analyzed solely accessibility and engagement, along with utility among students, yet it overlooked alternative influencing factors such as instructional techniques and technological proficiency. Teachers at Mt. Nebo Integrated High School can ensure that students have access to learning technologies.

Based on the summary, findings, and conclusions of this study, the following recommendations were given:

School administrators may create strategies to make technology learning tools, specifically PowerPoint presentations, more accessible to learners, as these tools are the preferred learning aid for Grade 7 and 8 students. The practice of teachers using PowerPoint presentations may continue, and accessible materials may be developed through offline, user-friendly formats and interactive components to support students' existing perception of high levels of engagement and usefulness. Future researchers may expand the study scope by including additional schools and higher educational levels to conduct comparative assessments that enhance the general applicability of the research findings.

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