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Teachers' Technology Utilization and Learners' Engagement

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ABSTRACT: In the 21st century, educators actively integrate technology to transform traditional classroom practices into more dynamic learning experiences. It examined the relationship between technology utilization and learners' engagement, and identified the dimensions of the independent variable influence learners' engagement. Employing correlational and causal research designs, the study was conducted to 105 Grade 8 learners in Manolo Fortich District, in the Division of Bukidnon for School Year 2025-2026, selected through stratified random sampling using the Select Statistical Services Calculator. Data were gathered using a validated and reliability tested adapted survey questionnaire. Statistical tools used Mean, Standard Deviation, Pearson Product Moment Correlation, and Multiple Linear Regression. Results revealed that the teachers' technology utilization is high and the learners' engagement is also high. There is significant low positive relationship between the teachers' technology utilization and learners' learning engagement. Moreover, digital books emerged as the strongest predictor of student learning engagement. Technology utilization enhances engagement, but its effectiveness may depend on the teacher's skill in integrating it meaningfully. Thus, it is recommended that school administrators and teachers may collaborate to ensure the effective use of digital books and other technology to enhance learners' engagement

KEYWORDS: digital books, student learning engagement, teachers' technology integration

I. INTRODUCTION

In the 21st century, educators actively integrate technology to transform traditional classroom practices into more dynamic learning experiences. Teachers now use digital tools to introduce innovative strategies that make lessons more interactive and meaningful. These technologies engage learners more effectively by capturing their attention and encouraging active participation. They also help learners understand complex concepts more clearly through multimedia and interactive content. As a result, technology empowers learners to develop higher-order thinking skills across different disciplines.

Across the globe, teachers increasingly use digital tools to reshape how they deliver instruction and engage learners in the learning process. These technologies create interactive and immersive environments that help learners grasp complex concepts more easily while staying actively involved in lessons. When teachers integrate them with sound pedagogy, they strengthen learners' critical thinking and sustain their attention throughout instruction. This approach makes learning more meaningful and relevant to learners' real-life experiences. However, the success of these tools ultimately depends on how effectively educators implement them (Rashi & Malik, 2023).

Teachers' technology utilization refers to the deliberate and pedagogically grounded use of digital tools to support instruction, assessment, and interaction in the classroom. Effective utilization goes beyond mere access to technology and emphasizes teachers' ability to align digital resources with lesson objectives, learners' needs, and appropriate teaching strategies. When teachers thoughtfully integrate interactive online platforms, multimedia content, and digital learning materials, they are more likely to create engaging, student-centered environments that encourage participation and meaningful learning experiences, highlighting the teacher's role as a critical mediator between technology and learning outcomes (Bond, 2022).

Learner engagement plays a vital role in learning, as it reflects how much attention, curiosity, and interest student brings to instruction. When learners are engaged, they actively participate in activities, collaborate with their peers, and take responsibility for their academic tasks. This engagement strengthens their motivation and deepens their understanding of the lesson. At the same time, engaged learners develop essential 21st-century skills that support personal growth and lifelong learning (Ribeiro et al., 2023). As a result, engagement becomes a key driver of meaningful and lasting educational outcomes.

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Student learning engagement also includes behavioral, emotional, and cognitive dimensions that show how actively learners take part in learning tasks. When learners demonstrate high engagement, they participate consistently, connect emotionally with the lesson, and think deeply about the content. This active engagement leads to better understanding, stronger academic performance, and sustained motivation. It also reflects how effectively teachers deliver instruction, especially in technology-enhanced environments. Therefore, engagement serves as a key indicator of instructional success and meaningful learning (Fredricks et al., 2023).

In the Philippine educational context, technology integration has been associated with improved academic performance and positive learning attitudes when balanced with effective teaching strategies. However, sustaining engagement remains a growing concern. Declining resilience and motivation among learners have been observed regardless of learning modality, often influenced by distractions and shifting interests in technology-rich environments (Sutton, 2021). This suggests that while technology offers opportunities to enhance learning, it also presents challenges that require careful instructional management.

Moreover, purposeful utilization of interactive online resources, multimedia presentations, and digital textbooks may create structured and engaging learning experiences that foster sustained participation and academic growth. Despite growing evidence on the benefits of educational technology, limited empirical studies have examined how specific dimensions of teachers' technology utilization directly relate to student learning engagement in localized public-school settings in the Philippines. Most existing research focuses on access, readiness, or general attitudes toward technology, with less attention given to which particular technological practices most strongly influence engagement. This gap underscores the need for context-specific investigations that identify effective technology utilization strategies and their relationship to student engagement, particularly at the school level, to inform targeted professional development and instructional planning (Lim & Smith, 2025).

Thus, the researcher aimed to examine teachers' technology utilization and its relationship with student learning engagement in the District of Manolo Fortich, Division of Bukidnon. Specifically, the study focused on technology use in terms of interactive online resources, multimedia presentations, and digital textbooks, while assessing learners' engagement. Furthermore, this research sought to determine whether a significant relationship existed between teachers' technology utilization and student engagement, as well as to identify which technological factors best influence engagement.

This study was anchored on the Cognitive Theory of Multimedia Learning by Mayer (2019) which explained that learners learn more effectively when instructional content is presented through both verbal and visual channels. Learners are able to build coherent mental models that enhance comprehension and critical thinking through engaging in auditory and visual processing simultaneously. Multimedia instruction, through the brain's dual coding process, enables learners to integrate verbal explanations with images or animations, thereby strengthening retention and problem-solving. In learning, multimedia tools such as interactive maps, historical documentaries, and digital simulations help sustain student engagement while simplifying complex historical, social, and cultural concepts. Thus, the theory emphasizes designing learning experiences that maximize verbal and visual representations to foster meaningful learning.

Recent study affirms the significance of multimedia tools in improving teaching and learning processes. Abdulrahaman et al. (2020) as well as Tenaja and Oco (2023) emphasized that multimedia technologies such as text, images, audio, video, animation, and 3D elements are effective in bridging gaps in access to quality education and improving learner performance. Their systematic review highlighted how well-designed multimedia solutions directly target pedagogical content and the needs of learners, thereby enhancing outcomes. This finding aligns with Mayer's principle that combining multiple sensory inputs fosters deeper understanding. Therefore, multimedia technologies can be seen as practical applications of the Cognitive Theory of Multimedia Learning in diverse educational settings.

Empirical evidence also demonstrates the positive effect of multimedia learning on academic performance. Ling and Krishnasamy (2021) developed a Multimedia Probability and Statistics System (MMPASS) based on Mayer's theory and found that learners who engaged with the multimedia-enhanced lessons scored significantly higher compared to those using traditional materials. The incorporation of interactive features and multiple representations improved comprehension of concepts. This validates Mayer's assertion that multimedia design facilitates meaningful learning when aligned with cognitive principles.

In addition, Booton et al. (2021) highlighted that features such as inbuilt narration, real-time prompts, and augmented reality positively impacted student's comprehension and word acquisition. These features mirror Mayer's emphasis on using verbal and visual channels together to stimulate engagement and understanding. For instance, narration paired with visual cues strengthened comprehension in ways that traditional reading alone could not. Such findings further validate the adaptability of the cognitive theory across multiple domains of learning.

II. METHODOLOGY

This study employed correlational and causal research designs. The researcher used the correlational design to assess the strength and direction of the associations between technology utilization such as interactive online resources, multimedia presentations, and digital books, and student learning engagement. Through the correlational design, the study identified which aspects of technology utilization were most strongly related to student engagement, thereby guiding future interventions or causal investigations (Bhandari, 2023).

Moreover, the researcher used a causal research design to examine differences in student engagement across groups with varying levels of technology utilization. This approach allowed the researcher to compare how changes in technology use influenced learners' learning engagement. By analyzing these variations, the study identified patterns that explain the relationship between technology and engagement. It also provided a clearer basis for determining which technological practices most effectively support instructional delivery. Overall, the design strengthened the study's ability to generate meaningful and evidence-based conclusions (Qualtrics, 2023).

For Problems 1 and 2 Mean and Standard Deviation were used to determine the level of teachers' technology utilization and learners' engagement. For Problems 3 and 4, the data were subjected to a normality test, which revealed that the data were normally distributed. Consequently, for Problem 3, Pearson's Product Moment Correlation was employed to examine the significant relationship between technology utilization and learners' engagement. For Problem 4, Multiple Linear Regression Analysis was utilized to determine the extent to which technology utilization influence learners' engagement.

III. RESULTS AND DISCUSSION

Problem 1. What is the extent of teachers' technology utilization in terms of:

1.1 interactive online resources;
1.2 multimedia presentations; and
1.3 digital books?

Table 1. Summary Result of Teachers' Technology Utilization

Dimensions of Technology Utilization	Mean	SD	Qualitative Description
Interactive Online Resources	3.23	1.02	Moderate
Multimedia Presentation	3.38	1.18	Moderate
Digital Books	3.79	1.11	High
Overall	**3.47**	**1.10**	**High**

Note: 4.21-5.0 Very High; 3.41-4.20 High; 2.61-3.40 Moderate; 1.81-2.60 Low; 1.0-1.80 Very Low

Table 1 shows the overall extent of technology utilization across the three dimensions of technology integration. It has an overall Mean of 3.47 with SD=1.10, qualitatively described as High. This indicates that technology is being actively integrated into teaching and learning, though the extent varies across specific dimensions. Teachers use interactive online resources, multimedia presentations, and digital books to enhance lesson delivery, support learner engagement, and improve learning outcomes. The high overall mean suggests that learners are benefiting from a variety of technology tools, which promote flexibility, accessibility, and more learner-centered approaches. This implies that technology utilization positively influences learner participation, motivation, and the development of digital competencies.

These findings resonate with Valenzuela (2024), who highlighted that interactive online resources and digital platforms, like digital books and multimedia presentations, enable teachers to overcome instructional challenges and sustain learning despite contextual limitations. The study emphasized that such tools help bridge gaps during crises and provide opportunities for continuous learning. Valenzuela noted that technology is adaptable across subjects and contexts, enhancing both engagement and content understanding. The findings reinforce the present result, showing that overall technology use is both practical and beneficial for learners. This suggests that a consistent, thoughtful integration of technology can improve instructional outcomes.

Digital Books obtained the highest Mean of 3.79 with SD=1.11, qualitatively described as High. This indicates that digital books are the most consistently integrated technology tool in classroom instruction. Teachers frequently use e-books to support assignments, independent study, and lesson comprehension. Learners benefit from their accessibility, convenience, and interactive features, which promote independent learning and engagement. As a result, digital books appear to play a central role in supporting flexible, learner-centered approaches.

This is consistent with the study of Sari et al. (2022), which emphasized that

digital textbooks enhance comprehension and higher-order thinking skills through features like hyperlinks, multimedia, and interactive activities. Their review highlighted that e-books support blended learning environments and improve content mastery. The authors noted that digital books are particularly effective for self-directed learning and flexible access. This aligns with the present finding that the high utilization of digital books contributes significantly to overall technology integration.

Meanwhile, Interactive Online Resources recorded the lowest Mean of 3.23 with SD=1.02, qualitatively described as Moderate. This indicates that while online tools are present in instruction, they are not yet fully optimized across lessons. Teachers may use interactive websites, online simulations, or collaborative platforms, but these are not always integrated systematically or extensively. As a result, learners may benefit from these resources only intermittently. This suggests a need for greater emphasis on structured and consistent use of interactive online resources to maximize engagement and learning outcomes.

This observation aligns with the study of Buenaflor (2024), which found that game-based interactive learning through Araling Panlipunan Game-based Interactive Learning Activities significantly enhanced learners' motivation and attitudes toward the subject when implemented consistently. The study demonstrated that structured integration of interactive digital tools fostered enjoyment, sustained participation, and deeper emotional engagement compared to traditional approaches. This suggests that the effectiveness of interactive online resources depends largely on how systematically and intentionally they are embedded in instruction. When such tools are used intermittently rather than strategically, their full potential to improve engagement and learning outcomes may not be realized. Therefore, the moderate utilization observed in the present study may indicate opportunities for more structured and sustained implementation of interactive online resources in classroom practice.

Problem 2. What is the level of learners' learning engagement?

Table 2. Learners' Engagement

	Indicators	Mean	SD	Qualitative Description
1.	I attend my classes regularly.	4.61	0.85	Very High
2.	I complete my homework on time.	4.20	0.93	High
3.	I ask questions during lessons when I don't understand.	3.79	1.14	High
4.	I try to connect lessons to real-life situations.	3.96	2.15	High
5.	I review my notes to make sure I understand the lesson.	3.84	1.06	High
6.	I look for additional information beyond what is taught in class.	3.74	1.17	High
7.	I apply critical thinking when answering questions.	4.01	1.01	High
8.	I enjoy participating in interactive activities prepared by the teacher.	4.13	1.06	High
9.	I collaborate with my classmates in completing technology-based tasks or projects.	4.32	0.96	Very High
10.	I stay motivated to learn even outside the classroom.	4.10	1.13	High
	Overall	**4.07**	**1.14**	**High**

Note: 4.21-5.0 Very High; 3.41-4.20 High; 2.61-3.40 Moderate; 1.81-2.60 Low; 1.0-1.80 Very Low

Table 2 presents the level of learners' engagement. The overall Mean is 4.07 with SD=1.14, qualitatively described as High. This indicates that learners actively participate in classroom activities, consistently complete assignments, and interact meaningfully with learning resources. Learners demonstrate motivation, responsibility, and a willingness to apply critical thinking and problem-solving strategies in their studies. They engage during class as well as in reviewing notes, connecting lessons to real-life contexts, and collaborating with peers. This implies that student engagement is supported by both effective teaching strategies and the availability of interactive and technology-driven resources. Moreover, sustained engagement contributes to better comprehension, higher academic performance, and the development of self-directed learning habits. Teachers can therefore leverage these behaviors by designing lessons that maintain interest, challenge learners, and encourage active participation inside and outside the classroom.

These results align with the study of Gonzales and Hermosa (2023), which emphasized that classroom environment, teacher behavior, and instructional strategies strongly influence cognitive, behavioral, and attitudinal engagement. Their study highlighted that learners thrive when teachers use varied methods and create supportive, inclusive environments. Effective resource integration, including the use of technology, was identified as a key factor in sustaining engagement. This aligns with the present study, where high overall engagement reflects the combined effect of teaching strategies and learning tools.

Indicator 1, *I attend my classes regularly,* obtained the highest Mean of 4.61 with SD=0.85, qualitatively described as Very High. This indicates that learners consistently prioritize attendance as a fundamental part of their learning routine. They recognize

that regular classroom presence allows them to follow lessons, interact with peers, and access immediate clarification on difficult topics. Learners' high attendance reflects strong intrinsic motivation and responsibility for their own learning. It also implies that teachers' classroom management, instructional approach, and creation of meaningful lessons contribute to sustained participation. As a result, attendance reinforces engagement in other activities, such as collaborative work and interactive tasks.

This corresponds to the study of Dela Cueva and Tenorio (2025), which found that learners are more likely to attend classes when lessons are relevant to real-life applications and socio-cultural contexts. Their study showed that learners generally perceived the subject matter as meaningful and connected to their experiences, which motivated them to participate actively in class. However, they noted that perceptions alone do not guarantee academic achievement, highlighting the role of study habits and teaching strategies. The authors emphasized that relevance, coupled with effective instructional methods, enhances attendance and engagement. This aligns with the present study, where regular attendance is the most consistent form of engagement. High attendance, therefore, reflects both the learners' intrinsic motivation and the effectiveness of teaching practices.

Meanwhile, Indicator 6, *I look for additional information beyond what is taught in class,* recorded the lowest Mean of 3.74 with SD=1.17, and still qualitatively described as High. This indicates that learners are less consistent in seeking supplementary information compared to other engagement behaviors. While learners show initiative, independent exploration is not yet a routine part of their study habits. It implies that guidance, structured tasks, or incentives may be needed to promote proactive learning beyond the classroom. Encouraging curiosity and providing accessible resources can help learners take fuller advantage of technology and learning materials. Enhancing this behavior could further strengthen overall engagement and improve problem-solving and research skills.

This finding aligns with the study of Panga et al. (2025), which found that gamification strategies, including point systems, leaderboards, and rewards, significantly improved student motivation and participation in tasks requiring initiative. Their study showed that structured incentives increased learners' willingness to explore content beyond minimal requirements. Learners exposed to gamified tasks were more likely to seek additional information, collaborate with peers, and engage in problem-solving. The authors emphasized that these strategies transform traditional lessons into dynamic and interactive experiences. This supports the present study, suggesting that proactive and independent engagement can be strengthened through structured motivation and interactive learning approaches.

Problem 3. Is there a significant relationship between the teachers' technology utilization and the learners' engagement?

Table 3. Correlation Analysis Between Teachers' Technology Utilization and Learners' Learning Engagement

Dimensions	r-value	p-value	Description	Decision on Ho	Qualitative Description
Interactive Online Resources	0.302**	0.002	Significant	Reject	Low Positive
Multimedia Presentation	0.297**	0.002	Significant	Reject	Low Positive
Digital Books	0.398**	0.000	Significant	Reject	Low Positive

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3 shows the correlation analysis between the extent of teachers' technology utilization and learners' engagement. The results show that interactive online resources (r = 0.302, p = 0.002), multimedia presentations (r = 0.297, p = 0.002), and digital books (r = 0.398, p = 0.000) are all significantly correlated with learners' learning engagement at the 0.01 level. This indicates that the more teachers utilize technology in the classroom, the higher the level of learners' engagement. The positive correlations, though low, suggest that technology plays a supportive role in motivating learners, capturing their attention, and encouraging active participation. It also implies that the integration of digital tools contributes to creating interactive and meaningful learning experiences that complement traditional teaching methods.

The interactive online resources have a correlation coefficient of r = 0.302 (p = 0.002) with learners' engagement, which is significant at the 0.01 level. This indicates that the use of interactive websites, online simulations, and digital tools positively influences student engagement, even if the relationship is low. Learners who are exposed to interactive resources tend to participate more actively in lessons, respond to teacher prompts, and collaborate with peers during activities. It implies that technology-supported instruction helps learners stay motivated and focused on learning tasks. The findings suggest that integrating interactive online materials creates more meaningful and engaging classroom experiences. This also reflects the potential of technology to bridge gaps in understanding by providing immediate access to learning aids and supplementary

materials. Consequently, teachers deliberate use of interactive online resources can strengthen learner engagement, comprehension, and overall academic engagement.

This finding concurs with the study of Panotes et al. (2023), which developed an interactive e-book for Grade 10 learners and found that its use significantly improved mastery of least-learned competencies. Their study revealed that learners who engaged with the e-book showed marked improvements in post-test scores, highlighting the instructional value of interactive resources. The authors emphasized that interactive materials not only supplement lessons but also provide targeted interventions to address learning gaps. This aligns with the present study, where higher utilization of online resources is associated with increased engagement. The study also noted that interactive features such as quizzes, simulations, and multimedia reinforce comprehension and encourage active participation.

Meanwhile, Multimedia Presentations have a correlation coefficient of r = 0.297 (p = 0.002) with learners' learning engagement, which is significant at the 0.01 level. This indicates that the use of PowerPoint slides, visuals, audio, and other multimedia tools positively affects learners' participation and attention during lessons. Learners exposed to multimedia presentations are more likely to remain focused, understand complex concepts, and participate in interactive classroom activities. It implies that presenting content in varied formats caters to different learning styles and keeps learners motivated. The low-positive correlation suggests that while multimedia enhances engagement, its effectiveness may depend on the teacher's skill in integrating it meaningfully. These findings highlight the role of multimedia in supporting comprehension, collaboration, and active participation. Consequently, teachers who strategically use multimedia tools can create dynamic, stimulating, and learner-centered classroom experiences.

These aligns with the study of Siska et al. (2020), which emphasized that integrating multimedia into lessons makes abstract concepts more concrete and stimulates learners' attention and interest. Their study showed that teachers using self-made or external multimedia resources enhanced the teaching–learning process by improving comprehension and participation. The authors also highlighted that combining audio, visuals, and text facilitates better retention and understanding, particularly for complex topics. This aligns with the present study, where learners' engagement increases when multimedia presentations are effectively used. Moreover, Siska et al. noted that multimedia strategies enhance motivation and provide opportunities for interactive learning. These insights support the idea that multimedia is not only a supplement but a key instructional tool for promoting learner engagement.

Digital books have a correlation coefficient of r = 0.398 (p = 0.000) with learners' engagement, which is significant at the 0.01 level. This indicates that the use of e-books, interactive digital textbooks, and embedded learning features is positively associated with higher learner engagement. Learners who utilize digital books tend to review lessons more effectively, complete assignments efficiently, and access supplementary information independently. It implies that digital books provide flexibility, convenience, and a learner-centered approach that motivates active participation. The slightly higher correlation compared to other technologies suggests that digital books may have a stronger influence on engagement due to their accessibility and interactive features. These findings highlight that incorporating digital textbooks into classroom instruction supports sustained engagement, self-directed learning, and engagement beyond traditional methods. Consequently, teachers who integrate digital books can enhance learners' motivation, comprehension, and independent learning habits.

This evidence is reflected in the study of Franco and Bidarra (2022), which found that e-books transform learning from a passive process into a dynamic and interactive experience. Their study revealed that learners using digital books showed higher motivation, engagement, and retention because they could access content anytime and interact with multimedia components. The authors emphasized that e-books bridge the gap between accessibility and meaningful learning, particularly in contexts with limited face-to-face instruction. This aligns with the present study, where higher engagement is observed among learners who frequently use digital textbooks. It also noted that interactive features such as notes, hyperlinks, and multimedia enhance comprehension and encourage deeper engagement in lessons. This supports the conclusion that digital books are effective tools for fostering independent learning and sustained engagement.

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Problem 4. Which of the dimensions of the independent variable influence singly or in combination learners' learning engagement?

Table 4. Multiple Linear Regression Between Teachers' Technology Utilization and Learners' Learning Engagement

Independent Variables	Unstandardized Coefficients		Standard Coefficient Beta		
	B	Std. Error		T	Sig.
(Constant)	2.248	0.374		6.497	0.000
Interactive Online Resources	0.133	0.121	0.126	1.103	0.273
Multimedia Presentation	0.079	0.110	0.083	0.715	0.976
Digital Books	0.271	0.090	0.309	3.019	0.003
		R=0.432	R^2=0.186	F=7.684	Sig=0.000

Dependent Variable: Learners" Learning Engagement

Predictors (Constant), Interactive Online Resources, Multimedia Presentation, Digital Books

Table 4 presents the results of the multiple linear regression analysis to determine which dimensions of technology utilization predict learners' learning engagement, either singly or in combination. The model shows that the dimensions of the independent variable collectively explain 18.6% of the variance in learners' engagement ($R^2 = 0.186$, $F = 7.684$, $p = 0.000$), which is significant. Among the predictors, Digital Books was the only significant variable ($\beta = 0.309$, $p = 0.003$), while Interactive Online Resources ($\beta = 0.126$, $p = 0.273$) and Multimedia Presentation ($\beta = 0.083$, $p = 0.976$) are not significant individually. This indicates that although all dimensions contribute to engagement, the use of digital books is the strongest and most reliable influence. It implies that learners' engagement is most influenced by the accessibility, interactive features, and learner-centered design of digital textbooks. Teachers' consistent use of digital books can therefore enhance self-directed learning, motivation, and participation. While interactive online resources and multimedia presentations support engagement, their predictive power is less pronounced unless paired with digital books in a combined approach.

This aligns to the study of Sari et al. (2022), which emphasized that digital books have become valuable tools in fostering 21st-century learning skills by supporting blended learning environments. Digital textbooks not only replace traditional printed books but also enhance student outcomes by integrating interactive features that strengthen comprehension and critical thinking. Their literature review revealed that well-designed digital books can improve content mastery while simultaneously developing learners' higher-order skills necessary for modern learning contexts.

Digital Books ($\beta = 0.309$, $p = 0.003$) significantly predict learners' learning engagement. This indicates that learners' use of e-books and digital textbooks is the most influential factor among the technology dimensions. Digital books provide accessibility, interactive features, and flexibility that allow learners to study independently, complete tasks efficiently, and engage with content actively. It implies that promoting the use of digital textbooks can directly enhance motivation, participation, and comprehension. Teachers who embed digital books in lesson plans encourage learner autonomy and support sustained engagement beyond the classroom. The findings suggest that digital books should be a central component of technology integration strategies.

Franco and Bidarra (2022) and Sari et al. (2022) noted that digital textbooks enhance comprehension and critical thinking while supporting flexible learning environments. Well-designed e-books allow learners to interact with content, take notes, and apply knowledge effectively, reinforcing the positive predictive effect observed in this study, emphasized that e-books transform learning into interactive and dynamic experiences. Their study showed that learners using digital books have higher motivation, engagement, and retention. This supports the present finding that digital books are significant predictors of engagement.

On the other hand, Interactive Online Resources and Multimedia Presentation do not significantly predict learners' learning engagement (Interactive Online Resources: $\beta = 0.126$, $p = 0.273$; Multimedia Presentation: $\beta = 0.083$, $p = 0.976$). This suggests that while learners benefit from online tools, simulations, polls, and multimedia presentations, these resources alone are insufficient to significantly influence engagement levels. Engagement appears to depend not only on the availability of technological tools but also on the way they are integrated into instructional strategies and classroom practices. Consequently, teachers must combine these resources with more interactive or learner-centered materials, such as digital books, guided activities, and collaborative tasks, to effectively enhance motivation and participation. Moreover, it highlights that technology is a supportive component rather than a standalone driver of engagement; proper facilitation, pedagogical integration, and purposeful use are critical. Therefore, teachers need to plan how multimedia and online resources complement other instructional approaches to sustain learners' attention and learning outcomes. This finding emphasizes the importance of instructional design

and active teacher engagement in technology-mediated learning. The findings can be summarized with the following regression equation:

Model:

$Y=0.271X_1+2.248$

Where: 2.248 = Constant

Y = Learners' Learning Engagement

X_1 = Digital Books

Combining multimedia presentations with collaborative and interactive methods significantly improved comprehension and student learning engagement (Tuei et al. 2024). Their research indicated that multimedia's impact is maximized when paired with active learner engagement. It highlighted that multimedia serves as a complementary tool to enhance participation rather than a direct predictor of engagement. When used alone, learners may enjoy the visual and auditory stimulation but may not be motivated to interact deeply with the content. Hence, this reinforces the present finding that multimedia and online resources, though valuable, require integration with active learning strategies to enhance student engagement. Therefore, this aligns with the current result that both interactive online resources and multimedia presentations are supportive but not independently predictive of engagement.

IV. CONCLUSIONS

Based on the findings of the study, the following conclusions are drawn:

1. Teachers optimize technology utilization during class discussions.
2. Technology utilization encourages the learners to actively engage in class.
3. Technology utilization enhances engagement, but its effectiveness may depend on the teacher's skill in integrating it meaningfully.
4. Digital books significantly influence learners' learning engagement.

V. RECOMMENDATIONS

In view of the findings and the conclusions, the following recommendations are proposed:

1. Teachers may continue utilizing technology during classes.
2. Teachers may strengthen and consistently integrate varied instructional strategies to sustain learners' engagement.
3. Teachers may continue providing technological resources to support the integration of digital tools in instruction so as to improve learners' engagement.
4. School administrators and teachers may collaborate to ensure the effective use of digital books to enhance learners' engagement.

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