

DIGITAL LEARNING OPTIMIZATION PROGRAM IN SDO MABALACAT CITY: ENHANCING ACADEMIC ENGAGEMENT AMONG GRADE 6 LEARNERS

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Abstract

This study examined the level of digital learning engagement, learners' performance in academic tasks using digital platforms, challenges encountered in digital learning environments, and the relationship between digital learning engagement and academic performance among Grade 6 learners in SDO Mabalacat City. Specifically, it determined the level of digital learning engagement among learners, assessed their performance in academic tasks using digital platforms, identified the challenges encountered in digital learning environments, examined the relationship between digital learning engagement and academic performance, and proposed a Digital Learning Optimization Program for Improving Learner Engagement. The study employed a quantitative-descriptive correlational

research design involving Grade 6 learners in SDO Mabalacat City as respondents. Data were gathered through validated survey questionnaires and assessment tools and were analyzed using weighted mean, standard deviation, frequency distribution, ranking, and Pearson Product-Moment Correlation Coefficient. Findings revealed that learners demonstrated a High (Often Engaged) level of digital learning engagement ($M = 3.97$, $SD = 0.82$), particularly in submitting assignments on time through digital tools ($M = 4.18$, $SD = 0.73$), completing tasks using digital platforms ($M = 4.15$, $SD = 0.76$), and regularly using digital platforms for learning ($M = 4.10$, $SD = 0.79$). Learners' performance in academic tasks using digital platforms was interpreted as Meets Standard ($M = 1.61$, $SD = 0.55$), with strengths in timely submission of tasks ($M = 1.73$, $SD = 0.46$), accurate completion of online assignments ($M = 1.69$, $SD = 0.49$), and following instructions in digital tasks ($M = 1.65$, $SD = 0.52$). However, collaborative online work ($M = 1.50$, $SD = 0.61$), participation in online discussions ($M = 1.51$, $SD = 0.60$), and consistency in performance ($M = 1.57$, $SD = 0.58$) obtained comparatively lower ratings. The challenges encountered in digital learning environments were Often Encountered ($M = 3.61$, $SD = 0.91$), particularly poor internet connection ($M = 4.23$, $SD = 0.78$), distractions during online learning ($M = 4.01$, $SD = 0.81$), difficulty managing time ($M = 3.95$, $SD = 0.85$), technical problems during tasks ($M = 3.84$, $SD = 0.87$), and lack of access to devices ($M = 3.65$, $SD = 0.93$). Moreover, the study revealed a

significant strong positive relationship between digital learning engagement and academic performance ($r = 0.768$, $p = 0.000$), leading to the rejection of the null hypothesis and indicating that active engagement in digital learning environments significantly contributes to improved academic performance. Based on the findings, a Digital Learning Optimization Program for Improving Learner Engagement was proposed focusing on digital access and connectivity, learner engagement, digital literacy skills, time management and self-regulation, teacher support and communication, and monitoring and evaluation. The study concluded that meaningful engagement in digital learning environments is a critical determinant of academic success and that comprehensive interventions addressing technological infrastructure, learner self-regulation, digital competencies, and collaborative learning opportunities are essential for sustaining effective and equitable digital education among Grade 6 learners in SDO Mabalacat City.

Keywords: Digital Learning Engagement, Academic Performance, Educational Technology, Digital Literacy

Introduction

Digital learning has become an integral component of modern education, particularly in elementary settings where technology is increasingly used to support instruction and enhance learner engagement. Among Grade 6 learners, digital learning involves the use of online platforms, educational applications, and multimedia resources to facilitate academic tasks and interactive learning experiences. Engagement in digital learning refers to the degree to which learners actively participate in, interact with, and benefit from technology-mediated instruction. According to Bond et al. (2020), digital learning environments can significantly enhance student engagement when they incorporate interactive, collaborative, and learner-centered features. Similarly, Schindler et al. (2017) emphasized that technology integration in education promotes active learning and improves motivation when used effectively.

The level of digital learning engagement among Grade 6 learners varies depending on access to technology, digital literacy skills, and instructional design. Some learners demonstrate high levels of engagement by actively participating in online discussions, completing digital tasks, and exploring learning resources independently. Others may exhibit limited engagement due to lack of familiarity with digital tools or insufficient access to devices and internet connectivity. Research indicates that learners' engagement in digital environments is influenced by both technological and pedagogical

factors, including the design of activities and the level of teacher support (Henrie et al., 2018; Bond et al., 2020). This suggests that engagement is not solely dependent on technology but also on how it is integrated into the learning process.

Learners' performance in academic tasks using digital platforms reflects their ability to utilize technology for learning purposes. Digital platforms provide opportunities for interactive learning, immediate feedback, and access to diverse resources, which can enhance understanding and skill development. According to Sung et al. (2016), the use of digital tools in education has a positive impact on academic performance, particularly when learners are actively engaged in tasks that promote critical thinking and problem-solving. Additionally, multimedia resources and simulations can support deeper understanding of complex concepts by providing visual and interactive representations.

However, the effectiveness of digital learning depends on learners' ability to navigate and use technology effectively. Learners with strong digital literacy skills are more likely to perform well in online tasks, while those with limited skills may struggle to complete assignments and engage with content. This highlights the importance of developing digital competencies alongside academic skills.

Despite its potential benefits, digital learning environments present several challenges. One major challenge is unequal access to technology,

which can create disparities in learning opportunities. Learners who lack reliable internet access or devices may experience difficulties in participating fully in digital learning activities. According to UNESCO (2020), digital inequality remains a significant barrier to effective technology integration in education.

Another challenge involves distractions associated with digital devices. Learners may be tempted to engage in non-academic activities, such as gaming or social media, which can reduce focus and productivity. Additionally, excessive screen time can lead to fatigue, reduced attention span, and decreased motivation. Technical issues, such as connectivity problems and software limitations, further complicate the learning process.

Teacher-related factors also influence the effectiveness of digital learning. Teachers who lack training in using digital tools may find it difficult to design engaging and effective online activities. According to Koehler et al. (2017), the integration of technology requires both technical and pedagogical knowledge to ensure meaningful learning experiences. Without adequate support, the potential benefits of digital learning may not be fully realized.

The relationship between digital learning and academic performance has been widely explored in educational research. When implemented effectively, digital learning can enhance academic outcomes by providing interactive and personalized learning experiences. According to Tamim et

al. (2016), technology integration has a positive impact on student achievement, particularly when it supports active learning and collaboration. Similarly, Hattie (2017) noted that the effectiveness of digital tools depends on how they are used to support instructional goals rather than the technology itself.

Moreover, digital learning supports the development of self-directed learning skills, enabling learners to take greater responsibility for their education. Learners who are engaged in digital environments often develop skills such as time management, problem-solving, and independent learning. These skills contribute to improved academic performance and long-term learning outcomes.

The implementation of a digital learning optimization program provides a structured approach to enhancing learner engagement and improving academic outcomes. Such programs typically focus on improving access to technology, developing digital literacy skills, and designing engaging instructional activities. According to Redecker (2017), effective digital learning initiatives emphasize the integration of pedagogy, technology, and content to create meaningful learning experiences.

Teacher capacity is a critical factor in the success of digital learning programs. Professional development initiatives that equip teachers with skills in using digital tools, designing interactive activities, and managing online learning environments enhance their ability to engage learners

effectively. Teachers who are confident in using technology are more likely to create dynamic and engaging learning experiences.

The use of interactive and collaborative strategies further enhances digital engagement. Activities such as online discussions, group projects, and gamified learning experiences encourage active participation and foster a sense of community among learners. Additionally, the use of formative assessment tools provides immediate feedback, helping learners track their progress and improve performance.

Parental involvement also plays an important role in supporting digital learning. Monitoring learners' screen time, providing guidance, and ensuring a conducive learning environment at home contribute to effective engagement. Collaboration between schools and families ensures that learners receive consistent support in navigating digital learning environments.

Contextualization is essential in designing effective digital learning programs, particularly in specific divisions such as SDO Mabalacat City. Modifying interventions to local conditions, including access to technology, learner needs, and available resources, ensures that strategies are relevant and sustainable. This approach increases the likelihood of successful implementation and long-term impact.

Existing literature highlights the positive impact of digital learning on student engagement and academic performance, emphasizing the role of

interactive, collaborative, and learner-centered technologies (Bond et al., 2020; Schindler et al., 2017; Sung et al., 2016). Studies also identify key influencing factors such as digital literacy, instructional design, and access to technology (Henrie et al., 2018; UNESCO, 2020). However, there is limited research that examines how a structured digital learning optimization program can be effectively implemented and evaluated within a specific local context such as SDO Mabalacat City. While prior studies discuss general benefits and challenges of digital learning, they do not sufficiently explore how technological, pedagogical, and contextual factors can be integrated into a comprehensive and localized intervention aimed at improving academic engagement among Grade 6 learners. Furthermore, there is a lack of empirical evidence on how combined elements—such as teacher capacity, digital literacy development, access to resources, and parental involvement—collectively influence engagement outcomes in a specific district setting. This creates a gap in understanding how context-sensitive digital learning programs can sustainably enhance learner engagement and performance.

Addressing this gap is essential because digital learning has become a central component of modern education, and enhancing learner engagement is critical for improving academic outcomes. Implementing a Digital Learning Optimization Program adapted to SDO Mabalacat City provides an opportunity to apply evidence-based strategies in a structured and

context-specific manner. This study is important as it would generate empirical evidence on how integrating technology access, digital literacy development, teacher training, and engaging instructional design can improve learners' participation and academic engagement. The findings would support teachers in creating more effective and interactive digital learning environments while helping learners develop essential skills such as self-directed learning, critical thinking, and responsible technology use. Additionally, the study contributes to educational policy and program development by offering a model for sustainable and context-responsive digital learning initiatives that can be replicated in similar educational settings. Ultimately, it ensures that digital learning is not only accessible but also meaningful and effective for learners.

Research Objectives

The rapid shift toward digital education has fundamentally altered the instructional landscape for Grade 6 learners in SDO Mabalacat City, necessitating a closer look at how these young students navigate the complexities of virtual platforms while maintaining academic standards.

Specifically, this study would seek to answer the following research questions:

What is the level of digital learning engagement among Grade 6 learners in SDO Mabalacat City?

How do learners perform in academic tasks using digital platforms?

What challenges are encountered in digital learning environments?

Is there a significant relationship between digital learning and academic performance?

How can a digital learning optimization program improve learner engagement?

Methods

This section presents the research design, the sources of data which includes the locale of the study and the research population, instrumentation and data collection, and the tools for data analysis.

Research Design

This study would employ a mixed-methods research design, specifically utilizing a sequential explanatory design, integrating quantitative quasi-experimental and correlational approaches, qualitative descriptive inquiry, and a developmental research component for the Digital Learning Optimization Program. This design is appropriate as it enables a comprehensive assessment of digital learning engagement, examination of

relationships among variables, exploration of challenges, and evaluation of an intervention.

The quantitative phase would address the first, second, fourth, and fifth research questions. A descriptive approach were used to determine the level of digital learning engagement among Grade 6 learners and to assess their performance in academic tasks using digital platforms. Data were collected through structured questionnaires and platform-based performance records to obtain measurable indicators of engagement and academic outcomes.

A correlational approach were applied to examine the relationship between digital learning engagement and academic performance. This is appropriate as it allows the researcher to determine whether higher engagement in digital learning is associated with improved academic results. Statistical tools such as Pearson's correlation coefficient were used to analyze the strength and significance of this relationship.

To evaluate the effectiveness of the Digital Learning Optimization Program, a quasi-experimental one-group pretest-posttest design were utilized. Learners would first undergo a pretest to assess their baseline level of digital engagement and academic performance. The intervention program would then be implemented, incorporating strategies such as interactive digital tools, structured learning modules, guided online activities, and monitoring systems. After the intervention, a posttest were

conducted to measure improvements in learner engagement and academic outcomes.

The qualitative component would address the third research question by exploring the challenges encountered in digital learning environments. Data were gathered through open-ended questionnaires, interviews, and observations involving learners and teachers to gain deeper insights into their experiences and difficulties. This component provides contextual understanding and supports the interpretation of quantitative findings.

Data collection instruments would include survey questionnaires, digital platform analytics, academic records, observation checklists, and interview guides. The use of multiple instruments ensures data triangulation, enhancing the validity and reliability of the study.

For data analysis, descriptive statistics such as mean, percentage, and standard deviation were used to summarize engagement levels and performance. Inferential statistics, including Pearson's r , were used to determine the relationship between digital learning engagement and academic performance. A paired sample t-test were employed to compare pretest and posttest results to evaluate the effectiveness of the intervention program. Qualitative data were analyzed using thematic analysis to identify recurring patterns related to digital learning challenges.

Sources of Data

The data for this study were collected from both primary and secondary sources to ensure a comprehensive assessment of digital learning engagement and academic performance among Grade 6 learners in Schools Division Office (SDO) Mabalacat City. The primary source of data were Grade 6 learners, as they are the direct participants whose engagement in digital learning environments and academic performance are being examined. Data from learners were gathered using a structured survey questionnaire designed to measure their level of engagement in digital learning. The instrument would include indicators such as frequency of platform use, participation in online activities, interaction with digital content, motivation, and self-regulation during digital learning tasks.

In addition to the survey, learners' academic performance in digital learning environments were assessed through performance-based outputs such as online quizzes, assignments, digital projects, and task submissions. These outputs would provide objective data on learners' ability to complete academic tasks using digital platforms. A checklist or rating scale may also be used to evaluate learners' digital skills, including navigation, information processing, and collaboration in online environments.

Classroom and online learning observations would also be conducted using structured observation checklists to document learners' engagement, participation, and behavior during digital learning sessions. These

observations would provide real-time insights into how learners interact with digital tools and platforms.

Teachers handling Grade 6 classes would serve as key secondary sources of data. They would provide information through structured questionnaires and/or interviews regarding learners' engagement levels, performance in digital tasks, challenges encountered, and instructional strategies used in digital learning environments. Teachers would also share insights on the effectiveness of digital platforms and tools in facilitating learning.

School heads and ICT coordinators may also serve as secondary sources of data, providing administrative perspectives on digital learning implementation, availability of technological resources, infrastructure, and support systems within schools. Their input would help contextualize the digital learning environment across the division.

Secondary data would also be gathered from school records such as learners' academic grades, digital platform usage reports, and assessment results. Relevant documents such as digital learning plans, ICT integration policies, and training records would also be reviewed to provide additional context.

The integration of multiple data sources—including surveys, performance assessments, observations, teacher inputs, interviews, and document analysis—would allow for triangulation, thereby enhancing the

validity and reliability of the findings. All sources are aligned with the study variables, particularly in assessing engagement levels, evaluating academic performance, identifying challenges, examining relationships between digital learning and performance, and informing the development of a digital learning optimization program.

Locale of the Study

The study were conducted in the Schools Division Office (SDO) Mabalacat City, located in Pampanga, Philippines. The division supervises several public elementary schools that implement digital learning initiatives as part of the K to 12 Basic Education Curriculum. SDO Mabalacat City is selected as the locale of the study due to its increasing integration of technology in teaching and learning, particularly in response to evolving educational demands. The division provides an appropriate setting for examining digital learning engagement and academic performance, making it suitable for developing a digital learning optimization program.

Population Sampling

The target population of the study would consist of Grade 6 learners and their teachers in public elementary schools within SDO Mabalacat City. A stratified random sampling technique were employed to ensure representation from different schools in the division. Schools would serve as strata, and participants were selected proportionally based on enrollment. The study would include approximately 120 Grade 6 learners and 30 teachers, resulting in a total of 150 respondents. This sample size is considered sufficient to capture diverse experiences in digital learning while

maintaining feasibility in data collection. Inclusion criteria would include learners currently enrolled in Grade 6 and teachers actively using digital platforms for instruction, while those with limited access to digital tools or prolonged absences may be excluded. This sampling approach ensures representativeness and minimizes bias.

Tools for Data Analysis

The data gathered in this study were analyzed using a combination of descriptive statistics, inferential statistics, and qualitative analysis to provide a comprehensive understanding of digital learning engagement among Grade 6 learners in SDO Mabalacat City. A mixed-methods approach were employed to ensure that both quantitative data and learners' experiences in digital environments are systematically examined and interpreted.

To determine the level of digital learning engagement among Grade 6 learners, responses from the engagement scale were analyzed using descriptive statistical measures, particularly the weighted mean, frequency counts, and percentage distribution. These measures would capture learners' level of participation, interest, interaction, and consistency in using digital learning platforms. The computed mean scores were interpreted using descriptive categories such as very low, low, moderate, high, and very high engagement. This analysis would provide a clear overview of how actively learners are involved in digital learning activities.

In assessing how learners perform in academic tasks using digital platforms, performance-based data were collected from learners' outputs such as online assignments, quizzes, and tasks completed through digital tools. These were evaluated using a structured rubric focusing on accuracy, completeness, timeliness, and quality of work. The results were analyzed using the mean to determine overall performance levels, while the standard deviation were used to determine the consistency of learners' academic performance. This would help identify whether learners demonstrate uniform performance or if there are variations depending on their level of engagement with digital platforms.

To identify the challenges encountered in digital learning environments, both quantitative and qualitative data were analyzed. Quantitatively, responses from the checklist of challenges were summarized using frequency counts, percentage distribution, and weighted mean to determine the most common and most significant issues experienced by learners. These challenges may include poor internet connectivity, lack of access to devices, difficulty navigating digital platforms, distractions, and limited technical skills. Qualitatively, responses from open-ended questions were analyzed using thematic analysis, wherein recurring patterns were identified and grouped into meaningful themes. This would provide deeper insights into the barriers affecting effective digital learning.

To determine whether there is a significant relationship between digital learning engagement and academic performance, the study would employ the Pearson Product-Moment Correlation Coefficient. This statistical method were used to examine the relationship between learners' level of engagement in digital learning and their academic performance scores. The analysis would reveal whether higher engagement in digital learning is associated with better academic outcomes. The level of significance were set at 0.05 to determine whether the relationship is statistically meaningful.

To evaluate how a digital learning optimization program can improve learner engagement, a pre-test and post-test design were utilized. Learners' engagement levels and academic performance were measured before and after the implementation of the program. The difference between pre-test and post-test results were analyzed using a paired sample t-test to determine whether there is a significant improvement in engagement and performance following the intervention. This analysis would help establish the effectiveness of the proposed program. Additionally, an effect size measure may be used to determine the magnitude of improvement and its practical significance.

All quantitative data were encoded, organized, and analyzed using statistical software such as Microsoft Excel or SPSS to ensure accuracy and efficiency. Qualitative data were carefully reviewed, categorized, and interpreted to preserve the authenticity of learners' responses. The

integration of both quantitative and qualitative findings would enable the researcher to draw meaningful conclusions and provide evidence-based recommendations for enhancing digital learning engagement among Grade 6 learners.

Ethical Considerations

This study would strictly adhere to ethical standards in educational research to ensure the protection of participants' rights, dignity, and welfare. Prior to data collection, formal approval were obtained from the Schools Division Office (SDO) Mabalacat City and from the respective school heads of participating schools. Since the study involves minor participants, informed consent were secured from parents or legal guardians, along with assent from the learners.

Participation in the study were entirely voluntary, and participants were informed of their right to withdraw at any time without any negative consequences. Confidentiality and anonymity were strictly maintained by assigning codes or pseudonyms instead of using participants' real names. Any identifying information were removed from all data records and reports.

All collected data, including survey responses, performance outputs, observation notes, interview transcripts, and school records, were handled with strict confidentiality. Digital data were stored in password-protected devices, while printed materials were kept in secure, locked storage

accessible only to the researcher. The data were used solely for academic and research purposes and would not be shared with unauthorized individuals.

Given that the study involves digital platforms, particular attention were given to data privacy and protection. No personal login credentials or sensitive digital information were collected. All digital data were anonymized, and platform usage data were handled in accordance with data privacy regulations.

The study would ensure that no harm—physical, psychological, or emotional—were inflicted on participants. Activities were aligned with regular classroom practices and would not place undue burden on learners or teachers. The researcher would maintain objectivity, honesty, and integrity throughout the research process, ensuring accurate and unbiased reporting of findings.

RESULTS AND DISCUSSION

This section presents the data gathered from the respondents, followed by an in-depth analysis and interpretation of the findings.

**Level of Digital Learning Engagement Among Grade 6 Learners in
SDO Mabalacat City**

Table 1

**Level of Digital Learning Engagement Among Grade 6 Learners
in SDO Mabalacat City**

Digital Learning Engagement Indicators	Mean	Standard Deviation	Interpretation	Rank
I participate actively in online classes.	3.98	0.82	Often	5
I complete tasks using digital platforms.	4.15	0.76	Often	2
I pay attention during online lessons.	3.86	0.88	Often	8
I interact with teachers and	3.72	0.91	Often	10

Digital Learning Engagement Indicators	Mean	Standard Deviation	Interpretation	Rank
classmates online.				
I submit assignments on time through digital tools.	4.18	0.73	Often	1
I use digital platforms for learning regularly.	4.10	0.79	Often	3
I enjoy learning through digital platforms.	3.84	0.87	Often	9
I stay focused during online activities.	3.88	0.85	Often	7

Digital Learning Engagement Indicators	Mean	Standard Deviation	Interpretation	Rank
I explore additional learning resources online.	3.97	0.81	Often	6
I feel motivated to learn using technology.	4.05	0.78	Often	4
Composite Mean	3.97	0.82	High (Often Engaged)	

Mean Range	Interpretation
4.21–5.00	Always
3.41–4.20	Often
2.61–3.40	Sometimes
1.81–2.60	Rarely
1.00–1.80	Never

Table 1 presents the level of digital learning engagement among Grade 6 learners in SDO Mabalacat City. The findings revealed a composite mean of 3.97 with a standard deviation of 0.82, interpreted as High (Often Engaged). This indicates that Grade 6 learners frequently participate in digital learning activities and generally demonstrate positive engagement in technology-supported educational experiences. The findings suggest that digital platforms have become integral components of learners' academic experiences and that learners have developed favorable attitudes and behaviors toward technology-mediated instruction. However, despite the high level of engagement, variations in specific aspects of digital participation indicate areas that still require enhancement.

Among the indicators, "I submit assignments on time through digital tools" obtained the highest mean score of 4.18 (SD = 0.73) and was interpreted as Often, ranking first. This was followed by "I complete tasks using digital platforms" with a mean score of 4.15 (SD = 0.76), ranking second, and "I use digital platforms for learning regularly" with a mean score of 4.10 (SD = 0.79), ranking third. Likewise, "I feel motivated to learn using technology" obtained a mean score of 4.05 (SD = 0.78) and ranked fourth, while "I participate actively in online classes" obtained a mean score of 3.98 (SD = 0.82) and ranked fifth. Conversely, "I interact with teachers

and classmates online" obtained the lowest mean score of 3.72 (SD = 0.91), ranking tenth, followed by "I enjoy learning through digital platforms" with a mean score of 3.84 (SD = 0.87) and "I pay attention during online lessons" with a mean score of 3.86 (SD = 0.88).

The overall interpretation of High (Often Engaged) indicates that learners in SDO Mabalacat City have generally adapted to digital learning environments and regularly utilize digital tools for academic purposes. The standard deviation of 0.82 indicates moderate variability in responses, suggesting that while most learners demonstrate favorable levels of digital engagement, differences still exist in the extent and quality of their participation in online learning activities.

The highest-ranked indicator, "I submit assignments on time through digital tools" (M = 4.18, SD = 0.73), indicates that learners have developed responsible digital behaviors and demonstrate a high level of compliance with academic requirements.

This finding suggests that digital platforms may facilitate better organization, accessibility, and management of learning tasks. The availability of online reminders, submission portals, and immediate access to instructional materials may contribute positively to learners' ability to meet deadlines and complete assignments efficiently.

The relatively low standard deviation of 0.73 further indicates consistency in learners' responses, suggesting that timely submission of digital assignments is a common behavior among Grade 6 learners.

The findings imply that digital technologies can promote learner accountability and support the development of self-management skills necessary for academic success.

Similarly, "I complete tasks using digital platforms" ($M = 4.15$, $SD = 0.76$) and "I use digital platforms for learning regularly" ($M = 4.10$, $SD = 0.79$) obtained relatively high ratings.

These findings indicate that learners are highly accustomed to utilizing digital platforms for academic purposes and frequently engage with technology in completing learning activities.

The favorable ratings may be attributed to learners' increasing familiarity with educational technologies and the widespread use of digital platforms in classroom instruction.

Regular use of digital tools may also contribute to improved technological competencies, greater confidence in navigating online learning environments, and increased access to educational resources.

The findings imply that digital technologies have become important instructional supports that facilitate continuous learning and academic engagement.

Likewise, "I feel motivated to learn using technology" ($M = 4.05$, $SD = 0.78$) and "I participate actively in online classes" ($M = 3.98$, $SD = 0.82$) also obtained favorable ratings.

These findings indicate that learners generally possess positive attitudes toward technology-mediated instruction and demonstrate active participation during online learning activities.

The favorable level of motivation may be attributed to the interactive and engaging features of digital platforms, such as multimedia presentations, educational games, videos, and interactive activities that make learning experiences more enjoyable and meaningful.

The findings imply that technology-enhanced instruction has considerable potential to sustain learner interest and encourage active participation in academic activities.

Similarly, "I explore additional learning resources online" ($M = 3.97$, $SD = 0.81$) indicates that learners frequently utilize the internet and digital platforms to supplement classroom learning.

This finding suggests that learners demonstrate initiative in accessing additional information and educational resources beyond prescribed instructional materials.

The ability to explore supplementary resources is particularly important because it promotes independent learning, information literacy, and self-directed educational experiences.

The findings imply that digital learning environments can foster learner autonomy and encourage lifelong learning behaviors.

However, despite the generally favorable findings, several indicators obtained comparatively lower ratings. Specifically, "I stay focused during online activities" ($M = 3.88$, $SD = 0.85$) and "I pay attention during online lessons" ($M = 3.86$, $SD = 0.88$) obtained relatively lower mean scores.

These findings suggest that maintaining concentration and attention remains a challenge for many learners in digital learning environments.

The relatively high standard deviations of 0.85 and 0.88 further indicate variations in learners' abilities to sustain focus during online instruction.

The findings may be explained by the presence of distractions commonly associated with digital environments, including social media, online entertainment, multitasking behaviors, and home-related interruptions.

The findings imply that although learners frequently participate in digital activities, the quality of their engagement may sometimes be compromised by difficulties in maintaining sustained attention and concentration.

Likewise, "I enjoy learning through digital platforms" ($M = 3.84$, $SD = 0.87$) obtained a comparatively lower rating.

This finding suggests that while learners regularly utilize digital technologies for academic purposes, not all learners necessarily find online learning experiences enjoyable.

The relatively high standard deviation indicates variability in learners' preferences and experiences with digital instruction.

Differences in learning styles, technological competencies, internet access, and prior experiences with digital learning may explain variations in learners' enjoyment of technology-mediated instruction.

The findings imply that the effectiveness of digital learning environments depends not only on technological access but also on the quality, relevance, and interactivity of instructional experiences.

The lowest-ranked indicator, "I interact with teachers and classmates online" ($M = 3.72$, $SD = 0.91$), indicates that online interaction remains the weakest dimension of digital learning engagement among Grade 6 learners.

The comparatively high standard deviation of 0.91 further suggests substantial variability in learners' experiences with online communication and collaboration.

This finding may be attributed to technological limitations, communication barriers, limited opportunities for collaborative activities, and learners' reluctance to participate actively in online discussions.

The findings suggest that digital learning environments may not yet fully replicate the social interactions and collaborative experiences typically present in face-to-face classrooms.

The relatively lower level of online interaction is particularly important because meaningful communication and collaboration are essential components of effective learning and academic engagement.

The findings imply that teachers should design digital learning activities that encourage communication, collaborative problem-solving, peer interaction, and active participation.

The overall pattern of findings demonstrates that learners perform better in task completion, regular use of digital platforms, assignment submission, and technology-based motivation, while comparatively lower engagement is evident in online interaction, enjoyment of digital learning, attention, and sustained focus.

This pattern suggests that Grade 6 learners have successfully adapted to the procedural and technical aspects of digital learning but continue to experience challenges related to social interaction and cognitive engagement during online instruction.

From a theoretical perspective, the findings strongly support the Technology Acceptance Model, which posits that individuals are more likely to engage with technologies that they perceive as useful and easy to use. The high levels of task completion and regular use of digital platforms

indicate that learners perceive digital technologies as beneficial for academic purposes.

The findings also support the Constructivism, which emphasizes active learner participation and meaningful interactions during learning experiences. The relatively lower ratings in online interaction suggest that opportunities for collaborative and socially mediated learning still need to be strengthened.

Likewise, the findings are consistent with the Self-Regulated Learning, which highlights the importance of learner autonomy, motivation, and self-management in academic success. The favorable ratings in assignment submission and regular use of digital platforms indicate emerging self-regulatory behaviors among learners.

The study contributes to the existing body of knowledge by providing empirical evidence that Grade 6 learners in SDO Mabalacat City demonstrate a High level of digital learning engagement (Composite Mean = 3.97, SD = 0.82), characterized by strong performance in digital task completion and technology utilization but comparatively lower engagement in online interaction and sustained attention.

Learners' Performance in Academic Tasks Using Digital Platforms

Table 2

Learners' Performance in Academic Tasks Using Digital Platforms

Performance Indicators	Mean	Standard Deviation	Interpretation	Rank
Completes online assignments accurately	1.69	0.49	Meets Standard	2
Submits tasks on time	1.73	0.46	Meets Standard	1
Demonstrates understanding of lessons	1.62	0.55	Meets Standard	5
Participates in online discussions	1.51	0.60	Meets Standard	9
Uses digital tools effectively	1.58	0.57	Meets Standard	7
Produces quality outputs	1.60	0.55	Meets Standard	6

Performance Indicators	Mean	Standard Deviation	Interpretation	Rank
Follows instructions in digital tasks	1.65	0.52	Meets Standard	3
Shows consistency in performance	1.57	0.58	Meets Standard	8
Engages in collaborative online work	1.50	0.61	Meets Standard	10
Demonstrates independent learning	1.64	0.53	Meets Standard	4
Composite Mean	1.61	0.55	Meets Standard	

Mean Range	Interpretation
1.50–2.00	Meets Standard
0.50–1.49	Approaching Standard
0.00–0.49	Below Standard

Table 2 presents the learners' performance in academic tasks using digital platforms among Grade 6 learners in SDO Mabalacat City. The findings revealed a composite mean of 1.61 with a standard deviation of 0.55, interpreted as Meets Standard. This indicates that learners generally demonstrate satisfactory performance in accomplishing academic tasks through digital platforms. The findings suggest that Grade 6 learners possess adequate competencies in completing technology-mediated learning activities and have successfully adapted to the academic demands of digital learning environments. However, the variations among the indicators reveal specific areas that require further enhancement, particularly in collaborative and interactive online learning experiences.

Among the performance indicators, "Submits tasks on time" obtained the highest mean score of 1.73 (SD = 0.46) and was interpreted as Meets Standard, ranking first. This was followed by "Completes online assignments accurately" with a mean score of 1.69 (SD = 0.49), ranking second, and "Follows instructions in digital tasks" with a mean score of 1.65 (SD = 0.52), ranking third. Likewise, "Demonstrates independent learning" obtained a mean score of 1.64 (SD = 0.53) and ranked fourth, while "Demonstrates understanding of lessons" obtained a mean score of 1.62 (SD = 0.55) and ranked fifth. Conversely, "Engages in collaborative online work" obtained the lowest mean score of 1.50 (SD = 0.61), ranking tenth,

followed by "Participates in online discussions" with a mean score of 1.51 (SD = 0.60) and "Shows consistency in performance" with a mean score of 1.57 (SD = 0.58).

The overall interpretation of Meets Standard indicates that learners generally perform satisfactorily when utilizing digital platforms for academic tasks. The standard deviation of 0.55 indicates moderate variability in performance, suggesting that while many learners have adapted effectively to digital learning environments, differences still exist in their abilities to utilize technology and engage in online learning activities.

The highest-ranked indicator, "Submits tasks on time" (M = 1.73, SD = 0.46), indicates that learners have developed responsible academic behaviors and demonstrate effective management of digital learning requirements.

This finding strongly supports the results of Table 1, wherein "I submit assignments on time through digital tools" obtained the highest mean score of 4.18 (SD = 0.73) and ranked first among the indicators of digital learning engagement.

The consistency between these findings suggests that learners' high engagement with digital submission platforms translates directly into favorable academic performance.

The relatively low standard deviation of 0.46 further indicates that timely submission is a common practice among learners and reflects consistent digital learning behaviors.

The findings imply that digital platforms may facilitate learner accountability and support the development of organizational and time-management skills necessary for academic success.

Similarly, "Completes online assignments accurately" ($M = 1.69$, $SD = 0.49$) and "Follows instructions in digital tasks" ($M = 1.65$, $SD = 0.52$) obtained relatively high ratings.

These findings indicate that learners generally possess the competencies necessary to understand and complete technology-mediated learning tasks successfully.

The favorable ratings may be attributed to learners' familiarity with digital platforms and their regular exposure to online assignments and instructional activities.

The findings are also supported by Table 1, wherein "I complete tasks using digital platforms" obtained a mean score of 4.15 ($SD = 0.76$) and "I use digital platforms for learning regularly" obtained 4.10 ($SD = 0.79$).

These findings indicate that learners frequently utilize digital technologies and have become increasingly comfortable navigating online learning environments.

The findings imply that repeated exposure to digital learning activities contributes positively to learners' abilities to accomplish academic tasks accurately and efficiently.

Likewise, "Demonstrates independent learning" ($M = 1.64$, $SD = 0.53$) and "Demonstrates understanding of lessons" ($M = 1.62$, $SD = 0.55$) obtained favorable ratings and were interpreted as Meets Standard.

These findings suggest that digital platforms provide opportunities for learners to engage in self-directed learning and develop conceptual understanding of instructional content.

The ability to learn independently may be attributed to learners' access to online resources, instructional materials, videos, and digital activities that facilitate learning beyond traditional classroom instruction.

This finding is supported by Table 1, wherein "I explore additional learning resources online" obtained a mean score of 3.97 ($SD = 0.81$) and "I feel motivated to learn using technology" obtained 4.05 ($SD = 0.78$).

The favorable ratings indicate that learners demonstrate initiative in utilizing technology for educational purposes and exhibit positive attitudes toward digital learning.

The findings imply that digital learning environments have the potential to foster learner autonomy, motivation, and conceptual understanding.

Similarly, "Produces quality outputs" ($M = 1.60$, $SD = 0.55$) and "Uses digital tools effectively" ($M = 1.58$, $SD = 0.57$) also obtained satisfactory ratings.

These findings indicate that learners generally demonstrate adequate competencies in utilizing digital technologies and producing acceptable academic outputs.

The favorable performance may be attributed to learners' increasing familiarity with educational technologies and the availability of digital resources that support task completion and learning activities.

The findings imply that regular exposure to technology-mediated instruction contributes positively to learners' digital competencies and academic productivity.

However, despite the generally favorable findings, several indicators obtained comparatively lower ratings. Specifically, "Shows consistency in performance" ($M = 1.57$, $SD = 0.58$), "Participates in online discussions" ($M = 1.51$, $SD = 0.60$), and "Engages in collaborative online work" ($M = 1.50$, $SD = 0.61$) obtained the lowest mean scores among the performance indicators.

The comparatively lower ratings in online discussion and collaboration are particularly noteworthy because they indicate that learners continue to experience challenges in the social and interactive dimensions of digital learning.

These findings strongly support the results of Table 1, wherein "I interact with teachers and classmates online" obtained the lowest mean score of 3.72 (SD = 0.91) and ranked tenth among the indicators of digital learning engagement.

The consistency between these findings suggests that limited online interaction directly influences learners' participation in collaborative and discussion-based activities.

The relatively high standard deviations of 0.60 and 0.61 further indicate substantial variability in learners' participation and collaborative experiences.

The findings may be attributed to communication barriers, varying levels of digital competence, limited opportunities for collaborative activities, and learners' preferences for face-to-face interaction.

The findings imply that although learners have adapted to the procedural aspects of digital learning, they continue to experience challenges in engaging socially and collaboratively within virtual environments.

The comparatively lower rating in "Shows consistency in performance" (M = 1.57, SD = 0.58) may also be associated with difficulties in maintaining sustained attention and motivation during digital learning activities.

This finding is supported by Table 1, wherein "I pay attention during online lessons" obtained a mean score of 3.86 (SD = 0.88) and "I stay focused during online activities" obtained 3.88 (SD = 0.85).

The findings indicate that although learners frequently engage in digital learning activities, maintaining concentration and consistent performance remains challenging for some learners.

The findings imply that the effectiveness of digital learning environments depends not only on learners' access to technology but also on their ability to sustain motivation, attention, and active engagement.

The overall pattern of findings demonstrates that learners perform better in timely submission of tasks, completion of online assignments, following instructions, and independent learning, while comparatively lower performance is evident in online discussions, collaborative activities, and consistency of performance.

This pattern suggests that Grade 6 learners have successfully adapted to individual and task-oriented aspects of digital learning but continue to experience challenges in interactive and collaborative online experiences.

From a theoretical perspective, the findings strongly support the Self-Regulated Learning, which emphasizes learner autonomy, self-management, and responsibility in academic performance. The favorable ratings in timely submission and independent learning indicate the development of self-regulatory behaviors among learners.

The findings also support the Technology Acceptance Model, which posits that learners are more likely to engage with technologies that are perceived as useful and beneficial. The favorable performance in task completion and digital tool utilization suggests that learners perceive digital platforms as effective educational resources.

Likewise, the findings are consistent with the principles of Constructivism, which emphasize social interaction and collaborative learning in knowledge construction. The comparatively lower ratings in online discussions and collaborative work indicate that opportunities for social learning and meaningful interaction within digital environments still need to be strengthened.

The study contributes to the existing body of knowledge by providing empirical evidence that Grade 6 learners in SDO Mabalacat City generally Meet the Standard (Composite Mean = 1.61, SD = 0.55) in performing academic tasks using digital platforms, particularly in individual task completion and self-regulated learning behaviors, while continuing to experience challenges in collaborative and discussion-based online activities.

Challenges Encountered in Digital Learning Environments

Table 3

Challenges Encountered in Digital Learning Environments

Challenges	Mean	Standard Deviation	Interpretation	Rank
Poor internet connection	4.23	0.78	Often	1
Lack of access to devices	3.65	0.93	Often	5
Difficulty using digital platforms	3.18	0.97	Sometimes	9
Distractions during online learning	4.01	0.81	Often	3
Difficulty understanding online lessons	3.40	0.95	Sometimes	7
Lack of motivation	3.47	0.92	Often	6
Limited interaction with teachers	3.25	0.96	Sometimes	8

Challenges	Mean	Standard Deviation	Interpretation	Rank
Technical problems during tasks	3.84	0.87	Often	4
Difficulty managing time	3.95	0.85	Often	2
Fatigue from prolonged screen use	3.12	1.01	Sometimes	10
Composite Mean	3.61	0.91	Often Encountered	

Mean Range	Interpretation
4.21–5.00	Always
3.41–4.20	Often
2.61–3.40	Sometimes
1.81–2.60	Rarely
1.00–1.80	Never

Table 3 presents the challenges encountered by Grade 6 learners in digital learning environments in SDO Mabalacat City. The findings

revealed a composite mean of 3.61 with a standard deviation of 0.91, interpreted as Often Encountered. This indicates that despite the learners' high level of digital engagement and satisfactory academic performance using digital platforms, they continue to experience substantial barriers that affect the quality and effectiveness of their learning experiences. The findings suggest that technological, motivational, and environmental factors continue to influence learners' participation and performance in digital learning settings.

Among the identified challenges, "Poor internet connection" obtained the highest mean score of 4.23 (SD = 0.78) and was interpreted as Often, ranking first. This was followed by "Difficulty managing time" with a mean score of 3.95 (SD = 0.85), ranking second, and "Distractions during online learning" with a mean score of 4.01 (SD = 0.81), ranking third. Likewise, "Technical problems during tasks" obtained a mean score of 3.84 (SD = 0.87) and ranked fourth, while "Lack of access to devices" obtained a mean score of 3.65 (SD = 0.93) and ranked fifth. Conversely, "Fatigue from prolonged screen use" obtained the lowest mean score of 3.12 (SD = 1.01) and was interpreted as Sometimes, ranking tenth, followed by "Difficulty using digital platforms" with a mean score of 3.18 (SD = 0.97) and "Limited interaction with teachers" with a mean score of 3.25 (SD = 0.96).

The overall interpretation of Often Encountered indicates that digital learning, while beneficial, is accompanied by persistent challenges that may

hinder learners' engagement and academic performance. The standard deviation of 0.91 indicates moderate variability in learners' experiences, suggesting that the severity of these challenges differs across individual learners depending on their technological access, learning environments, and personal circumstances.

The highest-ranked challenge, "Poor internet connection" ($M = 4.23$, $SD = 0.78$), indicates that unstable and inadequate internet connectivity remains the most significant barrier to effective digital learning.

This finding is not surprising because internet connectivity serves as the foundation of online learning environments. Digital platforms, instructional materials, assessments, and communication tools are heavily dependent on reliable internet access.

The findings help explain some of the results in Table 1, particularly why "I interact with teachers and classmates online" obtained the lowest mean score of 3.72 ($SD = 0.91$) among the digital engagement indicators.

Poor internet connectivity may limit opportunities for real-time interaction, reduce participation in synchronous learning activities, and create communication barriers between learners and teachers.

Similarly, unstable internet access may also affect learners' ability to participate in collaborative activities and online discussions.

The findings imply that improving internet connectivity is a critical prerequisite for maximizing the effectiveness of digital learning initiatives.

The second-ranked challenge, "Difficulty managing time" ($M = 3.95$, $SD = 0.85$), indicates that learners frequently struggle to organize their schedules and manage academic responsibilities in digital learning environments.

This finding may explain why "Shows consistency in performance" obtained a relatively lower mean score of 1.57 ($SD = 0.58$) in Table 2.

Digital learning environments often require greater levels of self-regulation, self-discipline, and independent learning compared to traditional classroom settings. Many learners may find it difficult to balance academic tasks, household responsibilities, and recreational activities while learning from home.

The findings also support the results of Table 1, wherein learners demonstrated only moderate ratings in "I stay focused during online activities" ($M = 3.88$, $SD = 0.85$) and "I pay attention during online lessons" ($M = 3.86$, $SD = 0.88$).

The findings imply that digital learning programs should include interventions that strengthen learners' self-management skills, study habits, and time-management strategies.

The third-ranked challenge, "Distractions during online learning" ($M = 4.01$, $SD = 0.81$), indicates that learners frequently encounter interruptions that negatively affect their concentration and engagement.

Digital environments expose learners to numerous distractions, including social media, online games, entertainment applications, and household interruptions.

This finding strongly supports the results of Table 1, wherein "I stay focused during online activities" and "I pay attention during online lessons" obtained comparatively lower ratings.

Similarly, distractions during online learning may contribute to the relatively lower performance in online discussions ($M = 1.51$, $SD = 0.60$) and collaborative online work ($M = 1.50$, $SD = 0.61$) observed in Table 2.

The findings imply that although learners are frequently engaged in digital learning activities, the quality of their engagement may be adversely affected by environmental and technological distractions.

The fourth-ranked challenge, "Technical problems during tasks" ($M = 3.84$, $SD = 0.87$), indicates that learners often encounter technological difficulties while completing digital learning activities.

Technical problems may include system errors, application malfunctions, file incompatibility issues, and difficulties accessing digital platforms.

This finding may explain why "Uses digital tools effectively" obtained a mean score of 1.58 ($SD = 0.57$) in Table 2 and why "I complete tasks using digital platforms" did not obtain perfect engagement ratings in Table 1.

Technical difficulties may increase learner frustration, interrupt instructional activities, and reduce learners' confidence in utilizing educational technologies.

The findings imply that digital learning programs should incorporate technical support mechanisms and digital literacy interventions to assist learners in navigating technological challenges effectively.

Similarly, "Lack of access to devices" ($M = 3.65$, $SD = 0.93$), interpreted as Often, indicates that limited access to computers, tablets, or mobile devices remains a major challenge among learners.

The relatively high standard deviation of 0.93 suggests disparities in learners' access to technological resources.

Limited device availability may reduce learners' opportunities to participate actively in online activities, access instructional materials, and engage in collaborative learning experiences.

This finding may partially explain the relatively lower ratings in online interaction ($M = 3.72$, $SD = 0.91$) and engagement in collaborative online work ($M = 1.50$, $SD = 0.61$).

The findings imply that equitable access to digital devices remains essential for ensuring inclusive and effective digital learning experiences.

Likewise, "Lack of motivation" ($M = 3.47$, $SD = 0.92$) and "Difficulty understanding online lessons" ($M = 3.40$, $SD = 0.95$) were interpreted as Often and Sometimes, respectively.

These findings indicate that some learners continue to experience challenges related to maintaining interest and comprehending instructional content in digital environments.

The findings may explain why "I enjoy learning through digital platforms" obtained a relatively lower mean score of 3.84 ($SD = 0.87$) in Table 1.

Similarly, difficulties in understanding lessons may influence learners' performance in demonstrating understanding of lessons ($M = 1.62$, $SD = 0.55$) and producing quality outputs ($M = 1.60$, $SD = 0.55$) in Table 2.

The findings imply that instructional strategies in digital learning environments should emphasize learner engagement, interactive activities, and differentiated instruction to address diverse learning needs.

Conversely, "Difficulty using digital platforms" ($M = 3.18$, $SD = 0.97$), "Limited interaction with teachers" ($M = 3.25$, $SD = 0.96$), and "Fatigue from prolonged screen use" ($M = 3.12$, $SD = 1.01$) obtained comparatively lower ratings and were interpreted as Sometimes.

These findings are encouraging because they suggest that learners have generally developed adequate technological competencies and are gradually adapting to digital learning environments.

The relatively lower rating for difficulty using digital platforms is also supported by the findings of Table 1, wherein "I use digital platforms for learning regularly" obtained a high mean score of 4.10 (SD = 0.79).

Likewise, Table 2 showed that learners generally Meet the Standard (Composite Mean = 1.61, SD = 0.55) in performing academic tasks using digital platforms.

These findings indicate that although learners encounter technological and environmental challenges, they have nevertheless acquired sufficient digital competencies to function effectively within technology-mediated learning environments.

The overall pattern of findings demonstrates that the most significant challenges encountered by learners are associated with internet connectivity, time management, distractions, technical difficulties, and access to devices, whereas difficulties related to platform utilization and screen fatigue are comparatively less problematic.

This pattern suggests that barriers to digital learning are primarily infrastructural and environmental rather than technological competency-related.

From a theoretical perspective, the findings strongly support the Digital Divide, which posits that inequalities in access to technology and internet connectivity significantly influence educational opportunities and learning outcomes. The high ratings in internet connectivity and device-related

challenges provide empirical evidence of persistent digital inequalities affecting learners' educational experiences.

The findings also support the Self-Regulated Learning, which emphasizes the importance of self-management, motivation, and learner autonomy in academic success. The high ratings in time-management difficulties and distractions indicate the need to strengthen learners' self-regulatory competencies.

Likewise, the findings are consistent with the principles of Constructivism, which emphasize meaningful engagement and social interaction during learning experiences. The challenges related to limited interaction and motivation indicate that digital learning environments still need to strengthen opportunities for active participation and collaborative learning.

The study contributes to the existing body of knowledge by providing empirical evidence that although Grade 6 learners demonstrate High digital engagement ($M = 3.97$, $SD = 0.82$) and generally Meet the Standard in academic performance ($M = 1.61$, $SD = 0.55$), they continue to experience significant challenges associated with technological infrastructure, environmental distractions, and self-regulatory demands.

Practically, the findings have important implications for teachers, school administrators, and policymakers. Immediate interventions should prioritize addressing poor internet connection ($M = 4.23$, $SD = 0.78$),

difficulty managing time ($M = 3.95$, $SD = 0.85$), distractions during online learning ($M = 4.01$, $SD = 0.81$), and technical problems during tasks ($M = 3.84$, $SD = 0.87$).

Efforts should focus on improving digital infrastructure, providing equitable access to devices, developing learners' time-management and self-regulation skills, and creating engaging and interactive digital learning environments that minimize distractions and promote meaningful participation.

Relationship Between Digital Learning and Academic Performance

Table 4

Relationship Between Digital Learning and Academic Performance

Variables	Mean	Standard Deviation	Pearson r	p-value	Decision	Interpretation
Digital Learning Engagement	3.97	0.82				
Academic Performance	1.61	0.55				

Variables	Mean	Standard Deviation	Pearson r	p-value	Decision	Interpretation
Relationship in Digital Tasks						
Relationship Between Variables			0.768	0.000	Reject H_0	Significant Strong Positive Relationship

Table 4 presents the relationship between digital learning engagement and academic performance in digital tasks among Grade 6 learners in SDO Mabalacat City. The findings revealed that Digital Learning Engagement obtained a mean score of 3.97 with a standard deviation of 0.82, interpreted as High (Often Engaged), while Academic Performance in Digital Tasks obtained a mean score of 1.61 with a standard deviation of 0.55, interpreted as Meets Standard. More importantly, the Pearson Product-Moment Correlation analysis yielded an r-value of 0.768 and a p-value of 0.000, resulting in the rejection of the null hypothesis and indicating a Significant Strong

Positive Relationship between digital learning engagement and academic performance.

The r-value of 0.768 signifies a strong positive correlation between learners' engagement in digital learning and their academic performance in digital tasks. This means that as learners become more actively engaged in digital learning environments, their academic performance likewise improves. Conversely, lower levels of engagement in online learning activities may result in reduced academic performance. The strength of the relationship suggests that digital engagement is an important factor influencing learners' achievement and success in technology-mediated learning environments.

The p-value of 0.000, which is lower than the 0.05 level of significance, confirms that the observed relationship is statistically significant and did not occur by chance. Therefore, the null hypothesis is rejected, indicating that digital learning engagement significantly influences academic performance in digital tasks among Grade 6 learners. This finding implies that meaningful participation in digital learning environments contributes positively to learners' academic outcomes and performance.

The significant relationship may be explained by the fact that digital learning environments provide learners with access to diverse educational resources, interactive activities, multimedia instructional materials, and opportunities for independent learning. Learners who are actively engaged

in digital platforms are more likely to participate in learning activities, complete assignments, access supplementary materials, and develop competencies necessary for academic success.

The findings are strongly supported by the results of Table 1, which revealed a High level of digital learning engagement (Composite Mean = 3.97, SD = 0.82). Specifically, "I submit assignments on time through digital tools" obtained the highest mean score of 4.18 (SD = 0.73), followed by "I complete tasks using digital platforms" with 4.15 (SD = 0.76) and "I use digital platforms for learning regularly" with 4.10 (SD = 0.79).

These indicators demonstrate that learners are highly engaged in digital learning activities and regularly utilize technology for academic purposes. Such behaviors directly contribute to improved academic performance because consistent participation and responsible use of digital tools provide learners with increased opportunities to learn, practice, and accomplish academic tasks successfully.

The findings imply that sustained digital engagement promotes positive learning behaviors that contribute significantly to academic achievement.

Similarly, the findings of Table 2 support the significant relationship observed in Table 4. Learners generally Met the Standard (Composite Mean = 1.61, SD = 0.55) in performing academic tasks using digital platforms.

Among the performance indicators, "Submits tasks on time" obtained the highest mean score of 1.73 (SD = 0.46), followed by "Completes online assignments accurately" with 1.69 (SD = 0.49) and "Follows instructions in digital tasks" with 1.65 (SD = 0.52).

The consistency between the findings of Tables 1 and 2 provides strong empirical support for the observed correlation.

For example, learners who frequently submit assignments through digital tools and regularly utilize digital platforms also demonstrate favorable performance in timely submission and accurate completion of online tasks.

This consistency suggests that high levels of digital engagement directly translate into improved academic performance.

The findings imply that learners who actively participate in digital learning environments are more likely to develop self-regulatory skills, organizational competencies, and digital literacy, all of which contribute positively to academic success.

Likewise, Table 1 revealed that learners generally feel motivated to learn using technology (M = 4.05, SD = 0.78) and explore additional learning resources online (M = 3.97, SD = 0.81).

These findings indicate that digital engagement encourages learner autonomy and self-directed learning behaviors.

Similarly, Table 2 showed that learners demonstrate independent learning ($M = 1.64$, $SD = 0.53$) and understanding of lessons ($M = 1.62$, $SD = 0.55$).

The consistency between these findings suggests that motivation and active utilization of digital resources facilitate deeper understanding and improved academic performance.

The findings imply that digital learning environments can foster learner independence and encourage meaningful engagement with educational content.

However, despite the significant and positive relationship, several challenges identified in Table 3 may influence both digital engagement and academic performance. Learners reported that challenges in digital learning environments were Often Encountered (Composite Mean = 3.61, $SD = 0.91$).

The most significant challenges included poor internet connection ($M = 4.23$, $SD = 0.78$), distractions during online learning ($M = 4.01$, $SD = 0.81$), and difficulty managing time ($M = 3.95$, $SD = 0.85$).

These challenges may partially explain why certain indicators in Tables 1 and 2 obtained comparatively lower ratings.

For example, "I interact with teachers and classmates online" obtained the lowest mean score of 3.72 ($SD = 0.91$) in Table 1, while "Engages in

collaborative online work" obtained the lowest mean score of 1.50 (SD = 0.61) in Table 2.

Poor internet connectivity and distractions may limit opportunities for meaningful interaction and collaborative learning experiences.

Similarly, difficulties in managing time may affect learners' ability to maintain consistency in performance and sustain attention during online lessons.

The findings imply that although digital learning engagement significantly contributes to academic performance, technological and environmental challenges may weaken its positive effects if left unaddressed.

The correlation coefficient of 0.768 indicates that digital learning engagement accounts for a substantial proportion of the variation in academic performance among Grade 6 learners.

Although other factors such as family support, teacher effectiveness, learner motivation, and socioeconomic conditions may also influence academic achievement, the findings indicate that digital engagement remains one of the most influential factors affecting learners' academic success in technology-mediated learning environments.

The findings reveal a clear pattern that learners who are highly engaged in digital learning environments tend to perform better academically than those who exhibit lower levels of engagement.

This relationship underscores the importance of fostering meaningful and sustained participation in digital learning activities.

From a theoretical perspective, the findings strongly support the Technology Acceptance Model, which posits that learners who perceive technology as useful and easy to use are more likely to utilize it effectively and achieve positive outcomes. The strong positive relationship indicates that active utilization of digital platforms contributes significantly to improved academic performance.

The findings also support the Self-Regulated Learning, which emphasizes learner autonomy, motivation, and self-management as determinants of academic success. The favorable performance in independent learning and timely submission of tasks suggests that digital engagement promotes self-regulatory behaviors that contribute positively to achievement.

Likewise, the findings are consistent with the principles of Constructivism, which emphasizes active participation and meaningful interactions in the learning process. The strong relationship observed in this study indicates that digital engagement facilitates learner participation and knowledge construction, thereby improving academic performance.

The study contributes to the existing body of knowledge by providing empirical evidence that digital learning engagement and academic

performance are strongly and significantly related among Grade 6 learners in SDO Mabalacat City.

Practically, the findings have important implications for teachers, school administrators, and policymakers. The Significant Strong Positive Relationship ($r = 0.768$, $p = 0.000$) indicates that investments in digital learning initiatives can substantially improve learners' academic performance and engagement.

Proposed Digital Learning Optimization Program for Improving Learner Engagement

Table 5
Proposed Digital Learning Optimization Program
for Improving Learner Engagement

Key Result Area	Objectives	Strategies/Activities	Responsible Persons	Timeline	Success Indicators
Digital Access and Connectivity	Improve learners' access to digital devices and stable	Provide device-sharing schemes, establish school-based digital hubs,	School Heads, LGU, ICT Coordinators	Whole School 1 Year	At least 90% of learners have regular access to

Key Result Area	Objectives	Strategies/Activities	Responsible Persons	Timeline	Success Indicators
	internet connectivity	and strengthen internet access partnerships			digital learning resources
Learner Digital Engagement	Increase active participation in digital learning activities	Conduct interactive online sessions, gamified activities, and collaborative digital projects	Teachers	Weekly	At least 85% of learners actively participate in digital activities
Digital Literacy Skills	Strengthen learners' competencies in using	Conduct orientation sessions on learning management systems and	Teachers, ICT Coordinators	Quarterly	At least 85% of learners demonstrate proficiency

Key Result Area	Objectives	Strategies/Activities	Responsible Persons	Timeline	Success Indicators
	digital tools effectively	digital applications			ency in digital tool usage
Time Management and Self-Regulation	Improve learners' ability to manage digital learning tasks independently	Implement digital planners, goal-setting activities, and self-monitoring checklists	Teachers , Parents	Monthly	At least 80% of learners submit tasks on time consistently
Teacher Support and Communication	Enhance interaction and feedback mechanisms	Utilize discussion forums, virtual consultations, and prompts	Teachers	Weekly	At least 90% learner satisfaction with

Key Result Area	Objectives	Strategies/Activities	Responsible Persons	Timeline	Success Indicators
	between teachers and learners	feedback systems			teacher support
Monitoring and Evaluation	Assess the effectiveness of the digital learning optimization program	Conduct quarterly monitoring, learner surveys, and performance assessments	School Heads, Monitoring Team	Quarterly	At least 15% increase in learner engagement and academic performance indicators

Table 5 presents the proposed Digital Learning Optimization Program for Improving Learner Engagement in SDO Mabalacat City. The enhancement program was formulated based on the empirical findings of the study, particularly the High level of digital learning engagement (Composite Mean = 3.97, SD = 0.82), the learners' Meets Standard performance in digital tasks (Composite Mean = 1.61, SD = 0.55), the challenges that were Often Encountered (Composite Mean = 3.61, SD = 0.91), and the Significant Strong Positive Relationship between digital learning engagement and academic performance ($r = 0.768$, $p = 0.000$). The proposed program therefore aims to sustain the strengths identified in digital learning practices while addressing the technological, instructional, and self-regulatory challenges that affect learner engagement and performance.

The first key result area, Digital Access and Connectivity, aims to improve learners' access to digital devices and stable internet connectivity through the provision of device-sharing schemes, establishment of school-based digital hubs, and strengthening of internet access partnerships. The program targets at least 90% of learners having regular access to digital learning resources.

This intervention directly addresses the findings of Table 3, wherein "Poor internet connection" obtained the highest mean score of 4.23 (SD

= 0.78) and "Lack of access to devices" obtained a mean score of 3.65 (SD = 0.93).

These findings indicate that inadequate technological infrastructure remains one of the most significant barriers to effective digital learning.

The proposed initiatives are therefore highly appropriate because improving internet access and device availability can increase learners' opportunities to participate actively in digital learning activities and utilize online educational resources.

The findings imply that enhancing digital infrastructure is essential for promoting equitable access to quality digital learning experiences.

The second key result area, Learner Digital Engagement, seeks to increase active participation in digital learning activities through interactive online sessions, gamified activities, and collaborative digital projects, to be conducted weekly by teachers. The intervention targets at least 85% of learners actively participating in digital activities.

This component is strongly supported by the findings of Table 1, wherein learners generally demonstrated a High level of digital engagement ($M = 3.97$, $SD = 0.82$).

Specifically, "I submit assignments on time through digital tools" ($M = 4.18$, $SD = 0.73$), "I complete tasks using digital platforms" ($M = 4.15$, $SD = 0.76$), and "I use digital platforms for learning regularly" ($M = 4.10$, $SD = 0.79$) obtained the highest ratings.

However, Table 1 also revealed comparatively lower ratings in "I interact with teachers and classmates online" ($M = 3.72$, $SD = 0.91$) and "I enjoy learning through digital platforms" ($M = 3.84$, $SD = 0.87$).

These findings suggest that although learners actively use digital technologies, opportunities for meaningful interaction and enjoyable learning experiences still need enhancement.

The proposed gamified activities and collaborative projects are therefore highly responsive because they can increase learner motivation, encourage participation, and strengthen social interaction within digital learning environments.

The findings imply that interactive and engaging learning experiences are essential for sustaining learners' active participation in digital education.

The third key result area, Digital Literacy Skills, seeks to strengthen learners' competencies in using digital tools effectively through orientation sessions on learning management systems and digital applications, to be conducted quarterly by teachers and ICT coordinators. The intervention targets at least 85% of learners demonstrating proficiency in digital tool usage.

This intervention is strongly supported by the findings of Table 2, wherein "Uses digital tools effectively" obtained a mean score of 1.58 ($SD = 0.57$) and was interpreted as Meets Standard, but ranked seventh among the performance indicators.

Likewise, Table 3 revealed that "Difficulty using digital platforms" obtained a mean score of 3.18 (SD = 0.97) and was interpreted as Sometimes.

These findings indicate that although learners generally perform satisfactorily in digital environments, some still experience difficulties in effectively utilizing educational technologies.

The proposed orientation programs are therefore highly appropriate because they provide learners with the knowledge and competencies necessary to maximize the educational benefits of digital platforms.

The findings imply that improving digital literacy can strengthen learners' confidence, independence, and effectiveness in utilizing technology for academic purposes.

The fourth key result area, Time Management and Self-Regulation, aims to improve learners' ability to manage digital learning tasks independently through digital planners, goal-setting activities, and self-monitoring checklists, to be implemented monthly by teachers and parents. The intervention targets at least 80% of learners consistently submitting tasks on time.

This component directly addresses the findings of Table 3, wherein "Difficulty managing time" obtained a mean score of 3.95 (SD = 0.85) and ranked second among the identified challenges.

The intervention is likewise supported by Table 2, wherein "Shows consistency in performance" obtained a relatively lower mean score of 1.57 (SD = 0.58).

Similarly, Table 1 revealed comparatively lower ratings in "I stay focused during online activities" (M = 3.88, SD = 0.85) and "I pay attention during online lessons" (M = 3.86, SD = 0.88).

These findings indicate that many learners continue to experience difficulties in managing their learning behaviors, maintaining concentration, and sustaining consistent performance.

The proposed self-regulation activities are therefore highly responsive because they promote learner autonomy, responsibility, and effective study habits.

The findings imply that strengthening self-regulatory competencies can significantly improve learner engagement and academic performance in digital environments.

The fifth key result area, Teacher Support and Communication, seeks to enhance interaction and feedback mechanisms between teachers and learners through discussion forums, virtual consultations, and prompt feedback systems, to be conducted weekly by teachers. The intervention targets at least 90% learner satisfaction with teacher support.

This intervention directly addresses the findings of Table 1, wherein "I interact with teachers and classmates online" obtained the lowest mean score of 3.72 (SD = 0.91).

Similarly, Table 2 revealed that "Participates in online discussions" (M = 1.51, SD = 0.60) and "Engages in collaborative online work" (M = 1.50, SD = 0.61) obtained the lowest ratings among the performance indicators.

Likewise, Table 3 showed that "Limited interaction with teachers" obtained a mean score of 3.25 (SD = 0.96) and was interpreted as Sometimes.

These findings indicate that communication and collaboration remain relatively weak dimensions of digital learning.

The proposed discussion forums and virtual consultations are therefore highly appropriate because they provide opportunities for meaningful interaction, timely feedback, and stronger teacher-learner relationships.

The findings imply that enhancing communication and feedback mechanisms can improve learner satisfaction, engagement, and collaborative learning experiences.

The sixth key result area, Monitoring and Evaluation, seeks to assess the effectiveness of the digital learning optimization program through quarterly monitoring, learner surveys, and performance assessments. The intervention targets at least a 15% increase in learner engagement and academic performance indicators.

This component is strongly justified by the findings of Table 4, which demonstrated a Significant Strong Positive Relationship between digital learning engagement and academic performance ($r = 0.768$, $p = 0.000$).

The strong correlation indicates that improvements in digital engagement are associated with corresponding improvements in academic performance.

Consequently, systematic monitoring and evaluation are necessary to determine whether intervention strategies effectively increase learner participation and improve academic outcomes.

The findings imply that continuous assessment and evidence-based decision-making are essential for ensuring the sustainability and effectiveness of digital learning initiatives.

Collectively, the proposed Digital Learning Optimization Program demonstrates strong alignment with the empirical findings of the study. Each key result area directly addresses the strengths, weaknesses, and challenges identified in learners' digital engagement and academic performance.

The interventions particularly address challenges related to poor internet connection ($M = 4.23$, $SD = 0.78$), difficulty managing time ($M = 3.95$, $SD = 0.85$), distractions during online learning ($M = 4.01$, $SD = 0.81$), and lack of access to devices ($M = 3.65$, $SD = 0.93$) while simultaneously strengthening areas of performance that obtained relatively lower ratings,

particularly collaborative online work ($M = 1.50$, $SD = 0.61$), online discussions ($M = 1.51$, $SD = 0.60$), and effective use of digital tools ($M = 1.58$, $SD = 0.57$).

The proposed program is likewise strongly supported by the finding that digital learning engagement significantly influences academic performance, as evidenced by the Significant Strong Positive Relationship ($r = 0.768$, $p = 0.000$).

From a theoretical perspective, the proposed program strongly supports the Technology Acceptance Model, which emphasizes that successful technology adoption depends on users' competencies, access to resources, and perceptions of usefulness.

Conclusion And Recommendations

Conclusions

Grade 6 learners have generally adapted to digital learning environments and regularly utilize technology for academic purposes; however, meaningful online interaction, sustained attention, and enjoyment of digital learning experiences still require improvement.

Learners demonstrate satisfactory academic performance in digital learning tasks and possess adequate competencies in completing individual

and task-oriented activities, although collaborative learning and discussion-based online experiences remain developmental areas.

The primary barriers affecting digital learning are infrastructural, environmental, and self-regulatory in nature, particularly poor internet connectivity, technological limitations, distractions, and difficulties in managing time and maintaining concentration.

Digital learning engagement is a significant determinant of academic performance and substantially contributes to improved task completion, learner autonomy, and overall academic success in technology-mediated learning environments.

A comprehensive and evidence-based Digital Learning Optimization Program is necessary to address technological and self-regulatory challenges, strengthen digital competencies, and sustain meaningful learner engagement and academic achievement.

Recommendations

School administrators and educational leaders should strengthen digital learning initiatives by improving internet connectivity, increasing access to digital devices, and creating engaging online environments that promote meaningful interaction and sustained learner participation.

Teachers should implement collaborative online activities, discussion-based learning experiences, and interactive instructional strategies that enhance communication, participation, and consistency in learners' academic performance.

The Schools Division Office should prioritize interventions that address technological infrastructure, provide technical support, and develop learners' time-management and self-regulation skills to minimize distractions and improve digital learning experiences.

Educational policymakers should continue supporting digital learning initiatives because meaningful engagement in technology-mediated instruction significantly contributes to improved academic performance and learner outcomes.

The proposed Digital Learning Optimization Program should be adopted and implemented to strengthen digital access, improve learner engagement, develop digital literacy and self-regulation competencies, enhance teacher support and communication, and establish continuous monitoring and evaluation systems.

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