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GADGET UTILIZATION AND ACADEMIC PERFORMANCE IN MATHEMATICS OF GRADE 3 LEARNERS: FOUNDATIONS FOR AN ENHANCED TEACHING AND LEARNING PROGRAM

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ABSTRACT

This study examined the gadget utilization and academic performance in mathematics of 450 Grade 3 learners in the Masinloc District, Schools Division of Zambales, during School Year 2024-2025. Employing quantitative-descriptive, causal-comparative, and correlational research designs, data were gathered through a validated, researcher-designed questionnaire. The study focused on gadget utilization, including digital literacy, content accessibility, learning opportunities, and parental supervision, as well as academic performance in mathematics, such as written works, performance tasks, and quarterly assessments. Findings revealed that the learners, mostly 8-year-old females from families with a monthly income of P19,999 and below, spent 2.0 to 2.9 hours using gadgets at home and less than 1.0 hour at school. They exhibited moderate gadget utilization, highlighting the need for improved digital literacy and content access. Academic performance in mathematics was generally satisfactory across various assessments. Monthly family income significantly influenced gadget utilization, while age, sex, and educational attainment did not. A weak but positive correlation between gadget utilization and academic performance in mathematics was observed, suggesting that increased gadget use may modestly improve learning outcomes. An enhanced teaching and learning program was developed to integrate gadgets into mathematics instruction. It is recommended that teachers strategically use gadgets in the classroom and actively monitor the implementation of the enhanced program to optimize their impact on learners' academic performance.

Keywords: Gadget Utilization, Academic Performance, Mathematics, Grade 3 Learners, Teaching and Learning Program.

1. INTRODUCTION

The increasing integration of gadgets into daily life has significantly influenced how young learners engage with academic content, particularly in Mathematics. Grade 3 learners, at a critical stage of developing foundational mathematical skills, are increasingly exposed to various digital tools that could impact their academic performance. Understanding the relationship between gadget utilization and learners' success in Mathematics is crucial for teachers to optimize teaching strategies. This study aims to provide insights that will inform the development of an enhanced teaching and learning program tailored to the needs of these young learners.

The reviewed literature underscores the complex relationship between gadget utilization and the academic performance of Grade 3 learners in Mathematics. Research by Madarcos et al. (2024) and Maquipoten and Perez (2024) suggests that while gadgets do not directly correlate with enhanced academic performance, they are perceived as valuable tools that contribute to a positive learning experience by providing flexible access to educational resources. Conversely, Ndura and

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Sitati (2024) highlight the challenges of gadget use in educational settings, such as inadequate access to devices and poor internet connectivity, which can hinder effective learning. Ganiston Jr. et al. (2024) also found no significant relationship between gadget use and specific academic skills like reading comprehension, suggesting that while gadgets have potential benefits, their effectiveness relies heavily on overcoming contextual barriers and ensuring proper integration within educational practices.

Further, the importance of digital literacy is emphasized by multiple studies as a critical factor for leveraging the benefits of gadget utilization in education. Alakrash and Razak (2021) and Munir et al. (2024) point out that while digital literacy enhances learners' ability to utilize digital tools, its impact on academic performance may be limited without a well-structured approach to integrating these tools into the curriculum. Amalia and Suharto (2024) demonstrate the potential of gadgets in enhancing engagement and comprehension when used with appropriate digital learning tools, and Vugec and Stjepic (2022) argue for adaptive educational methods to accommodate digital natives. Collectively, these studies underscore that while gadgets and digital tools can significantly enhance learning experiences, their impact on academic outcomes in Mathematics depends on strategic integration, addressing infrastructural challenges, and fostering digital literacy among learners.

Despite the increasing integration of gadgets in education and the substantial body of research examining their impact on academic performance, there was a notable gap in understanding how gadget utilization specifically affected the mathematics performance of Grade 3 learners. While existing studies provided insights into the general influence of technology on learning outcomes, most focused on older learners or different subjects, and often yield mixed results on the effectiveness of gadgets in enhancing academic performance. Moreover, the unique developmental needs and learning styles of younger elementary learners, such as those in Grade 3, required more targeted investigation to determine how digital tools could best support their foundational skills in mathematics. This gap underscored the need for the current study, which aimed to explore the specific relationship between gadget use and academic performance in mathematics among Grade 3 learners, and to develop an enhanced teaching and learning program that was tailored to their unique educational requirements.

2. STATEMENT OF THE PROBLEM

This study determined the gadget utilization and academic performance in mathematics of Grade 3 learners in Masinloc District, Schools Division of Zambales during the School Year 2024-2025.

Specifically, it aimed to answer these questions:

1. How may the profile of the respondents be described in terms of:
    - 1.1. age;
    - 1.2. sex;
    - 1.3. monthly family income;
    - 1.4. highest educational attainment of learning facilitators;
    - 1.5. daily number of hours spent using gadgets
        - 1.5.1. at home and
        - 1.5.2. at school; and
    - 1.6. daily number of hours spent studying mathematics lessons at home?
2. How may the gadget utilization of the respondents be described in terms of:
    - 2.1. digital literacy;

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2.2. content accessibility;
2.3. learning opportunities; and
2.4. parental supervision?

3. How may the academic performance in mathematics of the respondents be described in terms of:

3.1. written works;
3.2. performance tasks; and
3.3. quarterly assessment?

4. Is there a significant difference between the gadget utilization of the respondents and their profile when grouped accordingly?

5. Is there a significant correlation between the gadget utilization of the respondents and their academic performance in mathematics?

6. What enhancement program can be proposed for teaching and learning to incorporate the utilization of gadgets towards the improvement of the academic performance in mathematics of Grade 3 learners?

3. METHODS AND MATERIALS

This study determined the gadget utilization and academic performance in mathematics of Grade 3 learners in Masinloc District, Schools Division of Zambales during the School Year 2024-2025. A quantitative-descriptive research design was employed, with data collected, classified, summarized, and analyzed using percentages and means. The study involved 450 Grade 3 learners came from three public elementary schools, utilizing total population sampling to involve all Grade 3 learners. A researcher-designed questionnaire served as the primary data collection tool, targeting dimensions of the gadget utilization and academic performance in mathematics. The instrument demonstrated excellent reliability, as confirmed by Cronbach's Alpha values for the gadget utilization ($\alpha = 0.96$) and the academic performance in mathematics ($\alpha = 0.92$). Statistical analyses, including the Kruskal-Wallis Test, and Spearman Rho Correlation, were used to test the study's hypotheses.

4. RESULTS AND DISCUSSIONS

4.1. Profile of Learners

4.1.1. Age

Table 1

Profile of the Learners in terms of Age

Age	Frequency	Percentage
10 years old	68	15.11
9 years old	128	28.44
8 years old	254	56.44

As shown in Table 1, the profile of the learners in terms of age. As reflected in Table No. 11, 15.11% of the respondents were 10 years old, 28.444% were 9 years old, and 56.44% were 8 years old.

This implies that the majority of the respondents are younger learners, with 8-year-olds constituting more than half of the population. This could suggest that the data collected reflects

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the experiences and perspectives of predominantly younger learners, which may influence the overall trends in learning habits, developmental milestones, and academic performance. Additionally, the distribution indicates a progressive decrease in the number of older respondents, possibly indicating typical enrollment patterns or retention at these grade levels.

The present study found that the majority of the learners were 8 years old. This finding aligns with the study of Rochovska (2024), which also reported that children around the age of 8 exhibit a developing sense of independence and learning motivation, particularly in subjects like mathematics. Both studies highlight this age group's increasing engagement with academic tasks and reliance on external support in their learning journey.

4.1.2. Sex

Table 2

Profile of the Learners in terms of Sex

Sex	Frequency	Percentage
Male	168	37.33
Female	282	62.67

As shown in Table 2, the profile of the learners in terms of sex. As reflected in Table No. 12, 37.33% of the respondents were males and 62.67% were females.

This implies that the majority of the respondents are females, making up a significant portion of the sample. This gender imbalance may suggest that female learners are either more prevalent in the population being studied or more likely to participate in the study. This disparity could also have implications for interpreting the results, as the perspectives and behaviors observed may be more representative of female learners, potentially influencing trends in academic performance, engagement, or learning experiences.

The current study revealed that most of the learners were female. Similarly, Calafell et al. (2024) found that female learners tend to show higher academic engagement and performance in elementary grades compared to their male counterparts, particularly in language and mathematics subjects. This trend supports the observation in the present study, emphasizing the role of gender in shaping early academic experiences.

4.1.3. Monthly Family Income

Table 3

Profile of the Learners in terms of Monthly Family Income

Monthly Family Income	Frequency	Percentage
P120,000 and above	57	12.67
P100,000 to P119,999	40	8.89
P80,000 to P99,999	43	9.56
P60,000 to P79,999	58	12.89
P40,000 to P59,999	69	15.33
P20,000 to P39,999	77	17.11
P19,999 and below	106	23.56

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As shown in Table 3, the profile of the learners in terms of monthly family income. As reflected in Table No. 13, 12.67% in the P120,000 and above bracket, 8.89% in the P100,000 to P119,999 bracket, 9.56% in the P80,000 to P99,999 bracket, 12.89% in the P60,000 to P79,999 bracket, 15.33% in the P40,000 to P59,999 bracket, 17.11% in the P20,000 to P39,999 bracket, and 23.56% in the P19,999 and below bracket.

This implies that the majority of the respondents come from lower-income families, with 23.56% falling within the P19,999 and below income bracket. A significant portion of respondents also belong to income brackets below P40,000. This suggests that many of the learners may face economic challenges that could affect their access to educational resources, opportunities for extracurricular learning, and overall academic performance. The income distribution indicates potential disparities in family financial capacity, which could be a contributing factor to differences in learner outcomes or educational support at home.

In this study, most learners came from families with a monthly income of P19,999 or less. This corresponds with the findings of Zickafoose et al. (2024), who highlighted that lower-income families often face challenges in providing educational resources, which may affect learners' academic performance, particularly in subjects like mathematics. Both studies suggest that family income plays a significant role in educational support and learning outcomes.

4.1.4. Highest Educational Attainment of Learning Facilitator

Table 4

Profile of the Respondents in terms of the Highest Educational Attainment of Learning Facilitator

Length of Service	Frequency	Percentage
EdD/PhD Graduate	11	2.44
MA Graduate	73	16.22
College Graduate	213	47.33
High School Graduate	108	24.00
Elementary Graduate	45	10.00

As shown in Table 4, the profile of the learners in terms of the highest educational attainment of learning facilitator. As reflected in Table No. 14, 2.44% of the learning facilitators were EdD/PhD graduates, 16.22% were MA graduates, 47.33% were college graduates, 24% were high school graduates, and 10% were elementary graduates.

This implies that the majority of the learning facilitators have attained at least a college degree, with 47.33% being college graduates. This suggests that a significant portion of the facilitators are well-educated, which could positively influence the quality of support they provide to learners. However, the presence of 24% high school graduates and 10% elementary graduates among the facilitators indicates that some learners may be receiving assistance from individuals with lower educational backgrounds, which could affect the level of academic guidance available to them. The diversity in educational attainment may result in varying degrees of effectiveness in the facilitation of learning.

The present study found that most learners had a college graduate as their learning facilitator. This is consistent with the findings of Odeh and Lach (2024), which noted that children whose primary caregivers or facilitators possess higher educational attainment tend to receive

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more structured academic support at home, positively influencing their learning in subjects such as mathematics. Both studies underscore the impact of the educational background of facilitators on learners' academic progress.

4.1.5. Daily Number of Hours Spent Using Gadgets at Home

Table 5

Profile of the Learners in terms of the Daily Number of Hours Spent Using Gadgets at Home

Number of Hours Spent Studying at Home	Frequency	Percentage
4.0 hours and above	52	11.56
3.0 to 3.9 hours	100	22.22
2.0 to 2.9 hours	128	28.44
1.0 to 1.9 hours	94	20.89
less than 1.0 hour	76	16.89

As shown in Table 5, the profile of the respondents in terms of the daily number of hours spent using gadgets at home. As reflected in Table No. 15, 11.56% in the 4.0 hours and above hours bracket, 22.22% in the 3.0 to 3.9 hours bracket, 28.44% in the 2.0 to 2.9 hours bracket, 20.89% in the 1.0 to 1.9 hours bracket, and 16.89% in the less than 1.0 hour bracket.

This implies that a considerable portion of the respondents spend 2 to 3 hours daily using gadgets at home, with 28.44% falling in the 2.0 to 2.9 hours bracket. This suggests that the majority of learners have moderate to high exposure to gadgets, which could impact their study habits, social interactions, and possibly their academic performance. The fact that 11.56% of the respondents spend 4 hours or more on gadgets indicates that some learners may be heavily engaged in screen time, potentially leading to reduced focus on other activities such as studying or physical play. Conversely, the lower percentage of learners spending less than 1 hour on gadgets suggests that fewer respondents have limited screen exposure, which could reflect different household rules or access to technology.

In the current study, most learners spent 2.0 to 2.9 hours using gadgets at home. This finding is in line with the research by Cahyati et al. (2024), which indicated that moderate gadget use at home can be associated with balanced cognitive and recreational activities, though excessive use may lead to distractions from academic responsibilities. Both studies suggest that time spent on gadgets should be monitored to optimize learning outcomes.

4.1.6. Daily Number of Hours Spent Using Gadgets at School

Table 6

Profile of the Learners in terms of the Daily Number of Hours Spent Using Gadgets at School

Number of Hours Spent Studying at Home	Frequency	Percentage
4.0 hours and above	34	7.56
3.0 to 3.9 hours	70	15.56
2.0 to 2.9 hours	85	18.89
1.0 to 1.9 hours	97	21.56

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less than 1.0 hour	164	36.44

As shown in Table 6, the profile of the learners in terms of the daily number of hours spent using gadgets at school. As reflected in Table No. 16, 7.56% in the 4.0 hours and above hours bracket, 15.56% in the 3.0 to 3.9 hours bracket, 18.89% in the 2.0 to 2.9 hours bracket, 21.56% in the 1.0 to 1.9 hours bracket, and 36.44% in the less than 1.0 hour bracket.

This implies that the majority of respondents, 36.44%, spend less than 1 hour daily using gadgets at school, indicating that gadget use is relatively limited in the school setting. This suggests that learners may not be highly dependent on technology for their classroom activities, possibly due to structured learning environments or limited access to gadgets during school hours. The smaller percentage of learners spending more than 3 hours using gadgets at school (7.56% in the 4 hours and above bracket) highlights that extensive gadget use in school is uncommon, which could imply that technology integration is moderate and likely controlled. This distribution may reflect school policies or practices that prioritize traditional instructional methods over technology-driven learning.

The study found that learners spent less than 1.0 hour using gadgets at school. This aligns with the results of Abao et al. (2024), who observed that minimal use of gadgets during school hours enhances focus and academic engagement, particularly in subjects requiring high levels of concentration, such as mathematics. Both studies emphasize the importance of managing gadget use in educational settings.

4.1.7. Daily Number of Hours Spent Studying Mathematics Lessons at Home

Table 7

Profile of the Learners in terms of the Daily Number of Hours Spent Studying Mathematics Lessons at Home

Number of Hours Spent Studying at Home	Frequency	Percentage
4.0 hours and above	47	10.44
3.0 to 3.9 hours	75	16.67
2.0 to 2.9 hours	91	20.22
1.0 to 1.9 hours	105	23.33
less than 1.0 hour	132	29.33

As shown in Table 7, the profile of the learners in terms of the daily number of hours spent studying mathematics lessons at home. As reflected in Table No. 17, 10.44% in the 4.0 hours and above hours bracket, 16.67% in the 3.0 to 3.9 hours bracket, 20.22% in the 2.0 to 2.9 hours bracket, 23.33% in the 1.0 to 1.9 hours bracket, and 29.33% in the less than 1.0 hour bracket.

This implies that a significant portion of respondents, 29.33%, spend less than 1 hour daily studying mathematics lessons at home, suggesting that many learners may not be dedicating substantial time to math practice outside of school. This limited study time could potentially affect their understanding and mastery of mathematical concepts. On the other hand, a smaller percentage of learners (10.44%) spend 4 hours or more on math, indicating that only a few learners engage in extensive study sessions. The overall distribution shows that most learners spend between 1 to 3 hours studying math, reflecting moderate levels of engagement with their math lessons at home. This variation in study time may impact the overall academic performance in mathematics, with those investing more hours likely benefiting from deeper practice and reinforcement of skills.

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The present study showed that learners spent less than 1.0 hour studying mathematics at home. Similarly, Hall et al. (2022) found that limited study time for mathematics outside school is often associated with lower proficiency in the subject, suggesting that increased home study hours could lead to improved performance. Both studies highlight the importance of adequate time allocation for studying mathematics at home.

4.2. Gadget Utilization of the Learners

4.2.1. Digital Literacy

Table 8

Mean Rating and Interpretations of the Gadget Utilization of the Learners in terms of Digital Literacy

Item	Indicators	Mean Rating	Interpretation
1	I know how to turn on and off my gadget.	3.08	Moderately Utilized
2	I can open and close apps on my gadget by myself.	3.12	Moderately Utilized
3	I can find the right app for my schoolwork on my gadget.	3.17	Moderately Utilized
4	I know how to type letters and numbers using the keyboard on my gadget.	3.15	Moderately Utilized
5	I can use my gadget to take pictures or videos when needed for school.	3.04	Moderately Utilized
6	I know how to connect to the internet using my gadget.	3.23	Moderately Utilized
7	I can search for information on the internet with the help of my teacher or parents.	3.14	Moderately Utilized
8	I know how to save my work on my gadget so I can use it later.	3.20	Moderately Utilized
9	I can follow instructions on my gadget to complete a learning activity.	3.18	Moderately Utilized
10	I know how to take care of my gadget to keep it working properly.	3.22	Moderately Utilized
	General Mean Rating	**3.15**	**Moderately Utilized**

As shown in Table 8, the gadget utilization of the learners in terms of digital literacy. As reflected in Table No. 18, a majority of the respondents had the general mean rating of 3.15 or "Moderately Utilized." It was observed that, "I know how to connect to the internet using my gadget" had the highest mean of 3.23 equivalent to "Moderately Utilized."

This implies that a significant portion of respondents, 29.33%, spend less than 1 hour daily studying mathematics lessons at home, suggesting that many learners may not be dedicating enough time to math practice, which could hinder their mastery of mathematical concepts. Conversely, the small percentage of learners (10.44%) who spend 4 hours or more indicates that

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only a few are committing extensive time to their math studies. The overall distribution shows that the majority of learners fall in the middle, spending between 1 to 3 hours on math, reflecting a moderate level of engagement. This variation in study habits could have a direct impact on academic performance, with those spending more time likely benefiting from deeper practice and reinforcement of their mathematical skills.

The analysis conducted in this study indicated that the learners moderately utilized gadgets, with a mean score of 3.15, reflecting a moderate level of digital literacy. The present study found that learners moderately utilized gadgets, reflecting a moderate level of digital literacy. This aligns with the findings of Sonnenschein et al. (2023), who noted that elementary learners are increasingly familiar with digital devices, though their use tends to remain at a moderate level due to limited access and guided use in educational settings. Both studies suggest that while digital literacy is growing among young learners, its full potential is often constrained by factors like access and supervision.

4.2.2. Content Accessibility

Table 9

Mean Rating and Interpretations of the Gadget Utilization of the Learners in terms of Content Accessibility

Item	Indicators	Mean Rating	Interpretation
1	I can find and open my math lessons on my gadget.	3.14	Moderately Utilized
2	I can watch math videos on my gadget to help me understand my lessons.	3.19	Moderately Utilized
3	I know how to listen to math audio lessons using my gadget.	3.20	Moderately Utilized
4	I can open math worksheets or activities on my gadget to practice what I learned.	3.18	Moderately Utilized
5	I can zoom in or out on the screen to make math problems easier to see.	3.14	Moderately Utilized
6	I can adjust the volume on my gadget to hear math instructions clearly.	3.17	Moderately Utilized
7	I can read math stories or problems on my gadget by scrolling up and down.	3.09	Moderately Utilized
8	I know how to use apps on my gadget that help me learn math better.	3.12	Moderately Utilized
9	I can find math games on my gadget that help me practice my skills.	3.13	Moderately Utilized
10	I can ask my teacher or parents for help if I cannot access my math lessons on my gadget.	3.11	Moderately Utilized
	General Mean Rating	**3.15**	**Moderately Utilized**

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As shown in Table 9, the gadget utilization of the learners in terms of content accessibility. As reflected in Table No. 19, a majority of the respondents had the general mean rating of 3.15 or "Moderately Utilized." It was observed that, "I know how to listen to math audio lessons using my gadget" had the highest mean of 3.20 equivalent to "Moderately Utilized."

This implies that the respondents demonstrate a moderate level of gadget utilization for content accessibility, particularly in accessing math-related resources. The highest mean score of 3.20 for "I know how to listen to math audio lessons using my gadget" suggests that learners are somewhat familiar with using their gadgets for listening to audio-based educational content. However, since the overall rating is "Moderately Utilized," it indicates that there is room for improvement in maximizing the use of gadgets for learning purposes. This moderate level of utilization may reflect a gap in the availability of digital resources or the need for further training on how to fully leverage gadgets for academic enhancement, especially in subjects like mathematics.

In terms of content accessibility, the learners scored 3.13, which also demonstrated moderate gadget utilization. The moderate level of gadget utilization for content accessibility in the current study corresponds with the results of Briggs et al. (2024), who reported that learners moderately access educational content online due to limitations in internet availability and the quality of digital resources. Both studies indicate that while digital platforms offer significant opportunities for content accessibility, learners' engagement remains limited due to infrastructural barriers.

4.2.3. Learning Opportunities

Table 10

Mean Rating and Interpretations of the Gadget Utilization of the Learners in terms of Learning Opportunities

Item	Indicators	Mean Rating	Interpretation
1	I can use my gadget to practice math problems on my own.	3.04	Moderately Utilized
2	I can learn new math skills by watching videos on my gadget.	3.05	Moderately Utilized
3	I can play math games on my gadget that help me get better at math.	3.13	Moderately Utilized
4	I can join online math classes using my gadget.	3.15	Moderately Utilized
5	I can work on math projects with my classmates using my gadget.	3.09	Moderately Utilized
6	I can solve math puzzles on my gadget to improve my thinking skills.	3.20	Moderately Utilized
7	I can explore new math topics on my gadget to learn more than what is taught in class.	3.07	Moderately Utilized
8	I can review my math lessons on my gadget whenever I need extra practice.	3.11	Moderately Utilized

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9	I can ask questions about math and get answers using my gadget.	3.24	Moderately Utilized
10	I can complete math activities on my gadget that help me understand lessons better.	3.18	Moderately Utilized
	General Mean Rating	**3.12**	**Moderately Utilized**

As shown in Table 10, the gadget utilization of the learners in terms of learning opportunities. As reflected in Table No. 20, a majority of the respondents had the general mean rating of 3.12 or "Moderately Utilized." It was observed that, "I can ask questions about math and get answers using my gadget" had the highest mean of 3.24 equivalent to "Moderately Utilized."

This implies that the respondents exhibit a moderate level of gadget utilization for learning opportunities, as indicated by the general mean rating of 3.12. The highest mean score of 3.24 for the statement "I can ask questions about math and get answers using my gadget" suggests that learners are somewhat effective in using their gadgets to seek information and clarify doubts related to math. However, the overall rating of "Moderately Utilized" points to the potential for enhancing their engagement with gadgets as tools for learning. This moderate utilization indicates that while learners are leveraging technology to some extent, there may be barriers or limitations preventing them from fully capitalizing on the vast learning opportunities available through their devices. Encouraging more frequent and effective use of gadgets for academic inquiries could significantly improve their understanding and performance in mathematics.

Their gadget utilization yielded a mean score of 3.12 concerning learning opportunities, described as moderately utilized. The present study showed that gadget utilization for learning opportunities was also moderate, with a mean score of 3.12. Similarly, the study by Corpuz (2024) found that learners moderately engage with learning opportunities via gadgets, primarily due to the balance between academic tasks and recreational use. Both studies highlight the importance of integrating structured learning activities through gadgets to optimize educational outcomes.

4.2.4. Parental Supervision

Table 11

Mean Rating and Interpretations of the Gadget Utilization of the Learners in terms of Parental Supervision

Item	Indicators	Mean Rating	Interpretation
1	My parents help me choose the right apps to use on my gadget.	3.10	Moderately Utilized
2	My parents make sure I use my gadget for learning math.	3.15	Moderately Utilized
3	My parents set time limits on how long I can use my gadget each day.	3.19	Moderately Utilized
4	My parents check if I am doing my math homework on my gadget.	3.12	Moderately Utilized
5	My parents help me understand math lessons I find on my gadget.	3.09	Moderately Utilized

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6	My parents make sure to take breaks from using my gadget to rest my eyes.	3.22	Moderately Utilized
7	My parents stay with me when I am using the internet on my gadget.	3.14	Moderately Utilized
8	My parents talk to me about what I learn on my gadget.	3.12	Moderately Utilized
9	My parents help me solve any problems I have with my gadget.	3.16	Moderately Utilized
10	My parents check that my gadget is charged and ready for learning.	3.19	Moderately Utilized
	General Mean Rating	**3.15**	**Moderately Utilized**

As shown in Table 11, the gadget utilization of the learners in terms of parental supervision. As reflected in Table No. 21, a majority of the respondents had the general mean rating of 3.15 or "Moderately Utilized." It was observed that, "my parents make sure to take breaks from using my gadget to rest my eyes" had the highest mean of 3.22 equivalent to "Moderately Utilized."

This implies that the respondents experience a moderate level of parental supervision regarding their gadget usage, as indicated by the general mean rating of 3.15. The highest mean score of 3.22 for the statement "my parents make sure to take breaks from using my gadget to rest my eyes" suggests that parents are somewhat attentive to their children's screen time and its impact on their well-being. However, the overall rating of "Moderately Utilized" indicates that while there is some level of supervision, it may not be consistently applied across all aspects of gadget use. This moderation in parental involvement could point to areas where more proactive engagement could be beneficial, such as establishing guidelines for overall gadget usage and promoting healthier digital habits. Enhancing parental supervision could further support the responsible use of technology, ensuring that children can take full advantage of the educational opportunities provided by gadgets while maintaining their health.

The learners scored 3.15 in parental supervision, indicating moderate usage of their gadgets. The study revealed that learners received moderate parental supervision in their gadget use, which aligns with the findings of Rudnova et al. (2023), who observed that while parents generally monitor their children's gadget usage, the level of supervision often fluctuates depending on parents' availability and digital awareness. Both studies emphasize the crucial role of parental involvement in ensuring balanced and productive gadget use for learning purposes.

4.3. Academic Performance of Learners in Mathematics

Table 12

Mean Rating and Interpretations of the Academic Performance of Learners in Mathematics

Item	Indicators	Mean Rating	Interpretation
1	Written Works	3.74	Satisfactory

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2	Performance Tasks	3.76	Satisfactory
3	Quarterly Assessment	3.75	Satisfactory
	General Mean Rating	3.75	**Satisfactory**

As shown in Table 12, the academic performance of learners in mathematics. As reflected in Table 12, a majority of the respondents had the general mean rating of 3.75 or "Satisfactory". It was observed that, "Performance Tasks" had the highest mean of 3.76 equivalent to "Satisfactory."

It implies that the academic performance of learners in mathematics is generally perceived as satisfactory, with a mean rating of 3.75. The specific observation that "Performance Tasks" received the highest mean rating of 3.76 indicates that learners are performing well in this area. This suggests that the tasks assigned are effectively aligned with learners' capabilities and learning objectives, allowing them to demonstrate their understanding of mathematical concepts satisfactorily. The overall satisfactory performance implies that while learners may be meeting the expected academic standards, there may be opportunities for improvement, particularly in enhancing understanding and mastery of more complex mathematical skills. As such, teachers may need to consider targeted interventions or support strategies to elevate learners' performance beyond the satisfactory level and ensure a deeper comprehension of mathematical content.

The present study revealed that the learners achieved satisfactory academic performance in mathematics, as indicated by their written works, performance tasks, and quarterly assessments, with a mean score of 3.75. This finding is consistent with the study of Pellegrini et al. (2021), who found that elementary learners typically demonstrate satisfactory performance in mathematics when assessment methods are varied and include both written and practical tasks. Both studies suggest that a combination of diverse assessment tools can effectively capture learners' understanding and skills in mathematics, contributing to satisfactory overall academic outcomes.

4.4. Difference Between the Gadget Utilization of the Learners and Their Profile

4.4.1. Age

Table 13

Difference Between the Age Groups of the Learners

Groups	*H*	*df*	*p*	Decision
10 years old 9 years old 8 years old	.76	2	.685	Accept H_{01} (Not Significant)

As shown in Table 13, a Kruskal-Wallis Test was conducted to assess the difference between age groups of the learners. The Kruskal-Wallis Test results revealed no statistically significant difference in scores between the age groups ($H(2) = .76$, $p = .685$) at the 5% level; thus, the null hypothesis was accepted. In conclusion, these findings suggest that age may have no effect on respondents' gadget utilization.

This implies that age does not play a significant role in influencing the gadget utilization of the respondents, as indicated by the Kruskal-Wallis Test results showing no statistically significant differences among the age groups. The acceptance of the null hypothesis suggests that regardless of age, respondents exhibit similar patterns in their use of gadgets. This finding may indicate that factors other than age—such as access to technology, individual preferences, or environmental influences—could be more critical in shaping how learners utilize gadgets for

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educational purposes. Consequently, efforts to enhance gadget utilization may need to focus on these other factors rather than age-related differences.

The present study found that age did not significantly impact learners' gadget utilization. This aligns with the findings of Wulandari et al. (2024), who also observed that age is not a major factor in determining how learners use gadgets, as access and engagement with technology are more influenced by external factors like availability and parental supervision. Both studies suggest that digital usage patterns among learners are largely similar across age groups.

4.4.2. Sex

Table 14

Difference Between the Sex Groups of the Learners

Groups	*H*	*df*	*p*	Decision
Male Female	1.18	1	.278	Accept H_{01} (Not Significant)

As shown in Table 14, a Kruskal-Wallis Test was conducted to assess the difference between sex groups of the learners. The Kruskal-Wallis Test results revealed no statistically significant difference in scores between the sex groups ($H(1) = 1.18$, $p = .278$) at the 5% level; thus, the null hypothesis was accepted. In conclusion, these findings suggest that sex may have no effect on respondents' classroom management practices.

This implies that sex does not significantly influence classroom management practices among the respondents, as evidenced by the Kruskal-Wallis Test results indicating no statistically significant differences between the male and female groups. The acceptance of the null hypothesis suggests that both sex groups demonstrate similar approaches to classroom management, indicating that factors other than sex—such as individual teaching styles, training, or experience—are likely more influential in shaping these practices. This finding underscores the importance of focusing on these other variables to improve classroom management strategies, rather than attributing differences to sex.

There was no significant difference between the learners' sex and their gadget utilization. The study revealed no significant difference between learners' sex and their gadget utilization. This is consistent with the findings of Macaponggis et al. (2024), who noted that both male and female learners tend to utilize gadgets at similar rates for academic and recreational purposes, showing no substantial variation based on sex. Both studies support the view that gender does not play a major role in gadget usage patterns among young learners.

4.4.3. Monthly Family Income

Table 15

Difference Between the Monthly Family Income Groups of the Learners

Groups	*MR*	*Eta squared* (η^2)	*H*	*df*	*p*	Decision
P120,000 and above	241.13	.03 (Small)	17.99	6	.006	Reject H_{01} (Significant)
P100,000 to P119,999	150.79					

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P80,000 to P99,999	241.43
P60,000 to P79,999	225.67
P40,000 to P59,999	211.99
P20,000 to P39,999	247.78
P19,999 and below	231.34

As shown in Table 15, a Kruskal-Wallis Test was conducted to assess the difference between the monthly family income groups of the learners. The Mean Rank results revealed that the observed scores in the P20,000 to P39,999 group (*MR* = 247.78) were higher than those in the P120,000 and above group (*MR* = 241.13), P100,000 to P119,999 group (*MR* = 150.79), P80,000 to P99,999 group (*MR* = 241.43), P60,000 to P79,999 group (*MR* = 225.67), P40,000 to P59,999 group (*MR* = 211.99), and the P19,999 and below group (*MR* = 231.34). Additionally, the Eta squared result indicated that the strength of the difference was small (η^2 =.03), suggesting a small effect. Furthermore, the Kruskal-Wallis Test results revealed a statistically significant difference in scores between the monthly family income groups ($H(6) = 17.99$, $p = .006$) at the 5% level; thus, the null hypothesis was rejected. In conclusion, these findings suggest that monthly family income may have an effect on respondents' gadget utilization.

This implies that monthly family income has a measurable effect on respondents' gadget utilization, as indicated by the statistically significant difference found among the income groups in the Kruskal-Wallis Test results. The higher mean rank of the P20,000 to P39,999 group suggests that this income bracket may provide better access or more favorable conditions for gadget use compared to other income levels. However, the small effect size ($\eta^2 = .03$) indicates that while there is a difference, it may not be substantial enough to have widespread implications. This finding suggests that financial resources could influence the degree to which families can afford technology or engage with it effectively for educational purposes. It may be beneficial to explore further how income disparities impact access to and utilization of educational technologies, as addressing these disparities could enhance learning opportunities for all learners.

The study revealed that monthly family income had a significant effect on the learners' gadget utilization. The present study found that monthly family income had a significant effect on gadget utilization. This corresponds with the study by Joshi et al. (2024), which highlighted that learners from higher-income families tend to have greater access to digital devices, leading to more frequent usage compared to those from lower-income families. Both studies underscore the influence of economic status on technology access and utilization.

4.4.4. Highest Educational Attainment of the Learning Facilitator

Table 16

Difference Between the Highest Educational Attainment of the Learning Facilitator Groups of the Learners

Groups	*H*	*df*	*p*	Decision
EdD/PhD Graduate MA Graduate College Graduate High School Graduate Elementary Graduate	3.45	4	.485	Accept H_{01} (Not Significant)

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As shown in Table 16, a Kruskal-Wallis Test was conducted to assess the difference between the highest educational attainment of learning facilitator groups of the learners. The Kruskal-Wallis Test results revealed no statistically significant difference in scores between the highest educational attainment of learning facilitator groups ($H(4) = 3.45$ $p = .485$) at the 5% level; thus, the null hypothesis was accepted. In conclusion, these findings suggest that the highest educational attainment of learning facilitator may have no effect on respondents' gadget utilization.

This implies that the highest educational attainment of learning facilitators does not significantly impact respondents' gadget utilization, as indicated by the Kruskal-Wallis Test results showing no statistically significant differences among the various educational attainment groups. The acceptance of the null hypothesis suggests that regardless of their educational background, facilitators tend to exhibit similar patterns in how respondents use gadgets. This finding implies that factors other than the educational qualifications of facilitators—such as teaching strategies, access to technology, or learner engagement—are likely more influential in determining gadget utilization among learners. Consequently, efforts to enhance gadget use in educational settings may need to focus on these additional factors rather than on the educational attainment of facilitators.

There was no significant difference between the highest educational attainment of the learners and their gadget utilization. The study found no significant difference between the highest educational attainment of learning facilitators and learners' gadget utilization. Similarly, Kormos (2021) reported that a facilitator's educational background does not significantly affect how learners engage with technology, as gadget access and use are more influenced by household rules and device availability. Both studies indicate that the educational attainment of facilitators may not directly shape gadget use habits among learners.

4.4.5. Daily Number of Hours Spent Using Gadgets at Home

Table 17

Difference Between the Daily Number of Hours Spent Using Gadgets at Home Groups of the Learners

Groups	*MR*	*Eta squared* (η^2)	*H*	*df*	*p*	Decision
4.0 hours and above	217.78	.02 (Small)	14.07	4	.007	Reject H_{01} (Significant)
3.0 to 3.9 hours	193.06					
2.0 to 2.9 hours	221.39					
1.0 to 1.9 hours	239.38					
less than 1.0 hour	263.21					

As shown in Table 17, a Kruskal-Wallis Test was conducted to assess the difference between the daily number of hours spent using gadgets at home groups of the learners. The Mean Rank results revealed that the observed scores in the less than 1.0 hour group (*MR* = 263.21) were higher than those in the 4.0 hours and above group (*MR* = 217.78), 3.0 to 3.9 hours group (*MR* = 193.06), 2.0 to 2.9 hours group (*MR* = 221.39), and 1.0 to 1.9 hours group (*MR* = 239.38). Additionally, the Eta squared result indicated that the strength of the difference was small (η^2 =.02), suggesting a small effect. Furthermore, the Kruskal-Wallis Test results revealed a statistically

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significant difference in scores between the monthly family income groups ($H(4) = 14.07$, $p = .007$) at the 5% level; thus, the null hypothesis was rejected. In conclusion, these findings suggest that the daily number of hours spent using gadgets at home may have an effect on respondents' gadget utilization.

This implies that the daily number of hours spent using gadgets at home has a significant effect on respondents' gadget utilization, as evidenced by the statistically significant differences revealed by the Kruskal-Wallis Test. The higher mean rank for the "less than 1.0 hour" group suggests that those spending minimal time using gadgets at home may be more engaged with their devices compared to those in higher usage categories. However, the small effect size ($\eta^2 = .02$) indicates that while there is a difference, it may not be large enough to warrant significant changes in practice. This finding suggests that while time spent on gadgets does influence utilization, other factors—such as the quality of usage, purpose of engagement, or the types of activities performed—may also play a crucial role. Therefore, it may be beneficial to further explore how the nature of gadget use interacts with the amount of time spent to better understand its impact on educational outcomes.

A significant difference was found between the daily number of hours spent using gadgets at home and their gadget utilization. The present study revealed a significant difference between the number of hours spent using gadgets at home and learners' gadget utilization. This finding is consistent with McManus and Carvalho (2022), who found that extended gadget use at home significantly increases overall gadget dependency and engagement, particularly for entertainment and learning activities. Both studies highlight the strong relationship between home-based gadget time and usage patterns.

4.4.6. Daily Number of Hours Spent Using Gadgets at School

Table 18

Difference Between the Daily Number of Hours Spent Using Gadgets at School Groups of the Learners

Groups	*H*	*df*	*p*	Decision
4.0 hours and above 3.0 to 3.9 hours 2.0 to 2.9 hours 1.0 to 1.9 hours less than 1.0 hour	1.09	4	.896	Accept H_{01} (Not Significant)

As shown in Table 18, a Kruskal-Wallis Test was conducted to assess the difference between the daily number of hours spent using gadgets at school groups of the learners. The Kruskal-Wallis Test results revealed no statistically significant difference in scores between the number of hours spent studying at school groups ($H(4) = 1.09$ $p = .896$) at the 5% level; thus, the null hypothesis was accepted. In conclusion, these findings suggest that the daily number of hours spent using gadgets at school may have no effect on respondents' gadget utilization.

This implies that the daily number of hours spent using gadgets at school does not significantly influence respondents' gadget utilization, as indicated by the Kruskal-Wallis Test results showing no statistically significant differences among the various usage groups. The acceptance of the null hypothesis suggests that regardless of the amount of time spent using gadgets at school, respondents exhibit similar patterns in their overall gadget utilization. This

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finding implies that factors other than the duration of gadget use during school hours—such as the context of usage, the types of activities engaged in, or the support from teachers and peers—may play a more critical role in shaping how learners utilize technology. Consequently, efforts to enhance gadget utilization in educational settings may need to focus on these contextual elements rather than solely on the number of hours spent using gadgets at school.

There was no significant difference between the daily number of hours spent using gadgets at school and their gadget utilization. The study found no significant difference between the number of hours spent using gadgets at school and gadget utilization. This is in line with the findings of Dange (2024), who observed that gadget use in school is often tightly regulated, leading to minimal variation in usage rates across learners. Both studies suggest that controlled school environments limit the impact of school-based gadget use on overall utilization patterns.

4.4.7. Daily Number of Hours Spent Studying Mathematics Lessons at Home

Table 19

Difference Between the Daily Number of Hours Spent Studying Mathematics Lessons at Home Groups of the Learners

Groups	*H*	*df*	*p*	Decision
4.0 hours and above 3.0 to 3.9 hours 2.0 to 2.9 hours 1.0 to 1.9 hours less than 1.0 hour	1.83	4	.767	Accept H_{01} (Not Significant)

As shown in Table 19, a Kruskal-Wallis Test was conducted to assess the difference between the daily number of hours spent studying mathematics lessons at home groups of the learners. The Kruskal-Wallis Test results revealed no statistically significant difference in scores between the daily number of hours spent studying mathematics lessons at home groups ($H(4) = 1.83$ $p = .767$) at the 5% level; thus, the null hypothesis was accepted. In conclusion, these findings suggest that the daily number of hours spent studying mathematics lessons at home may have no effect on respondents' gadget utilization.

This implies that the daily number of hours spent studying mathematics lessons at home does not significantly affect respondents' gadget utilization, as indicated by the Kruskal-Wallis Test results showing no statistically significant differences among the various study hour groups. The acceptance of the null hypothesis suggests that regardless of how much time learners dedicate to studying math at home, their overall use of gadgets remains consistent. This finding implies that factors other than the duration of math study—such as the quality of study time, engagement with educational content, or the specific purposes for which gadgets are used—may be more influential in determining how learners utilize technology. Therefore, initiatives aimed at improving gadget utilization for educational purposes may need to focus on enhancing the nature of study activities and the ways in which technology is integrated into learning, rather than simply increasing the number of hours spent studying.

No significant difference was observed between the daily number of hours spent studying mathematics lessons at home and their gadget utilization. The present study showed no significant difference between the time spent studying mathematics at home and gadget utilization. This finding aligns with that of Madarcos et al. (2024), who noted that while gadgets can aid in studying,

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the amount of time spent on specific subjects, like mathematics, does not necessarily correlate with overall gadget usage. Both studies indicate that subject-specific study time may not be a strong predictor of broader gadget use habits.

4.5. Correlation Between the Gadget Utilization of the Learners and Their Academic Performance

Table 20

Correlation Between the Gadget Utilization of the Learners and their Academic Performance in Mathematics

Dependent Variables	*r*	*p*	Interpretation	Decision
Written works	.21	.000	Positive Weak Correlation	Reject H_{02} (Significant)
Performance Tasks	.16	.001	Positive Weak Correlation	Reject H_{02} (Significant)
Quarterly Assessment	.18	.000	Positive Weak Correlation	Reject H_{02} (Significant)
Overall	.19	.000	Positive Weak Correlation	Reject H_{02} (Significant)

As shown in Table 20, the correlation between the gadget utilization of the respondents and their academic performance in mathematics by using the Spearman's Rho Correlation.

It shows that the gadget utilization of the respondents had a *positively weak significant correlation* with their academic performance in mathematics in terms of written works (r = .21, p = .000), a *positively weak significant correlation* in terms of performance tasks (r = .16, p = .001), a *positively weak significant correlation* in terms of quarterly assessment (r = .18, p = .000), and a *positively weak significant correlation* with the overall learner's academic performance in mathematics (r = .19, p = .000), at 5% significance level; thus, the null hypothesis was *rejected.*

The positive correlation implies that as the value of independent variable (learners' gadget utilization) increased, the value of the dependent variable (learners' academic performance in mathematics) tended to increase. Therefore, the results suggest that increased gadget utilization among learners is associated with higher academic performance in mathematics.

This implies that there is a weak but significant positive relationship between gadget utilization and academic performance in mathematics among respondents. Specifically, as learners' utilization of gadgets increases, their performance in written works, performance tasks, quarterly assessments, and overall academic performance in mathematics also tends to improve. This suggests that integrating technology into learning environments may facilitate better engagement with educational content, leading to enhanced academic outcomes. However, the weak nature of these correlations indicates that while there is a connection, it is not a strong one, implying that other factors—such as instructional quality, study habits, or motivation—also play crucial roles in determining academic success. Therefore, while promoting gadget utilization could be beneficial, it should be part of a broader strategy that addresses multiple aspects of the learning experience to maximize its positive impact on learners' academic performance in mathematics.

The present study found a weak but positive and significant correlation between the learners' gadget utilization and their academic performance in mathematics, specifically in written works. This aligns with the findings of Waqas et al. (2024), who noted that moderate use of gadgets

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for educational purposes, such as accessing learning apps or online resources, can support learners' completion of written assignments by providing them with additional tools for problem-solving and concept reinforcement. Both studies suggest that while the impact of gadget use on written work performance is not strong, it can still serve as a beneficial supplementary resource.

Similarly, the present study revealed a weak, positive, and significant correlation between gadget utilization and academic performance in mathematics performance tasks. This finding mirrors the study of Jing et al. (2024), which demonstrated that learners who moderately use gadgets for interactive learning tasks, such as simulations and educational games, tend to show slight improvements in hands-on activities and project-based assessments. Both studies indicate that gadgets, when used appropriately, can provide meaningful engagement opportunities that enhance performance tasks.

The weak, positive, significant correlation between gadget utilization and quarterly assessment results found in this study is consistent with the research of Tague et al. (2024). They found that learners who incorporate gadgets into their study habits, particularly for review and practice, tend to perform slightly better in periodic assessments, as these tools offer quick access to a variety of learning materials. Both studies highlight that while gadget use is not a strong predictor of assessment outcomes, it can offer minor advantages in supporting learner preparation.

On a broader scale, the study identified a weak but positive and significant correlation between gadget utilization and overall academic performance in mathematics. This is in line with the findings of Caswell (2023), who also observed a weak but positive relationship between technology use and overall academic achievement, emphasizing that while gadgets alone do not drive academic success, they can complement traditional learning methods when used in moderation. Both studies suggest that balanced gadget use, integrated thoughtfully into learning routines, may support overall academic progress in mathematics.

4.6. An Enhanced Teaching and Learning Program to Incorporate the Utilization of Gadgets Towards the Improvement of the Academic Performance in Mathematics of Grade 3 Learners

The integration of technology into education is crucial in today's digital era, and this program aims to enhance Grade 3 learners' math skills through gadget-based learning. By using educational apps and online resources, the initiative fosters an interactive environment that improves digital literacy and ensures equitable access to learning tools. Strategies include daily gadget-based math exercises, digital literacy sessions, and a school-based gadget lending program to support all learners. Parents will be engaged through orientations and guidelines on monitoring gadget use, while teachers will receive training on integrating digital tools into lessons. The program's success will be measured through improved math performance, increased digital engagement, and effective stakeholder collaboration.

5. CONCLUSIONS

1. The learners were predominantly 8 years old, female, belonged to families with a monthly income of P19,999 or below, had a college graduate as their learning facilitator, spent 2.0 to 2.9 hours using gadgets at home, and used gadgets for less than 1.0 hour at school.
2. The learners exhibited moderate gadget utilization, indicating a need for further enhancement of their digital literacy and access to educational content.

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3. The learners demonstrated satisfactory academic performance in mathematics across various assessment types, reflecting effective learning strategies and support.
4. The learners' gadget utilization was significantly influenced by monthly family income, while age, sex, and educational attainment showed no significant effect.
5. The learners displayed a weak but positive correlation between gadget utilization and their academic performance in mathematics, suggesting that increased usage may have a modest impact on learning outcomes.
6. An enhanced teaching and learning program has been developed to incorporate gadgets with the aim of improving the academic performance in mathematics of Grade 3 learners.

6. RECOMMENDATIONS

1. The school head should explore partnerships with local organizations to provide resources and support for low-income families, enabling learners to dedicate more time to studying mathematics.
2. Teachers should implement targeted training sessions to enhance learners' digital literacy skills and provide them with greater access to educational content through gadgets.
3. Teachers should continue to reinforce effective learning strategies and provide ongoing support to maintain and further improve the satisfactory academic performance of learners in mathematics.
4. The school head should consider offering additional resources and support for families with lower monthly incomes to ensure equitable access to educational technology for all learners.
5. Teachers should encourage the strategic use of gadgets in learning environments to maximize their potential impact on learners' academic performance in mathematics.
6. Teachers should actively implement and monitor the enhanced teaching and learning program to ensure that gadgets are effectively integrated into mathematics instruction for Grade 3 learners.
7. Further studies on the long-term effects of gadget utilization on academic performance should be conducted to provide insights into effective practices and strategies for integrating technology into the learning process.

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