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RETENTION OF BASIC CONCEPTS IN MATHEMATICS AMONG JUNIOR HIGH SCHOOL STUDENTS IN SANTIAGO CITY NATIONAL HIGH SCHOOL: BASIS FOR DESIGNING A MEMORY RETENTION PROGRAM FOR BASIC CONCEPTS

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ABSTRACT

This study aimed to determine the factors affecting the retention of basic concepts in Mathematics and their relationship to the academic performance of Grade 10 students at Santiago City National High School for the School Year 2025–2026. A descriptive-correlational research design was utilized, involving 270 student-respondents selected through simple random sampling. Data were gathered using a validated questionnaire assessing motivation, goal setting, personalized learning, teaching methods, and availability of resources. Statistical tools such as mean and Pearson r correlation were used for data analysis.

The findings revealed that all factors affecting retention motivation, goal setting, personalized learning, teaching methods, and availability of resources were rated high and interpreted as frequently observed among students. Among these, teaching methods obtained the highest mean, indicating that effective instructional strategies play a crucial role in enhancing students' retention of mathematical concepts. In terms of academic performance, the majority of students achieved very satisfactory to outstanding levels, with no student falling below the passing mark.

Furthermore, the results showed that only selected indicators under motivation, goal setting, personalized learning, and teaching methods had a significant relationship with students' academic performance, although the correlations were generally weak. Meanwhile, most indicators, including those related to the availability of resources, showed no significant relationship, suggesting that these factors alone do not directly influence students' Mathematics performance.

The study concludes that while multiple factors contribute to the retention of basic mathematical concepts, only specific elements such as active participation, goal-oriented behavior, individual effort, and selected teaching strategies significantly affect academic achievement. Hence, it is recommended that teachers strengthen motivational strategies, effective teaching practices, and student-centered approaches, while ensuring the strategic use of resources to enhance retention and improve academic performance.

KEYWORDS: *Memory Retention, Mathematics Education, Academic Performance, Motivation, Goal Setting, Personalized Learning, Teaching Methods, Instructional Resources, Junior High School Students, Descriptive-Correlational Study*

INTRODUCTION

Memory retention is an essential cognitive process that affects students' academic performance, especially in Mathematics where recalling concepts is necessary for problem-solving. At the junior high school level, understanding the factors that influence memory retention can help improve students' performance in Mathematics.

Mathematics education plays an important role in developing students' analytical and problem-solving skills. However, students in the Philippines continue to perform poorly in international assessments such as the Programme for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS) (OECD, 2019).

Recent data show that the Philippines ranked 74th out of 80 countries in Mathematics in PISA 2022, with a mean score of 355 and 84% of students classified as low performers. In TIMSS 2019, the country ranked last (58th out of 58) with a score of 297. These results highlight the need to examine factors affecting students' Mathematics performance.

In response, the Philippine government implemented reforms such as the K–12 curriculum, teacher scholarships, and salary adjustments (DepEd, 2019). Despite these efforts, national assessments like the National Achievement Test (NAT) still show low performance, suggesting that other factors—such as cognitive and psychological aspects—affect learning (DepEd, 2018).

One important factor is memory retention, which refers to the ability to store and recall information over time. It is essential in Mathematics because students need to remember and apply concepts. Studies have shown that strategies such as motivation, goal setting, and personalized learning can improve memory retention and performance (Orejudos & Fabricate, 2024). Teaching strategies and the use of learning resources also have a positive effect on academic performance (Pillado et al., 2020),

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while mnemonic-based instruction enhances understanding and retention (Padernal, 2023).

Memory is commonly classified into sensory memory, short-term memory, and long-term memory. For effective learning, students must transfer information into long-term memory so they can recall it when solving problems. Without proper retention strategies, students may struggle to remember concepts, which can lead to poor performance.

Research shows that teaching methods strongly influence memory retention. Comighud (2021) found that teaching strategies, learning activities, and educational resources significantly contribute to retention and are related to students' Mathematics performance. Active learning strategies, such as discussions and problem-solving tasks, also improve retention and understanding (Lomibao, 2024).

Additionally, innovative approaches like game-based learning (Egara, 2023) and augmented reality (Gargrish et al., 2022) have been shown to improve students' retention of mathematical concepts. The use of multimedia tools, such as videos and simulations, also enhances engagement and retention (Dublar, 2023).

Mathematics is often seen as a difficult subject because it requires recalling and applying concepts. Students who have difficulty remembering these concepts tend to struggle with problem-solving (Callaman & Itaas, 2020). Motivation, goal-setting, and personalized learning are also important in improving retention and understanding.

In Santiago City National High School, many junior high school students have difficulty recalling basic mathematical concepts such as fractions, decimals, percentages, and algebra. This affects their ability to understand more advanced topics. This issue may be due to limited use of effective retention strategies and the lack of a structured program to support memory development.

Therefore, this study aims to investigate the factors affecting memory retention in Mathematics and their relationship with academic performance. The findings will be used to develop a Memory Retention Program to help improve students' understanding, performance, and confidence in Mathematics.

Objectives of the Study

Generally, the study attempted to appraise the perceived memory retention factors and mathematics performance of junior high school students in Santiago City National High School.

Specifically, it sought to answer the following questions:

1. What is the respondents' perceived extent of factors affecting the retention of basic concepts in Mathematics in terms of:
   1.1.Motivation,
   1.2.Goal setting,
   1.3.Personalized learning,
   1.4.Teaching methods,
   1.5.Availability of resources?
2. What is the general weighted average of the Junior High School students in Mathematics for School Year 2025-2026?
3. What is the relationship between the respondent's perceived extent of factors affecting the retention of basic concepts in Mathematics and the general average of Junior High School students in Mathematics for the School Year 2025-2026.

METHODOLOGY

This study employed a descriptive-correlational quantitative research design to examine memory retention factors and their relationship to Mathematics performance among Grade 10 students at Santiago City National High School for the School Year 2025–2026 (Creswell, 2014).

Sampling Design

The respondents of the study were Grade 10 students enrolled during the School Year 2025–2026. Using simple random sampling, a total of 270 students were selected from a population of 901, with the sample size determined using the Raosoft calculator at a 95% confidence level and 5% margin of error. This ensured equal chance of participation and minimized bias.

Research Instrument

Data were collected using a structured questionnaire adopted from Pillado, Futalan, and Comighud (2020). The instrument measured factors affecting memory retention such as motivation, goal setting, personalized learning, teaching strategies, and educational resources. It was validated by experts and showed acceptable reliability with Cronbach's alpha values ranging from 0.701 to 0.864, indicating good internal consistency (Nunnally & Bernstein, 1994).

Statistical Design

The study used several statistical tools for data analysis. The mean and standard deviation were used to determine the extent of memory retention factors. Students' Mathematics performance was interpreted using the DepEd grading scale (Outstanding to Did Not Meet Expectations) based on DepEd Order No. 8, s. 2015.

Additionally, Pearson's correlation coefficient (r) was used to examine the relationship between memory retention factors and students' academic performance in Mathematics.

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RESULTS AND DISCUSSIONS

Extent of Factors Affecting the Retention of Basic Concepts in Mathematics

Table 1: Extent of factors affecting the retention of basic concepts in Mathematics in terms of Motivation

	Statement Indicators	Mean	Description	Interpretation
1.	The extent to which I actively participate in the assigned learning activities.	3.86	High	Frequently Observed
2.	The extent to which I complete tests and assignments given to me.	3.91	High	Frequently Observed
3.	The extent to which I enjoy the teaching strategies used by my teacher.	3.94	High	Frequently Observed
4.	The extent to which I collaborate and communicate with my peers during group activities.	3.93	High	Frequently Observed
5.	The extent to which I demonstrate awareness of the lesson objectives.	3.80	High	Frequently Observed
6.	The extent to which I engage in class discussions and motivational strategies.	3.85	High	Frequently Observed
7.	The extent to which I solve assigned tasks, such as word problems.	3.84	High	Frequently Observed
8.	The extent to which I listen to my classmates as they share their experiences.	3.94	High	Frequently Observed
9.	The extent to which I connect the presented concepts to real-life situations.	3.78	High	Frequently Observed
10.	The extent to which I ask questions and seek clarification on different concepts.	3.90	High	Frequently Observed
	Category Mean	**3.88**	**High**	**Frequently Observed**

Table 1 shows the extent to which motivation-related factors affect students' retention of basic mathematical concepts. The overall mean of 3.88 indicates a "High" level or "Frequently Observed," suggesting that motivation strongly supports students' memory retention in Mathematics.

Among the indicators, enjoyment of teaching strategies and listening to classmates both obtained the highest mean (M = 3.94), showing that engaging teaching methods and peer interaction help improve understanding and retention. Collaboration with classmates (M = 3.93) and completing tasks (M = 3.91) also scored high, indicating that active participation contributes to learning.

Other factors such as asking questions (M = 3.90), participating in activities (M = 3.86), joining discussions (M = 3.85), and solving tasks (M = 3.84) were also frequently observed, showing that students demonstrate motivated and active learning behaviors.

Meanwhile, awareness of lesson objectives (M = 3.80) and relating concepts to real-life situations (M = 3.78) received the lowest means, although still high. This suggests that these areas may need further improvement.

The findings show that motivation plays an important role in enhancing memory retention in Mathematics. This supports Comighud (2021), who found that motivation significantly contributes to retention and academic performance. It is also consistent with Pulana and Perez (2022), who emphasized the positive impact of motivational strategies on student engagement, and Ronquillo-Elvina and Quirap (2024), who highlighted the importance of intrinsic motivation in improving academic outcomes.

Table 2: Extent of factors affecting the retention of basic concepts in Mathematics in terms of Goal Setting

	Statement Indicators	Mean	Description	Interpretation
1.	The extent to which I participate in activities necessary for goal accomplishment.	3.98	High	Frequently Observed
2.	The extent to which I am aware of the skills and knowledge I must achieve and develop.	3.99	High	Frequently Observed
3.	The extent to which I review and reflect on the processes involved in achieving goals.	3.89	High	Frequently Observed
4.	The extent to which I utilize strategies and techniques to accomplish set objectives.	3.76	High	Frequently Observed
5.	The extent to which I take part in setting learning goals and objectives.	3.79	High	Frequently Observed
6.	The extent to which I use self-evaluation to assess whether I have met my goals.	3.76	High	Frequently Observed
7.	The extent to which I apply the values I develop in my daily practices.	3.82	High	Frequently Observed
8.	The extent to which I monitor my progress in the given lesson.	3.73	High	Frequently Observed
9.	The extent to which I establish enhancement activities that contribute to achieving my goals.	3.82	High	Frequently Observed
10.	The extent to which I recognize the connection between goals and their implications.	3.82	High	Frequently Observed
	Category Mean	**3.84**	**High**	**Frequently Observed**

The table 2 shows that goal-setting factors affect students' retention of basic mathematical concepts, with an overall mean of 3.84 interpreted as "High" or "Frequently Observed." This indicates that goal-setting behaviors are evident and help improve memory retention.

The highest indicators were awareness of skills to be developed (M = 3.99) and participation in goal-related activities (M = 3.98), showing that students understand their learning goals and actively work to achieve them.

Other factors such as reflecting on goal processes (M = 3.89), applying values (M = 3.82), establishing activities (M = 3.82), and recognizing goal importance (M = 3.82) were also frequently observed, indicating that students practice reflective and meaningful learning.

Meanwhile, using strategies (M = 3.76), self-evaluation (M = 3.76), participating in goal setting (M = 3.79), and monitoring progress (M = 3.73) had slightly lower means, suggesting a need to improve self-regulation and active involvement in learning goals.

The results revealed that goal-setting practices are frequently observed indicating that students demonstrate awareness and participation in achieving learning goals. This is consistent with Locke and Latham (2019) who stated that goal setting enhances academic performance by increasing persistence and focus. Likewise, Pintrich and De Groot (2021) found that students who set goals use more effective cognitive and metacognitive strategies, improving memory retention.

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These findings suggest that students who are aware of their goals and actively engage in goal-oriented activities are better able to retain and apply mathematical concepts.

Table 3: Extent of factors affecting the retention of basic concepts in Mathematics in terms of Personalized Learning

Statement Indicators	Mean	Description	Interpretation
1. The extent to which I take responsibility and control of my own learning.	3.89	High	Frequently Observed
2. The extent to which I work effectively at my own pace in different activities.	3.86	High	Frequently Observed
3. The extent to which I actively participate in hands-on and motivational strategies.	3.77	High	Frequently Observed
4. The extent to which I feel excited when lessons align with my interests.	3.96	High	Frequently Observed
5. The extent to which I engage in activities that effectively motivate me.	3.97	High	Frequently Observed
6. The extent to which I explore and make discoveries related to my learning.	3.92	High	Frequently Observed
7. The extent to which I accomplish activities that require individual effort.	3.89	High	Frequently Observed
8. The extent to which I use my own techniques in solving problems.	3.81	High	Frequently Observed
9. The extent to which I express my views and engage in activities that cater to my learning needs.	3.80	High	Frequently Observed
10. The extent to which I make learning choices based on my strengths and weaknesses.	4.01	High	Frequently Observed
Category Mean	**3.89**	**High**	**Frequently Observed**

Table 3 shows that personalized learning factors affect students' retention of basic mathematical concepts, with an overall mean of 3.89 interpreted as "High" or "Frequently Observed." This indicates that personalized learning supports students' memory retention.

The highest indicator was making learning choices based on strengths and weaknesses (M = 4.01), showing that students are aware of their learning needs. Engaging in motivating activities (M = 3.97) and feeling excited about lessons (M = 3.96) also scored high, indicating that interest and motivation improve retention.

Other factors such as exploring concepts (M = 3.92), taking responsibility for learning (M = 3.89), and completing tasks independently (M = 3.89) were also frequently observed, showing that students demonstrate independence in learning.

Meanwhile, working at one's own pace (M = 3.86), using personal strategies (M = 3.81), expressing ideas (M = 3.80), and participating in hands-on activities (M = 3.77) had slightly lower means, suggesting a need to further improve personalized learning practices.

The findings show that personalized learning enhances retention. This supports Aquino et al. (2023), who found that personalized learning improves performance, as well as Soliman and Gorospe (2024) and Prestoza et al. (2024), who emphasized that learner autonomy and tailored instruction improve engagement and learning outcomes.

These results indicate that when students learn based on their strengths, interests, and pace, they become more engaged and better able to retain mathematical concepts.

Table 4: Extent of factors affecting the retention of basic concepts in Mathematics in terms of Teaching Methods

Statement Indicators	Mean	Description	Interpretation
1. My teacher implements strategies that enhance learners' numeracy skills.	4.18	High	Frequently Observed
2. My teacher incorporates engaging activities that encourage active participation in class.	4.13	High	Frequently Observed
3. My teacher applies strategies that foster critical and creative thinking skills.	4.10	High	Frequently Observed
4. My teacher encourages me to ask questions and seek clarification on the concepts presented.	4.09	High	Frequently Observed
5. My teacher utilizes strategies that improve learners' academic achievement.	4.21	High	Frequently Observed
6. My teacher connects lessons to real-life situations and practical applications.	4.26	Very High	Extremely Evident
7. My teacher integrates knowledge of content within and across different curriculum areas.	4.07	High	Frequently Observed
8. My teacher provides guidance and support to help me achieve growth and progress.	4.14	High	Frequently Observed
9. My teacher promotes collaboration among peers to enhance learning experiences.	4.11	High	Frequently Observed
10. My teacher employs strategies that develop higher-order thinking skills.	4.09	High	Frequently Observed
Category Mean	**4.14**	**High**	**Frequently Observed**

Table 4 shows that teaching methods affect students' retention of basic mathematical concepts, with an overall mean of 4.14 interpreted as "High" or "Frequently Observed." This indicates that effective teaching practices play an important role in improving retention.

The highest indicator was connecting lessons to real-life situations (M = 4.26), interpreted as "Very High," showing that contextualized teaching greatly helps students understand and remember concepts. Other high indicators include using strategies to improve achievement (M = 4.21) and enhancing numeracy skills (M = 4.18), indicating that teachers apply effective instructional methods.

Other factors such as providing support (M = 4.14), using engaging activities (M = 4.13), and encouraging collaboration (M = 4.11) were also frequently observed, showing that teachers create an interactive and supportive learning environment.

Additionally, promoting critical and creative thinking (M = 4.10), encouraging questions (M = 4.09), and developing higher-order thinking skills (M = 4.09) were also evident, indicating that teachers focus on deeper learning.

Meanwhile, integrating lessons across subjects (M = 4.07) had the lowest mean, though still high, suggesting it can be improved further.

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The findings indicate that teaching methods are highly evident, particularly in connecting lessons to real-life situations. This supports Pillado et al. (2020) who found that effective teaching strategies significantly influence students' academic performance and retention. Additionally, Lomibao (2024) emphasized that active learning strategies enhance retention and understanding, while Johnson and Johnson (2018) highlighted that collaborative and interactive approaches improve retention and learning outcomes.

These results suggest that student-centered and real-life-based teaching strategies improve understanding and long-term retention of mathematical concepts.

Table 5: Extent of factors affecting the retention of basic concepts in Mathematics in terms of Availability of Resources

Statement Indicators	Mean	Description	Interpretation
1. My school provides a library with accessible learning resources.	3.73	High	Frequently Observed
2. My school has laboratory equipment, such as computers, for student use.	3.76	High	Frequently Observed
3. My teacher uses books as reference materials.	3.73	High	Frequently Observed
4. My teacher incorporates learning workbooks into lessons.	3.77	High	Frequently Observed
5. My teacher utilizes educational television for instruction.	4.01	High	Frequently Observed
6. My teacher employs real-life objects (realia) to integrate real-world concepts.	3.92	High	Frequently Observed
7. My teacher uses PowerPoint presentations to deliver lessons effectively.	4.24	Very High	Extremely Evident
8. My school has a dedicated Mathematics subject center.	3.94	High	Frequently Observed
9. My teacher integrates videos to deepen students' understanding of concepts.	3.91	High	Frequently Observed
10. My teacher uses ICT resources to present mathematical concepts.	3.80	High	Frequently Observed
Category Mean	**3.89**	**High**	**Frequently Observed**

Table 5 shows that the availability of resources affects students' retention of basic mathematical concepts, with an overall mean of 3.89 interpreted as "High" or "Frequently Observed." This indicates that instructional resources support students' learning and retention.

The highest indicator was the use of PowerPoint presentations (M = 4.24), interpreted as "Very High," showing that presentation tools help improve understanding. The use of educational television (M = 4.01) also scored high, indicating effective use of multimedia in teaching.

Other resources such as a Mathematics center (M = 3.94), real-life materials (M = 3.92), and videos (M = 3.91) were also frequently used, suggesting that teachers use different materials to make learning more engaging.

Technology-related resources like computers (M = 3.76), workbooks (M = 3.77), and ICT tools (M = 3.80) were also observed, though they can still be improved.

Meanwhile, library resources (M = 3.73) and books (M = 3.73) had the lowest means, showing that traditional materials are less emphasized compared to digital tools.

The results show that educational resources are frequently observed, with strong use of multimedia tools such as PowerPoint presentations. This finding is supported by Huang et al. (2020) who found that digital tools enhance engagement and understanding, and Mayer (2021) who emphasized that multimedia learning improves retention through deeper cognitive processing. Additionally, Tan and Santos (2022) highlighted that technology integration enhances student engagement and academic success

These results indicate that access to technology-based resources helps students better understand and retain mathematical concepts.

THE GENERAL WEIGHTED AVERAGE OF THE JUNIOR HIGH SCHOOL STUDENTS IN MATHEMATICS FOR SCHOOL YEAR 2025-2026

Table 6. Distribution of the Student-Respondents According to their General Weighted Average in Mathematics.

Grade Range	Frequency	Percent
90 - 100 (Outstanding)	78	28.9
85-89 (Very Satisfactory)	85	31.5
80-84 (Satisfactory)	68	25.2
75-79 (Fairly Satisfactory)	39	14.4
Below 75 (Did not meet Expectations)	0	0
Total	270	100%

Table 6 shows the distribution of students based on their General Weighted Average (GWA) in Mathematics. The results indicate that most students performed at satisfactory to outstanding levels, showing generally good academic performance.

The largest group of students is in the "Very Satisfactory" category (85–89), with 85 students (31.5%), followed by "Outstanding" (90–100) with 78 students (28.9%). This shows that many students achieved high performance in Mathematics.

Additionally, 68 students (25.2%) are "Satisfactory" (80–84), while 39 students (14.4%) are "Fairly Satisfactory" (75–79), indicating that some students may still need support.

Notably, no students fall under "Did Not Meet Expectations" (below 75), meaning all students met the minimum standard.

The results reveal that students' performance is generally satisfactory to outstanding, indicating that most students meet or exceed expected learning standards. This aligns with Comighud (2021) which found that strong memory retention is associated with better academic performance. Additionally, studies suggest that effective teaching strategies and learning engagement contribute to improved performance in Mathematics. These findings suggest that the presence of effective instructional

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practices and learning behaviors contributes to students' overall academic success.

RELATIONSHIP BETWEEN THE RESPONDENT'S PERCEIVED EXTENT OF FACTORS AFFECTING THE RETENTION OF BASIC CONCEPTS IN MATHEMATICS AND THE GENERAL AVERAGE OF STUDENTS IN MATHEMATICS

Table 7. Relationship between the respondent's perceived extent of factors affecting the retention of basic concepts in Mathematics in terms of Motivation and Goal Setting and the general average of students in Mathematics.

FACTORS	General Weighted Average Correlation	Sig.
MOTIVATION		
1. The extent to which I actively participate in the assigned learning activities.	0.206*	0.001
2. The extent to which I complete tests and assignments given to me.	0.137*	0.024
3. The extent to which I enjoy the teaching strategies used by my teacher.	0.011ns	0.856
4. The extent to which I collaborate and communicate with my peers during group activities.	0.004ns	0.949
5. The extent to which I demonstrate awareness of the lesson objectives.	0.082ns	0.179
6. The extent to which I engage in class discussions and motivational strategies.	0.046ns	0.454
7. The extent to which I solve assigned tasks, such as word problems.	0.069ns	0.255
8. The extent to which I listen to my classmates as they share their experiences.	0.052ns	0.393
9. The extent to which I connect the presented concepts to real-life situations.	-0.057ns	0.348
10. The extent to which I ask questions and seek clarification on different concepts.	0.062ns	0.308
GOAL SETTING		
1. The extent to which I participate in activities necessary for goal accomplishment.	0.173*	0.004
2. The extent to which I am aware of the skills and knowledge I must achieve and develop.	0.099ns	0.104
3. The extent to which I review and reflect on the processes involved in achieving goals.	0.089ns	0.145
4. The extent to which I utilize strategies and techniques to accomplish set objectives.	0.118ns	0.053
5. The extent to which I take part in setting learning goals and objectives.	0.050ns	0.411
6. The extent to which I use self-evaluation to assess whether I have met my goals.	0.004ns	0.954
7. The extent to which I apply the values I develop in my daily practices.	0.015ns	0.801
8. The extent to which I monitor my progress in the given lesson.	0.005ns	0.931
9. The extent to which I establish enhancement activities that contribute to achieving my goals.	0.025ns	0.688
10. The extent to which I recognize the connection between goals and their implications.	0.012ns	0.842

*Significant ns Not Significant

Table 7 shows the relationship between motivation, goal-setting factors, and students' GWA in Mathematics. The results reveal that only a few indicators have a significant relationship, while most do not, leading to the acceptance of the null hypothesis in most cases.

For motivation, only two indicators showed a significant relationship with GWA: active participation in learning activities ($r = 0.206$, $p = 0.001$) and completion of tests and assignments ($r = 0.137$, $p = 0.024$). These positive but weak correlations indicate that students who actively participate and complete tasks tend to perform better. Thus, the null hypothesis is rejected for these indicators.

However, other motivation factors such as enjoyment of teaching, collaboration, discussions, problem-solving, and asking questions showed no significant relationship with GWA ($p > 0.05$), leading to the acceptance of the null hypothesis.

For goal setting, only participation in goal-related activities ($r = 0.173$, $p = 0.004$) showed a significant relationship with GWA. This suggests that students who engage in goal-oriented tasks perform better. Thus, the null hypothesis is rejected for this indicator.

All other goal-setting factors showed no significant relationship, indicating they do not significantly affect academic performance.

Overall, the findings show that only selected motivation and goal-setting factors are related to performance. This supports Comighud (2021), who found that motivation influences achievement, and Locke and Latham (2019), who emphasized the importance of goal setting. However, the weak correlations suggest that these factors alone are not strong predictors of performance.

Table 8. Relationship between the respondent's perceived extent of factors affecting the retention of basic concepts in Mathematics in terms of Personalized Learning and Teaching Methods and the general average of students in Mathematics.

FACTORS	General Weighted Average Correlation	Sig.
PERSONALIZED LEARNING		
1. The extent to which I take responsibility and control of my own learning.	-.010ns	.875
2. The extent to which I work effectively at my own pace in different activities.	.055ns	.365
3. The extent to which I actively participate in hands-on and motivational strategies.	.062ns	.310
4. The extent to which I feel excited when lessons align with my interests.	.036ns	.553
5. The extent to which I engage in activities that effectively motivate me.	.140*	.022
6. The extent to which I explore and make discoveries related to my learning.	.066ns	.277
7. The extent to which I accomplish activities that require individual effort.	.153*	.012
8. The extent to which I use my own techniques in solving problems.	.104ns	.089
9. The extent to which I express my views and engage in activities that cater to my learning needs.	.063ns	.304
10. The extent to which I make learning choices based on my strengths and weaknesses.	.010ns	.867
TEACHING METHODS		
1. My teacher implements strategies that enhance learners' numeracy skills.	.036ns	.554
2. My teacher incorporates engaging activities that encourage active participation in class.	.089ns	.146
3. My teacher applies strategies that foster critical and creative thinking skills.	.111ns	.068
4. My teacher encourages me to ask questions and seek clarification on the concepts presented.	.072ns	.236
5. My teacher utilizes strategies that improve learners' academic achievement.	.053ns	.389
6. My teacher connects lessons to real-life situations and practical applications.	.037ns	.544
7. My teacher integrates knowledge of content within and across different curriculum areas.	.126*	.039
8. My teacher provides guidance and support to help me achieve growth and progress.	.015ns	.801
9. My teacher promotes collaboration among peers to enhance learning experiences.	.139*	.023
10. My teacher employs strategies that develop higher-order thinking skills.	.141*	.021

Table 8 shows the relationship between personalized learning, teaching methods, and students' GWA in Mathematics. The results indicate that only a few indicators have a significant relationship, while most do not, leading to the acceptance of the null hypothesis in most cases.

For personalized learning, only two indicators showed a significant relationship: engaging in motivating activities ($r = 0.140$, $p = 0.022$) and completing tasks independently ($r = 0.153$,

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p = 0.012). These weak positive correlations suggest that motivated and independent learners tend to perform better. Thus, the null hypothesis is rejected for these indicators.

However, other personalized learning factors such as self-paced learning, responsibility, hands-on activities, and aligning lessons with interests showed no significant relationship with GWA, leading to the acceptance of the null hypothesis.

For teaching methods, three indicators showed a significant relationship: integration across subjects (r = 0.126, p = 0.039), collaboration among peers (r = 0.139, p = 0.023), and development of higher-order thinking skills (r = 0.141, p = 0.021). These results suggest that these teaching practices slightly improve academic performance. Thus, the null hypothesis is rejected for these indicators.

Meanwhile, other teaching strategies such as improving numeracy, using engaging activities, connecting lessons to real life, and providing support showed no significant relationship with GWA.

Overall, the findings show that only selected personalized learning and teaching methods affect performance. This supports Aquino et al. (2023) and Lomibao (2024), who emphasized that engagement and active learning improve retention and academic performance.

Table 9. Relationship between the respondent's perceived extent of factors affecting the retention of basic concepts in Mathematics in terms ofAvailability of Resources and the general average of students in Mathematics.

FACTORS	General Weighted Average	
	Correlation	Sig.
TEACHING METHODS		
1. My school provides a library with accessible learning resources.	-.127*	.037
2. My school has laboratory equipment, such as computers, for student use.	-.157*	.010
3. My teacher uses books as reference materials.	-.170*	.005
4. My teacher incorporates learning workbooks into lessons.	-.088ns	.149
5. My teacher utilizes educational television for instruction.	-.016ns	.788
6. My teacher employs real-life objects (realia) to integrate real-world concepts.	-.072ns	.236
7. My teacher uses PowerPoint presentations to deliver lessons effectively.	.059ns	.337
8. My school has a dedicated Mathematics subject center.	.014ns	.814
9. My teacher integrates videos to deepen students' understanding of concepts.	.016ns	.793
10. My teacher uses ICT resources to present mathematical concepts.	.019ns	.759

*Significant ns Not Significant

Table 9 presents the relationship between the respondents' perceived extent of factors affecting the retention of basic concepts in Mathematics in terms of availability of resources and their General Weighted Average (GWA) in Mathematics. The results indicate that only a few indicators show statistically significant relationships, while the majority do not, leading to the acceptance of the null hypothesis for most factors.

Among the indicators, three factors demonstrated a significant relationship with students' GWA, though the correlations were negative and weak. These include "provision of a library with accessible learning resources" (r = -0.127, p = 0.037), "availability of laboratory equipment, such as computers" (r = -0.157, p = 0.010), and "use of books as reference materials by the teacher" (r = -0.170, p = 0.005). The negative correlations suggest that higher availability or use of these resources is slightly associated with lower academic performance. For these indicators, the null hypothesis is rejected.

Meanwhile, the remaining indicators including use of learning workbooks, educational television, real-life objects (realia), PowerPoint presentations, a dedicated Mathematics subject center, integration of videos, and ICT resources were found to have no significant relationship with students' GWA, leading to the acceptance of the null hypothesis. This implies that the presence or use of these resources alone does not significantly influence students' mathematics performance.

The findings reveal that only a few resource-related factors have a significant but negative relationship with academic performance. This contrasts with studies such as Tan and Santos (2022) which emphasized the positive impact of technology on learning.

CONCLUSION

The following are the conclusions for the study that are based on the previously presented findings and their implications.

1. The factors affecting retention of basic mathematical concepts were generally rated High or "Frequently Observed." These include motivation, goal setting, personalized learning, teaching methods, and availability of resources. Among these, teaching methods had the highest rating, while goal setting had the lowest, though still high.
2. The students' General Weighted Average (GWA) in Mathematics was generally Very Satisfactory. Most students were in the Very Satisfactory level, followed by Outstanding and Satisfactory, while only a few were Fairly Satisfactory. No student fell under Did Not Meet Expectations.
3. Only some indicators of memory retention factors showed a significant relationship with students' Mathematics performance, while most did not. This means that only specific factors influence performance, and overall, the relationship between memory retention and academic performance is partially supported.

RECOMMENDATION

Based on the findings and conclusions of the study, the following recommendations are proposed:

1. Teachers should strengthen motivational strategies that encourage active participation and task completion. They should also use effective teaching methods that promote critical thinking, collaboration, and better understanding of concepts, while helping students develop goal-setting and self-regulation skills.
2. Students should actively participate in learning activities, complete tasks, and practice independent study. They

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should also develop goal-setting and self-monitoring skills to improve their performance.

3. School administrators should provide training programs (e.g., LAC sessions) focused on effective teaching strategies and ensure that teachers have enough instructional materials and support.
4. Curriculum planners should improve the curriculum by including strategies that promote motivation, personalized learning, and critical thinking.
5. Schools should maximize the use of learning resources, especially ICT and multimedia tools, to support better learning in Mathematics.
6. Future researchers should study other factors affecting Mathematics performance and conduct intervention studies to test strategies that improve retention and achievement.

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