Strategic Intervention Material: Performance Level in Fundamental Operations of Grade 7 Students of Gumaca National High School

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ABSTRACT

This study aimed to determine the effectiveness of Strategic Intervention Materials (SIM) in enhancing the performance of Grade 7 students in fundamental mathematical operations at Gumaca National High School. The research addressed the persistent issue of low proficiency in basic mathematical skills, as evidenced by pre-test performance levels. Employing a quantitative pre-experimental one-group pre-test-post-test design, the study involved 769 Grade 7 students across 20 sections and five mathematics teachers. A validated 20-item assessment rubric was used to measure student performance before and after the implementation of SIM. Pre-test results revealed that most students fell within the "Fair" to "Needs Improvement" categories, highlighting the need for targeted intervention. Post-test scores demonstrated significant improvement, with a majority reaching "Good" to "Excellent" performance levels. The mean scores increased from 13.52 to 16.21, with a computed t-value of 8.22, indicating a statistically significant difference ($p < 0.05$). These findings underscore the effectiveness of SIM in addressing gaps in fundamental mathematical skills. The study implies that SIM can be a practical and impactful tool for improving student outcomes, particularly in challenging topics. It also emphasized the need to develop instructional materials tailored to learners' needs continuously. The results will be disseminated through professional learning communities, district-wide seminars, and policy discussions to advocate for integrating SIM into classroom instruction and district-wide planning. This research is a model for employing strategic interventions to address educational challenges in mathematics and other subject areas.

Keywords: Fundamental Mathematical Operations, Performance Level, Strategic Intervention Materials

CONTEXT AND RATIONALE

Mathematics education has faced consistent challenges globally, particularly in developing countries like the Philippines. According to the 2018 and 2022 Programme for International Student Assessment (PISA) results, Filipino students ranked among the lowest in mathematical literacy, with the country scoring below the global average (OECD, 2019). The need to improve students' foundational mathematical skills, especially in four fundamental operations, is crucial, as these skills are pivotal in fostering problem-solving abilities that apply beyond the classroom.

In response, the Department of Education (DepEd) has undertaken reforms under the MATATAG K-10 Curriculum, designed to prioritize foundational skills such as mathematical operations. The MATATAG Curriculum was launched to equip learners with the skills needed to cope with higher-order learning, focusing on enhancing competencies that students must master early on (DepEd, 2023). The National Mathematics Program further advocates for localized interventions to bridge learning gaps, particularly among struggling learners in basic mathematical operations (DepEd, 2022). Gumaca National High School, much like many public schools in the Philippines, has been grappling with the challenge of improving student performance in mathematics. Grade 7 students, in particular, struggle with fundamental operations such as addition, subtraction, multiplication, and division, which are essential building blocks for higher-level math. This study addresses this pressing issue by employing Strategic Intervention Materials (SIM), a widely recognized tool in the Philippine education system that provides additional, targeted learning support for students who require remedial assistance (DepEd, 2022).

Despite national efforts to reform the curriculum and focus on foundational skills, many students continue to perform below proficiency in fundamental operations. Several factors contribute to this gap, including insufficient individual attention in large classrooms, lack of reinforcement of foundational concepts, and students' varying levels of understanding and learning styles. At Gumaca National High School, teachers report that a significant portion of Grade 7 students demonstrate difficulty in mastering basic arithmetic, which inhibits their ability to tackle more complex mathematical problems (Gumaca National High School, 2023).

This gap highlights the necessity of targeted interventions to support learners struggling with basic mathematical concepts. While regular instruction can address the needs of the general student population, those requiring additional help often fall behind without individualized or supplementary materials. Addressing this issue through the integration of Strategic Intervention Materials (SIM) can provide structured and guided learning opportunities tailored to the specific needs of these learners.

The primary objective of this study is to evaluate the effectiveness of Strategic Intervention Materials (SIM) in improving the performance of Grade 7 students at Gumaca National High School in fundamental mathematical operations. By conducting this study, the research seeks to enhance the mathematical competencies of underperforming students, ultimately contributing to better academic outcomes and improved problem-solving abilities. The presumed benefit of this intervention is twofold: first, to increase student proficiency in basic operations, and second, to develop their confidence in applying these skills to more advanced mathematical concepts.

The intervention planned for this research involves the development and implementation of Strategic Intervention Materials (SIM), specifically designed to address gaps in fundamental operations such as addition, subtraction, multiplication, and division. These materials will be administered to Grade 7 students per class, in a structured 10-day intervention program. Each SIM will be aligned with the DepEd's learning competencies and will include guided practice, problem-solving activities, and formative assessments to measure student progress. Pre-test and post-test assessments will be used to evaluate the effectiveness of SIM in improving students' performance.

The results of this study can serve as a model for action planning at Gumaca National High School and beyond. If the Strategic Intervention Materials (SIM) prove effective in improving students' performance in fundamental operations, the intervention could be adopted as part of a broader instructional strategy for underperforming students within Gumaca West District. The findings could also inform DepEd Quezon's policy development, emphasizing the need for localized, targeted interventions as part of the national education agenda. Additionally, the results may support the creation of professional development programs for teachers, equipping them with the skills to develop and implement similar interventions in their classrooms.

On a systemic level, the success of this intervention could influence district to national policies, particularly those related to remedial education and intervention strategies for students at risk of falling behind. As DepEd continues to refine its curriculum through the MATATAG initiative, this research could provide empirical evidence to support further improvements in instructional materials and teaching methodologies to enhance mathematical literacy in the Philippines.

Innovation, Intervention, or Strategy

Strategic Intervention Materials (SIM) are supplementary learning tools designed to help students struggling in specific subjects, such as mathematics. In this study, SIM was used as an innovative intervention to enhance the performance of Grade 7 students in fundamental operations: addition, subtraction, multiplication, and division. The SIM modules provided students with structured lessons, interactive exercises, and real-world application problems designed to bridge the gaps in their mathematical understanding and problem-solving abilities.

The main goal of this intervention was to reinforce basic mathematical operations by offering targeted instructional materials that cater to the unique needs of struggling learners. SIM is aligned with the Department

of Education's (DepEd) curriculum, focusing on remediation for students who struggle to master essential mathematical concepts.

To ensure the successful implementation of the Strategic Intervention Materials (SIM), the following activities were undertaken: Initial Assessment (Pre-Test), development of SIM, guided instruction, collaborative learning activities, formative assessments, and post-test and evaluation.

The rationale behind using Strategic Intervention Materials (SIM) is grounded in their ability to provide focused, supplementary support to students at all sections to enhance their skills in fundamental operation and decrease the risk of falling behind in mathematics. Research and data from the Department of Education suggest that remedial instructional tools, like SIM, effectively address specific learning gaps, especially in mathematics (DepEd, 2022). SIM's structured, step-by-step approach allows students to build foundational skills at their own pace, which is critical for those who require additional time to understand basic concepts.

This intervention was particularly plausible for addressing the problem of underperformance in fundamental operations because it offers personalized and targeted instruction. While regular classroom lessons often cater to the average student, SIM ensures that struggling students receive tailored instruction that directly addresses their weaknesses. Furthermore, the real-life application of mathematical operations in the SIM exercises fosters a more profound understanding and relevance, making the content more engaging and relatable for students.

However, the intervention also has its limitations. SIM requires the active participation of both students and teachers, and its success depends on the consistent implementation of the activities and continuous monitoring of student progress. Additionally, while SIM can address foundational gaps, it may not fully resolve more complex learning difficulties related to other factors, such as cognitive challenges or external distractions.

Implementation Plan and Resources Needed

Duration: The intervention was implemented over 10 days, with each day focusing on a different fundamental operation and the succeeding days integrated into the lesson.

Location: The intervention took place at Gumaca National High School, specifically in all Grade 7 mathematics classes.

Participants: The primary participants were all Grade 7 teachers and students who were to enhance their skills in fundamental operations based on pre-test results. Teachers facilitated the intervention, guiding the students through the SIM modules. The school's mathematics department oversaw the intervention and ensured that the SIM materials were aligned with the DepEd curriculum.

Schedule: The 10-day intervention was integrated into the regular class schedule, with additional remedial sessions provided after class if necessary.

Resources needed: SIM modules, pre-test, and post-test materials, teachers' LAC training resources, classroom materials, student resources, and assessment tools.

Action Research Questions

This study aimed to determine the level of performance in fundamental operations of Grade 7 students of Gumaca National High School using strategic intervention material.

Specifically, these are the questions to be investigated:

1. What is the level of performance of grades 7 students using scoring rubrics by section in terms of:

1.1 Pre-test; and

1.2 Post – test?

2. How is the mean scores' performance of the students using the strategic intervention Material (SIM) for grades 7 students in terms of:

2.1 pre-test; and

2.2 post-test?

3. Is there a significant difference between the pre-test and post-test mean scores of Grade 7 students?

Hypothesis

There is no significant difference between the pre-test and post-test mean scores of Grade 7 students.

ACTION RESEARCH METHODS

Participants and/or other Sources of Data and Information

The primary participants in this study include all 751 Grade 7 students enrolled in the 20 sections of Gumaca National High School and all five teachers responsible for teaching mathematics at this grade level. The students were distributed across the 20 sections, which vary slightly in class size, ranging from 31 to 45 students per section. The sections were named with positive Filipino values, reflecting the school's character development focus. These participants represented a diverse group in terms of mathematical proficiency, with some students struggling in fundamental operations and others performing at higher levels. The study aimed to assess the impact of Strategic Intervention Materials (SIM) on all students, ensuring that both high- and low-performing learners benefit from the targeted remediation.

Grade 7 Sections with Frequency and Percentage Distribution

Section	Frequency (No. of Students)	Percentage (%)
Masinop	40	5.20%
Malikhain	35	4.55%
Matiyaga	35	4.55%
Matulungin	39	5.07%
Magiting	40	5.20%
SPA	43	5.59%
Maparaan	37	4.81%
Masigasig	37	4.81%
Masikap	33	4.79%
Masunurin	39	5.07%
Mapagmahal	36	4.68%
SPJ	39	5.07%
Marangal	38	4.94%
Mapagbigay	38	4.94%
Matapat	38	4.94%
Maaasahan	39	5.07%

SPS	46	5.98%
Makabansa	38	4.94%
Matatag	39	5.07%
SSP	40	5.20%
Total	**769**	**100.00%**

Data Gathering Methods

The data collection process for this study was conducted in three main phases: pre-test, implementation of Strategic Intervention Materials (SIM), and post-test. In the pre-test phase, all 751 Grade 7 students from the 20 sections took an initial assessment to evaluate their proficiency in fundamental mathematical operations (addition, subtraction, multiplication, and division). This pre-test was established as a baseline, allowing for the identification of specific learning gaps that the SIM intervention will target. The administration of this pre-test was uniform across all sections to ensure consistency and comparability of results.

During the implementation phase, the SIM intervention was introduced over 10 days. Teachers were to guide students through targeted SIM lessons and exercises focused on the four fundamental operations. Throughout this phase, formative data was gathered, including daily performance scores from the exercises, teacher observations of student engagement, and notes on problem-solving strategies employed by the students. Teachers also collected qualitative feedback from students regarding their experiences using SIM to understand how the materials influence their learning. These daily assessments and reflections will provide insight into the immediate effects of the intervention.

In the post-test phase, a second assessment identical to the pre-test was administered to all students. The post-test measured the improvement in students' mathematical skills, and a comparison of pre-test and post-test scores quantified the effectiveness of the SIM intervention. Additional qualitative data will be gathered from teachers' reflections and student feedback to provide context for the observed changes in performance. These data-gathering methods are well-suited to the research as they offer both quantitative and qualitative insights into the effectiveness of SIM, ensuring a comprehensive evaluation of its impact on student learning.

The study focused on collecting pre-test and post-test scores to assess student improvement and formative data during the intervention. These data were gathered at specific time points: pre-test scores before the intervention, daily formative assessments during the 10-day implementation period, and post-test scores after the intervention. This approach aligned closely with the research questions, which aim to determine whether SIM improves students' mastery of fundamental operations and the effectiveness of the intervention.

The primary research instrument was a mathematics test that covered fundamental operations, including simple calculations and word problems. This test is designed to measure both procedural fluency and conceptual understanding, making it appropriate for evaluating the outcomes of the SIM intervention. A pilot test was conducted with a small group of Grade 7 students not involved in the main study to ensure that the instrument was reliable and valid. Their feedback was used to refine the test items, adjusting for clarity, difficulty, and alignment with learning objectives. Additionally, the test was reviewed by subject matter experts to ensure that it accurately assesses the skills targeted by the SIM materials.

Data Analysis

The data collected in this study was analyzed using quantitative methods, focusing on measuring student performance in the pre-test and post-test assessments of fundamental operations. The following approaches were used to address each of the research questions effectively.

1. Data Organization and Analysis by Section (Pre-Test and Post-Test Performance with Rubrics) The Rubrics for 20-item Pre-Test and Post-Test Scores were used to classify students' performance levels based on

their scores. The rubric consists of six performance levels: 18-20: Excellent, 15-17: Very Good,12-14: Good, 9-11: Fair,6-8: Needs Improvement and 0-5: Poor.

The pre-test and post-test scores of all Grade 7 students across 20 sections were classified according to these categories. For each section, the frequency and percentage of students falling into each performance level were calculated and reported. This analysis provided an overview of the level of performance before and after the implementation of the SIM intervention, with descriptions of how many students or classes improved, stayed the same, or declined in performance. The results were presented in tables, with rows for each section and columns for the frequency and percentage of students in each performance category (Excellent, Very Good, Good, Fair and Need Improvement) for both the pre-test and post-test.

2. Mean Percentage Score (MPS) Analysis

The Mean Percentage Score (MPS) was used to calculate the overall performance of students in the pre-test and post-test. The MPS is calculated by dividing the total score of all students in a section by the maximum possible score (20 points) and multiplying by 100 to obtain a percentage.

$$MPS = \frac{\text{Total Score of all students}}{\text{Total Possible Score}} \times 100$$

The MPS for the pre-test and post-test will be calculated for each of the 20 sections. This analysis helped identify sections with the highest and lowest performance and indicated the overall effectiveness of the SIM intervention. The mean scores were compared across sections to show which sections had the most significant gains and where additional support might still be needed.

3. Paired t-test for Significant Difference

A paired t-test was used to determine if there was a statistically significant difference between the pre-test and post-test mean scores of Grade 7 students. The paired t-test is appropriate for this analysis because it compares two sets of related scores, the pre-test and post-test scores of the same group of students, allowing for an evaluation of whether the SIM intervention resulted in significant improvements in student performance.

The t-test was conducted using Microsoft Excel data analysis to ensure accuracy. The result will provide a p-value that indicates whether the difference between the pre-test and post-test scores is statistically significant. A p-value of less than 0.05 will indicate that the improvement in post-test scores is not due to random chance but rather to the effectiveness of the SIM intervention.

DISCUSSION OF RESULTS AND REFLECTION

This study aimed to determine the level of performance in fundamental operations of Grade 7 students of Gumaca National High School using strategic intervention material.

Part 1. The Level of Performance of Grades 7 Students Using Scoring Rubrics By Section In Terms of Pre-test and Post-test

Table 1 The Level of Performance of Grades 7 Students Using Scoring Rubrics by Section In Terms Pre-Test

Results of Pre-test							
Section	**Excellent 18-20**	**Very Good 15-17**	**Good 12-14**	**Fair 9-11**	**Needs Improvement 6-8**	**Poor 0-5**	**Total**
	Pre-test	**Pre-test**	**Pre-test**	**Pre-test**	**Pre-test**	**Pre-test**	
1. Masinop	7	10	10	8	3	2	**40**

2. Malikhain	0	2	5	11	11	6	**35**
3. Matiyaga	13	8	5	4	4	1	**35**
4. Matulungin	7	9	11	10	2	0	**39**
5. Magiting	15	7	11	3	3	1	**40**
6. SPA	17	10	6	7	3	0	**43**
7. Maparaan	8	8	8	5	6	2	**37**
8. Masigasig	3	6	10	9	7	2	**37**
9. Masikap	0	2	3	9	11	8	**33**
10. Masunurin	7	5	7	10	7	3	**39**
11. Mapagmahal	5	4	8	12	7	0	**36**
12. SPJ	18	10	6	3	2	0	**39**
13. Marangal	4	11	12	4	5	2	**38**
14. Mapagbigay	1	7	12	6	7	5	**38**
15. Matapat	6	3	6	11	7	5	**38**
16. Maaasahan	17	7	6	5	4	0	**39**
17. SPS	23	9	6	7	1	0	**46**
18.Makabansa	3	11	14	3	6	1	**38**
19.Matatag	25	8	6	0	0	0	**39**
20. SSP	34	5	1	0	0	0	**40**
Total	**213**	**142**	**153**	**127**	**96**	**38**	**769**

As seen in Table 1.1, The pre-test results for Grade 7 students at Gumaca National High School illustrate varying performance levels across the 20 sections in fundamental mathematics operations. Out of 769 total responses, most students scored within the "Good" with 153 students and "Fair" with 127 students performance levels, indicating that most learners possess a satisfactory basic understanding of fundamental operations. A smaller proportion of students excelled, with 213 students reaching the "Excellent" level with 18-20 points and 142 achieving "Very Good" with 15-17 points. However, a notable number of students performed poorly, with 96 scoring under "Needs Improvement" in 6-8 points and 38 falling under "Poor" in 0-5 points.

High-performing sections, such as SSP and Matatag, stood out, with SSP having 34 students scoring "Excellent" and Matatag with 25. These sections demonstrated more vital foundational mathematical skills compared to sections like Malikhain and Masikap, where most students scored within the lower performance levels. Notably, Malikhain had no students achieving an "Excellent" score, and Masikap had only two students reaching "Very Good."

This disparity across sections suggests the influence of various factors such as teaching strategies, student motivation, and classroom environment. These findings are consistent with studies emphasizing the need for tailored instructional strategies to bridge achievement gaps (DepEd, 2022). Furthermore, the results align with the outcomes of international assessments like PISA, highlighting that Filipino students often struggle with applying mathematical concepts effectively (PISA, 2018).

The pre-test data underscores the need for interventions such as Strategic Intervention Materials (SIM) to improve mathematical competencies, particularly for low-performance sections. By addressing these gaps, the intervention can help equalize learning outcomes and ensure that more students achieve higher mastery levels.

The results will serve as a baseline for measuring the effectiveness of SIM in elevating students' understanding and application of fundamental operations.

Table 1.2 The Level Of Performance Of Grades 7 Students Using Scoring Rubrics by Section In Terms Post-test

Results of Post-test							
Section	**Excellent 18-20**	**Very Good 15-17**	**Good 12-14**	**Fair 9-11**	**Needs Improvement 6-8**	**Poor 0-5**	**TOTAL**
	Post-test	**Post-test**	**Post-test**	**Post-test**	**Post-test**	**Post-test**	
1. Masinop	8	11	11	7	3	0	**40**
2. Malikhain	7	7	14	7	0	0	**35**
3. Matiyaga	21	6	2	6	0	0	**35**
4. Matulungin	25	6	2	6	0	0	**39**
5. Magiting	24	6	9	1	0	0	**40**
6. SPA	21	13	8	1	0	0	**43**
7. Maparaan	14	14	4	2	3	0	**37**
8. Masigasig	10	17	6	2	1	1	**37**
9. Masikap	1	4	6	11	9	2	**33**
10. Masunurin	10	13	7	6	3	0	**39**
11. Mapagmahal	10	13	6	7	0	0	**36**
12. SPJ	30	9	0	0	0	0	**39**
13. Marangal	12	8	10	8	0	0	**38**
14. Mapagbigay	14	12	6	6	0	0	**38**
15. Matapat	25	4	5	4	0	0	**38**
16. Maaasahan	26	6	1	6	0	0	**39**
17. SPS	36	7	2	1	0	0	**46**
18.Makabansa	21	10	0	7	0	0	**38**
19.Matatag	28	10	1	0	0	0	**39**
20. SSP	40	0	0	0	0	0	**40**
TOTAL	**383**	**176**	**100**	**88**	**19**	**3**	**769**

As shown in Table 1.2, The post-test results for Grade 7 students at Gumaca National High School, as detailed in the table, demonstrate significant improvement in their performance levels after the implementation of the Strategic Intervention Materials (SIM). A substantial increase in the number of students achieving "Excellent" performance (383) is observed compared to the pre-test results (213). Similarly, the "Very Good" category also

rose from 142 students in the pre-test to 176 in the post-test. These gains indicate that more students attained mastery and above-average understanding of fundamental operations.

Conversely, the number of students in the lower performance levels ("Fair," "Needs Improvement," and "Poor") significantly decreased. For instance, students scoring "Needs Improvement" dropped from 96 to 19, and those in the "Poor" category reduced from 38 to just 3. These results highlight the effectiveness of SIM in addressing learning gaps and improving students' mathematical skills.

Sections such as SSP, Matatag, and SPS emerged as the top-performing groups, with SSP achieving 40 students in the "Excellent" category. This section had a perfect distribution, with no students scoring below "Excellent." Similarly, SPS and Matatag also had most of their students scoring in the highest category, showcasing exceptional progress. On the other hand, sections like Masikap still displayed some challenges, as they had students scoring in "Needs Improvement" and "Poor," though the numbers were fewer compared to the pre-test.

The results are consistent with findings from the Department of Education (DepEd), which advocates for innovative teaching tools like SIM to enhance students' problem-solving and critical-thinking skills in mathematics (DepEd, 2023). These improvements align with PISA recommendations, emphasizing the importance of interventions tailored to learners' needs to boost their performance in core subjects (PISA, 2018).

In summary, the post-test results confirm that implementing SIM effectively elevates students' competencies in fundamental operations. The significant improvements in performance levels provide a strong case for scaling the use of SIM across other grade levels and sections to enhance mathematical proficiency and mastery further.

Table 1.3 Summary of the Results of Pre-test and Post-test Scores

Summary of the Results of Pre-test and Post-test Scores													
	Excellent 18-20		**Very Good 15-17**		**Good 12-14**		**Fair 9-11**		**Needs Improvement 6-8**		**Poor 0-5**		**TOTAL**
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	
TOTAL	213	383	142	176	153	100	127	88	96	19	38	3	**769**

As stated in Table 1.3, The summary of the pre-test and post-test results reveals a significant improvement in the performance of Grade 7 students after implementing Strategic Intervention Materials (SIM). The number of students achieving the highest performance level, "Excellent" (18-20), increased markedly from 213 in the pre-test to 383 in the post-test. Similarly, those scoring "Very Good" (15-17) rose from 142 to 176, reflecting a positive shift toward higher mastery levels.

On the other hand, there is a substantial decline in the lower performance categories. Students categorized as "Needs Improvement" (6-8) decreased dramatically from 96 to 19, while those in the "Poor" (0-5) category dropped from 38 to only 3. The reduction in these lower tiers signifies that many students have progressed to more satisfactory performance levels.

The improvement is also evident in the mid-performance levels. Students in the "Good" (12-14) category decreased from 153 in the pre-test to 100 in the post-test, indicating that many students have transitioned to higher performance levels. Likewise, the number of students in the "Fair" (9-11) category reduced from 127 to 88, further highlighting the success of the intervention.

The upward trend in scores underscores the effectiveness of SIM in addressing learning gaps in fundamental operations. The materials strengthened students' problem-solving skills and mathematical understanding by providing targeted and structured support. These results align with DepEd's (2023) emphasis on innovative teaching strategies and PISA's (2018) advocacy for personalized learning interventions to improve student outcomes in mathematics.

In summary, the comparative analysis of pre-test and post-test results demonstrates that SIM significantly enhanced the performance of Grade 7 students across all sections. The marked improvement in higher performance levels and the reduction in lower levels strongly affirm the effectiveness of this approach in fostering better learning outcomes.

Part 2. The Mean Scores' Performance of The Students Using the Strategic Intervention Material (SIM) For Grades 7 Students in Terms of Pre-test and Post-test

Table 2.1 The Mean Scores' Performance of The Students Using the Strategic Intervention Material (SIM) For Grades 7 Students in Terms of Pre-test

Sections	Mean Scores	Rank
Masinop	13.51	10
Malikhain	8.74	20
Matiyaga	14.63	8
Matulungin	13.85	9
Magiting	14.72	7
SPA	15.59	4
Maparaan	13.15	11
Masigasig	11.74	16
Masikap	8.96	19
Masunurin	12.07	14.5
Mapagmahal	12.07	14.5
SPJ	15.46	5
Marangal	13.01	12.5
Mapagbigay	10.93	18
Matapat	11.23	17
Maaasahan	15.27	6
SPS	15.98	3
Makabansa	13.01	12.5
Matatag	17.54	2
SSP	19.01	1
Average Mean Score	13.52	

As presented in Table 2.1, The pre-test results reveal a range of mean scores among the Grade 7 sections, reflecting varying proficiency levels in fundamental mathematical operations before implementing the Strategic Intervention Materials (SIM). The highest pre-test mean score is observed in the SSP section with 19.01, ranked 1st, followed closely by Matatag with 17.54 and SPS with 15.98, ranked 2nd and 3rd, respectively. These sections displayed foundational solid skills, potentially due to effective prior instruction or high-performing student groups.

Conversely, the sections with the lowest pre-test mean scores include Malikhain with 8.74, ranked 20th, Masikap with 8.96, and Mapagbigay with 10.93, ranked 19th and 18th, respectively. These scores indicate substantial learning gaps and highlight the need for targeted interventions to address fundamental skill deficiencies.

The overall average pre-test mean score across all sections is 13.52, indicating a baseline level of performance that suggests room for improvement. Sections like SPA with 15.59 and SPJ with 15.46, ranked 4th and 5th, performed above the average mean, reflecting moderate proficiency, while sections like Masigasig with 11.74 and Matapat with 11.23, ranked 16th and 17th, performed below average.

This variation in performance underscores the importance of a differentiated approach to teaching and learning. Strategic Intervention Materials provide the necessary scaffolding to help all students achieve higher mastery levels, particularly those from lower-performing sections. Furthermore, the pre-test data serves as a valuable baseline for measuring the effectiveness of SIM in improving student outcomes.

The results align with findings from related studies emphasizing the critical role of targeted instructional strategies, such as SIM, in bridging learning gaps (DepEd, 2023). By addressing specific deficiencies identified in the pre-test, teachers can enhance students' problem-solving skills and overall mathematical proficiency, contributing to improved educational outcomes in alignment with the MATATAG Curriculum.

Table 2.2 The Mean Scores' Performance of The Students Using the Strategic Intervention Material (SIM) For Grades 7 Students in Terms Post-test

Sections	Mean Scores	Rank
Masinop	14.15	18
Malikhain	13.79	19
Matiyaga	16.98	9
Matulungin	17.15	6
Magiting	17.46	5
SPA	16.97	10
Maparaan	16.08	12
Masigasig	15.30	14
Masikap	10.81	20
Masunurin	14.77	16
Mapagmahal	15.15	15
SPJ	18.43	2
Marangal	14.60	17
Mapagbigay	15.80	13
Matapat	17.06	8
Maaasahan	17.10	7

SPS	18.19	4
Makabansa	16.67	11
Matatag	18.31	3
SSP	19.39	1
Average Mean Score	**16.21**	

As gleaned in Table 2.2, The post-test results show a significant improvement in the performance of Grade 7 students across all sections after implementing the Strategic Intervention Material (SIM). The highest post-test mean score is observed in the SSP section with 19.39, ranked 1st, followed closely by SPJ with 18.43, Matatag with 18.31, and SPS with 18.19, ranked 2nd, 3rd, and 4th, respectively. These results indicate a remarkable mastery of fundamental mathematical operations, demonstrating the effectiveness of the intervention in enhancing student learning outcomes.

Conversely, the lowest post-test mean scores are found in Masikap with 10.81, ranked 20th, Malikhain with 13.79, and Masinop with 14.15, ranked 19th and 18th, respectively. Although these sections showed improvement compared to their pre-test performance, their scores highlight the need for continued and tailored instructional support to achieve parity with higher-performing sections.

The overall average post-test mean score is 16.21, reflecting an increase from the pre-test average of 13.52. This improvement suggests that the SIM intervention was effective in addressing learning gaps and enhancing students' foundational mathematical skills. Sections like Matulungin with 17.15, Matiyaga with 16.98, and Maaasahan with 17.10 performed above the average mean, showcasing notable gains in their performance.

The improved post-test scores align with findings in educational research that emphasize the value of strategic interventions like SIM in fostering student engagement, confidence, and mastery of critical concepts (DepEd, 2023). The results also demonstrate that structured, scaffolded learning tools can effectively elevate students' proficiency levels across diverse learning contexts.

This data underscores the importance of sustaining SIM and similar interventions as part of a long-term instructional strategy to support all learners. The significant gains observed in sections with initially lower pre-test scores further highlight the potential of these materials to bridge achievement gaps and promote equity in educational outcomes.

Part 3. Significant Difference Between the Pre-Test Mean Scores and Post-Test Mean Scores Of Grade 7 Students

Table 3 Significant Difference Between the Pre-Test Mean Scores and Post-Test Mean Scores of Grade 7 Students

Variable	df	N	Mean	Computed t-value	Critical t-value	Significance value	Decision	Interpretation
Mean Score of Pre-test(x_1)		20	13.52					
Mean Score of Post-test(x_2)	19	20	16.21	8.22	2.09	0.05	Reject Ho	Significant

As shown in Table 3, The statistical analysis reveals a significant difference between the pre-test and post-test mean scores of Grade 7 students after implementing the Strategic Intervention Material (SIM). The computed t-value of 8.22 exceeds the critical t-value of 2.09 at a 0.05 significance level, leading to the rejection of the null hypothesis (Ho). This indicates that the improvement in mean scores from the pre-test (13.52) to the post-test (16.21) is statistically significant.

The results validate the effectiveness of SIM in enhancing students' mathematical performance. The substantial increase in scores demonstrates that the intervention successfully addressed the learning gaps in fundamental operations. This finding aligns with prior studies emphasizing the role of targeted instructional strategies in improving academic outcomes, especially in areas requiring foundational reinforcement.

The observed significant difference highlights the impact of well-structured and engaging learning materials in fostering student understanding and retention of mathematical concepts. These results also provide empirical support for using SIM to achieve sustainable academic improvements, particularly for learners struggling with foundational mathematical skills.

Reflection

This study underscored the transformative impact of Strategic Intervention Materials (SIM) on the mathematical performance of Grade 7 students, particularly in mastering fundamental operations. The results confirmed that SIM, as an innovative instructional tool, effectively bridges learning gaps, fosters engagement, and enhances understanding of mathematical concepts. This aligns with educational theories such as Vygotsky's Zone of Proximal Development, which emphasizes the importance of scaffolding learning through targeted interventions tailored to learners' needs.

From a practical perspective, the findings highlight the critical role of contextually relevant and thoughtfully designed materials in addressing students' diverse needs. The significant improvement in post-test scores suggests that SIM can serve as a replicable model for addressing learning deficits not only in mathematics but across other subject areas.

IMPLICATIONS

The implications of this research are profound. For teachers, it provides actionable insights into designing and implementing interventions that cater to varying student competencies. For school leaders and policymakers, it underscores the need to prioritize the development and integration of supplemental instructional tools like SIM into the curriculum. Moreover, it advocates for teacher training that utilizes these tools effectively to maximize learning outcomes.

On a broader scale, this study affirms that addressing foundational skills through targeted interventions can lead to sustainable academic improvements, empowering learners to achieve higher-order competencies in mathematics and beyond. It serves as a call to action for continuous innovation in pedagogy, ensuring that education remains inclusive, effective, and transformative.

Action Plan

The researcher intends to disseminate the findings of this study through presentations in professional learning communities (PLCs), district-wide seminars, and conferences focused on curriculum development and instructional strategies. The results will also be shared with stakeholders such as school administrators, mathematics teachers, and policymakers during school-based in-service training sessions and district research plenums.

The Strategic Intervention Material (SIM) will be adopted and integrated into regular classroom instruction for Grade 7 mathematics to utilize the findings. The materials will be refined based on the study's insights and feedback from educators during dissemination activities. A training program will be designed for mathematics teachers to ensure they are equipped to implement SIM effectively.

The study's findings will be used to advocate for policy reforms emphasizing the use of context-specific instructional tools in schools. Recommendations will also be proposed to include the development and implementation of SIMs in district-wide instructional planning and resource allocation. Finally, the strategies demonstrated in this research can serve as a framework for creating intervention materials for other grade levels and subjects, thereby improving overall teaching and learning practices.

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