



E- ISSN: 2980-4760  
P- ISSN: 2980-4752

DOI: <https://doi.org/10.17613/71xs-8z75>

# Improving Numerical Performance in Grade-7 Students through Effective Remedial Instruction

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 **International Journal of Multidisciplinary Educational Research and Innovation** is an international peer-reviewed academic journal that highly values the importance of developing knowledge in the field of multidisciplinary educational and innovative research. The journal's scope is broad, with the goals of disseminating information and providing a place for discussion, theoretical inquiry, practical applications, research discoveries, and experimentations in the field of education.

## Recommended Citation

Legal, P. M. & Legal, G. (2024). Improving Numerical Performance in Grade 7 Students through Effective Remedial Instruction. *International Journal of Multidisciplinary Educational Research and Innovation*, 2(1), 1-20. <https://doi.org/10.17613/71xs-8z75>.

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# IMPROVING NUMERICAL PERFORMANCE IN GRADE 7 STUDENTS THROUGH EFFECTIVE REMEDIAL INSTRUCTION

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Received: November 2023

Revised: December 2023

Accepted: January 2024

Available: February 2024

## ABSTRACT

This study aimed to assess the effectiveness of remedial instruction in improving the numeracy skills of Grade 7 students at Malbug National High School during the school year 2023-2024. Adopting a quasi-experimental research design, the research focused on Grade 7 students at Malbug National High School, Cawayan East District, Masbate Province Division, Philippines, identified as non-numerates, employing pre-tests and post-tests as essential research tools. The independent variable was the remedial instruction in numeracy, while the dependent variable was students' numeracy performance measured through pre-tests and post-tests. Before the intervention, the pre-test numeracy performance exhibited a varied distribution of students across different score ranges. A majority fell into the "Needs Major Support" category, emphasizing the necessity for targeted interventions. The post-test results, however, revealed a remarkable improvement, with 87.88% of initially non-numerate students achieving scores in the "Transforming" range. A thorough statistical examination validated a notable disparity in the scores obtained before and after the instructional intervention, substantiating the favorable influence of remedial instruction. The calculated t-value of 19.594, exceeding the critical t-value, led to rejecting the null hypothesis. In conclusion, the study emphasizes the need for tailored interventions based on the initial deficiency in numeracy skills. The post-test results underscored the success of remedial instruction in fostering substantial growth. The study recommends sustaining the remedial program, implementing periodic assessments, providing teacher training, involving parents in students' development, allocating adequate resources, and further research in other schools to strengthen findings.

**Keywords:** numeracy skills, remedial instruction, grade 7 students, pre-tests, post-tests, non-numerates

## INTRODUCTION

Mathematics literacy goes beyond rote memorization of formulas or comprehension of mathematical branches. It emphasizes a comprehensive view, highlighting practical applications. As defined by the Programme for International Student Assessment (PISA), it is the ability to formulate, apply, and interpret mathematics in diverse contexts, involving reasoning and utilizing concepts, procedures, and facts (OECD, 2014). This comprehension transcends theoretical knowledge, prioritizing real-world applications.

The historical records of mathematics demonstrate that significant progress occurred in civilizations that highly valued mathematical proficiency. Mathematics is crucial in technological and scientific advancements, contributing universally to humanity rather than being confined to any specific country, tribe, or nation. The current body of mathematical knowledge is the collective result of human



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endeavors. It is not an exaggeration to assert that mathematics parallels civilization's history (Abd Algani, 2022). This insightful observation encapsulates the diverse aspects of mathematics and its central role in enhancing human comprehension, fostering innovation, and driving technological progress.

In the modern technological age, mathematics assumes a paramount role as an indispensable tool for innovation and progress. Our contemporary world relies heavily on technology, data analysis, and scientific advancements, all underpinned by mathematical principles. In our digital realm, mathematics extends its influence across various aspects, from the algorithms driving search engines to the encryption techniques safeguarding online transactions.

As our society becomes increasingly data-driven and reliant on automation, mathematics serves as the engine driving technological innovation. It enables the development of artificial intelligence, the optimization of industrial processes, and the modeling of complex systems, such as climate patterns or financial markets. In essence, mathematics empowers humanity to harness the full potential of technology and shape the future.

Given mathematics' central role in the technological age, mathematics educators play a pivotal role in preparing the next generation for the challenges and opportunities of this digital era. It is their responsibility to provide students with not only a foundational experience of mathematical concepts but also the ability to apply mathematics in novel and modern contexts.

This entails introducing students to cutting-edge mathematical theories and applications, fostering computational skills, and nurturing the creative problem-solving abilities essential for addressing the complex challenges of the 21st century. Mathematics teachers serve as guides, enabling students to grasp the ever-expanding frontiers of mathematics and equipping them to harness its power in the service of scientific inquiry, technological innovation, and artistic exploration.

The Department of Education (DepEd), Regional Office V, through the issuance of its Regional Memorandum No. 133, s. 2022, has articulated a significant vision: to cultivate students who possess mathematical literacy and the quality of being "numerates" – individuals capable of adeptly applying numeracy skills for various purposes. This vision recognizes the evolving needs of education in a rapidly changing world and places numeracy skills at the forefront of learning objectives.

Central to achieving this vision is a shift in the teaching of mathematics. It is no longer sufficient to focus solely on rote memorization and mechanical problem-solving techniques. Instead, critical thinking and problem-solving must be emphasized. Students should be encouraged to think deeply about mathematical concepts, understand the underlying principles, and apply their knowledge to solve real-world problems.

Mathematics education should evolve to become a dynamic process where students not only learn mathematical facts but also cultivate the ability to analyze, evaluate, and synthesize information. They should develop the confidence to approach unfamiliar mathematical challenges and devise innovative solutions. This shift aligns with the broader educational goals of nurturing well-rounded, adaptable individuals who thrive in a knowledge-based society.

Numeracy skills are the foundational building blocks upon which students construct their mathematical competencies across different grade levels. Proficiency in numeracy skills, including the four fundamental operations of addition, subtraction, multiplication, and division, is paramount. These skills are the bedrock of mathematical literacy, enabling students to tackle more advanced mathematical concepts and applications with confidence.

Numeracy skills are akin to the grammar and vocabulary of mathematics. Just as a strong command of language basics is essential for effective communication, numeracy skills are critical for mathematical fluency. Without a solid grasp of numeracy, students may struggle to comprehend more complex mathematical concepts, making it difficult to progress in their mathematical journey.

To effectively nurture numeracy skills among students, it is essential to assess the extent of their proficiency in these foundational skills. The DepEd recognizes the importance of this assessment and has taken proactive steps to ensure that both educators and curriculum implementers have a clear



understanding of students' numeracy skills. One significant initiative in this regard is the development and administration of the Albany Numeracy Assessment Tool (ALNAT) by the DepEd Regional Office V, in partnership with the Curriculum Learning and Management Division and various Schools Division Offices. This regional numeracy test serves as a valuable tool to gauge the numeracy skills and mathematical proficiency levels of learners.

Administering this test provides a baseline assessment, allowing educators to identify students needing additional support or intervention in numeracy. It is a diagnostic tool to pinpoint areas where students may be struggling, enabling educators to tailor their instruction accordingly. Moreover, this data-driven approach ensures that curriculum implementers can make informed decisions regarding designing educational materials and teaching strategies.

The process of nurturing numeracy skills in students is not only a fundamental aspect of education but also a dynamic journey that involves continuous assessment and intervention. The narrative described here highlights the significance of early evaluation, the challenges encountered in developing numeracy, and the importance of fostering a deeper understanding of mathematics beyond mere memorization.

At the commencement of every academic year, educational institutions are required to administer a pre-assessment on numerical proficiency for all students. This assessment serves a critical purpose: establishing a baseline of students' numeracy skills. By doing so, educators can identify learners who may be struggling with the foundational aspects of mathematics and need immediate intervention.

In the context of Malbug National High School in Cawayan East District, Grade 7 mathematics teachers conducted an entrance examination two weeks before the start of classes to assess and diagnose the prerequisite skills of incoming students. The aim was to equip them adequately for the challenges of their upcoming grade level. As part of this comprehensive examination, students faced a 40-item numeracy test.

The outcomes of this evaluation revealed a notable trend among the 161 Grade 7 students. A substantial majority, consisting of 124 students, successfully passed the test, earning them the classification of "numerates." This designation implies their proficiency in fundamental mathematical operations, setting a positive tone for their academic journey. However, a smaller fraction, comprising 37 students, were categorized as "non-numerates" due to their inability to pass the numeracy test. This classification suggests a deficiency in basic mathematical skills, highlighting the need for substantial improvement in this foundational aspect of their education.

The prevalence of non-numerates among the students raises questions about the traditional approach to mathematics education. It is noted that many students struggle in mathematics due to the reliance on memorization without a deeper understanding of the underlying concepts. Mere rote learning of mathematical facts and procedures often falls short of fostering numeracy skills.

This issue highlights the importance of moving beyond superficial learning and promoting a deeper understanding of mathematical principles. Mathematics is not just about memorizing formulas and algorithms; it is a language for describing the world and solving real problems. Students must be encouraged to apply their skills and techniques to think critically, reason logically, and develop creative problem-solving abilities.

The challenges in nurturing numeracy skills became even more apparent during the previous school years when students were forced to learn from home due to external circumstances, presumably the COVID-19 pandemic. With the absence of face-to-face interactions, educators faced the formidable task of ensuring that students continued to develop their numeracy skills effectively.

In response, mathematics teachers provided students with separate learning activity sheets, including numeracy tests. However, a critical issue arose regarding the supervision of these activities. It was unclear whether students themselves were answering the tests or if they were receiving assistance from parents or learning facilitators. This ambiguity obscured the true level of students' proficiency and created uncertainty about whether the intended purpose of the activities was being achieved.

In light of these challenges, it is evident that a multifaceted approach to numeracy education is essential. Early assessment, as demonstrated by the pre-test on numeracy, provides a crucial starting



point for identifying students who require additional support. However, this assessment must be accompanied by targeted interventions that focus on improving foundational skills while promoting deeper understanding.

The shift away from rote memorization toward critical thinking, reasoning, and problem-solving aligns with the broader goals of modern education. It acknowledges that numeracy skills are not static but dynamic, requiring continuous cultivation and application. It is through such an approach that students can transition from non-numerates to proficient numerates capable of confidently tackling mathematical challenges and applying their skills in diverse contexts.

Moreover, the challenges posed by remote learning emphasize the importance of clear assessment strategies and effective communication between educators, students, and parents or learning facilitators. Ensuring that assessments accurately reflect students' abilities and progress is pivotal in guiding the development of appropriate interventions.

The educational landscape has been significantly impacted by the COVID-19 pandemic, leading to the closure of schools and a shift towards remote learning. However, with the resumption of face-to-face classes in all schools within the country, it has become apparent that the numeracy challenges observed in the previous academic year persist. To address these challenges, a remedial program has been introduced, which includes targeted activities and time-constrained numeracy tests. Furthermore, a dedicated researcher and a Grade 7 mathematics teacher within the local school, has recognized the urgency of the situation and embarked on a research study to assess the effectiveness of remedial instruction in numeracy. The ultimate goal is to improve the performance of identified Grade 7 non-numerate students, and the findings of this study will inform the development of a proposed improvement plan.

The return to face-to-face classes was expected to mitigate some of the challenges posed by remote learning, particularly in the realm of numeracy education. However, it has become evident that the problems persist. Students who were identified as non-numerates in the previous academic year continue to face difficulties in mastering fundamental mathematical operations. This persistent issue underscores the need for proactive measures to address these deficiencies and provide students with the necessary support to excel in mathematics.

In response to the ongoing numeracy challenges, a remedial program has been introduced. This program recognizes that addressing these issues requires more than conventional classroom instruction. It includes a multifaceted approach that involves remedial instruction designed to bolster numeracy skills and regular practice sessions involving time-constrained numeracy tests. This combination of focused instruction and practice aims to bridge the numeracy gap and equip students with the confidence and competence needed to excel in mathematics.

Recognizing the critical importance of numeracy skills in a student's academic journey and the broader implications for their future success, the researcher, who is also a Grade 7 mathematics teacher in the local school, has embarked on a research study. This study is designed to evaluate the effectiveness of remedial instruction implemented in the intervention program. It seeks to answer critical questions about whether these activities lead to significant improvements in students' numeracy skills and if they are an effective avenue for addressing the challenges identified.

The findings of this research endeavor hold the potential to offer valuable insights into the effectiveness of remedial instruction in numeracy. If successful, the study may highlight the importance of such interventions in improving the numeracy levels of non-numerate students. Conversely, if the remedial instruction proves less effective, this research could shed light on the need for alternative strategies to address numeracy challenges.

One of the central aims of this research endeavor is to inform the development of a proposed improvement plan. This plan will be based on the empirical findings of the study and will offer a strategic framework for enhancing numeracy education within the local school context. It will likely encompass recommendations for refining the remedial program, adjusting instructional methods, and tailoring interventions to meet the needs of non-numerate students.



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The researcher's decision to undertake this study reflects a commitment not only to the improvement of numeracy education but also to personal and professional growth. By delving into this research undertaking, the researcher seeks to make a positive impact on her current school while also contributing valuable knowledge to her Graduate Program. This multifaceted approach underscores the interconnectedness of research, teaching, and learning, highlighting the potential for meaningful change within the education system.

### Research Questions

This study was conducted to determine the effectiveness of remedial instruction in numeracy to improve the performance of the identified Grade 7 non-numerates of Malbug National High School of Cawayan East District, Masbate Province Division for School Year 2023-2024. The findings of the study were the basis for the proposed improvement plan.

Specifically, the study sought answers to the following questions:

1. What is the pre-test numeracy performance of the Grade 7 students before using remedial instruction in numeracy?
2. What is the post-test numeracy performance of the Grade 7 students after using remedial instruction in numeracy?
3. Is there a significant difference in the pre-test and post-test numeracy performance of the Grade 7 students before and after using remedial instruction in numeracy?
4. What improvement plan can be proposed based on the findings of this study?

## RESEARCH METHODOLOGY

### Research Design

The research design for this study adopted a quasi-experimental research design. This approach blended elements of both experimental and non-experimental research. It was conducted within the premises of Malbug National High School, situated in the Cawayan East District of Masbate Province Division in the Philippines, explicitly targeting Grade 7 students during the academic year 2023-2024.

The study centered around two key variables. The independent variable was the remedial instruction in numeracy, serving as the core intervention provided to Grade 7 students identified as non-numerates. The dependent variable was the student's performance in numeracy, which was assessed through pre-tests and post-tests. The pre-tests offered a baseline measure of their numeracy skills, while the post-tests gauged the effectiveness of the remedial instruction.

The research focused on Grade 7 students identified as non-numerates. Data collection primarily relies on pre-tests and post-tests to evaluate the students' numeracy skills, emphasizing their proficiency in fundamental mathematical operations, including addition, subtraction, multiplication, and division.

The heart of the study lies in the intervention, which comprised the provision of remedial learning activities. These activities were thoughtfully designed to enhance the numeracy skills of the targeted Grade 7 students, particularly in the four fundamental mathematical operations. This instructional component formed a critical part of the research and was pivotal in improving the students' mathematical abilities.

The research included a significant phase dedicated to data analysis. Statistical methods were employed to compare the pre-test and post-test results to determine whether there was a noteworthy difference in the students' numeracy performance following the remedial instruction. The research unfolded throughout the first quarter of the academic year of 2023-2024, commencing with the pre-tests, spanning the four-week intervention period, and culminating with the post-tests and data analysis.



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## Research Respondents

A purposive sampling technique was employed to select the participants, focusing on those who demonstrated deficiencies in numeracy skills.

The research respondents were the Grade 7 non-numerates in the Malbug National High School. Based on the available data, there was a total of thirty-six (36) Grade 7 non-numerates, out of which twenty-five (25) or sixty-nine percent (69%) were males and fifteen (11) or thirty-one percent (31%) were females.

## Research Instrument

The primary research instrument used in this study was a pre-test and post-test on numeracy skills crafted by the researcher called Malbug NHS Numeracy Assessment Tool (MaINAT). This test serves as a valuable tool to gauge the numeracy skills and proficiency level of learners, particularly in the four fundamental operations of mathematics. The pre-test assessed the initial numeracy performance of the Grade 7 students before implementing remedial instruction. At the same time, the post-test measured their numeracy performance after completing the remedial instruction program.

The pre-test and post-test were designed and validated by the researcher. The research instruments were administered face-to-face with consent from the parents.

## Data Analysis

The research study followed a standard procedure. It all began with the identification of the research title, which was a result of consultations with the thesis adviser and master's professors. The necessary background readings were conducted, and a manuscript for the title was prepared. To proceed with the study, approval and recommendations were sought from the Panel of Examiners of the Graduate Studies.

Before the actual data gathering, permission to conduct the study was obtained from the Schools Division Superintendent. Subsequently, permissions from the Public Schools District Supervisor and School Principal were secured. These permissions were essential to ensure the research could be carried out in the intended school setting.

With all the permissions in place, the study began with an orientation of the participants. The pre-test, which is the initial assessment, was administered in a face-to-face setting after obtaining consent from the parents of the student participants. This pre-test was prepared, validated, tried out, and revised based on suggestions from a set of jurors.

Following the pre-test and with the consent of the parents of the identified Grade 7 non-numerates, a four-week face-to-face intervention was conducted. During this period, the students received additional support using remedial learning activity sheets. These sheets were a crucial part of the study and were emphasized in the research to help the students improve their numeracy skills.

After the four-week intervention, a post-test was administered to assess the student's progress. The results of both the pre-test and post-test were collected and organized for further analysis.

The collected data were then subjected to statistical treatment. This involved analyzing and interpreting the data to draw meaningful conclusions. Simultaneously, the researcher worked on Chapters 1-3 of the research manuscript, which included the introduction, literature review, and methodology sections.

The pre-test and post-test results were tallied and tabulated, and the frequency counted. The first method was a simple percentage calculation, which was used to assess the student's performance before and after the remedial activities. This method provides a straightforward way to understand the proportion or ratio of correct answers.

The formula for calculating the percentage is as follows:

$$\text{Percentage} = \frac{\text{Part}}{\text{Whole}} \times 100$$



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In the study context, "Part" would represent the number of correct answers on the pre-test or post-test, and "Whole" would represent the total number of questions or items in the respective tests. By applying this formula, the researcher could express the students' performance as a percentage, making it easier to interpret and compare the results.

To facilitate the interpretation of data, the following range was set to determine the classification of the test scores:

Score Range	Description
54-60	Transforming
51-53	Developing
48-50	Emerging
45-47	Anchoring
0-44	Needs Major Support

To obtain an exact qualitative analysis, the mean of a grouped set of data was used. This is obtained by the formula:

$$\bar{x} = \frac{\sum fx}{\sum f}$$

Where:

- $\bar{x}$  is the mean value of the set of given data
- $\Sigma$  is the summation sign
- $f$  is the frequency of each class
- $x$  is the mid-interval value of each class

To assess whether there was a significant difference in the pre-test and post-test performances of the Grade 7 students, a t-test of Mean Difference was applied. The t-test of Mean Difference is a statistical test used to determine if there is a significant difference between the means (average values) of two related groups.

The formula for the t-test of Mean Difference is as follows:

$$t = \frac{\sum d}{\sqrt{\frac{n(\sum d^2) - (\sum d)^2}{n-1}}}$$

"t" is the calculated t-statistic.

"d" is the difference per paired value.

" $\sum d$ " is the sum of the differences.

"n" is the number of data points (in this case, the number of students).

The t-statistic calculated from this formula is then compared to a critical value from the t-distribution to determine whether the difference between the pre-test and post-test means is statistically significant. If the t-statistic is greater than the critical value, it suggests a significant difference.

The researcher made use of the standard 5 percent level of significance in statistical treatments. A five percent level of significance signifies that the data obtained after the t-test has a probability of making a Type I error by five chances in every 100. In other words, a Type I error will be made five times in 100 when the null hypothesis is true.

Upon completing the data analysis and manuscript preparation, an oral examination was conducted. The researcher faced a thesis committee that provided suggestions and corrections based on their assessment. The manuscript was revised to incorporate all the suggested improvements and corrections.



The final manuscript, improved based on the thesis committee's feedback, was prepared and finalized for the issuance of the particular order, marking the successful completion of the research study.

## RESULTS AND DISCUSSION

### 1. Pre-Test Numeracy Performance of the Grade 7 Students Before the Conduct of Remedial Instruction in Numeracy

Table 1 presents the pre-test numeracy performance of the Grade 7 learners before using remedial activities in teaching numeracy. This data was pivotal for the researcher to understand the past state of numeracy skills among these students and served as a foundation for addressing their educational needs.

**Table 1.** Pre-test Numeracy Performance

Score Range	Description	Pre-Test	
		Frequency	Percentage
54 – 60	Transforming	0	0.00
51 – 53	Developing	0	0.00
48 – 50	Emerging	6	16.67
45 – 47	Anchoring	10	27.78
0 – 44	Needs Major Support	20	55.55
<b>Total</b>		<b>36</b>	<b>Needs Major Support</b>
<b>Weighted Mean</b>		<b>33.17</b>	

The initial step in the analysis revealed an intriguing distribution of students across score ranges. Notably, the absence of students in the "Transforming" and "Developing" categories was striking. These categories represent the highest levels of mastery in the four fundamental operations, yet none of the students reached that stage. This stark observation underlined the imperative for targeted intervention and support.

Upon delving deeper into the data, it was found that six (6) students, constituting 18.18% of the sample, were classified as "Emerging." They had scored between 48 and 50, indicating a basic understanding of fundamental operations. However, this understanding was yet to evolve into complete mastery. While this was a positive sign, it signaled the necessity for continued instruction and practice to elevate these students to higher proficiency levels.

Turning attention to the "Anchoring" category, it was discovered that ten students, or 30.30% of the group, fell into this classification. Their scores ranged from 45 to 47, signifying they struggled with basic numeracy concepts. These students faced challenges when solving problems, especially those involving critical or more significant numbers. It was evident that they needed specific interventions and extra support to build a solid foundation in fundamental operations.

The most significant concern arose when focusing on the "Needs Major Support" category. A staggering twenty students, accounting for 60.61% of the sample, fell within this classification, with scores ranging from 0 to 44. This group of students had a limited grasp of the fundamental operations, representing a clear gap in their numeracy skills. To address this issue, the paragraph suggested a multi-faceted approach: alternative learning materials, diverse activities, and additional assessments to identify the root causes of their poor performance. This underlined the necessity for extensive and tailored intervention to bring these students up to the expected proficiency levels.

As the overall performance of the group was assessed, the weighted mean score of 33.17 was a telling indicator. Falling within the "Needs Major Support" category, it signified that most Grade 7 students had



a limited understanding of numeracy concepts. This collective result reiterated the pressing need for substantial assistance and intervention.

Given these findings, it was clear that remedial actions were not just desirable but imperative. The paragraph underscored the importance of tailored remediation activities, suitable learning materials, and structured discussions on numeracy concepts. Additionally, it emphasized the need for alternative assessments to diagnose the root causes of poor performance.

Remediation activities were provided to students who did not meet the criteria for completing a specific assessment and were performing below the expected level of mastery, as highlighted in the study conducted by Asio, et. al in 2020. These remediation activities serve as a critical component of educational support, particularly for students who struggle academically and may have a history of absenteeism.

The provision of remediation activities is a critical mechanism for ensuring improved academic performance among students who are at risk of both dropping out and failing, a concept emphasized by Stevens in 2018. These activities are instrumental in preventing academic setbacks and helping students bridge the gap between their current proficiency levels and the desired standards. In essence, remediation activities play a vital role in safeguarding the educational progress and overall success of students who face academic challenges.

In summary, the presented data revealed a significant gap in numeracy skills among Grade 7 students. This necessitated an immediate response to ensure their academic success and prevent potential dropouts. By identifying the past state of numeracy proficiency, educational institutions, teachers, and stakeholders could have developed targeted interventions to elevate these students to the expected level of competence. It was not only an academic concern but also a matter of ensuring the future success and well-being of these students.

## 2. Post-Test Numeracy Performance of the Grade 7 Students After the Conduct of Remedial Instruction in Numeracy

Table 2 presents the post-test numeracy performance of Grade 7 students after remedial instruction in teaching numeracy. The data is categorized into score ranges, descriptions, frequencies, and percentages.

**Table 2.** Post-test Numeracy Performance

Score Range	Description	Pre-Test	
		Frequency	Percentage
54 – 60	Transforming	29	80.56
51 – 53	Developing	7	19.44
48 – 50	Emerging	0	0.00
45 – 47	Anchoring	0	0.00
0 – 44	Needs Major Support	0	0.00
<b>Total</b>		<b>36</b>	<b>Transforming</b>
<b>Weighted Mean</b>		<b>56.03</b>	

The table provides a comprehensive view of the post-test numeracy performance of Grade 7 students following remedial instruction in teaching numeracy. This data is instrumental for the researcher to evaluate the effectiveness of these interventions in enhancing the students' numeracy skills.

An outstanding 87.88% of the 36 Grade 7 students initially identified as non-numerates demonstrated substantial progress. They achieved scores in the range of 54-60, interpreted as "Transforming." This transformation in their numeracy skills is a testament to the effectiveness of the remedial instruction



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provided. The significant increase in the number of these students categorized highlights the success of the intervention in addressing their needs and fostering marked improvement.

In addition, seven Grade 7 students, comprising 21.21% of the group, achieved scores in the range of 51-53, labeled as "Developing." This indicates that these students, after participating in remedial instruction, not only mastered numeracy skills but also demonstrated commendable performance. Their ability to master numeracy skills and substantially enhance their performance underscores the efficacy of the materials and activities employed during the remediation classes. This underscores the capacity of these interventions to facilitate a profound understanding of numeracy concepts and the acquisition of essential skills.

The post-test performance of Grade 7 students initially identified as non-numerates is encapsulated in the average weighted mean of 56.03, interpreted as "Transforming." This exceptional weighted mean signifies a remarkable overall improvement in numeracy performance after implementing remedial instruction. It reinforces that the activities and instructions delivered during the remedial classes played a pivotal role in enhancing students' numeracy skills.

These findings align with prior research, emphasizing that effective learning necessitates diverse and engaging activities. As cited by Ancheta (2008), the teacher's role is pivotal in tailoring instructional materials and activities to meet the unique needs and capacities of the learners. The teacher's ability to prepare and employ such materials to capture students' attention, spark their interest, and foster skill development is central to the learning process.

To put it briefly, the post-test results indicate the substantial impact of remedial instruction in improving the numeracy skills of Grade 7 students initially identified as non-numerates. The remarkable increase in students categorized as "Transforming" and the noteworthy achievements in the "Developing" group reflect the success of these interventions. These findings hold significant implications for educators, curriculum designers, and policymakers, underscoring the need for effective and personalized teaching strategies to address the diverse needs of students and enhance their learning outcomes. Moreover, the success of the remedial activities in this context serves as an encouraging example of how targeted interventions can yield substantial improvements in students' academic achievements.

### 3. The Significant Difference in the Pre-Test and Post-Test Numeracy Performance of the Grade 7 Students Before and After the Conduct of Remedial Instruction in Numeracy

Table 3 presents the test of difference between the scores in the pre-test and post-test numeracy performance of the Grade 7 identified non-numerates before and after using remedial activities.

**Table 3.** Test of Difference Between the Scores in the Pre-test And Post-test Scores of the Grade 7 Students in Math

Aspects	Test Scores		Computed T	Critical T	Decision	Interpretation
	Pre-test	Post-test				
Grade 7 Students	33.17	56.03	19.594	1.690	Reject H <sub>0</sub>	Significant

The table in question is a pivotal instrument for the researcher in assessing the effects of remedial instruction on the numeracy performance of Grade 7 students initially identified as non-numerates. This analysis offers valuable insights into the impact of these interventions on the students' numeracy skills.

Of paramount importance is the striking difference in the calculated t-value and the critical t-value. The computed t-value of 19.594 significantly surpasses the critical t-value of 1.690, leading to the decisive rejection of the null hypothesis (H<sub>0</sub>). This crucial finding unequivocally demonstrates a substantial and



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statistically significant difference in the pre-test and post-test numeracy performance of Grade 7 students initially identified as non-numerates, both before and after the remedial activities.

The noteworthy aspect of this analysis is the substantial increase in the mean pre-test numeracy performance, which initially stood at 33.17 but impressively surged to 56.03 in the post-test after implementing remedial activities. This substantial improvement is a testament to the efficacy of the remedial instruction, confirming that it has had a significant positive impact on the student's performance.

In line with the insights of Thilges and Schmer in 2020, who conducted a comprehensive concept analysis of formal remediation, it is evident that a well-defined framework is crucial. Such a framework aids in defining the concept, establishing measurable outcomes, and determining the appropriate times to implement these interventions. The structured and systematic approach ensures that remedial classes are consistently and effectively delivered.

As pointed out by Caras (2019), the importance of direct instruction cannot be overlooked. Students must be able to connect their experiences with the knowledge they are acquiring. This highlights the necessity for pedagogical strategies that engage students directly and foster meaningful learning experiences.

Wright's research in 2011 emphasizes the need for diverse instructional techniques and activities in remedial courses. This diversity in instructional methods not only accommodates the individual learning needs of students but also enhances their prospects for success.

The findings presented by Capuyan and colleagues in 2019 underscore a significant revelation – a positive relationship exists between the previous and current grade levels' grades of pupils attending remediation lessons. This indicates that the benefits of remedial instruction extend beyond current performance, positively influencing students' overall academic progress.

In a nutshell, the test results provide compelling evidence of the positive impact of remedial activities on the numeracy performance of Grade 7 students initially identified as non-numerates. The substantial increase in post-test mean scores highlights the effectiveness of these interventions. These findings have profound implications for educators, emphasizing the need for structured remedial classes, diversified instructional approaches, and the incorporation of direct instruction to create meaningful learning connections. The success of remedial activities reinforces their role in enhancing students' academic performance and fostering their academic progression.

#### **4. Proposed Improvement Plan Based on the Findings of the Study of the Grade 7 Students Before and After the Utilization of Remedial Instruction in Numeracy**

The findings of this study strongly support the development of an improvement plan to further enhance the numeracy skills of non-numerate Grade 7 students. The plan should focus on the continuation and refinement of the remedial instruction program, considering the specific weaknesses identified during the study.

Below is a table outlining an improvement plan to enhance the numeracy skills of non-numerate Grade 7 students. The table includes Objectives, Targets, Strategies, Time-Frame, Persons Involved, Funding Sources, and Expected Outcomes as major column parts.

**Table 4.** Improvement Plan to Further Enhance the Numeracy Skills of Non-Numerate Grade 7 Students

<b>Objectives</b>	<b>Targets</b>	<b>Strategies</b>	<b>Time-Frame</b>	<b>Persons Involved</b>	<b>Funding Sources</b>	<b>Expected Outcomes</b>
<b>1. Ongoing Remedial Instruction</b>	Provide tailored support	Identify students' specific	Ongoing throughout the	Teachers, Remedial Instructors,	School budget,	Non-numerate students



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	to non-numerate students	weaknesses through initial assessments. Develop individualized learning plans based on assessment results.	academic year	School Management  Parents	grants, donations	receive personalized support.
<b>2. Regular Assessments</b>	Monitor student progress and adjust instruction	Conduct formative assessments at regular intervals (e.g., monthly) to track progress. Perform summative assessments (e.g., mid-year and end-of-year exams) to evaluate overall progress.	Ongoing throughout the academic year	Teachers, Remedial Instructors	School budget, grants, donations	Teachers can adapt instruction based on student needs.
<b>3. Teacher Training</b>	Enhance remediation skills in remedial strategies	Provide professional development workshops for teachers on effective remediation and differentiated instruction. Encourage ongoing peer collaboration and support for teachers to	At the start of the academic year	Teachers, School Management	School budget, grants, professional development funds	Teachers are better equipped to address individual needs.



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		share best practices and resources.				
<b>4. Parental Involvement</b>	4. Engage parents	7. Organize numeracy workshops and informational sessions to involve parents in their children's education.	Throughout the academic year	Parent-Teacher Association, School Management	Grants, PTA contributions	Parents actively support their children's numeracy development.
<b>5. Resource Allocation</b>	5. Provide necessary resources	8. Allocate funds for purchasing educational materials, technology, and resources to support remedial instruction.	At the beginning of the academic year	School Management	School budget, grants, donations	Sufficient resources are available to enhance instruction.

The action plan for enhancing the numeracy skills of non-numerate Grade 7 students is a comprehensive strategy to address weaknesses identified in the study. The primary objective of the plan is to provide tailored support to non-numerate students. To achieve this, the plan includes ongoing remedial instruction. It begins by identifying students' specific weaknesses through initial assessments, allowing educators to create individualized learning plans. These plans are designed to cater to the unique needs of each student and may involve additional instruction, practice, or alternative teaching methods. This support is to be provided by teachers, remedial instructors, and the involvement of parents, who play a crucial role in their children's educational journey. The funding for this initiative comes from various sources, including the school budget, grants, and donations, ensuring that non-numerate students receive the personalized support they need to thrive.

In addition to ongoing instruction, regular assessments are a critical component of the plan. These assessments serve the purpose of monitoring student progress and making necessary adjustments to the instruction. Formative assessments, such as monthly quizzes, help in tracking students' ongoing progress, while summative assessments, like mid-year and end-of-year exams, evaluate their overall growth. This ensures that teachers can adapt their instruction based on the evolving needs of their students, ultimately leading to a more effective remedial program.

To enhance the quality of instruction, the plan includes teacher training as an integral part. The objective here is to equip teachers with better remediation skills. This is achieved by providing professional development workshops focusing on effective remediation and differentiated instruction methods. Furthermore, encouraging ongoing peer collaboration and support among teachers allows them to share best practices and resources, significantly benefiting the students.



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Moreover, the plan acknowledges the importance of parental involvement in a child's education. To engage parents in their children's numeracy development, the plan includes organizing numeracy workshops and informational sessions. These events provide parents with valuable insights into their children's educational needs and equip them to support their children effectively.

Lastly, resource allocation is a crucial aspect of the plan to ensure that the remedial instruction program is adequately supported. This involves allocating funds for purchasing educational materials, technology, and other resources to enhance the overall learning environment. Adequate funding from sources like the school budget, grants, and donations guarantees sufficient resources available to create a conducive and productive learning environment.

In summary, this action plan is holistic to improving numeracy skills among non-numerate Grade 7 students. By addressing individual student needs through ongoing remedial instruction, monitoring progress with regular assessments, enhancing teacher skills, involving parents, and allocating necessary resources, the plan aims to create an environment where students can thrive, ultimately leading to improved numeracy skills and greater academic success. Regular assessments and adjustments ensure plan remains dynamic and responsive throughout the academic year.

## CONCLUSION

Based on the comprehensive findings of the study, several vital conclusions can be drawn, shedding light on the effectiveness of remedial instruction in enhancing numeracy skills among Grade 7 students: Firstly, the pre-test numeracy performance indicated a significant need for intervention, as most students fell into the "Needs Major Support" category. This initial assessment highlighted a noticeable deficiency in numeracy skills, underscoring the urgency for tailored interventions and support mechanisms.

Following the remedial instruction, the post-test results showcased a remarkable transformation in the students' numeracy performance. A significant majority achieved scores in the "Transforming" range, reflecting a substantial improvement. This outcome vividly demonstrated the efficacy of remedial instruction in not only addressing the identified needs of students but also fostering notable growth in their numeracy skills.

Moreover, the research findings yielded a robust confirmation of a substantial and statistically significant difference between pre-test and post-test numeracy performance. This affirmation solidified the positive impact of remedial instruction, emphasizing its pivotal role in enhancing the numeracy skills of Grade 7 students.

To capitalize on these successes and sustain the positive momentum, the study proposes a comprehensive improvement plan. This plan entails continuing remedial classes, incorporating diversified instructional approaches and integrating direct instruction methods. Furthermore, the plan underscores the importance of providing tailored interventions and support to cater to the diverse needs of students, ensuring their continued educational success.

In terms of actionable recommendations, the study emphasizes a set of strategic initiatives aimed at consolidating the positive outcomes and ensuring the sustained effectiveness of the remedial instruction program:

To begin with, it advocates for the continuation of the Remedial Instruction Program for non-numerate Grade 7 students. This recommendation underscores the importance of maintaining a program that offers individualized support specifically tailored to address the unique learning needs of each student. Complementary to this, the study proposes implementing periodic assessments as a proactive measure. By introducing systematic assessments, the educational system can monitor student progress regularly. This approach allows for ongoing evaluation and facilitates timely adjustments to instructional strategies, ensuring they align with the evolving needs of the students.



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In tandem with sustaining the program and implementing assessments, the study recommends providing comprehensive teacher training. This training will empower teachers involved in remedial instruction with effective remediation strategies and differentiated instruction techniques. Such capacity-building initiatives are crucial to enhance teachers' abilities to support students effectively. Recognizing the importance of a collaborative educational environment, the study advocates for engaging parents in the numeracy development of their children. This recommendation encourages the active participation of parents through workshops and informative sessions, fostering a holistic approach to education that extends beyond the classroom. Ensuring the success of the remedial instruction program also hinges on the availability of ample resources. Therefore, the study highlights the necessity to allocate sufficient resources, including materials and technology. This strategic move is designed to fortify the overall impact of the remedial instruction program, creating an enriched learning environment. Lastly, the study suggests conducting further studies in other schools. This recommendation aims to extend the scope of research, fortifying and expanding the generalizability of the findings. By replicating the study in diverse educational settings, the research can contribute to a more comprehensive understanding of the effectiveness of remedial instruction programs across various contexts.

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