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EFFECTIVENESS OF REMEDIAL INTERVENTION ON STUDENTS' PERFORMANCE IN RAPID MATHEMATICS ASSESSMENT

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Abstract

This study aimed to find out if Rapid Mathematics Assessment (RMA) results can help in generating math activities for Grade 5 pupils. It tried to find math problems see how to make activities based on RMA results and check if these activities help learners learn better and feel more engaged.

The study used research plan and involved grade 5 pupils who took the RMA and then got extra help based on what they needed. The researcher collected data through test. The results showed that RMA helped find math areas where pupils struggled like adding and subtracting numbers working with fractions and problem solving.

The activities made for pupils were fun and really helped them to do better in math as shown by their post-test scores. Pupils also became motivated to participate in class after doing these activities. The RMA tool helped teachers a lot in determining pupils' strength and weaknesses.

The study concludes that interventions in the Rapid Mathematics Assessment results particularly on modules on fractions, decimals, geometry and data interpretation are affective interventions to improve learning.

Keywords: Rapid Mathematics Assessment, targeted remediation, mathematics performance, instructional design, learning gaps

INTRODUCTION

Background of the Study

Mathematics is important for facilitating logical thinking, problem-solving, and analytical reasoning in pupils. But mathematical performance is about more than just cognitive abilities. Problems that learners don't know how to perform first require further study, thus, when it is not mastered at an early age, it becomes much harder to solve advanced problems later on. This difficult situation is worsened if teachers do not have specific diagnostic information in a timely manner, leading to interventions that do not solve the actual learning gaps.

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To overcome these problems, to identify learning gaps at an early stage the Department of Education adopts a range of assessment tools. Rapid Mathematics Assessment (RMA) is one of the most widely used tools in this area, which is a diagnostic measurement of pupils' readiness and proficiency in key areas of mathematics. The RMA provides teachers with immediate feedback which is valuable for identifying students' strengths and weaknesses. This enables teachers to hone their remediation and activity-based interventions to precisely those which are inappropriate.

Unlike regular summative tests that only measure achievement, RMA gives teachers an opportunity, to intervene before misunderstanding becomes permanent. RMA, among other tools, is available, however, the effectiveness of its outputs in informing the formulation of mathematics activities is also a key question.

Although many teachers regard it as a beneficial, there are questions about more evidence of usefulness and how directly the outcomes are applied in the classroom, and whether these things improve pupil learning and motivation. Without an efficient use of teaching resources such as RMA, remediation may be general rather than meeting the needs, skills and capabilities of individual learners, contributing further to widening achievement gaps.

It is necessary to solve this problem because it would not only improve the students' performance but also the quality of their teaching, and thus the curriculum of mathematics education to develop critical thinking and lifelong learning capacity. But most of these grade school pupils have challenges in basic mathematical facts especially at Linao Elementary School.

Thus, this study is to analyze how effective remediation activity is given Rapid Mathematics Assessment results for grade 5. It aims to explore whether RMA outcomes can provide verifiable, trustworthy data that can support educators to design interventions appropriate to the learning needs of learners. This research is helping me to promote better data-driven instruction so the lesson plan that is put into a context so that no pupil is being left behind in learning fundamental skills.

In the end, this study findings will provide a basis for teachers to more effectively use assessment results as a reference point, facilitate pupils acquiring mathematics and promote functional literacy and numeracy in Filipino children. This will help teachers and administrators implement remediation programs that correspond with educational aims.

This study will also inform teachers to be thoughtful and data-oriented in their approaches to teaching, and promote evidence-based strategy implementation for every intervention which will have a clear focus on the improvement of learners specifically in mathematics.

Statement of the Problem

This study aimed to determine the effectiveness of remedial interventions on students' performance in Rapid Mathematics Assessment for Grade 5 pupils.

Specifically, it sought to answer the following questions:

1. Determine the Pretest performance of the students in the Rapid Mathematics Assessment
2. Determine the remedial intervention which can be developed based from the pretest performance in the Rapid Mathematics Assessment
3. Determine posttest performance of students after undergoing the remedial intervention
4. Determine if there is a significant difference between the pretest and posttest Rapid Mathematics Assessment results after the implementation of the remedial interventions
5. Determine the effect size of the remedial intervention activities on students Rapid Mathematics Assessment performance
6. Determine how the remedial interventions be packaged to prepare it as an Instructional Material

Objectives of the Study

The study aimed to determine the effectiveness of the remedial intervention on the performance of learners in the Rapid Mathematics Assessment.

Specifically, it sought to:

1. Determine the pretest performance of the learners in the Rapid Mathematics Assessment in terms of:
    a. overall score; and
    b. least-mastered competencies.
2. Determine the posttest performance of the learners after the implementation of the remedial intervention in terms of:
    a. overall score; and
    b. improvement in the least-mastered competencies.
3. Determine whether there is a significant difference between the pretest and posttest performance of the learners in the Rapid Mathematics Assessment.
4. Determine the effect size of the remedial intervention on the learners' performance in the Rapid Mathematics Assessment.
5. Identify the competencies in which learners showed the greatest and least improvement after the remedial intervention.
6. Develop an instructional package based on the findings of the study to further improve learners' performance in the Rapid Mathematics Assessment.

Significance of the Study

This study was important because it determined the effectiveness of remediation in Rapid Mathematics Assessment results which served as a basis for designing appropriate activities for Grade 5 pupils. By identifying learners' strengths and weaknesses, teacher was able to use this information to provide targeted interventions that addressed learning gaps and improved mastery of fundamental skills. The findings also supported school administrators in planning instructional programs, trainings, and interventions that strengthened mathematics instruction and improved overall learning outcomes in the school.

From the teachers' perspective, the study served as practical preference in developing data-driven instructional interventions using RMA results. It enabled teachers to reflect on their teaching practices and guided them in directing their efforts to ensure that remedial lessons were relevant, time efficient and responsive to the actual needs of their pupils. For the pupils, the research provided

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access to more personalized and individualized learning activities, which helped improve their mathematical skills and increased their confidence in solving mathematics problems.

For parents, the intervention helped them better understand their children's progress and difficulties in mathematics, allowing them to guide practice and supervise learning at home more effectively. The results of the study also provided valuable feedback on the challenges encountered by the learners in different areas of the mathematics curriculum, which was useful for curriculum developers. Furthermore, this study served as a foundation for future researchers in exploring the application of assessment results in designing instructional plans and interventions.

METHODOLOGY

Research Design

This study utilized a quantitative, quasi-experimental research design to determine the effectiveness of the Rapid Mathematics Assessment (RMA) results in improving the mathematical performance of Grade 5 pupils at Linao Elementary School. The quasi-experimental approach was deemed appropriate since the researcher worked with intact classes rather than randomly assigned groups.

This design permitted measuring of pupil's performances prior to and after exposure to interventions facilitated by the RMA assessment. Pre-test and Post-test were administered in the study in order to assess students' learning progress.

The Pre-test was used to establish the learners' baseline level of mastery and identify specific mathematics strength and potential areas for learning. Through these results, the researcher developed specific remediation, enrichment and skills reinforcement as needed for the pupils.

The Post-test was conducted and evaluated after intervention period to identify where performance is significantly improved. Under this design the study attempted to assess whether learning outcomes improved with the implementations of RMA results as a diagnostic and instructional tool.

This quantitative aspect of the study will be gathered quantifiable data underwent statistical analysis to justify the success of RMA intervention to increase the numerical achievement of students in Grade 5.

Respondents and Sampling Technique

The respondents of the study were 28 Grade 5 pupils at Linao Elementary School in Linao, Aparri, Cagayan, during the School Year 2025-2026. The target students of the Rapid Mathematics Assessment (RMA) and those who received the targeted intervention to improve mathematics performance were chosen as subjects. A purposive technique was used for the study because non-probability sampling is used in research when selecting participants for a specific purpose.

In this case, the researcher selected the Grade 5 pupils who attended both pretest and posttest and who actively participated in the learning interventions after considering their RMA responses. This sampling method helped ensure that the data obtained from the study accurately reflected the learners' progress as well as the intervention.

Research Instruments

The instrument used in this study was Rapid Mathematics Assessment (RMA), a diagnostic tool to measure the overall mathematical ability of the students and the weak points of them in the learning process in the system. It was used as a pretest and posttest and to indicate the students' mathematical results in grade 5 after the targeted interventions was improved.

The development and use of RMA was in a series of stages. They first identified and developed the RMA instrument to establish criteria as for the regularization of the students' math performances in the basic math program in terms of age and grade in the curriculum and for students in the same context for the pretest as well as posttest, and the same question is always included in the pretest and posttest. First of all, the RMA was checked by mathematics experts to verify it was correct, reliable and appropriate for the level of knowledge and learning of learners. Second, the baseline data for this study was the pretest data presented by data from the Department of education. This data indicated the strengths of the students based on skills, gaps in learning of mathematics and was necessary for the design of the intervention and enrichment in these areas.

Based on such pretest results, the researcher did interventions and lessons to plug this gap that aimed to improve on the identified weaknesses such as learning more mathematics. To evaluate whether the intervention techniques obtained were effective and to validate the results of RMA, this same RMA tool was used for the pupil after improvement in the learner with the same RMA data but by the teacher, but no longer available.

Through these phases, the RMA functioned as a diagnostic and evaluative tool that enabled the researcher to measure learning gains, and verified the effectiveness of the Rapid Mathematics Assessment in terms of improvement of grade 5 pupils' performance.

Data Gathering Procedure

The data were measured in particular way in order to ensure validity and integrity of all of the data and to protect all levels of ethical commitment as well. During 2025-2026 at Linao Elementary School, Linao, Aparri, Cagayan work has been carried out in the manner for Rapid Mathematics Assessment program.

The researcher asked for permission to the school head for the pretest/post-test. This was transparent enough as well from the research stage and there was every interest of participants in this study. The researcher began by first collecting baseline results that were determined using the RMA pretest as well.

Then analyzed these results along with these to indicate that the students are now good at math and they can learn skills. Then, the researcher was able to design interventions based within the RMA results. Remediation or training activities.

So, the third step of the study was carried out using the same tool as the pretest. Posttest and pretest results was collected, recorded and studied if RMA interventions did work or didn't.

The researcher kept the confidentiality and, therefore, the study results were kept locked up to the end of the study. The pupils did not have to be identified in this trial and the result was only used for work.

Data Analysis

The plan for data analysis was created to systematically analyze the quantitative data collected from the pretest and posttest results obtained from the Rapid Mathematics Assessment. The analysis sought to confirm if or to what extent the interventions had

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meaningfully improved the achievement rate of Grade 5 pupils in mathematics, as judged by RMA results post intervention.

The analysis used the pretest and posttest scores obtained which were tabulated and encoded in a spreadsheet. To protect confidentiality, each respondent was given an identification code. Data analysis was conducted upon completion of data collection, including checking for accuracy and completeness of the data collected.

Descriptive statistics, including the mean, percentage, and standard deviation, were used to describe and summarize the pupils' performance levels both in pretest and posttest. These statistics illustrated the general level of performance along with the degree to which there is variation in the pupils' scores.

To assess the intervention efficacy, a t-test was implemented for dependent (paired) samples. This is a statistical test compared the two sets of measures, the mean pretest and posttest of the same cohort of pupils to determine whether there was a significant difference between pretest and posttest scores.

The findings provided regarding the effectiveness of RMA based interventions to enhance pupils' mathematical development. Statistical results were presented in tabular form and text for clarity.

Statistics were also presented in tables, with narrative discussion explaining the significance of the significance of the results in the context of the research objectives and hypotheses.

RESULTS AND DISCUSSION

Table 1. Pre-test scores of learners using the Rapid Mathematics Assessment Pretest Result

Performance		
	Frequency (n=28)	**Percentage**
Poor (0 to 9)	9	32.1
Fair (10 to 17)	15	53.6
Satisfactory (18 to 25)	4	14.3
Very satisfactory (26 to 33)	0	-
Excellent (34 to 42)	0	-
Mean	**11.96 (Fair)**	
SD	**4.42**	

By Competency

Table 1 shows the pretest performance of the 28 Grade 5 learners across the different competencies in the Rapid Mathematics Assessment. The overall mean performance of the learners is 7.98 or 28.5 percent termed as Fair, suggesting that the learners learn little at least from previous years and know little about most of the mathematical competencies at present before using any intervention.

In the distribution, a large portion of competencies are rated Poor. Of this, 18 (42.9 percent) competencies were Poor and 13 (31.0 percent) Fair. This clearly indicates that most of these students are not so great at mathematics, the core skills are poor even though all other skills are in excellent condition in Mathematics. Only 9 competencies (21.4 percent) scored Satisfactory, the rest were Very Satisfactory (2.4 percent) and Excellent (2.4 percent) which is not too great.

Great proficiency, the top performed skill for most of the students was multiplication of 2-to-3-digit numbers by the same number and was 85.7 percent (Excellent). This may be because the students are familiar with multiplication skills but they also practiced in previous grades. When using multiplication also 71.4 percent was rated Very Satisfactory, thus supporting that there is a difference in abilities for multiplication.

On the other hand, several competencies were flagged as being of particular danger. However, multi-step tasks with GMDAS (0 percent), area problems (3.6 percent), addition of dissimilar fractions (3.6 percent), unit conversion, word problems of time (as low as 3.6 percent and more) are all labelled as poor performance. This indicates the learner is not able to tackle higher-order thinking or problem solving or application- based work, especially more complex and abstract thinking.

I observe that learners tend to get low in a majority of these competencies indicating that mathematics skills are not as basic for the most skills. Number operations scored the highest mean and the learners were more confident doing basic mathematical tasks - fractions and decimals, by contrast, took the lowest number of scores, indicating that the students are also not very good at understanding the numbers yet when compared to number operations.

This indicates that learners have relatively uneven mathematics skills; some skills need more targeted instructional treatment than others. And it suggests to prioritize the teaching and learning of fractions and decimals in order to enhance the ability of each learner at some level of all learning in math.

The gaps must be accounted for if the children will do better on test and also build the skills necessary to be a better student and can take on problems at higher levels.

Therefore, these findings suggest learners need additional remedial interventions for problem-solving, fractions, decimals, measuring, and multi-step work. Low pretest results demonstrate the need to provide a structured education approach to students to cover learning gaps and increase their mathematical performance.

As such, pre-assessments identify learning gaps and are essential for teaching the students (Black and Wiliam 1998), which in turn supports interventions that teach the student the skills needed to do the job.

Table 2. Pretest of the learners vis-à-vis the competencies in the Rapid Mathematics Assessment

Competency	**Pretest**	
	Freq (%)*	**Desc.**
1. Multiply 2- to 3-digit number by a 1-digit number with and without regrouping.	24 (85.7%)	Excellent
2. Determine the missing term/s in a pattern with repeating and increasing components or repeating and decreasing components (e.g., 1a, 1b, 1c,	12 (42.9%)	Satisfactory

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2a, 2b, 2c, …).		
3. Add numbers with sums up to 10 000, with and without regrouping	2 (7.1%)	Poor
4. Collect data from experiments with a small number of possible outcomes (e.g., rolling a die or tossing a coin).	17 (60.7%)	Satisfactory
5. Describe and draw the effect of a two-direction multi-step slide (or translation) in basic shapes and figures.	10 (35.7%)	Fair
6. Apply properties of multiplication for the 6, 7, 8, and 9 multiplication tables: changing the order of the numbers being multiplied does not change the product	20 (71.4%)	Very Satisfactory
7. Subtract similar fractions using models.	4 (14.3%)	Poor
8. Represent fractions that are equal to one and greater than one using models	2 (7.1%)	Poor
9. Solve problems involving areas of squares and rectangles.	1 (3.6%)	Poor
10. Subtract numbers, where both numbers are less than 10 000, with and without regrouping	7 (25%)	Fair
11. Multiply numbers with and without regrouping: a. 2- to 3-digit numbers by a. 1-digit number, and b. 2- to 4 digit numbers by a number whose leading digit is the only non-zero digit, with products up to 10 000. Apply properties of multiplication for the 6, 7, 8, and 9 multiplication tables: a. One multiplied by any number is equal to the number	10 (35.7%)	Fair
12. Divide numbers using the 6, 7, 8, and 9 multiplication tables.	17 (60.7%)	Satisfactory
13. Illustrate different angles (right, acute, and obtuse) using models	13 (46.4%)	Satisfactory
14. Divide two numbers with and without regrouping: 3- to 4-digit numbers by 1-digit numbers.	3 (10.7%)	Poor
15. Subtracts numbers where both numbers are less than 1 000 000, with and without regrouping.	4 (14.3%)	Poor
16. Solve problems involving conversion of units of length, mass, capacity, and time, including problems involving elapsed time in hours and minutes	2 (7.1%)	Poor
17. Draw and state the properties of triangles and quadrilaterals. Classify triangles and quadrilaterals according to sides and angles. Differentiate different quadrilaterals.	5 (17.9%)	Poor
18. Solve problems involving conversion of units of length, mass, capacity, and time, including problems involving elapsed time in hours and minutes	1 (3.6%)	Poor
19. Add numbers with sums up to 1 000 000 where both numbers are less than 1 000 000, with and without regrouping	14 (50%)	Satisfactory
20. Find the perimeter of quadrilaterals that are not squares or rectangles.	15 (53.6%)	Satisfactory
21. Add dissimilar fractions (two proper fractions)	1 (3.6%)	Poor
22. Draws the image of an object after applying reflection with respect to a line, including glide reflection.	11 (39.3%)	Fair
23. Find the perimeter of composite figures composed of triangles and quadrilaterals.	4 (14.3%)	Pair
24. Solve problems involving conversion of units of length, mass, capacity, and time, including problems involving elapsed time in hours and minutes	14 (50%)	Satisfactory
25. Add dissimilar Fractions (two mixed numbers	8 (28.6%)	Fair
26. Measure and draw angles using a protractor.	4 (14.3%)	Poor
27. Interpret data presented in a tabular form, or in a single line graph.	12 (42.9%)	Satisfactory
28. Solve problems involving the surface area of solid figures.	10 (35.7%)	Fair

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29. Convert terminating decimals to fractions, and vice versa.	(25%)	Fair
30a. Describe probability as a measure of the chance of an event occurring.	7 (25%)	Fair
30b.Calculate the theoretical probability of a simple event by listing all possible outcomes.	(14.3%)	Poor
31. Solve multi-step problems involving multiplication of decimals that may or may not also involve addition or subtraction of decimals, including problems involving money.	35.7%)	Fair
32. Divide a fraction by a fraction.	(14.3%)	Poor
33. Solve multi-step problems involving addition and/or subtraction of decimals, including problems involving money.	(7.1%)	Poor
34. Determine the value of a digit in a given decimal number.	50%)	Satisfactory
35. Divide a decimal of up to 2 decimal places by a 1- to 2-digit whole number, resulting in a terminating decimal quotient of up to 3 decimal places.	(7.1%)	Poor
36a. Illustrate and describe solid figures and their nets.	(25%)	Fair
36b. Solve problems using data presented in a double line graph.	(14.3%)	Poor
37. Interpret data presented in a double line graph.	39.3%)	Fair
38. Multiply a fraction by a fraction.	(28.6%)	Fair
39. Perform three or more different operations by applying the GMDAS rules.	(0%)	Poor
40. Solve problems using data presented in a double bar graph.	8 (28.6%)	Fair
Overall	**7.98 (28.5%)**	**Fair**
Description of competency by level		
Poor (P: 20% or below)	18 (42.9%)	
Fair (F: 21% to 40%)	13 (31.0%)	
Satisfactory (S: 41% to 60%)	9 (21.4%)	
Very satisfactory (VS: 61% to 80%)	1 (2.4%)	
Excellent (E: 81% or above)	1 (2.4%)	

**out of 28 learners*

By Total Score

Table 2 displays the distribution of learners based on their total pretest scores in the Rapid Mathematics Assessment. The study results indicate that the average score of learners is 11.96 (Fair) with a standard deviation of 4.42 indicating fairly even spread between 28 learners.

In terms of performance quality, the majority of the learners were rated as fair (53.6 percent), then they were judged to be poor (32.1 percent), and a small segment (14.3 percent). In fact, no learners scored Very Satisfactory or Excellent (great), as Very Unsatisfactory (very poor) skills were taught in the preparation, which indicates very poor proficiency in a class that has so few students, it'd also be hard for you to really compare it to a good course in this section.

The Fair and Poor classes dominate in some ways as a fair majority of students are probably not fully grasping complex mathematical concepts and skills. We could interpret it as learners may have prerequisites in their knowledge of mathematics not being applicable or well- known, especially in computation and mathematical understanding of concepts as well as in problem-solving.

Finally, absence of high- performing learners indicates a general need for instructional interventions from all classes to not solely in some individuals. Given the small average score, it is obvious that learners as a group are falling short of the expected level of skills for their grade.

The standard deviation of 4.42 means that although the learners perform not equilibrate all that much, results remain fairly close, and the students is still within the lowest level of learning. In other words, the learners did get some improvement, but the whole average performance does not rise to meet the required standard.

Overall, I found out that the results of Table 2 suggest that the learners started at a low baseline level performance, and in this case targeted remedial learning actions are thus warranted regarding missing information or gap of the knowledge in mathematics from students.

All of the interventions mentioned in Table 2 were developed to fill in the learning gaps identified in their pretest results. Most of the interventions in this paper were directed towards guided practice, drills, contextualized problem solving, and visual aids and manipulatives to target the kinds of competencies learners scored lowest on the pretest.

For fractions and decimals, interventions were most intensive. I found that the areas of greatest difficulty were represented in the pretest. It is logical to focus our attention on abstract mathematics and why this is so because even students who take computation and conceptual processing as second nature, it is much more complicated.

Indeed this indicates that targeted remedial treatment must help address particular learning gaps and that instruction should be tailored to the learners' learning needs. It indicates, too, that well-constructed interventions help in providing the support to learners for mastery of challenging areas, which could improve their overall mathematics learning results.

The interventions are supported by the literature on a data-based and research based curriculum. Hamilton and colleagues (2009) argue that accurate assessment data informs teaching

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methods to be driven by the learners' actual needs since learning is a real phenomenon.

Table 3a. List of Competency with poor performance and their corresponding intervention

Competency	**Pretest**		**Intervention developed and Utilized**
	Freq (%)*	**Desc.**	
30. Add numbers with sums up to 10 000, with and without regrouping	2 (7.1%)	Poor	Worksheet with regrouping exercise, step-by-step guided practice
31. Subtract similar fractions using models.	4 (14.3%)	Poor	Visual models, Worksheet, Peer teaching activities
32. Represent fractions that are equal to one and greater than one using models	2 (7.1%)	Poor	Visual fraction models
33. Solve problems involving areas of squares and rectangles.	1 (3.6%)	Poor	Problem Solving, formula drills
34. Divide two numbers with and without regrouping: 3- to 4-digit numbers by 1-digit numbers.	3 (10.7%)	Poor	Division exercises through worksheet
35. Subtracts numbers where both numbers are less than 1 000 000, with and without regrouping.	4 (14.3%)	Poor	Multi-step subtraction problems
36. Solve problems involving conversion of units of length, mass, capacity, and time, including problems involving elapsed time in hours and minutes	2 (7.1%)	Poor	Interactive worksheet, real life application exercises
37. Draw and state the properties of triangles and quadrilaterals. Classify triangles and quadrilaterals according to sides and angles. Differentiate different quadrilaterals.	5 (17.9%)	Poor	Hands on activities with cut outs
38. Solve problems involving conversion of units of length, mass, capacity, and time, including problems involving elapsed time in hours and minutes	1 (3.6%)	Poor	Interactive worksheet, real life application exercises
39. Add dissimilar fractions (two proper fractions)	1 (3.6%)	Poor	Guided practice, LCM drills
40. Find the perimeter of composite figures composed of triangles and quadrilaterals.	4 (14.3%)	Poor	Problem solving exercises, worksheet
41. Measure and draw angles using a protractor.	4 (14.3%)	Poor	Hands on drawing task
30b.Calculate the theoretical probability of a simple event by listing all possible outcomes.	5 (14.3%)	Poor	Use of visual aid like coins and dice
32. Divide a fraction by a fraction.	5 (14.3%)	Poor	Visual fraction models, worksheet
33. Solve multi-step problems involving addition and/or subtraction of decimals, including problems involving money.	3 (7.1%)	Poor	Worksheet
35. Divide a decimal of up to 2 decimal places by a 1- to 2-digit whole number, resulting in a terminating decimal quotient of up to 3 decimal places.	4 (7.1%)	Poor	Worksheet
36b. Solve problems using data presented in a double line graph.	5 (14.3%)	Poor	Data interpretation exercises, peer discussion
39. Perform three or more different operations by applying the GMDAS rules.	1 (0%)	Poor	Practice on GMDAS rule, exercises
Overall	**7.98 (28.5%)** **Fair**		

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Distribution of competency by level			
Poor (P: 20% or below)	18 (42.9%)		
Fair (F: 21% to 40%)	13 (31.0%)		
Satisfactory (S: 41% to 60%)	9 (21.4%)		
Very satisfactory (VS: 61% to 80%)	1 (2.4%)		
Excellent (E: 81% or above)	1 (2.4%)		

The Table 3a shows that the pretest results indicate that students of Grade 5 had a poor performance in a variety of mathematical competencies—fractions, geometry, measurement, probability and multi-step problem-solving were among them. Mathematical skills like adding numbers up to 10,000, subtracting fractions and representing fractions over one were not well-developed according to the models; people have to be comfortable understanding or with arithmetic and fractions to accurately calculate one.

Geometry-related competencies such as drawing triangles and quadrilaterals and finding the perimeter of composite figures also exhibited poor performance, suggesting spatial reasoning and geometric reasoning is poor and so can geometry.

In terms of measuring and converting units as well as in elapsed time problems and other items for problem solving, learners' procedural fluency would not work together with their real life experience.

The higher-order competencies like performing multiple operations using GMDAS, solving multi-step decimal problems and calculating probability or interpreting data in double line graphs were also not significantly performed, suggesting a more effective improvement of problem-solving strategy (i.e., logical reasoning) and data interpretation (i.e., reasoning)

In the broad picture, the average competency score at per competency is 28.5 percent (Fair), while nearly 43 percent of competencies were rated as poor for assessment and learning to show some gaps. These gaps guided the design of targeted remedial strategies that addressed these learning gaps.

Table 3b. Distribution of the learners in terms of their posttest performances in the Rapid Mathematics Assessment

Performance		
	Frequency (n=28)	**Percentage**
Poor (0 to 9)	0	-
Fair (10 to 17)	5	17.9
Satisfactory (18 to 25)	13	46.4
Very satisfactory (26 to 33)	7	25
Excellent (34 to 42)	3	10.7
Mean	**23.86 (Satisfactory)**	
SD	**7.37**	

Table 3b shows the distribution of learners for total results of posttest exam in the Rapid Mathematics Assessment following implementation of remedial intervention. In this setting, the scores show an overall mean score of 23.86 was considered satisfactory and the standard deviation of 7.37 in the Rapid Mathematics Assessment.

As individuals' performance level is what seems to be highest (46.4 percent) and a few students who do fairly well (25 percent) are the most satisfactory and the worst (10.7 percent), and learners which score very well (good) and very well (good) in other fields show better performance. The Fair is more than half of all learners, the fair students only have 17.9 percent of them under the Fair; there are no bad learners and no poor learners under the Poor students. This change of proportion is indicative of much larger change compared to that in pretest.

As there are no poor students there, the remedial intervention worked for better grades, giving every student some form of basic level of knowledge. And there were a lot of students on the higher score settings (Very Satisfactory and Excellent) in the medium term. As a result, the higher mathematics skill sets were also achieved for many learners in very poor skill levels (Very Satisfactory and Excellent learners).

The improvement in the mean score from the pretest (11.96) to the posttest (23.86) represents a significant improvement in general performance which suggest learners improved effectively not only in their computational skills but also in the higher functional competencies.

The higher standard deviation of 7.37 in the pretest indicates a wider range of scores. This meant learners did better by a large margin but a lot of improvements were not universal. There were many learners who showed significant mastery, some of the learners with moderate success and no modulation in learning and responsiveness on learning-initiative response.

This shows that the posttest classification of learners' scores in all competencies improved with significant improvement, and many learners achieved higher levels of proficiency. It was noted that the biggest gains were in competencies that first had the lowest pretest score (fractions and decimals), while competencies that were already better than these (number operations), at least at first, showed smaller but still positive improvements.

Overall, in Table 3b, the results show that the remedial intervention did indeed boost math performance for some learners as shown through the improvement in performance rates, the improvement in mean score and the decline of low performing learners. The remedial intervention that was being used were as follows: Daily Drill and Practice, Use of Concrete-Pictorial-Abstract (CPA) Approach, Error Analysis Strategy Review incorrect answers from pretest, peer group remediation sessions, Contextualized Word Problems (use real life situation), and Formative Assessment through worksheet that can be used to bridge learning gaps so as

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to enable proficiency and performance enhancement at this stage of a student's development.

Learners do best with remediation programs that address specific learning deficiencies, Slavin stated. Heritage (2010) and Popham (2017) indicated that post-assessment examination of learner progress has been shown to be beneficial for educators to understand the effectiveness of the educational strategies before they are implemented and make future adjustments to the actions involved as needed.

Table 3c. Posttest performance of the learners vis-à-vis the competencies in the Rapid Mathematics Assessment

Competency	**Posttest**	
	Freq (%)*	**Desc.**
1. Multiply 2- to 3-digit number by a 1-digit number with and without regrouping.	27 (96.4%)	Excellent
2. Determine the missing term/s in a pattern with repeating and increasing components or repeating and decreasing components (e.g., 1a, 1b, 1c, 2a, 2b, 2c, …).	20 (71.4%)	Very Satisfactory
3. Add numbers with sums up to 10 000, with and without regrouping	20 (71.4%)	Very Satisfactory
4. Collect data from experiments with a small number of possible outcomes (e.g., rolling a die or tossing a coin).	24 (85.7%)	Excellent
5. Describe and draw the effect of a two-direction multi-step slide (or translation) in basic shapes and figures.	42 (150%)	Excellent
6. Apply properties of multiplication for the 6, 7, 8, and 9 multiplication tables: changing the order of the numbers being multiplied does not change the product	23 (82.1%)	Excellent
7. Subtract similar fractions using models.	9 (32.1%)	Fair
8. Represent fractions that are equal to one and greater than one using models	18 (64.3%)	Very Satisfactory
9. Solve problems involving areas of squares and rectangles.	12 (42.9%)	Satisfactory
10. Subtract numbers, where both numbers are less than 10 000, with and without regrouping	18 (64.3%)	Very Satisfactory
11. Multiply numbers with and without regrouping: a. 2- to 3-digit numbers by a. 1-digit number, and b. 2- to 4 digit numbers by a number whose leading digit is the only non-zero digit, with products up to 10 000. Apply properties of multiplication for the 6, 7, 8, and 9 multiplication tables: a. One multiplied by any number is equal to the number	20 (71.4%)	Very Satisfactory
12. Divide numbers using the 6, 7, 8, and 9 multiplication tables.	24 (85.7%)	Excellent
13. Illustrate different angles (right, acute, and obtuse) using models	25 (89.3%)	Excellent
14. Divide two numbers with and without regrouping: 3- to 4-digit numbers by 1-digit numbers.	10 (35.7%)	Fair
15. Subtracts numbers where both numbers are less than 1 000 000, with and without regrouping.	12 (42.9%)	Satisfactory
16. Solve problems involving conversion of units of length, mass, capacity, and time, including problems involving elapsed time in hours and minutes	16 (57.1%)	Satisfactory
17. Draw and state the properties of triangles and quadrilaterals. Classify triangles and quadrilaterals according to sides and angles. Differentiate different quadrilaterals.	21 (75%)	Very Satisfactory
18. Solve problems involving conversion of units of length, mass, capacity, and time, including problems involving elapsed time in hours and minutes	8 (28.6%)	Fair
19. Add numbers with sums up to 1 000 000 where both numbers are less than 1 000 000, with and without regrouping	20 (71.4%)	Very Satisfactory
20. Find the perimeter of quadrilaterals that are not squares or rectangles.	21 (75%)	Very Satisfactory
21. Add dissimilar fractions (two proper fractions)	12 (42.9%)	Satisfactory
22. Draws the image of an object after applying reflection with respect to a line,	18 (64.3%)	Very Satisfactory

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including glide reflection.		
23. Find the perimeter of composite figures composed of triangles and quadrilaterals.	8 (28.6%)	Fair
24. Solve problems involving conversion of units of length, mass, capacity, and time, including problems involving elapsed time in hours and minutes	23 (82.1%)	Excellent
25. Add dissimilar Fractions (two mixed numbers	12 (42.9%)	Satisfactory
26. Measure and draw angles using a protractor.	6 (21.4%)	Fair
27. Interpret data presented in a tabular form, or in a single line graph.	20 (71.4%)	Very Satisfactory
28. Solve problems involving the surface area of solid figures.	21 (75%)	Very Satisfactory
29. Convert terminating decimals to fractions, and vice versa.	19 67.9%)	Very Satisfactory
30a. Describe probability as a measure of the chance of an event occurring.	10 39.3%)	Fair
30b. Calculate the theoretical probability of a simple event by listing all possible outcomes.	14 53.6%)	Satisfactory
31. Solve multi-step problems involving multiplication of decimals that may or may not also involve addition or subtraction of decimals, including problems involving money.	15 57.1%)	Satisfactory
32. Divide a fraction by a fraction.	7 (28.6%)	Fair
33. Solve multi-step problems involving addition and/or subtraction of decimals, including problems involving money.	2 (17.9%)	Poor
34. Determine the value of a digit in a given decimal number.	20 75%)	Very Satisfactory
35. Divide a decimal of up to 2 decimal places by a 1- to 2-digit whole number, resulting in a terminating decimal quotient of up to 3 decimal places.	7 (28.6%)	Fair
36a. Illustrate and describe solid figures and their nets.	8 35.7%)	Fair
36b. Solve problems using data presented in a double line graph.	8 35.7%)	Fair
37.Interpret data presented in a double line graph.	11 50%)	Satisfactory
38. Multiply a fraction by a fraction.	7 (25%)	Fair
39. Perform three or more different operations by applying the GMDAS rules.	7 (25%)	Fair
40. Solve problems using data presented in a double bar graph.	7 (25%)	Fair
Overall	**15.9 (56.8%) Satisfactory**	
Description of competency by level		
Poor (P: 20% or below)	1 (2.4%)	
Fair (F: 21% to 40%)	13 (31.0%)	
Satisfactory (S: 41% to 60%)	8 (19%)	
Very satisfactory (VS: 61% to 80%)	13 (31.0%)	
Excellent (E: 81% or above)	7 (16.7%)	

Table 3c shows the posttest performance of students on the Rapid Mathematics Assessment showed positive responses with various interventions in that category. As far as the mean of the Pretest is 15.9 as far as it is looking at it in all those areas then 7.98 (28.5 percent) is the median and that can also be improved as a result.

Competency level distribution takes place in all the levels. Most competencies on average are more advanced. But some were still poor. For at least 1 competence it was too low in level. Fair (31 percent): 13 work needs improvement but some competencies are nearly mastered. Satisfactory (19 percent): 8 competencies are satisfactory. Very satisfactory (31.0 percent): 13 competencies improved very reasonably. Excellent (16.7 percent): 7 competencies at focus had good control over their skills.

Such a distribution is better than the pretest where the highest levels of competencies in most cases came down to failing grades of (42.9 percent) and I am happy for them at (31 percent). These were excellent skills and very good (and fairly good) but also all students were able to demonstrate good basics, and well-rounded skills are for example (in areas of basic and applied work).

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Remedial sessions I hope were sufficient to help for building the foundational skills. In geometry and measurement, it has also been discovered that angles, shape properties, perimeter and surface area have really improved with items 5, 13, 17, 20 and 28 have become at quite good score quality.

Learning on shapes, from figures that are in math and know the way in which to measure everything. On composition and interpretation (tables as well as line and double line graph items 27 and 34). Some of them were okay or even okay all at the core level and others needed work with less sophisticated types of data analysis that needed solving.

Fractions, decimals and higher problems. Although the performance including fractions, multi-step problems, decimals, probability and GMDAS (items 7, 21, 25, 30a; 31, 33, 38-40) are better than in the overall condition, one can still fail and a more extensive intervention is required.

The findings of those posttest indicate the improvement of mathematical skills in basic operations, geometry and number sense in order to benefit in most domains. The learners are able to transfer skills to their application after this intervention and I see good levels of Good and Excellent skills in skill acquisition.

However, some competencies are still Fair or Poor and require hard math skills in order to master it as fractions, decimals, probability, and multi-step questions. Table 3c also shows some reasonable results for the interventions still be required to ensure students are able to succeed in math especially in complicated problems.

According to this result, competency-based remediation will assist in not only building the skills and the reasoning to become more accomplished at mathematics but also learning very effectively to do the same. It is also able to see that interventions aligned with learners' wants result in measurable gain in learners of learning (more and more knowledge) across the abilities needed for mathematics.

Capuno et al. (2019) claim that Filipino learners are provided support in both the course of self-study and problem-solving with a set of interventions to develop their mathematics learning skills while in a context which is also relevant in how good the students get the results, as well as with the context.

Difference in the Pretest and Posttest Performance of the Learners in the Rapid Mathematics Assessment

Table 4. Significant difference between the pretest and posttest in Rapid Mathematics Assessment results after the implementation of the remedial interventions

Variables	Mean	SD	t-value	p-value	Inference
Pretest	11.96	4.42	11.542	0.000	Significant
Posttest	23.86	7.37			

**tested at 0.05 level of significance*

Comparison Table

Table 4 indicates an over and under performance gap between the outcomes of learners in the pretest and posttest of the RMA. In this case, we can easily see that the t-value (11.542 p-value 0.000) which is lower than 0,05 level of significance and the null hypothesis is rejected. This indicates that there is a significant difference between the result of learners' scores before and after implementing the remediation program. The increase in the mean score from 11.96 in the pretest to 23.86 in the posttest is an excellent indication that math learners' scores have increased substantially to better with the training approach on their level by using in the test preparation and to improve by the students' mathematics.

Moreover, our result indicates that the outcomes obtained from the remediation approaches increased learners' comprehension and skills in manipulating mathematical concepts. A large improvement in scores indicates that the targeted and data-driven teaching strategies adapted to the learners' particular problems exhibited in the pretest. Although the standard deviation was still up to 7.37 from 4.42 that indicates differences in the degree to which learners benefit according to our results, we can tell most of them improved, as the mean of the student performance increased as the improvement occurred.

Finally, the statistical analysis indicates good evidence to support our conclusion that the remediation program was integral in the improvement of students' math skill. That is why assessment results. Like RMA, need to be used in an inclusive model generating targeted and responsive education approaches which will ultimately inform learners performance and results.

This suggests that pretest- guided interventions can yield meaningful learning outcomes for learners who are lacking basic skills. Evidence substantiates assessment-based remediation as a way to enrich mathematics skills as a curriculum based on the use of this concept.

Creswell (2014) notes that pretest-posttest designs help researchers determine how well instructional intervention is performing effectively.

Table 5. Effect size of the of the remedial intervention activities on Rapid Mathematics Assessment performances

Variables	t-value	Eta-squared	Interpretation
Pretest	11.542	0.83	Large
Posttest			

Effect size

The results of Table 5 also show that the remedial intervention activities were major to the learners' performance in Rapid Mathematics Assessment (RMA). The eta-squared value of 0.83 indicates a fairly large effect that suggests that at about 83% the improvement in learners' scores was due to the intervention with compared to chance or external factors. This means the remediation program had great effect on learning the mathematical skills of learners.

The larger effect size indicates the successful outcome compared to the t-test and that the difference between the pretest and posttest was significant not only in terms of statistical meaning but also in a practical sense.

The trend shows that the greatest effect sizes were observed in competencies with initially low pretest means, such as fractions and decimals, while competencies with high pretest means, like number operations, showed smaller effects. This reinforces the

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principle that targeted interventions are particularly impactful for learners' areas of weakness.

It implies that the intervention was successfully used to overcome issues students were facing while expanding their Mathematical abilities and not the data. The fact the size is so large indicates that teachers' instruction and skills have focused learning activities on those areas of learning and targeted interventions were helpful and actionable.

This finding implies that the remedial interventions were not only effective in improving scores but also had a substantive influence on learners' mastery of mathematical competencies. Measuring effect size ensures that improvements are practically meaningful, reinforcing the value of assessment-based and competency-focused interventions.

Capuno et al. (2019) also report that targeted remediation produces substantial improvements in learner performance, validating the efficacy of data-driven, scaffolded, and contextualized instructional approaches.

Packaging the Different Interventions in Teaching Mathematics

To be systematic and easy to use in the classroom setting, the aforementioned interventions can be packaged as a comprehensive instructional material or intervention module anchored in the competencies of the Rapid Mathematics Assessment (RMA).

First, Drill and Practice can be presented as structured worksheets or practice booklets that are sequenced from basic to increasing difficulty. They can be supplemented with time-bound exercises to develop students' speed and accuracy, along with answer keys for self-checking.

Second, the Concrete–Pictorial–Abstract (CPA) Approach can be organized as lesson guides or activity sheets with three parts: (1) concrete activities using manipulatives, (2) pictorial representations such as diagrams and models, and (3) abstract problem-solving. This format will serve as a step-by-step scaffold for learners' learning.

Third, the Error Analysis Strategy can be made part of diagnostic worksheets where there are sample incorrect solutions that students need to review. This can be accompanied by reflection prompts to encourage critical thinking and self-correction skills.

Fourth, Contextualized Word Problems can be compiled as real-life problem sets that are anchored in the daily experiences of learners (e.g. budgeting, shopping, measurements). These can be presented in the form of activity cards or situational tasks to make learning more engaging and meaningful.

Fifth, Peer Tutoring can be supported by guided activity sheets and tutor-tutee checklists that will provide direction for student interaction. Clear instructions and roles can also be provided to make collaborative learning more effective.

Finally, Formative Assessments can be placed as short quizzes (5–10 items) in each lesson or module, with tracking sheets to monitor learners' progress before the post-test.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The instrument to assess the level of performance of students in different learning competencies in Grade 5 is the Rapid Mathematics Assessment. The result of the study reveals that the interventions implemented to the low-performing students have proven to be effective in enhancing the students' performance in Mathematics. Moreover, the said interventions have significant (large) effect on the students' result after the test, which reveals positive changes in the students' performance.

Recommendations

In the light of the aforementioned findings and conclusions of the study, the following are highly recommended:

1. Teachers should continue to focus on targeted remedial efforts based on learners' strengths and weaknesses identified as measured by Rapid Mathematics Assessment areas such as fractions, multi-step problem solving, and data interpretation.
2. School Administrators should train teachers on what to do with data-driven remedial approaches and also have the instructional resources for mathematics mastery available to them.
3. Parents should play a part in their kids' schooling at home by checking practice exercises, aiding with homework and reinforcing skills in ways they are a little challenged.
4. The findings of this study should be utilized by curriculum developers to revisit the mathematics curriculum and help put together a curriculum that answers learners' common problems in place so that learning process is meaningful and aligned.

Declaration of no conflict of interest

I hereby declare that there is no conflict of interest, financial or otherwise, that could have influenced the conduct, results, interpretation, or presentation of this study. The researcher has no personal, professional, or institutional affiliations that may be perceived to affect the objectivity and integrity of the research.

Furthermore, no external organization, agency, or individual exerted undue influence on the planning, implementation, analysis, and reporting of the study.

This declaration is made in good faith and to uphold the ethical standards of research.

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