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Enhancement of Addition-Subtraction Skills of Grade 4 Learners in Lingaten II District of Pangasinan I Through Mathematics Short Story Reading Strategy

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Abstract

Mathematics is an essential subject in the elementary curriculum to develop logical reasoning, problem-solving, and critical thinking skills of the learners. Though it is vital, most grade 4 learners in the Lingayen II District of Pangasinan I keep on struggling with addition and subtraction as foundational operations. This research determined the effectiveness of the Reading Short Mathematics Stories Strategy to enhance the addition and subtraction skills of Grade 4 learners. This study anchored and applied several relevant theories that served as the foundation for the investigation, including Piaget's Constructivist Learning Theory, Vygotsky's Social Development Theory, and the Multisensory Learning Approach. It used a quasi-experimental one-group pretest-posttest design. A total of 292 grade 4 learners enrolled for SY 2025-2026 participated in this study. The 15-item Pretest and posttest with both multiple-choice and problem-solving questions enclosed in short Mathematics 4 stories were administered to assess the skills of the learners. The mean scores and the paired sample t-test were employed to analyze the data. The results revealed that the addition and subtraction skills of the grade 4 learners in the pretest were described as Level 2-Developing and increased to Level 3-Approaching Proficiency in the posttest. The t-test showed a significant difference between the pretest and posttest scores. Therefore, a School-based Training Workshop on Contextualized Mathematics Short Stories Reading Materials was proposed.

Keywords: *Mathematics Short Stories Strategy; Addition Skills; Subtraction Skills; Grade 4 Learners; Quasi-Experimental; Numeracy Skills; DepEd Proficiency Levels*

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Chapter 1

THE PROBLEM

Rationale

Consider this opening statement “As outlined in Department of Education (DepEd) Order No. 10, s. 2024, otherwise known as the Revised K–12 Basic Education Curriculum, numeracy is recognized as a fundamental learning area in the primary grades to ensure learners' mastery of basic mathematical operations before progressing to more advanced mathematical concepts. Mastery of foundational numeracy skills, particularly addition and subtraction, is essential as these serve as prerequisites for higher-order mathematical learning and problem-solving.

Despite this emphasis, a considerable number of Grade 4 learners continue to experience difficulties in performing addition and subtraction operations proficiently. In the Lingayen II District of Pangasinan I, classroom assessment results revealed that approximately 50 percent of Grade 4 learners struggled to apply these fundamental operations effectively, which consequently affected their overall mathematics performance. Furthermore, data from the Division Numeracy Test administered on December 9, 2025, indicated that ninety-seven percent (97%) of the Grade 4 learners were classified under the Not Proficient, Developing, and Levels 1, 2, and 3 proficiency categories, while only three percent (3%) achieved the expected grade-level proficiency. These findings underscore a significant learning gap in numeracy and highlight the urgent need for targeted interventions to improve learners' mathematical competencies and academic achievement.

In attempting to address the issue, combining reading with mathematics could be a positive strategy using contextualized and engaging short mathematics stories in learning. The strategy motivated the learners to picture mathematical problems in actual life scenarios and strengthened both comprehension and numeracy skills.

Reading stories about mathematics is really good because it helps the Department of Education reach its goal of teaching Filipino learners how to read and write properly. This is good for the learners because it helps them learn mathematics and language at the same time. They can understand, look at, and solve problems without memorizing things. Mathematics stories can help learners get better at adding and subtracting numbers. It can also help learners with mathematics. Think it is a good subject. The Department of Education wants learners to like mathematics. Think it is useful. Mathematics stories can make mathematics more fun and interesting for Filipino learners.

Therefore, this study titled “Enhancement of Addition-Subtraction Skills of Grade 4 Learners in Lingayen II District of Pangasinan I Using Mathematics Short Story Reading Strategy” seeks to determine the effectiveness of this innovative instructional strategy. The research aimed to improve learners’ computational accuracy, comprehension of word problems,

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and overall mathematical performance through the integration of reading and mathematics instruction.

A recent empirical study examined the effectiveness of a word problem solving approach to teach addition and subtraction in diverse Grade 3 classrooms. The results showed that instruction emphasizing word problems significantly improved learners' performance in addition and subtraction compared to traditional approaches. This study highlights the value of teaching learners to interpret mathematical texts and apply problem-solving steps as a strategy for strengthening basic operations (Vessonen, 2025).

In the year 2025, a review of how literacy strategies are used in mathematics learning was conducted. This review found that when teachers use literacy techniques like making pictures in their mind, talking about things, and reading math texts, students get an understanding of math concepts, and they are more interested. This study was mainly about how teachers taught, but it also shows that teaching math with literacy strategies helps students learn math concepts better, not just do math problems (Guthrie, 2025).

A recent case study investigated digital media-based mathematics learning strategies that integrate reading and numeracy to improve students' reading interest and numeracy competencies. It found notable increases in students' reading behaviors, voluntary engagement with mathematical narratives, and performance on math problems, including word problems, when digital reading materials were systematically used in instruction (Lestiawati, 2026).

A 2025 meta-analysis of mathematical word problem-solving interventions across elementary grades showed that interventions focused on word problem skills had strong positive effects on students' ability to solve mathematical narratives. The findings reinforce that explicit instructional support targeting word problem comprehension and solution strategies consistently improves math outcomes (Vessonen, 2025).

Recent research investigating the relationship between reading comprehension and mathematics performance found that integrating reading strategies into math instruction significantly improves students' understanding of math word problems. This work emphasizes the cognitive connection between reading comprehension and successful math problem solving, especially where language processing supports interpretation of mathematical texts (Reading Comprehension as a Predictor of Mathematical Problem-Solving Ability, 2025).

A 2025 study (emerging evidence) found that reading mathematical stories in interactive sessions improves young learners' math learning and creates effective social and cognitive engagement. Though the focus was at the kindergarten level, the findings point toward story-based contexts as a way to enhance early numeracy and math reasoning—including operations like addition and subtraction (Almulhim, 2025).

Research on how kids learn to read and do math at the same time is really interesting. Studies that follow kids over time show that reading and math skills develop together as they go through school. When kids learn to understand what they read and can also do math problems, it

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helps them learn math better, especially when they have to solve problems that involve words and numbers. For example, word problems need kids to be good at reading and math, at the time (Sambo, 2024).

Mathematics achievement in the grades is really important for how well you do in school later on. Kids in the grades often have a hard time with basic number sense, especially when it comes to adding and subtracting, which are the main things they learn in Grades 1 2 and 3 (Clements, 2011). Mathematics achievement is something that these kids need to get a grasp of. If they do not get the help they need, they will keep struggling. That can make them feel bad about themselves and not like mathematics very much (Boaler, 2016).

People who study this say that it is more important for kids to really understand the concepts of arithmetic than to just memorize things (Carpenter et al, 2015). Mathematics achievement comes from understanding these concepts. If they do not really get it kids will often use ways of counting that are not very good, and they will make a lot of mistakes. Mathematics achievement is not about memorizing it is, about understanding the basics of mathematics (Geary, 2013).

When we are learning math, it helps to use life problems to understand what we are doing (Piaget, 1972; Vygotzky, 1975). This way, we can move from doing the steps to really understanding what the math means. Some studies show that we learn better when we use problems that are part of a story. For example, if we have a problem that's like a little story, we can see the numbers figure out what to do with them and understand how they are related to each other. This is what Van de Walle, Karp, and Bay-Williams said in 2019.

People who are good at reading usually do well in math, especially when it comes to solving word problems. This is what some researchers found out. Students who have trouble reading often have trouble understanding the math in a story, even if they are good at doing the actual math (Fuchs, 2016).

Using books that combine reading and math can really help students. These books make students read the story, find the numbers, and then do the math. Some researchers worked with students and found that using stories to teach math makes them more interested and helps them understand the problems better. They can even apply what they learn to life situations (Sullivan, 2014; Jitendra et al, 2017).

Reading skills are closely linked to doing math, especially when it comes to solving word problems. When learners read math stories, they have to understand the language, find the numbers, and apply them to math operations. Studies with elementary school students show that using stories to teach math works. It makes students more engaged, better at understanding math problems, and more skilled at applying what they learn. This was found by Sullivan and Lilburn in 2014. Jitendra et al. In 2017. Research also shows that reading materials with math concepts help students bridge the gap, between language and math.

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Short mathematics stories, brief narrative problems centered on real- life scenarios, have been used as instructional tools to support early arithmetic learning. These stories provide relevant contexts that make abstract numbers meaningful.

For example, a story about sharing apples introduces both addition and subtraction within a context familiar to children. Empirical studies suggest that narrative problem contexts can enhance engagement and motivation, as learners find stories more interesting than isolated drills (Boaler, 2016).

In particular, interventions using short stories with visual supports have shown improvements in addition–subtraction performance among elementary learners with diverse ability levels (Jitendra & Star, 2011).

These studies point to the dual benefit of supporting both reading comprehension and mathematical reasoning.

Many studies in the Philippines say that teaching mathematics in a way that relates to life is very important. For example, using stories and examples to teach mathematics has been shown to help pupils understand and remember math concepts better as seen in a study by Dela Cruz in 2018. Another study by Reyes in 2019 found that combining language arts with mathematics helps pupils understand word problems, in classrooms where pupils speak different languages at home, like in Pangasinan, where some pupils speak Ilocano or Pangasinan. These studies show that using reading materials that are familiar to pupils and that reflect their culture and language can really help improve their mathematics skills. The mathematics performance of pupils in the Philippines can be improved by using these approaches. The Department of Education and teachers can use these findings to help Filipino learners do better in mathematics.

One strategy supported by research is relevant to this study's intervention. This is called the repeated practice with meaningful feedback, especially when embedded in narratives, which strengthens both computation and comprehension skills (Gersten et al., 2019). When mathematics learning is connected to reading and real- life contexts, learners achieve stronger conceptual frameworks, not just procedural fluency.

Reading is really important for math. Some studies in the Philippines show that being good at reading helps a lot with math and word problems. A study by Dela Cruz in 2025 found that students from the Philippines who are good at reading do better in adding and subtracting word problems than students who are not as good at reading. This study says that students who can read and understand what they are reading do well in math. It also says that if we help students with their reading, they will also get better at math.

Similarly, Santos found out in 2024 that there is a connection between reading and solving math problems that are written out in words. This means that students need to be good at reading to do well in math.

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These studies show that teaching reading skills in math class can help students in two ways: it can help them get better at reading. It can also help them get better at math. Reading comprehension is a foundation for mathematics. Students need to have good reading comprehension skills to do well in math. Reading comprehension and math are connected. When students get better at reading comprehension, they also get better at math.

In elementary classrooms, kids often struggle with word problems. This agrees with what Alvarado found in 2025. Alvarado said that using stories to teach math made it easier for learners to solve problems. These stories made numbers by using everyday situations. Such studies support using math stories to teach kids. This approach helps Grade 4 learners understand math concepts and get better at solving problems.

Action research that was done in schools in the Philippines shows that using structured reading strategies when teaching mathematics is really effective. A person named Medina did a study in 2025 where she used something called Barrett's Taxonomy of Reading Comprehension to help students understand math problems better. What she found out was that when students were given step-by-step guidance on how to read and understand the stories in math problems, they were able to find the information, choose the right things to do, and solve addition and subtraction problems more correctly.

Also, when the teacher added things like talking about the problems, in a group, and using pictures to help students see what is going on, the students became more interested. Understood the ideas better. These results show that when teachers combine reading and math in their lessons, it does not just help students understand things better, but it also makes them feel surer of themselves and do better in math.

The Philippines is having a time with reading and math. Many students in the Philippines are struggling to understand what they read. This makes it difficult for them to solve math problems that are written in words. This is a problem that needs to be fixed, especially in the early grades of elementary school, where students learn basic addition and subtraction.

If teachers use stories that have math in them, they can help students learn in a way that's fun and makes sense. A study done by Luna and others in 2024 found out that when students can read well, they can also do better in math especially when it comes to solving word problems.

Other research has shown that when reading and math are taught together, students can learn more and get better at solving problems. For example, a program that teaches reading and math at the same time can help students understand and visualize the information, and this can help them solve word problems that involve addition and subtraction. This research shows that it is very important to connect reading and math so that students can understand both the words and the numbers in math problems.

Some teachers use a way of teaching called comprehension strategy instruction, which helps students understand what they are reading and solve math problems. This way of teaching

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has been shown to help students who have trouble with math, especially when it comes to solving word problems.

Many studies have found that when students are given math problems that are like stories, they can understand the math better and use the right steps to solve the problems. This is because the stories help students see the point of the math and make it more interesting.

Big tests have also shown that reading and math are connected and that students who are good at reading tend to be good at math. This is because reading is the foundation of math, and students need to be able to read in order to understand math problems and solve them.

All of the research points to three things. First, being able to read is very important for doing well in math, especially when it comes to solving word problems. Second, using math stories and word problems can help students learn math in a way that's fun and makes sense. Third, teaching reading and math together can help students get better at math. Understand it more deeply.

These findings are very important for the project that is proposed, which will use reading and math stories to help students in Grade 4 in Lingayen II District of Pangasinan I get better at addition and subtraction. National Educational Challenges, in Reading and Mathematics, are problems that need to be solved, and this project can help. The Philippines needs to fix this problem, and using reading and math stories is a way to do it.

Theoretical Framework

This study was based on the Constructivist Learning Theory by Jean Piaget, the Social Development Theory by Vygotsky, and the Multisensory Learning Approach. These theories explained how students learn math by doing things and not just listening. They learn by experiencing things, talking to people, and using their senses.

In this study, the researcher used short math stories to help Grade 4 learners understand addition and subtraction. These stories helped them connect math to life. When students read these stories, they had to think about what was happening, understand the numbers, and figure out the math. Vygotsky said that students learn when they work with teachers or friends. In this study, we had learners read and talk about math stories together. They worked in groups, solved problems, and asked questions. This helped them learn from each other, explained their thoughts, and understood things better. It also helped them learn to talk about math and reason things out.

The multisensory learning approach was also used. This approach says that learning is better when we use our eyes, ears, and body. When we read math stories, we see pictures, hear the story, and can act it out. This helps students learn in various ways. It helps them pay attention and remember things. Do better in math. All these theories together show that using math stories is a good way to teach math. It helps students learn by doing things, talking to people, and using their senses. The Multisensory Learning Approach, the Social Development Theory, and the Constructivist Learning Theory all work together to make math learning better for students.

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Conceptual Framework

The Independent and Dependent Variable framework is what we are using for this study. This framework was chosen because it showed what causes something to happen and to what extent it entailed.

The independent variable was the thing changed to see how it affected the learners. For this study, the independent variable was using reading short mathematics stories as a way to teach. This used stories, reading math problems, and solving problems using senses to learn, and working together with other students.

On the other hand, the dependent variable was the result of the changes in the independent variable. For this research, the dependent variable was how well the Grade 4 learners were at adding and subtracting. Tests were given to see if using reading short mathematics stories as a way to teach actually worked.

Paradigm of the Study

This study was patterned on the Independent-Dependent Variable scheme of the directions of the sub-problems.

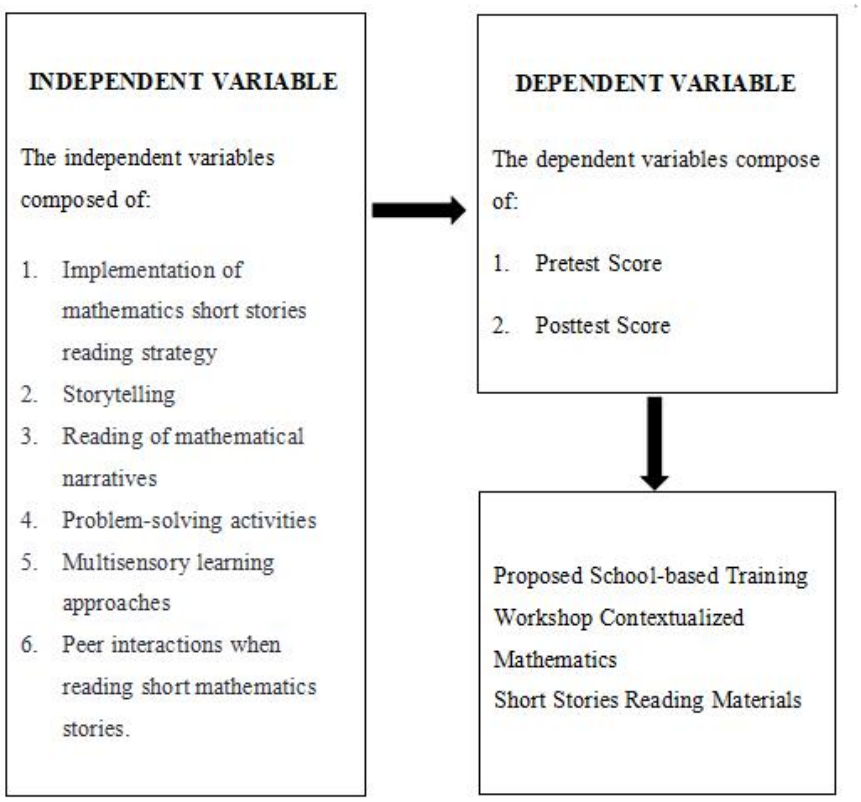

Figure 1. Paradigm of the Study

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Statement of the Problem

This study was conducted to determine whether using the mathematics short stories reading strategy was effective in enhancing the addition and subtraction skills of grade 4 learners in Lingayen II District of Pangasinan I.

Specifically, the study sought answers to the following questions.

1. What is the level of addition and subtraction skills of grade 4 learners during the pretest?
2. What is the level of skills of the grade 4 learners in addition and subtraction during the posttest after the implementation of the strategy?
3. Is there a significant difference between the level of addition and subtraction skills of grade 4 learners before and after the implementation of the strategy?
4. What intervention can be proposed to enhance the addition and subtraction of the learners using the strategy?

Research Hypothesis

1. There is no significant difference between the level of skills of Grade 4 learners before and after the use of the mathematics short stories reading strategy.

Scope and Delimitation

This study focused on determining and enhancing the addition and subtraction skills of grade 4 learners enrolled in Lingayen II District of Pangasinan I. It used stories about math to help Grade 4 learners enhance these skills. This study was conducted only in a classroom setting in mathematics. It did not include any other subjects that Grade 4 learners' study.

Significance of the Study

The results of this study were expected to provide evidence that would help school heads, mathematics teachers, researchers and learners. This study would show that using literacy strategies in math classes would be effective.

School Heads. This study would help school heads design and support classroom activities that combine literacy and math. The results would help them make decisions about policies and teacher training. This could improve math performance. The study could also provide a model that schools can use to improve math programs.

Teachers. This study would be helpful to teachers as one of their references in providing interventions to the learners who struggle in performing addition and subtraction. The teachers may utilize the conceptualized strategy that was found significantly effective in remediating and even enhancing the addition and subtraction skills of the learners.

Researchers. This study provides future researchers with additional concepts in teaching mathematics to elementary grades. It can be used as a reference for studies about math and

reading. The findings of the study may serve as a reference for other related studies in teaching mathematics, particularly on how the strategy works in other classroom settings.

Learners. This study is primarily for the learners, especially those who need interventions in performing addition and subtraction. At the same time, the learners would also strengthen their reading proficiency since this study integrated reading to mathematics as a strategy.

Definition of Terms

The following terms were defined operationally and lexically for clarity and a thorough understanding of this study.

Addition Skills. In this study, addition skills referred to the proficiency of grade 4 learners at adding and subtracting numbers measured through written and oral tests.

Constructivist Learning Theory. Operationally, in this study, this theory was applied through learners' engagement with short mathematics stories where they analyze situations, interpret problems, and construct solutions independently or with guidance.

Dependent Variable. In this study, the dependent variable referred to the scores of grade 4 learners from the pretest and post-test given to them for the purpose of determining their level of addition and subtraction skills.

Independent Variable. In this study, independent variables referred to the Implementation of the reading mathematics short reading stories strategy that may through, Storytelling, Reading of mathematical narratives, Problem-solving activities, Multisensory learning approaches, and Peer interactions when reading short mathematics stories.

Mathematics Short Stories. Operationally, Mathematics Short Stories are mathematical problems presented in brief narratives. They are measured through the learners' engagement with and performance on story-based mathematical tasks administered during the intervention period, as reflected in their scores in the pretest and posttest Achievement Test in Addition and Subtraction.

Multisensory Learning Approach. In this study, this approach is used in learning through the combinations of strategies or techniques such as silent reading, reading aloud, storytelling, group discussions, and/or the use of manipulatives.

Mathematics Short Story Reading Strategy. In this research, the structured classroom intervention referred to where learners read or listen to short math stories, answer embedded addition and subtraction problems, participate in guided discussions, and complete related activities over the intervention period.

Social Development Theory. This theory was introduced by Vygotsky. In this study, this theory was used to promote social interaction between the teachers and the learners or among them all, using scaffolding during the math sessions with the integration of reading.

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Subtraction Skills. In this study, subtraction skills were measured using pretest and post-test results based on subtraction items embedded in short mathematics stories.

Zone of Proximal Development (ZPD). In this study, ZPD was observed through learners' ability to solve story-based addition and subtraction problems with teacher or peer support during guided activities.

Chapter 2

RESEARCH METHODOLOGY

This chapter presents the research design, respondents of the study, data-gathering instrument, data-gathering procedure and the statistical treatment of data, which shall be used to analyze the data.

Research Design

This study used a quasi-experimental method with one-group pretest-posttest design to determine the effect of the Mathematics Short Reading Stories Strategy to enhance the addition and subtraction skills of Grade 4 learners.

The group was assessed before and after the conduct of the instructional intervention. A teacher-made pretest was administered to establish the baseline level of learners' addition and subtraction skills. Following this, the Reading Short Mathematics Stories Strategy was implemented during regular mathematics periods. After the intervention period, a posttest parallel to the pretest was administered to measure changes in learners' performance.

Locale and Population of the Study

This study was conducted in 11 public primary schools in the 2nd District of Lingayen, in Schools Division Office I Pangasinan. The complete population of grade 4 learners consisting of 292 from the 11 schools purposely served as the respondents of the study.

The following table shows the number of the respondents per school.

Table 1

Number of Respondent-Grade 4 Learners of Lingayen II District

School	Number
1. Baay Elementary School	30
2. Balangobong Elementary School	15
3. Capandanan Elementary School	24

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4. Domalandan East Elementary School	23
5. Domalandan Center Integrated School	30
6. Eztansa Elementary School	25
7. Guesang Elementary School	19
8. Malimpuec Elementary School	54
9. Padilla Central Elementary	19
10. Sabangan Elementary School	24
11. Samson-Bengson Elementary School	48
TOTAL	**292**

Data-Gathering Instrument

The tests in Addition and Subtraction (Forms A and B) was adopted from current research and assessment frameworks that support the use of word problems to assess mathematical understanding. The test items were patterned after empirical studies analyzing addition and subtraction word problems in elementary contexts (Wee & Yeo, 2024), the cognitive and task features influencing word-problem solving (Jaffe & Bolger, 2025), and recent diagnostic assessments of basic arithmetic skills (Homjan, Sri-ngan, & Homjan, 2022).

The inclusion of multi-step story problems and problem-solving items was also supported by research showing that structured practice with addition and subtraction embedded in word problems leads to improved computational outcomes in elementary students (Powell, Akther, & Berry, 2023). These references validated the use of real-world story contexts and combined multiple-choice and constructed-response formats in measuring addition and subtraction achievement.

Parallel forms were constructed to ensure equivalent content and difficulty for pretest and posttest administration. The instrument covered: Single-step addition problems; Single-step subtraction problems; and multi-step word problems presented through short mathematics stories. Each test consisted of multiple-choice and problem-solving items designed to measure learners' computational accuracy and comprehension of story-based mathematical situations.

To describe further the instrument, the test consisted of 15 items divided into two parts: ten multiple-choice items and five problem-solving items embedded in short mathematics stories. The test measured learners' computational accuracy through single-step addition and subtraction problems and assess comprehension through multi-step story problems. Parallel Forms A and B was administered as pretest and posttest to ensure equivalence in content and level of difficulty.

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Data-Gathering Procedures

The following procedures were undertaken in the conduct of the study.

First, the researcher sought permission and coordination. Approval to conduct the study was secured from the Schools Division Office, District Supervisor, and School Heads. Parents and learners were informed about the purpose of the study. Second, before the intervention, the researcher administered the pretest to determine the initial level of learners' addition and subtraction skills. Third, the intervention was implemented. The Reading Short Mathematics Stories Strategy was implemented during regular mathematics classes for a specified period. The intervention includes: Guided reading of short mathematics stories; Storytelling and discussion of problem contexts; Identification of key information in narratives; Collaborative problem-solving activities; multi-sensory strategies such as visualization, role-playing, and use of manipulatives; and the Teacher scaffolding and peer interaction were emphasized to support learners within their Zone of Proximal Development. Then, the posttest was administered and the learners' scores were collected, tabulated, and prepared for statistical analysis.

Statistical Treatment of Data

The statistical tools below were used to analyze the data.

To answer sub-question number 1 and 2, the mean of the assessment results were computed. Then, a 5-point scale was used for the descriptive equivalent and interpretation. These were used to determine the level of learners' addition and subtraction skills before and after the intervention.

Scale (Score)	Descriptive Equivalent	Descriptive Interpretation
13-15	Grade 4 Ready	Answered 13 to 15 items correctly.
10-12	Level 3	Answered 10 to 12 items correctly.
7-9	Level 2	Answered 7 to 9 items correctly.
4-6	Level 1	Answered 4 to 6 items correctly.
0-3	Developing	Answered only 3 items correctly or none of them.

To answer sub-question number 3, the Paired Samples t-Test was utilized. This was employed to determine whether there would be a significant difference between the pretest and posttest scores of the learners. The hypothesis was tested at the 0.05 level of significance.

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The results of these statistical treatments served as the basis for determining the effectiveness of the Reading Short Mathematics Stories Strategy in enhancing Grade 4 learners' addition and subtraction skills.

Chapter 3

RESULTS AND DISCUSSIONS

This chapter presents, analyzes, and interprets the data gathered in the study on the use of the Mathematics Short Story Reading strategy and its effect on the addition and subtraction skills of Grade 4 learners. Statistical tools such as mean scores and proficiency level classification standards based on Rapid Mathematics Assessment aligned with the DepEd Order No. 18 series of 2025 entitled Implementing Guidelines of the Academic Recovery and Accessible Learning (ARAL) Program were utilized to describe the learners' performance before and after the implementation of the intervention. Furthermore, this chapter provides an in-depth analysis of the results and interprets their implications in relation to the study's conceptual framework and hypothesis, particularly in determining whether there is a significant improvement in learners' mathematical skills after exposure to the Mathematics Short Story Reading strategy.

Table 2
Level of addition and subtraction skills of Grade 4 learners before the through of Mathematics Short Story Reading Strategy

Sum of Scores	No. of Items	Mean	Descriptive Equivalent
2527	15	168.47	Level 2

Table 2 showed the addition and subtraction skills level of the 292 grade 4 learners of Lingayen II District of Pangasinan I as the result of the pretest given to them. The group garnered sum of scores of 2, 527 with the mean of 168.47 which is described as Level 2 or Developing based on the level of numeracy standards adopted from Rapid Numeracy Assessment of DepEd.

The result indicated that the group possesses below average skills of performing addition and subtraction. They had the basic skills and minimum mastery of the operations; however, their skills did not meet the expected grade level proficiency in mathematics. The wrong answers of the learners possibly rooted from their low mastery of the fundamental operations and low ability to visualize mathematical concepts.

The result implied that the learners need relevant instructional interventions to address the gaps. The teachers shall provide contextualized teaching strategy to scaffold the development

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on the skills of the learners at addition and subtraction. The teachers shall engage the learners in social interaction and manipulative activities as what the Mathematics Short Story Reading strategy offers.

Table 3
Level of addition and subtraction skills of Grade 4 learners after the use of Mathematics Short Story Reading strategy

Sum of Scores	No. of Items	Mean	Descriptive Equivalent
3267	15	217.8	Level 3

Table 3 showed that the addition and subtraction skills level of the 292 grade 4 learners of Lingayen II District of Pangasinan I as the result of the posttest given to them after the implementation of the mathematics short stories reading strategy as an instructional intervention to develop or enhance the addition and subtraction skills of the learners. In the posttest, the group garnered the sum of scores of 3, 267 with the mean of 217.8 which is described as Level 3 or Approaching Proficiency based on the level of numeracy standards adopted from Rapid Numeracy Assessment of DepEd.

The posttest result showed that there is an improvement in the performance of the grade 4 learners in addition and subtraction. Compared to the pretest, the mean under posttest indicates difference of 2.53. This indicated that the group answered more items correctly by 22% in the posttest than in the pretest.

This implied that the mathematics short stories reading strategy as an instructional intervention may contributed a positive effect in the improvement of the learners in the two basic operations. This further implies that when learners are engaged in structured classroom intervention, where they read or listen to short math stories, answer embedded addition and subtraction problems, participate in guided discussions, and complete related activities over the intervention period, they would learn better and improve their skills.

Table 4
Test of Significant Difference in Addition and Subtraction Skills Before and after the Use of Mathematics Short Story Reading Strategy

Test	Mean	Standard Deviation	t-value	p-value	Interpretation
Pretest	8.65	2.14			Level 2 (Developing)
Posttest	11.18	2.03	21.45	0.000	Level 3 (Approaching Proficiency)
Significant at p < df 291					

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Table 4 the test of significant difference between the addition and subtractions skills of the learners before and after the implementation of the mathematics short stories reading strategy an instructional intervention. Th computed mean in pretest increased in the posttest from 8.65 which was described as level 2 or developing to 11.18 described as level 3 or approaching proficiency. The paired-samples t-test was computed to determine whether the difference was significant statistically.

Based on the computation result, the t-value of 21.45 and p-value of 0.000 indicated that there was a high significant difference in the performance of the learners before and after the implementation of the mathematics short stories reading strategy as an instructional intervention. This implied that the said used strategy was effective in improving the addition and subtraction skills of the learners, rejecting the null hypothesis.

Proposed School-based Training Workshop on Contextualized Mathematics Short Stories Reading Materials

The proposed workshop aimed to strengthen the capabilities of the mathematics teachers in contextualizing and implementing the mathematics short stories reading materials as a strategy for instruction intervention to enhance the addition and subtraction skills of learners. It is intended for the Lingayen II Public Elementary School Teachers.

The proposed workshop contains the following components:

1. Areas of Concern
2. Objectives
3. Activities
4. Time Frame
5. Persons Involved
6. Success Indicator

General Objective:

The proposed school-based training workshop on contextualized mathematics short stories reading materials aims to enhance the instructional competence of Mathematics teachers in the development, contextualization, and implementation of story-based learning materials as an instructional intervention to improve learners' addition and subtraction skills. The intended school-based training workshop for Mathematics teachers of Lingayen II Public Elementary Schools will be accompanied by a feedback mechanism tool to gauge the effectiveness of the same.

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Proposed School-based Training Workshop on Contextualized Mathematics Short Stories Reading Materials

Areas of Concern	Objectives	Key Activities	Time Frame	Persons Involved	Success Indicator
1. Knowledge Enhancement	1. Exhibit knowledge of Mathematics Short Stories Reading Strategy	- Lecture on the theories and applications of mathematics, a reading strategy.	1 day (3 hours)	School Head, Teacher-Coordinators, Resource Speaker	Teachers can discuss the theories and applications of the mathematics short story reading strategy.
2. Materials Development	2. Apply contextualization of mathematics short story reading materials.	- Workshop on contextualizing mathematics short story reading materials.	1 day (3 hours)	School Head, Teacher-Coordinators, Resource Speaker	Teachers participate actively and present outputs
3. Classroom Application	3. Demonstrate implementation of the mathematics short stories reading strategy using the contextualized reading materials.	- Seminar on DepEd Code of Ethics and Standards for Teachers- Discussion on ethical dilemmas in school- Group activity on integrity and professionalism	1 day (3 hours)	School Head, Resource Speaker, Teacher-Coordinators	Teachers demonstrate the implementation of their crafted, contextualized mathematics short story reading material.

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Chapter 4

Summary of Findings, Conclusions, and Recommendations

This chapter presented the summary of findings, conclusions, and recommendations.

Summary of Findings

1. The level of addition and subtraction skills of grade 4 learners during the pretest or before the implementation of the mathematics short stories reading strategy, was only Level 2 or Developing.
2. The level of addition and subtraction skills of grade 4 learners during the posttest or after the implementation of the mathematics short stories reading strategy increased to Level 3 or Approaching Proficiency.
3. The posttest score of the grade 4 learners was higher than the prestest score by 2.53 or 22%.
4. The mathematics short stories reading strategy helped the grade 4 learners to enhance their addition and subtraction skills.

Conclusions

1. Initially, the grade 4 learners manifested a need to develop their proficiency in addition and subtraction using relevant instructional intervention.
2. As appeared in the posttest, the mathematics short story reading strategy improved the performance of the grade 4 learners in the addition and subtraction.
3. There was a significant difference between the level of addition and subtraction skills of the grade 4 learners during the pretest and posttest.
4. The study validated that the mathematics short stories reading strategy was effective as an instructional intervention in enhancing addition and subtraction skills of learners.

Recommendations

1. The teachers may use the mathematics short story reading strategy not only for grade 4 learners but also and most especially for foundational grades.
2. The school heads may conduct professional development among teachers through in-service training and learning action cell about the use of mathematics short stories reading strategy.
3. The future researchers may conduct parallel studies to explore the deeper impact of the strategy or its effect in other educational settings.
4. A School-based Workshop on contextualizing and implementing the Mathematics Short Stories Reading Materials for mathematics teachers would be proposed to Lingayen II District of Pangasinan I.

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