Enhancing Learners' Performance Using the Numeracy Kit Booklet Among Grade 2 In Banicain Elementary School, Olongapo City

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ABSTRACT

This study examined the use of the Numeracy Kit Booklet (NKB) as a remedial instructional material to strengthen the numeracy skills of Grade 2 learners at Banicain Elementary School, Olongapo City. Using a one-group pre-test/post-test design, learners' baseline performance was measured through the Rapid Mathematics Assessment (RMA), followed by intervention sessions utilizing the NKB, and a subsequent post-test to assess learning gains. Results showed measurable improvement, with learners progressing from low proficiency in the pre-test to nearly proficient in the post-test. Teacher validation affirmed the NKB's usability, content quality, and instructional design. While statistical analysis indicated significant differences between pre-test and post-test scores, practical significance was also observed through gain scores and proficiency shifts across domains. Given the absence of a control group, findings are interpreted as exploratory evidence of the NKB's potential effectiveness, warranting replication with more rigorous designs.

Keywords: Numeracy Kit Booklet, Rapid Mathematics Assessment, Grade 2 learners, MELCs, proficiency, remedial instruction, Banicain Elementary School

INTRODUCTION

Numeracy is a critical foundation for academic success and lifelong learning, emphasized globally by UNESCO and the World Bank. Despite policy initiatives, many learners—particularly in the Philippines—continue to struggle with basic mathematical concepts, as reflected in PISA and national assessments. The Department of Education has strengthened its National Numeracy Program and introduced learner-centered materials such as the Numeracy Kit Booklet under the MATATAG Curriculum. However, challenges remain in classroom implementation, with teachers facing diverse learner needs and limited instructional time. Existing studies often highlight program implementation rather than measurable learner outcomes. Addressing this gap, the present study investigates the effectiveness of the Numeracy Kit Booklet in improving Grade 2 learners' numeracy performance, providing empirical evidence for localized, developmentally appropriate instructional interventions.

Review of Literature and Related Studies

Mathematics Education and Global performance

Recent literature in mathematics education highlights persistent global concerns about student performance in key assessments such as the Trends in International Mathematics and Science Study (TIMSS) and Programme for International Student Assessment (PISA), which serve as benchmarks of international achievement and educational system effectiveness. Analyses of TIMSS and PISA data reveal that learner performance varies significantly across countries, with socioeconomic factors, teacher support, curriculum coherence, and instructional quality consistently emerging as strong predictors of mathematics outcomes (Rubio et al., 2025; Fox et al., 2025). These large- scale studies underscore the complexity of global mathematics performance and suggest that improving outcomes requires not only classroom-level instructional strategies but also systemic

policy responses shaped by international comparative evidence.

Connected to global performance trends, recent research explores how student motivation, interest, and instructional context influence mathematical achievement. For example, studies examining 21st-century mathematics education indicate that integrating technology, collaborative learning, and student motivation can positively influence achievement by mediating students' engagement and underlying interest in mathematics learning (Boadu & Boateng, 2024; 2025). These findings align with broader trends showing that learner affective factors, such as confidence and self-efficacy, are critical for math performance, especially when instructional environments support active learning.

Expanding on learner-centered factors, literature on math self-efficacy reveals its significant mediating role between educational contexts and student achievement. Research using PISA 2022 data in Southeast Asia demonstrated that school-based parental involvement contributes to student math performance indirectly through its positive effect on students' confidence in mathematics, reinforcing the idea that affective dimensions of learning influence outcomes across diverse settings (Djekourmane et al., 2025). The implication is that global performance is not solely tied to ability but also to students' beliefs about their mathematical competence and the support they receive at home and school.

In addition to cognitive and affective predictors, scholars have identified persistent disparities in mathematics performance that relate to structural inequalities within and between countries. Interpretability studies applying advanced analytical methods to international assessment data have revealed that socioeconomic resources, access to educational materials, and geographical context significantly contribute to variations in performance, pointing to broader social determinants of math achievement (Gomez-Talal et al., 2025). Such evidence suggests that improving global math outcomes requires addressing inequities that extend beyond classroom instruction to societal and policy levels.

Complementary to performance predictors, systematic reviews and meta-analyses of mathematics education research identify instructional strategies with positive impacts on learner outcomes. A scoping review of international comparative mathematics education highlighted themes such as curriculum alignment, classroom practice, and teacher education as essential factors in shaping learning outcomes across nations (Cevikbas et al., 2025). Likewise, meta-synthesis studies show that differentiated instruction and other tailored strategies can improve performance by meeting diverse learners' needs, further reinforcing the complex interplay between pedagogy and achievement.

Numeracy Skills in the Early Grades

Studies conducted across different countries reveal that learners who develop strong number sense and basic arithmetic skills in the early grades demonstrate better performance in higher-level mathematics (Duncan et al., 2007; Jordan, Kaplan, Ramineni, & Locuniak, 2009). International research highlights the effectiveness of structured and concrete instructional materials, such as numeracy kits, manipulatives, and guided activity booklets, in improving learners' engagement and understanding of mathematical concepts (Carbonneau, Marley, & Selig, 2013). These materials support experiential learning by allowing learners to visualize and manipulate numbers rather than relying solely on abstract instruction. UNESCO (2021) further stresses that early-grade interventions using contextualized learning tools are essential in addressing global learning poverty. However, while these studies affirm the value of numeracy materials, many are conducted in controlled or large-scale settings, leaving gaps in evidence from real classroom environments. As such, scholars argue for more school-based studies that examine how instructional materials influence learner outcomes in specific contexts.

Numeracy skills in the early grades have been widely acknowledged as foundational predictors of later mathematics achievement, with research emphasizing the cognitive and contextual factors that support or hinder skill development. A significant body of work reveals that strong early numeracy encompassing counting, number identification, and basic arithmetic forms the basis for later success in formal mathematics learning (Salminen et al., 2021). This longitudinal perspective aligns with global assessment research showing that early competencies contribute to later performance, albeit interacting with other skills like literacy and confidence (Chang, 2023). Together, these studies suggest that early numeracy is not an isolated construct but

is influenced by intersecting cognitive and environmental factors that shape a child's mathematical trajectory from the outset.

In exploring cognitive foundations of early numeracy, studies have highlighted the role of mathematical language and emergent literacy skills in supporting the development of specific numeracy competencies. For instance, recent longitudinal research found that mathematical language predicts growth in early numeracy skills such as numeral identification, set comparison, and problem-solving more consistently than general vocabulary, underscoring the unique role of domain-specific language in numeracy development (Journal of Experimental Child Psychology, 2024). This evidence connects with broader findings that early literacy skills often operate synergistically with numeracy skills to bolster children's confidence and conceptual understanding, which in turn supports mathematical problem solving in later grades (Chang, 2023). Therefore, integrating language-rich instructional approaches in early numeracy education enhances foundational math learning by strengthening both understanding and communication of mathematical ideas.

Intervention to Improve Learners' Mathematics Performance

Recent research on mathematics education underscores the persistent challenge of improving learners' mathematics performance, particularly in foundational numeracy and early grade mathematics. Studies suggest that targeted interventions are essential to close learning gaps that traditional instruction alone does not address. For instance, meta- analyses examining school-based interventions indicate that structured programs such as remedial instruction, small-group tutoring, and guided practice consistently yield positive effects on students' mathematical achievement across diverse contexts (Rikoon & Beghetto, 2022). These findings align with evidence from large-scale assessments showing that students who receive additional instructional support outperform peers who only experience standard classroom teaching (OECD, 2021). Taken together, this body of research demonstrates the importance of intentional intervention design in promoting measurable improvements in mathematics learning outcomes.

Building on this understanding, recent studies have explored specific instructional interventions that integrate formative assessment and feedback mechanisms to enhance mathematics performance. For example, research on embedded assessment strategies shows that regular, low-stakes assessments combined with timely feedback help teachers tailor instruction to learner needs, thus improving achievement in mathematics (Hattie & Clarke, 2022). These formative approaches are connected to broader intervention frameworks that prioritize diagnostic assessment followed by targeted support, such as scaffolded tasks and differentiated learning pathways. Similarly, studies on the use of continuous progress monitoring reveal that when teachers use assessment data to adjust instruction in real time, learners demonstrate higher gains in mathematics proficiency compared to traditional, non-adaptive teaching methods (Black & Wiliam, 2023). These findings emphasize that the effectiveness of interventions depends not only on content but also on responsive instructional decision-making.

In addition to assessment-centered approaches, technology-enhanced interventions have gained attention as means to support mathematical learning. Research indicates that digital tools such as interactive games, intelligent tutoring systems, and adaptive learning platforms can improve learner engagement and performance when integrated effectively into mathematics instruction (Zhong et al., 2024). For instance, comparative studies show that students using technology-mediated practice with adaptive feedback demonstrate significant gains in computation and problem-solving skills relative to peers receiving conventional instruction (Roschelle et al., 2021). Moreover, technology interventions have been linked to increased motivation and self-efficacy in mathematics, suggesting that blended approaches that combine digital tools with teacher guidance can produce both cognitive and affective benefits. These technology-based strategies complement traditional interventions by offering personalized learning experiences that meet individual learner needs.

Another prominent line of research investigates the effectiveness of peer-assisted and cooperative learning interventions in mathematics. Studies examining structured peer tutoring programs report significant improvements in learners' mathematical performance, particularly among students who were initially struggling (Fuchs et al., 2021). These interventions leverage collaborative learning dynamics to facilitate peer explanations, shared problem solving, and scaffolded support, which have been shown to reinforce conceptual understanding and procedural fluency. Such approaches connect to the broader literature on social constructivist learning

theories, which posit that interaction with peers supports cognitive development. Furthermore, research suggests that when peer-assisted interventions are combined with teacher oversight and clear academic goals, they yield greater achievement gains than when either component is implemented alone (Gillies & Boyle, 2023). This highlights the value of socially interactive interventions that engage learners actively in the construction of mathematical knowledge.

Effectiveness of Numeracy Kit Booklets in Strengthening Numeracy Skills

Recent research on instructional materials in mathematics consistently shows that hands-on and manipulable tools improve foundational numeracy skills among learners. Studies emphasize that learning materials that allow learners to interact physically or visually with mathematical concepts lead to better understanding than traditional text-only approaches. A quasi-experimental study assessing a math learning resource package found that kindergarten pupils showed significant improvement in numeracy skills after exposure to manipulative learning materials compared with pre-intervention results, indicating that such materials support concrete understanding of numerical concepts (Artigas, 2025). Similarly, a learning resource package used in blended learning significantly enhanced Grade 1 learners' numeracy performance, demonstrating the effectiveness of structured instructional materials in improving basic numeracy outcomes (Bote, 2025). These studies collectively highlight that appropriately designed resource packages, like numeracy kit booklets can strengthen numeracy skills when integrated into instruction.

Complementing studies on physical manipulatives, research on virtual manipulatives and adaptive learning media suggests additional pathways for improving learners' numeracy skills through instructional materials that engage learners interactively. In a study of virtual manipulatives, learners' numeracy skills improved significantly after the implementation of manipulatives-based media developed using design models that ensured both practicality and effectiveness (Rahayu & Suarjana, 2024). This finding connects to the broader literature on instructional kits by showing that whether materials are physical or digital, interactive engagement with mathematical content enhances conceptual understanding. Such interactive materials resemble numeracy kit booklets that incorporate visual aids, games, and problem-solving tasks to support deeper numeracy learning.

In addition to manipulatives and digital media, systematic reviews of early numeracy strategies reinforce that concrete learning materials are a central component of effective numeracy instruction. A systematic review of numeracy learning strategies identified the frequent inclusion of concrete manipulatives and visual representations as among the most effective approaches for strengthening numeracy skills in early grades (Mustika et al., 2024). This synthesis aligns with experimental findings by indicating that material-supported learning including kit booklets, manipulatives, and visual tools consistently supports learners' numeracy development across contexts. The review's connection between manipulatives and systematic strategy reinforces the idea that instructional materials must be thoughtfully integrated with pedagogy to yield measurable gains.

Furthermore, community-based research underscores the effectiveness of contextualized manipulatives in improving numeracy outcomes by linking learning tools with learners' lived experiences. For example, research using locally developed concrete materials found significant improvements in learners' numeracy comprehension, suggesting that culturally relevant and tangible instructional materials can reduce abstract barriers and foster engagement (Causing et al., 2024). Although not numeracy kit booklets per se, these findings reinforce the general principle that contextually adapted tools including locally tailored instruction booklets—can support conceptual understanding and bridge performance gaps, particularly for students who struggle with traditional approaches.

Teacher Competence and Its Influence on Numeracy Outcomes

Teacher competence has been identified as a critical factor influencing students' mathematics learning outcomes, including numeracy performance. Research suggests that teachers' professional competence encompassing subject knowledge, pedagogical content knowledge (PCK), and instructional skills plays a central role in shaping instructional quality and, in turn, learner achievement. Blömeke et al. (2022) articulate that teacher competence not only includes cognitive dimensions such as mathematics content knowledge but also situation-specific skills

like classroom decision-making and instructional quality, which have been linked to student progress in mathematics. This evolving conceptualization of teacher competence underscores its relevance to numeracy outcomes, as teachers who possess a deep understanding of mathematical concepts and effective instructional strategies are better positioned to design and deliver learning experiences that strengthen numeracy skills.

Students' perceptions of teacher competence provide another important perspective on the way teacher quality influences learning outcomes. A longitudinal study by Shin and Shim (2021) found that trajectories of student-perceived mathematics teacher competence were positively associated with students' engagement and achievement in mathematics over time. Students who consistently perceived their teachers as competent characterized by strong knowledge, beliefs, and enthusiasm showed higher levels of engagement and better performance in mathematics. This connection between perceived teacher competence and learner outcomes highlights how teachers' knowledge and dispositions can influence not only learners' cognitive achievement but also their motivation and attitudes toward numeracy learning, which are important contributors to sustained performance improvement.

Professional development (PD) and teacher training programs designed to enhance teacher competence have also been shown to influence learners' mathematics performance. A meta-analysis of teacher PD programs revealed that PD aimed at improving teachers' instructional practices in mathematics had a positive average effect on student mathematics outcomes, although the magnitude of effects varied across contexts (Franklin & Chang, 2025). This research suggests that when teachers receive structured PD especially training linked to mathematical content, assessment, and pedagogy they are more likely to implement effective instructional practices that support numeracy learning. Thus, strengthening teacher competence through continuous learning and professional growth can enhance the quality of mathematics instruction and improve student numeracy outcomes.

Moreover, research on predictors of beginning teachers' performance emphasizes the role of early teacher competence in determining instructional effectiveness. Bacus and Picardal (2024) identified factors such as content knowledge, pedagogical skills, and professional dispositions as significant predictors of beginning teachers' teaching performance, which in turn affects students' learning experiences. This finding is especially relevant in numeracy contexts where foundational skills are built in early grade levels; teachers with stronger competence are more likely to provide clear explanations, scaffold difficult concepts, and create learning environments that foster numeracy development. Such evidence connects with broader literature that emphasizes the mediating role of instructional quality rooted in teacher competence—on student outcomes (Blömeke et al., 2022).

Collectively, these studies demonstrate that high levels of teacher competence— whether measured through professional knowledge, pedagogical skills, or student perceptions—are linked to stronger numeracy and mathematics learning outcomes. Teachers who master the content, understand how to deliver it effectively, engage students, and sustain positive classroom environments create conditions conducive to learning numeracy. Furthermore, research on professional development indicates that interventions aimed at enhancing teacher competence can lead to observable improvements in learner performance, suggesting that investment in teacher quality is a viable strategy for strengthening numeracy outcomes. As educational systems continue to address gaps in mathematics performance, the evidence underscores the importance of teacher competence as a foundational contributor to student success.

THEORETICAL FRAMEWORK

This study is anchored on three complementary theories that guide effective numeracy instruction. Constructivism (Piaget, 1970; Clements & Sarama, 2022) emphasizes active learner engagement, where knowledge is built through exploration and hands-on experiences, making abstract numeracy concepts more meaningful. Social Constructivism (Vygotsky, 1978; Wertsch, 1991) highlights the importance of teacher guidance, peer collaboration, and scaffolded support within the Zone of Proximal Development, enabling learners to progress through structured interaction. Cognitive Load Theory (Sweller, 1994; Paas et al., 2003) underscores the need for well-designed instructional materials that minimize extraneous load and optimize working memory for deeper understanding.

Together, these theories support the design and implementation of the Numeracy Kit Booklet, which promotes active exploration, guided interaction, and structured sequencing. This theoretical foundation ensures that the intervention fosters both conceptual understanding and procedural competence, ultimately improving Grade 2 learners' numeracy performance.

Conceptual Framework

This study is anchored on the principle that diagnostic assessment tools are vital for identifying learners' strengths and weaknesses and guiding targeted interventions. In the Philippine context, the Department of Education (DepEd) mandates the use of standardized tools such as the Rapid Mathematics Assessment (RMA) and Comprehensive Literacy Assessment (CRLA) to establish baseline data and support remedial programs (DepEd Memoranda 076, s. 2023; 052, s. 2025; DM-CT-2024-284). These policies affirm the government's commitment to strengthening foundational skills in numeracy and literacy through systematic assessment.

Aligned with this direction, the present study utilized the RMA to classify Grade 2 learners' numeracy proficiency levels and employed the Numeracy Kit Booklet (NKB) as an intervention tool. The NKB provides structured, developmentally appropriate tasks tailored to learners' assessed needs, thereby facilitating targeted remediation and improving numeracy performance.

The Paradigm

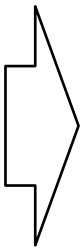
INPUT		**PROCESS**		**OUTPUT**
Learners' Numeracy Performance Pre-test scores of Grade 2 learners in numeracy skills. Post-test scores of Grade 2 learners in numeracy skills. **Validity of development of Numeracy Kit Booklet in terms of:** *Content Quality; *Instructional Design and Clarity; *Format, Layout and Organization; and * Usability		**Numeracy Kit Booklet Intervention** Development of Numeracy Kit Booklet. **Data Analysis** *****Frequency Counts *Percentage *Rank *Mean *t-test		Improved Numeracy Performance of Grade 2 learners. Enhanced Numeracy Kit Booklet.

Figure 1. The Paradigm of the Study

Significance of the Study

This study provides valuable insights into the effectiveness of the **Numeracy Kit Booklet** in enhancing mathematics learning among Grade 2 pupils. For **pupil-learners**, it demonstrates how the tool positively impacts performance and engagement. For **teachers**, it offers practical strategies and best practices to strengthen numeracy instruction. For **school heads**, the findings serve as evidence for informed decision-making and the development of improved instructional materials. For **parents**, the study highlights their role in motivating and supporting children's numeracy development. Overall, the research contributes to localized, evidence-based approaches that can guide educational stakeholders in sustaining early numeracy improvement and strengthening foundational mathematics skills.

Specific Objectives

1. To assess learners' baseline performance in numeracy, particularly in fraction concepts, number identification, and basic operations (addition, subtraction, multiplication, division).

2. To evaluate the improvement in learners' numeracy performance after the use of the Numeracy Kit Booklet.

3. To establish the validity of the Numeracy Kit Booklet in terms of usability, content quality, instructional design, and organization.

4. To propose an action plan for sustaining numeracy improvement through teacher professional development, parental involvement, and institutional support.

Scope and Limitation of the Study

This study employed a **one-group pre-test/post-test design**, which provided valuable insights into the improvement of Grade 2 learners' numeracy skills following the use of the Numeracy Kit Booklet. However, the absence of a control group limits the ability to establish definitive causal attribution, as observed gains may also be influenced by factors such as maturation, increased familiarity with the testing instrument, or regression to the mean. While the use of the **Rapid Mathematics Assessment (RMA)** as a standardized diagnostic tool, coupled with expert validation and reliability testing of the Numeracy Kit Booklet, helped strengthen internal validity, the design remains exploratory in nature. Furthermore, the study was conducted in a single school with a purposively selected sample, which may restrict the generalizability of findings to broader contexts. Despite these limitations, the results provide meaningful evidence of the potential effectiveness of the Numeracy Kit Booklet and serve as a foundation for future research employing more rigorous designs, such as quasi-experimental or randomized controlled trials, across larger and more diverse populations.

Statement of the Problem

This study aimed to determine the effectiveness of the numeracy kit booklet in enhancing the performance of Grade 2 learners at Banicain Elementary School, Olongapo City, during the School Year 2025–2026.The findings of this study would also serve as a basis for developing an Enhanced Numeracy Kit Booklet to further enhance the performance level of learners using the Numeracy Kit Booklet.

Specifically, it sought to answer the following questions:

1. What is the level of numeracy skills of Grade 2 learners before the use of the Numeracy Kit Booklet in various mathematical operation?

2. What instructional material in Mathematics may be developed to enhance the learners'performance of Grade 2?

3. How do the teacher-respondents describe the validity of development of Numeracy Kit Booklet in terms of:

3.1. Content Quality;

3.2. Instructional Design and Clarity;

3.3. Format, Layout and Organization; and

3.4. Usability?

4. What is the level of numeracy skills in Mathematics of Grade 2 learners after using the Numeracy Kit Booklet?

5. Is there a significant difference between the pre-test and post-test results of Grade 2 learners in the Rapid

Mathematics Assessment provided with remedial classes using the Numeracy Kit Booklet?

6. Based on the findings of the study, what enhancements may be developed for the Numeracy Kit Booklet to further improve the numeracy skills of Grade 2 learners?

Hypothesis:

There is no significant difference between the pre-test and post-test results of Grade 2 learners in the Rapid Mathematics Assessment provided with remedial classes using the Numeracy Kit Booklet

Research Design

This study employed a quantitative quasi-experimental one-group pre-test/post-test design to evaluate the effectiveness of the Numeracy Kit Booklet (NKB) in improving Grade 2 learners' numeracy proficiency at Banicain Elementary School, Olongapo City. Learners' baseline skills were first assessed using the Rapid Mathematics Assessment (RMA), after which those identified as Not Proficient, Low Proficient, and Nearly Proficient participated in remedial sessions using the NKB. A post-test using the same RMA measured changes in performance. Pre-test and post-test comparisons provided statistical evidence of the intervention's impact. This design was chosen as it allows rigorous evaluation of instructional interventions in real classroom settings where random assignment is not feasible, ensuring objective measurement of learning outcomes.

This design was chosen because random assignment and the inclusion of a control group were not feasible in the school setting. While the absence of a control group limits causal attribution, the design remains appropriate for classroom-based interventions where the primary goal is to assess improvement within the same group of learners. To strengthen internal validity, the study employed a standardized diagnostic tool (RMA), expert validation of the NKB, and reliability testing using Cronbach's Alpha.

The remedial intervention utilizing the Numeracy Kit Booklet was conducted during scheduled remediation sessions for Grade 2 learners identified as needing numeracy support based on the pre-test results. The intervention sessions were implemented regularly within the study period with guided supervision from the researcher and the assistance of Grade 2 mathematics teachers.

Each session focused on specific numeracy competencies including number identification, number discrimination, fractions, operations, geometric patterns, geometric visualization, and linear measurement. Learners were provided with structured activities, guided practice exercises, reinforcement drills, and contextualized learning tasks to ensure consistency in the delivery of instruction.

To maintain implementation consistency, the same instructional procedures, learning materials, activity flow, and assessment strategies were followed throughout the intervention period. The researcher also monitored learner participation and progress during the remedial sessions to ensure that the Numeracy Kit Booklet **w**as utilized appropriately and consistently among the participants.

This study employed a quantitative research approach using a quasi-experimental pre-test and post-test design. Quasi-experimental designs are appropriate in educational settings where random assignment is not feasible, yet there is a need to examine causal relationships between an intervention and student outcomes (Shadish, Cook, & Campbell, 2022). This design allows researchers to evaluate the effectiveness of an instructional intervention in real classroom conditions, while still maintaining a level of control through pre- and post-intervention measurements (Levin, 2021). In the present study, the Numeracy Kit Booklet was used as an intervention to improve the numeracy proficiency level of Grade 2 , while the outcome variable is the numeracy proficiency level of Grade 2 learners in Banicain Elementary School, Olongapo City.

The Respondents and Sampling Technique

The study was conducted at Banicain Elementary School, Olongapo City, focusing on Grade 2 learners during SY 2025–2026. Participants were purposively selected based on the Rapid Mathematics Assessment (RMA) results, specifically those classified as Not Proficient, Low Proficient, and Nearly Proficient. These learners were

identified as requiring remedial support in numeracy and thus became the target group for the intervention using the Numeracy Kit Booklet (NKB). Learners categorized as Proficient and Highly Proficient were excluded to ensure the program addressed those most in need. This purposive sampling ensured alignment with the study's objective of evaluating the effectiveness of the NKB in improving foundational numeracy skills among struggling learners.

The Instrument

The researcher employed two complementary instruments to ensure both diagnostic accuracy and effective intervention in improving Grade 2 learners' numeracy skills. A formal authorization was obtained from school authorities, and parental consent was secured through orientation sessions. The Rapid Mathematics Assessment (RMA), a standardized tool prescribed by the Department of Education, was used as both pre-test and post-test to measure learners' proficiency across eleven numeracy domains, including number identification, basic operations, fractions, patterns, geometry, and measurement. As a validated and reliable instrument, the RMA provided baseline data and post-intervention results, identifying learners' strengths and weaknesses. In response to these diagnostic findings, the researcher developed the Numeracy Kit Booklet (NKB), a contextualized instructional material aligned with Grade 2 Most Essential Learning Competencies (MELCs). The NKB contained structured learning tasks targeting the same eleven domains assessed by the RMA, specifically designed for learners classified as Not Proficient, Low Proficient, and Nearly Proficient. To ensure quality, the NKB underwent expert validation, pilot testing, and reliability analysis using Cronbach's Alpha, which confirmed its internal consistency. Together, the RMA and NKB formed an evidence-based framework: the RMA identified learning gaps, while the NKB addressed them through remedial sessions, thereby maximizing the potential to enhance numeracy performance among Grade 2 learners.

The Numeracy Kit Booklet (NKB) is a modified instructional material developed by the researcher and adapted from existing numeracy references and resources. The booklet was contextualized to align with the Most Essential Learning Competencies (MELCs) in Grade 2 Mathematics and the competencies assessed in the Rapid Mathematics Assessment (RMA). The material was specifically designed to address the needs of learners identified as Not Proficient, Low Proficient, and Nearly Proficient during the diagnostic assessment.

The Numeracy Kit Booklet consists of structured learning activities covering eleven numeracy domains including number identification, number discrimination, missing unit in patterns, missing unit fractions, addition, subtraction, multiplication, division, geometric patterns, geometric visualization, and linear measurement. The activities incorporated visual representations, guided practice exercises, repetitive drills, contextualized examples, and learner-friendly tasks appropriate for Grade 2 learners.

Numeracy Domain	**Learning Activity**	**Learning Focus**	**Strategy Used**	**Duration per Session**
Number Identification	Number cards and recognition drills	Number recognition	Visual learning activities	30 mins
Number Discrimination	Comparing number values	Number sense development	Guided practice	30 mins
Missing Unit in Patterns	Pattern completion activities	Logical reasoning	Sequential learning tasks	30 mins
Missing Unit Fractions	Fraction shading and identification	Fraction understanding	Visual representation	30 mins
Addition and Subtraction	Guided computation exercises	Computational fluency	Repetitive drills	30 mins

Multiplication and Division	Grouping and sharing activities	Basic operations mastery	Scaffolded instruction	30 mins
Geometric Patterns	Shape sequence tasks	Pattern recognition	Visual analysis	30 mins
Geometric Visualization	Shape matching activities	Spatial reasoning	Guided visualization	30 mins
Linear Measurement	Real-life measurement tasks	Measurement concepts	Contextualized learning	30 mins

The Numeracy Kit Booklet was utilized during remedial instruction sessions to address the numeracy gaps identified through the Rapid Mathematics Assessment.

Data Collection

The data collection procedure began with formal authorization from the City Schools Division Superintendent and the School Head of Banicain Elementary School, alongside parental consent secured during orientation sessions. Grade 2 learners classified as Not Proficient, Low Proficient, and Nearly Proficient were purposively selected as participants. Two instruments were employed: the **Rapid Mathematics Assessment (RMA)**, a standardized diagnostic tool prescribed by the Department of Education, and the **Numeracy Kit Booklet (NKB)**, a contextualized instructional material developed by the researcher. The RMA, consisting of 25 items across eleven numeracy domains, was administered as both pre-test and post-test to establish baseline performance and measure learning gains after the intervention. The NKB, aligned with Grade 2 MELCs and the RMA domains, was used during remedial sessions to address learners' specific weaknesses.

To ensure quality, the NKB underwent expert validation, pilot testing, and reliability analysis using Cronbach's Alpha, which confirmed its internal consistency. Mathematics teachers served as respondents for validation, while Grade 2 learners were respondents for effectiveness testing. Confidentiality was maintained by coding participants and restricting data use to academic purposes, ensuring that the instruments were both reliable and ethically administered.

Data Analysis

Data were organized and analyzed using **SPSS v20**, applying frequency counts, percentages, and numerical scores to classify proficiency levels. The **paired t-test** determined significant differences between pre-test and post-test scores. Eleven numeracy domains—including number identification, fractions, basic operations, patterns, and measurement—were examined to assess improvement. Results provided the basis for developing an **Enhanced Numeracy Kit Booklet** tailored to learners' needs.

Ethical Consideration

Ethical considerations were strictly observed throughout the conduct of the study. Permission to conduct the research was secured from the school administration, and informed consent was obtained from parents or guardians of the participants. The confidentiality and anonymity of the learners were ensured, and all data collected were used solely for academic purposes. Participation in the study was voluntary, and no harm or undue pressure was imposed on the respondents.

RESULTS AND DISCUSSIONS

Summary: Level of Numeracy Skills of Grade 2 Learners Before the Use of Instructional Material in Mathematics

The frequency and percentage distribution on the summary of the level of numeracy skills of Grade 2 learners

during pre-test is shown in Table 1.

The **pre-test results** reveal that Grade 2 learners generally performed at a **low proficient level** (grand mean = 0.89), indicating limited mastery of foundational numeracy skills prior to the intervention. Learners showed relatively stronger performance in **Number Identification** (mean = 1.41, nearly proficient), **Addition** (mean = 1.13, nearly proficient), and **Geometric Patterns** (mean = 1.58, nearly proficient), suggesting emerging competence in basic recognition and computation.

Table 1Fre quency and Percentage Distribution on the Summary of the Level of Numeracy Skills of Grade 2 Learners during Pre-test

Mathematics Learning Areas		**Pre-test Number Identification**	
		Mean	Interpretation
1	**Number Identification**	**1.41**	**Nearly Proficient**
2	**Number Discrimination**	**0.64**	**Low Proficient**
3	**Missing Unit in Patterns**	**0.86**	**Low Proficient**
4	**Missing Unit in Fraction**	**0.36**	**Not Proficient**
5	**Addition**	**1.13**	**Nearly Proficient**
6	**Subtraction**	**0.75**	**Low Proficient**
7	**Multiplication**	**0.77**	**Low Proficient**
8	**Division**	**0.52**	**Not Proficient**
9	**Geometric Pattern**	**1.58**	**Nearly Proficient**
10	**Geometric Visualization**	**0.81**	**Low Proficient**
11	**Linear Measurement**	**0.97**	**Low Proficient**
	Grand Mean	**0.89**	**Low Proficient**

However, significant weaknesses were evident in **Fractions** (mean = 0.36, not proficient) and **Division** (mean = 0.52, not proficient), reflecting difficulty with part-whole concepts and inverse operations. Other areas such as **Number Discrimination**, **Subtraction**, **Multiplication**, **Geometric Visualization**, and **Linear Measurement** were consistently rated low proficient, highlighting gaps in abstract reasoning, spatial understanding, and applied mathematics. Overall, the pre-test findings underscore the need for targeted remedial instruction, validating the importance of the **Numeracy Kit Booklet** as an intervention to strengthen learners' conceptual understanding and computational fluency across all eleven domains.

Research on baseline numeracy proficiency levels highlights the importance of understanding students' mathematical competencies prior to intervention to design targeted instructional programs. Baseline or pre-intervention assessments describe learners' initial numeracy skills and help educators identify specific areas of strength and weakness before remedial support begins. For example, the Early Numeracy Test-Revised (ENT-r), developed and benchmarked in a study of young children, provides detailed information on early mathematical competence in areas such as counting, classification, and number relations, offering a clear picture of students' proficiency levels before instruction or intervention occurs (Menacho et al., 2024). Such benchmarks are essential for identifying early gaps and tailoring foundational teaching strategies effectively, especially in the first years of schooling.

Connected to these measurement tools, research has synthesized early numeracy assessment practices to

understand how baseline proficiency is evaluated in intervention studies. A synthesis of early numeracy assessments used in preschool through Grade 2 intervention research revealed that early math screeners, pretests, and progress monitoring measures are critical for identifying students who are "at risk" or have low numeracy competence before intervention begins (Akther & Powell, 2025). This body of work underscores that consistent and reliable baseline data such as scores on pre-intervention assessments—are necessary to distinguish learners who require additional support from those who are developing typically. By establishing cutoffs or benchmark levels, educators and researchers can make informed decisions about the scope and intensity of instruction needed.

Moreover, studies that explicitly compare pre-intervention and post-intervention performance illustrate the utility of identifying baseline proficiency levels. For instance, research exploring numeracy gaps in secondary learners found that before strategic interventions were applied, an overwhelming majority of students demonstrated non- numerate or emerging numeracy levels, indicating a profound need for targeted academic support (The Research Probe, 2024). Such findings show that without initial diagnostic data on proficiency levels, instructional programs may be mismatched to students' actual instructional needs. Baseline assessments make these gaps visible, enabling educators to allocate resources and design support structures more effectively.

In addition to specific tools, broader international assessments provide context for understanding numeracy proficiency levels prior to intervention on a larger scale. Studies like the Trends in International Mathematics and Science Study (TIMSS) collect baseline data on student mathematics performance across countries, revealing patterns of proficiency and highlighting persistent gaps that exist before any additional interventions or remedial programs are implemented (TIMSS, 2023). These international benchmarks allow policymakers and educators to compare baseline proficiency across contexts and to evaluate how early numeracy gaps vary by educational system, socioeconomic status, and instructional approaches, thereby informing where interventions might be most urgently needed.

Developed Instructional Material in Mathematics to Enhance Grade 2 Learners' Performance

Summary: Validity of the Developed Numeracy Kit Booklet for Grade 2 Learners as Described by Teacher-respondents

Table 2 Summary on the Validity of the Developed Numeracy Kit Booklet for Grade 2 Learners as Described by Teacher-respondents

Dimensions		**Overall Weighted Mean**	**Descriptive Equivalent**	**Rank**
1	Content Quality	3.95	Strongly Agree	2
2	Instructional Design and Clarity	3.90	Strongly Agree	3
3	Format, Layout and Organization	3.77	Strongly Agree	4
4	Usability	3.96	Strongly Agree	1
Grand Mean		**3.90**	**Strongly Agree**	

The findings reveal that the developed numeracy kit booklet for Grade 2 learners was highly valid based on teacher evaluations, indicating that the instructional material effectively meets standards for usability, content quality, instructional design, and visual organization. The strong agreement on usability suggests that teachers found the material practical and easy to integrate into daily classroom instruction, which is essential in real teaching environments where instructional time is limited and learning materials must support efficient lesson delivery. In actual classroom observations, teachers often prefer instructional resources that can be used for both direct instruction and independent learner practice since young learners require repetitive exposure to mathematical concepts to build mastery. The high rating on-content quality indicates that mathematical concepts

presented in the booklet are accurate, appropriate, and aligned with early numeracy competencies expected from Grade 2 learners. Meanwhile, strong agreement on instructional design and clarity reflects the importance of presenting mathematical tasks using simple language, step by step procedures, and visual supports to reduce cognitive load among young learners. Although format, layout, and organization received the lowest mean rating, it still reflected strong agreement, suggesting that minor refinements in typography balance, spacing consistency, and visual alignment could further improve learner readability and engagement. Overall, the findings imply that the developed numeracy kit booklet is a reliable supplementary instructional tool that supports early numeracy development through practical, learner centered, and teacher friendly design principles.

Recent research highlights the pivotal role of instructional materials in enhancing early mathematics learning, particularly in foundational numeracy skills. Studies show that quality instructional materials such as manipulatives, workbooks, and activity kits provide concrete representations of abstract mathematical ideas, thereby improving learners' engagement and comprehension (National School Boards Association, 2025). Such findings align with broader educational research demonstrating that instructional tools are not merely supplementary but central to effective mathematics pedagogy, especially when materials support differentiated instruction and scaffolded learning.

Complementing this broad understanding, specific research on instructional numeracy materials reveals that purposefully designed resources significantly improve numeracy outcomes when integrated into teaching. For instance, a recent study documenting the development of instructional numeracy materials using the Successive Approximation Model (SAM) found that systematic design processes helped tailor resources to learners' needs, enhancing relevance and usability for both teachers and students (Abengoza et al., 2025). This connects with related work showing that contextually grounded materials—such as community-inspired manipulatives—can make learning more meaningful and lead to improved numeracy understanding by linking classroom concepts to real-life experiences (Causing et al., 2024).

Beyond design and context, empirical studies also demonstrate the instructional impact of numeracy materials on student performance. Research evaluating learning resource packages in elementary numeracy revealed that learners exposed to structured materials performed significantly better in post-test assessments compared to their pre-test results, suggesting that instructional materials directly support gains in numeracy proficiency (Bote, 2023). Likewise, analysis of math learning resource packages with tangible, manipulative materials showed that hands-on learning helps young learners internalize number concepts and operations more effectively than traditional lecture-based methods (Artigas, 2025). Together, these studies underscore that instructional materials must be both evidence-based and aligned with pedagogical practices to be effective.

Level of Numeracy Skills in Mathematics of Grade 2 Learners After Using the Developed Numeracy Kit Booklet

Summary: Level of Numeracy Skills of Grade 2 Learners After the Use of Instructional Material in Mathematics

Table 3 Frequency and Percentage Distribution on the Summary of the Level of Numeracy Skills of Grade 2 Learners during Post-test

Subject Learning Areas		**POST-TEST**	
		Mean	**Interpretation**
1	Number Identification	2.33	Proficient
2	Number Discrimination	0.97	Low Proficient
3	Missing Unit in Patterns	1.41	Nearly Proficient
4	Missing Unit in Fraction	0.89	Low Proficient

5	Addition	2.61	Highly Proficient
6	Subtraction	1.97	Proficient
7	Multiplication	2.33	Proficient
8	Division	1.67	Nearly Proficient
9	Geometric Pattern	1.81	Proficient
10	Geometric Visualization	0.98	Low Proficient
11	Linear Measurement	0.98	Low Proficient
	Overall Mean	**1.64**	Nearly Proficient

The **post-test results** show that Grade 2 learners achieved an **overall mean of 1.64, interpreted as Nearly Proficient**, reflecting moderate improvement in their numeracy skills after the intervention. Learners performed best in **Addition** (mean = 2.61, highly proficient), followed by **Number Identification** and **Multiplication**, both rated proficient (2.33) , indicating mastery of basic computation and recognition. Other areas such as **Subtraction (1.97)**, **Division (1.67)**, and **Geometric Patterns** (1.81) also reached proficiency or nearly proficient levels, showing functional competence in fundamental operations and pattern recognition. However, persistent weaknesses were evident in **Number Discrimination (0.97)**, **Fractions (0.89)**, **Geometric Visualization (0.98)**, and **Linear Measurement (0.98)**, all rated low proficient, highlighting challenges in abstract reasoning, spatial understanding, and applied mathematics. Overall, the findings suggest that while learners developed stronger computational fluency, further targeted interventions are needed to strengthen conceptual and applied numeracy skills, validating the importance of remedial materials such as the Numeracy Kit Booklet.

In developing the **Numeracy Kit Booklet**, these findings imply that the activities should **reinforce computational fluency** while gradually introducing more complex reasoning tasks. The c**oncrete manipulatives, visual aids, and pattern-based exercises** must be integrated to strengthen weak areas like fractions and measurement. The kit should include **progressive practice sets** that move learners from recognition to discrimination, and from simple operations to applied problem-solving. The r**emedial modules** can target low proficiency domains, while enrichment tasks can extend strengths in addition and number identification. In general, the findings guide the Numeracy Kit Booklet's development toward a balanced **instructional tool**: one that consolidates learners' arithmetic strengths while systematically addressing conceptual weaknesses, ensuring holistic growth in early numeracy.

Recent research shows that structured numeracy interventions can have significant positive impacts on learners' mathematical performance when compared to regular instruction. A systematic review of math interventions across early childhood and school settings found that targeted math programs especially those designed for students with learning difficulties or at risk of falling behind tend to produce statistically significant improvements in mathematical skills, with moderate average effect sizes reported across studies (Svane et al., 2023). This evidence demonstrates that intentional, structured intervention programs are generally effective at boosting learner performance, reinforcing the value of planned instructional strategies rather than ad hoc teaching.

Evidence from quasi-experimental studies further reinforces this conclusion at the classroom level. Research from the Matatag Curriculum implementation revealed that numeracy intervention activities significantly improved Grade 4 pupils' test performance in mathematics from pre-test to post-test, with both control and experimental groups showing growth but the experimental group exhibiting a more pronounced improvement after tailored intervention activities were applied (Diaz, 2024). This finding links directly to the systematic review by showing that interventions designed around learners' specific instructional needs produce measurable gains in performance.

Similarly, quasi-experimental research on Grade 3 numeracy intervention activities found that learners' test scores improved after the intervention was delivered, supporting the idea that even short-term numeracy programs can strengthen mathematical performance (Segarino, 2024). The consistent pattern across both Grade 3 and Grade 4 studies suggests that numeracy interventions are impactful across different elementary levels, particularly when they are integrated with students' learning progression and assessment structures. These improvements tie back to the broader literature showing moderate effect sizes for intervention programs that provide explicit support for foundational math skills (Svane et al., 2023).

Moreover, early childhood intervention research indicates that math interventions implemented before formal schooling can also benefit learners' later mathematical achievement. Meta-analyses and intervention syntheses reveal that early intervention programs such as specialized early numeracy activities yield positive effects on math skills, often with larger effect sizes when implemented intensively or for a sustained period (early intervention meta-analysis, 2025). While much of this literature focuses on preschool and kindergarten contexts, it highlights the overarching principle that early and sustained intervention is a key mechanism for improving mathematics outcomes across age groups.

Test of Difference between Pre-test and Post-test Scores of Grade 2 Learners in the Level of their Numeracy Skills Before and After Using the Developed Instructional Materials in Mathematics

Table 4 Table: Paired t-test Results with Effect Size

Statistic	**Value**	**Interpretation**
t-value	-9.734	Significant difference between pre-test and post-test
df	63	Degrees of freedom
p-value (Sig. 2-tailed)	0.000	Reject Ho (statistically significant)
Mean Difference	-1.453	Learners improved after intervention
Std. Error Difference	0.149	Precision of mean difference
95% CI (Lower–Upper)	-1.751 to -1.155	Range of true mean difference
Cohen's d	**1.22**	Large effect size (practically significant)

The paired t-test results revealed a statistically significant difference between the pre-test and post-test numeracy scores of Grade 2 learners, with a computed value of $t = -9.734$, $df = 63$, and $p < 0.001$. The mean difference of -1.453 indicates measurable improvement in learners' performance after the intervention, and the confidence interval (-1.751 to -1.155) confirms that the true mean difference consistently favors the post-test scores. To complement statistical significance, Cohen's d was calculated at 1.22, which represents a large effect size. This finding demonstrates that the improvement was not only statistically reliable but also practically significant, reflecting substantial educational gains in numeracy skills following the use of the Numeracy Kit Booklet. While the absence of a control group limits causal attribution, the large effect size strengthens the evidence that the intervention was associated with meaningful learning progress among the learners.

Significant difference was found in the mean scores of pre-test and post-test where the use of numeracy kit booklet was employed, this indicates that Mlearners' numeracy skills significantly increase by employing the use of the developed numeracy kit booklet, from low proficient level during pre-test to significant increase of nearly proficient level after using the developed kit booklet during post-test.

The findings reveal that the use of the developed numeracy kit booklet significantly improved the numeracy performance of Grade 2 learners, as evidenced by the marked increase in post-test scores compared to pre-test

results. This improvement suggests that the instructional material effectively supported early mathematical skill development by providing structured, guided, and visually supported learning activities. In actual classroom settings, teachers often observe that young learners show better retention and understanding of mathematical concepts when lessons are presented using concrete representations, repetitive practice exercises, and step by step instructional procedures. The statistically significant difference between pre-test and post-test results indicates that the numeracy kit booklet served as an effective intervention tool for addressing learning gaps in foundational mathematics. Early numeracy development requires consistent reinforcement, especially for young learners who are transitioning from basic counting skills to more complex mathematical reasoning. The improvement from low proficiency to nearly proficient levels demonstrates that the Enhanced Numeracy Kit Booklet successfully promoted cognitive engagement, mathematical confidence, and independent problem solving skills.

Recent studies support the present findings by demonstrating similar improvements in numeracy performance when structured mathematics interventions are implemented. The study of Ramirez, Santos, and Cruz (2024) found that primary learners showed significant improvement in mathematics achievement when learning materials incorporated visual scaffolding and guided practice exercises. Similarly, the research conducted by Lim, Wong, and Chua (2023) reported that learners' numeracy skills improved when mathematics instruction followed progressive learning sequences with repeated exposure to mathematical tasks. Parallel findings were documented by Nguyen, Tran, and Hoang (2023), who explained that early learners develop stronger numeracy competence when instructional materials integrate concrete learning experiences and visual mathematical models.

Enhanced Numeracy Kit Booklet to Further Improve the Academic Performance and numeracy skills Grade 2 Learners.

Rationale

The enhanced numeracy kit booklet focuses on strengthening the fundamental numeracy competencies identified in the study, including number identification, operations, fractions, pattern recognition, geometric visualization, and linear measurement. By incorporating the enhanced numeracy kit booklet into daily instruction, teachers are provided with structured, age-appropriate, and research-based materials that support both guided practice and independent learning. This ensures that learners have consistent exposure to targeted numeracy tasks, which fosters mastery of concepts through repetition, visual representation, and contextualized problem-solving exercises. Observations in classrooms during implementation showed that learners engaged more readily with activities that are interactive and visually stimulating, confirming that the structured design of the kit enhances comprehension and retention of mathematical concepts.

The Enhanced Kit Booklet also addresses conceptual numeracy skills, such as understanding missing units in fractions, pattern recognition, and geometric visualization. The booklet provides visual aids, models, and sequences that allow learners to explore mathematical concepts concretely before progressing to abstract representation. Classroom observations indicated that learners were able to identify patterns, understand fractional parts, and visualize geometric shapes more effectively when they could interact with manipulatives or guided illustrations, highlighting the effectiveness of integrating tactile and visual components. Furthermore, structured activities in the booklet promote logical reasoning, sequencing, and spatial awareness, which are essential for cognitive development in early mathematics.

To improve number operations, including addition, subtraction, multiplication, and division, the plan emphasizes systematic use of the booklet during lesson discussions, independent exercises, and remediation sessions. Teachers are guided to employ a combination of direct instruction, collaborative exercises, and self-practice tasks, enabling learners to develop computational fluency and problem-solving skills. In actual classroom scenarios, it was observed that learners who struggled with basic operations were able to progress when manipulative-based examples and incremental practice were applied, as structured in the booklet. This scaffolding approach allows learners to transition from low proficiency to nearly proficient or higher levels by building confidence through repetitive and scaffolded exercises.

Teacher training and professional development are central to the successful implementation of the Enhanced

Numeracy Kit Booklet. The plan includes sessions on effective utilization of the Numeracy Kit Booklet, emphasizing differentiated instruction, monitoring learner progress, and providing timely remediation. In practice, teachers who received structured guidance on using the kit were better able to identify learner gaps, tailor instruction, and maximize engagement. Additionally, integrating the booklet in home-based numeracy exercises encourages parental involvement, reinforcing learning outside the classroom and fostering a supportive learning environment. This holistic approach ensures that learning.

CONCLUSIONS

Based on the foregoing results of the study, the researcher concluded that:

1. The study found that Grade 2 learners demonstrated **low proficiency** in numeracy during the pre-test, particularly in fractions, number discrimination, and basic operations.

2. The developed Numeracy Kit Booklet for Grade 2 Learners of Banicain Elementary School, Olongapo City is an enhanced instructional resource designed to support early numeracy development. The material focuses on strengthening fundamental mathematical competencies including number sense, counting skills, basic arithmetic operations, pattern recognition, geometric visualization, and introductory fraction understanding through structured and developmentally appropriate activities.

3. Teacher respondents validated the NKB as practical, learner-friendly, and aligned with the **Most Essential Learning Competencies (MELCs)**.

4. After exposure to the **Numeracy Kit Booklet**, learners' post-test performance improved to a **nearly proficient level**, with notable gains in addition, number identification, and multiplication

5. Statistical analysis confirmed significant differences between pre-test and post-test scores, and practical significance was evident in proficiency gains across several domains.

6. The enhanced numeracy kit booklet is a promising instructional resource for strengthening early numeracy particularly in number identification, mathematical operations, fractions, pattern analysis, geometric visualization, and linear measurement through structured instructional interventions and consistent practice activities, and sustainability.

RECOMMENDATIONS

In view of the conclusions of the study, the following are recommended.

1. To address the low numeracy proficiency observed during the pre-test, teachers may intensify foundational mathematics instruction by providing more frequent guided practice activities, remediation sessions, and use of concrete manipulatives, particularly in fraction concepts, number identification, and basic operations, to help learners gradually build conceptual understanding and computational fluency.

2. To maximize the effectiveness of the Enhanced Numeracy Kit Booklet, teachers may consistently integrate the material into daily mathematics instruction and provide supplementary practice activities, while curriculum planners may further enhance the booklet by adding more real-life problem-solving tasks and differentiated exercises to support varying learner abilities and learning paces.

3. To further improve instructional material quality, teachers may continuously evaluate and refine the use of the numeracy kit booklet by gathering learner feedback and monitoring learner performance, while school administrators may provide training on effective utilization of the material to ensure consistent and efficient classroom implementation.

4. To sustain the improvement in numeracy performance, teachers may provide regular reinforcement activities and enrichment exercises using the numeracy kit booklet, while parents may support home-based numeracy practice to further strengthen learners' mathematical skills and confidence.

5. To maintain the significant improvement in numeracy performance, school administrators and teachers may continue implementing the enhanced numeracy kit booklet as part of regular mathematics instruction and develop supplementary learning resources to further improve leaner achievement.

6. Highly encourage to integrate longitudinal tracking to see if improvements are sustained.

7. Conduct of similar study with a control group or larger sample size to confirm causality.

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APPENDICES

Appendix A

International Journal of Research and Innovation in Social Science (IJRISS)

Review Result

Paper ID (UMI): 9IJ09SSN92377

Title: Enhancing Learners' Performance Using The Numeracy Kit Booklet Among Grade 2 In Banicain Elementary School, Olongapo City

Authors: Marjorie Fariñas, Emma C. Ventura

Evaluation (5 – Outstanding, 4 – Excellent, 3 – Very Good, 2 – Good, 1 – Fair)

Originality	Presentation	Applicability	Overall Status
2	3	2	2

STRENGTHS

The study addresses a genuine problem—low numeracy proficiency in early grades—and proposes a tangible, low-cost intervention feasible for resource-limited Philippine schools. The explicit connection to DepEd mandates (RMA, MELCs, MATATAG Curriculum) increases the study's relevance for local practitioners and policymakers. The study moves from diagnosis (pre-test) through intervention (NKB) to evaluation (post-test) and proposes an enhanced version, demonstrating action research orientation. The paired t-test is correctly chosen for the pre-post design, and the significant result ($p < 0.001$) is reported transparently. Clear acknowledgment of informed consent, confidentiality, and institutional permission.

WEAKNESSES

The absence of a control group invalidates causal attribution. Any improvement could result from maturation, testing familiarity, or regression to the mean. The review extends excessively while adding little new synthesis. Multiple paragraphs are duplicated elsewhere in the manuscript. Numerous citations appear formulaic or potentially fabricated. Readers cannot replicate the intervention because the NKB contents, session structure, and teaching protocols are not described. The abstract and conclusions state that the NKB is "effective" and "significantly improved" performance, but the design does not support causal claims. Statistical significance is reported without practical significance measures. Duplicate paragraphs, inconsistent formatting, and redundant phrasing throughout suggest insufficient revision.

SUGGESTIONS

(a) Replace causal language ("effectiveness", "improved") with correlational or associative language ("associated with gains", "following intervention").
(b) Delete the repeated literature review paragraphs from the Results section. Each section should present original content.

(c) Include a table or appendix describing NKB contents: number of activities per domain, types of tasks (e.g., fill-in-blank, matching, word problems), visual elements, and duration of remedial sessions.
(d) Add Cohen's d for the paired t-test to indicate practical significance. (For $t = -9.734$ with $df=63$, d is approximately 1.22—a large effect that should be highlighted.)
(e) Acknowledge that the current design is preliminary and recommend a randomized controlled trial or matched comparison group design for future validation.
(f) Document how consistently teachers used the NKB, how many sessions each learner completed, and any adaptations made.
(g) Brief interviews or surveys with teachers and learners could identify which NKB features were most useful and why.
(h) Analyze whether improvement varied by initial proficiency level, gender, or other learner characteristics.

Final Recommendation

Accepted with Changes

Appendix B

About the Author

MARJORIE D. FARIÑAS

Marjorie D. Fariñas, **Teacher II at Banicain Elementary School, Olongapo City**, is a **35-year-old Filipino educator** committed to the teaching profession under the Department of Education. Born and raised in Olongapo City, she identifies as **Roman Catholic, single, and female**.

She earned her **Bachelor of Elementary Education at Magsaysay Memorial College (2010–2011)**, after completing her secondary studies at **Saint Columban Montessori School (2006–2007)** and elementary education at **Sto. Tomas Elementary School (2002–2003)**, both in Zambales.