Development of Contextualized Numeracy Materials for Grade 1 Learners of Sioan Integrated School

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ABSTRACT: *This study aimed to develop contextualized numeracy materials for Grade 1 learners using the ADDIE model and the Realistic Mathematics Learning (RML) approach. The materials were designed to be relevant and meaningful for learners, facilitating easier recognition of patterns and mastery of algebraic skills. The study found that the materials were highly valid and acceptable for Grade 1 mathematics instruction, with significant improvements in numeracy skills observed among learners. The materials were also effective in addressing the least-learned competencies among Grade 1 learners, including number identification and discrimination, addition, subtraction, time measurement, and mass measurement. The study concludes that the developed contextualized numeracy materials can significantly enhance the numeracy skills of Grade 1 learners and recommends their widespread adoption and integration into Grade 1 mathematics instruction.*

Keywords: Development, Contextualized Numeracy Materials, Improvement, Numeracy Skills

INTRODUCTION

The development of contextualized numeracy materials for Grade 1 learners is crucial in improving students' mathematical literacy skills. By incorporating real-life examples and situations into the curriculum, students can make connections between mathematical concepts and their own lives, promoting a deeper understanding of numeracy skills and their practical applications. This approach allows students to see the relevance and importance of mathematics in their daily lives, making the learning experience more engaging and meaningful.

Numeracy skills play a crucial role in a child's overall development and success in mathematics. By providing early exposure to numerical competencies through games, stories, and play, children can better understand the foundation of mathematics. This understanding of numeracy helps them in their daily lives. It lays the groundwork for more complex mathematical tasks in the future. Further, research shows that children's numerical competence in kindergarten is highly predictive of their acquisition of mathematics in Grade 1 and Grade 2 (Benavides-Varela et al., 2016).

To support Grade 1 learners in developing strong numeracy skills, it is essential to provide contextualized materials that are engaging and relevant to their everyday lives. According to Karakoç & Alacacı (2015), educators and parents can learn to create effective numeracy materials using different sources. These materials should focus on basic counting and number recognition and concepts such as quantity discrimination, addition, and subtraction. By incorporating activities such as board and card games, shopping, or cooking, children can have opportunities to practice and apply their numeracy skills in real-life contexts (Cheung & Mcbride, 2016).

Additionally, it is essential to consider the individual needs and abilities of Grade 1 learners. Teachers should use a variety of instructional approaches to cater to diverse learning styles and provide differentiated instruction. (Smale-Jacobse et al., 2019). To develop effective contextualized numeracy materials for Grade 1 learners, it is essential to consider the myriad ways in which children learn and engage with mathematical concepts. By incorporating a variety of sensory experiences and interactive activities, educators and parents can create a rich learning environment that caters to different learning styles.

RESEARCH ELABORATIONS

To ensure the effectiveness of contextualized numeracy materials for Grade 1 learners, teachers should consider incorporating real-life contexts and experiences into their instruction. By doing so, students can see the relevance and applicability of numeracy skills in their everyday lives, making learning more engaging and meaningful (Sagirli et al., 2012). Using contextual

teaching and learning strategies, teachers can connect mathematical concepts to real-world situations that students can relate to. This can foster a deeper understanding of numeracy concepts and their practical applications.

Teachers need to utilize contextual teaching and learning strategies to enhance students' mathematical literacy skills. This involves incorporating real-life examples and situations that students can relate to and providing hands-on activities and problem-solving tasks.

Teachers can create a supportive and inclusive learning environment that improves students' mathematical literacy skills and fosters their love for mathematics and their ability to apply mathematical concepts in real-life situations. In the study of Afni and Hartono (2020), using contextual learning strategies is essential for teachers and students to improve mathematical literacy skills. Therefore, contextual learning strategies are crucial for teachers and students in improving mathematical literacy skills.

According to Yudha et al. (2019), through contextual learning strategies, teachers can create a meaningful and engaging learning environment for students, enhance their mathematical literacy skills, and bridge the gap between abstract mathematical concepts and real-world applications. Incorporating contextual teaching and learning strategies improves students' mathematical competence. It enhances their problem-solving skills, critical thinking abilities, and overall mathematical confidence. The study by Purba and Surya (2020) mentioned that teachers can connect mathematical concepts to real-life situations that students encounter daily using contextual teaching and learning strategies. This approach allows students to see the relevance of mathematics in their everyday lives. It helps them develop a deeper understanding and appreciation for the subject.

By doing so, teachers can effectively support their students in developing strong mathematical literacy skills and lay a solid foundation for their future mathematical learning and success. Therefore, (Owusu-Ansah et al., 2023) using contextual learning strategies is very important to teachers and students in improving mathematical literacy skills. Utilizing these strategies, teachers can create a meaningful and engaging learning environment for students that enhances their mathematical literacy skills and fosters their curiosity, motivation, and overall love for learning.

In conclusion, the development of contextualized numeracy materials for Grade 1 learners is crucial in improving students' mathematical literacy skills. These materials should be designed to connect mathematical concepts to real-life contexts and provide opportunities for hands-on learning, problem-solving, and critical thinking. Furthermore, the materials should cater to the diverse needs of learners and provide different levels of difficulty to ensure inclusivity and accessibility. By doing so, educators can create a learning environment that not only promotes mathematical proficiency but also encourages students to develop a lifelong love for mathematics.

Math is everywhere. Everybody uses Math to navigate daily decisions successfully. Children begin to experience and explore mathematical concepts from birth. Youngsters who understand, numerate, and apply mathematical concepts are equipped to explain and make sense of their surroundings. As such, it is an essential skill for living a fulfilling life.

From the standpoint of Hodaňová, J., & Nocar, D. (2016), Mathematics is not just a technical subject but a fundamental discipline that permeates various aspects of our daily lives, including natural phenomena and is essential for many professions. By providing quality education that emphasizes the relevance of mathematics to real-world situations, we can foster pupils' interest in the subject as they recognize its impact on their daily routines, personal lives, and future career paths. Mathematics education can significantly enhance students' ability to reason, problem-solve, and make informed decisions, improving their overall quality of life and professional orientation.

Furthermore, learners with math-related learning disabilities may experience issues such as number additions, substitutions, transpositions, omissions, and reversals, as well as difficulty with left and correct orientation and keeping score during games. This indicates that many learners have poor numeracy skills, which suggests that there is a need to adopt another methodology for teaching numeracy skills. Golafshani (2013) found a growing consensus on using numeracy materials in instructional practices.

Confucius once said, "I hear, and I forget, I see, and I remember, I do, and I understand." This adage suggests essential aspects of learning this area. Increasing learners' achievement and enhancing their attitude towards numeracy will signify that the method utilized is effective. This could not be impossible with the aid of numeracy materials or math manipulatives (Burns & Hamm, 2011; Bjorklund, 2014; Carbonneau et al., 2013), as cited by Salao (2021). Moreover, the effectiveness of the use of numeracy materials is evident in the lower grades and higher grades as well.

Unknowingly, individuals explored the knowledge and skill of numeracy in old times, starting from using stones to using modern technologies. According to Salao (2013), understanding numeracy concepts should be the focus. Relating techniques used in one given situation to an equally relevant situation will help learners integrate manipulatives. The fast-moving and modernized world offers analytical tools to utilize numeracy skills. This is because these skills are used practically in their daily lives. Thus, learners should give time to keep on their minds about the use of manipulatives.

Using contextualized manipulative materials in numeracy is not as easy as a piece of cake, and education professionals are nevertheless learning how to use them. They must make the most of their ability to handle manipulative materials in numeracy instructions, for it shall be focusing on helping the learners understand numeracy concepts and adopting them in localized situations. When the materials used by the learners are found in their localized context, they will gradually suit their interests.

Everything starts with real experiences for learners, especially in numerical/mathematical instruction. They function as symbols throughout their learning, and manipulative materials represent essential tools for making Mathematics realistic (Golafshani, 2013). However, when using any tool, carefulness should always be practiced to maximize the results. If misused, they may result in frustration or confusion and disrupt student motivation and overall learning opportunities.

Contextualized materials in teaching numeracy skills play a vital role in improving students' mathematical literacy. It provides students with a meaningful and practical understanding of mathematics, promotes critical thinking and problem-solving skills, prepares students for real-world challenges, and fosters inclusivity and equity in the classroom. According to Helma et al. (2018), using contextualized materials in teaching numeracy skills is essential for creating an engaging and meaningful learning

experience. Using contextualized materials in teaching numeracy skills is vital because it allows students to see the real-world applications of mathematics, making the learning experience more relevant and applicable to their lives.

Connecting mathematics to real-world contexts, contextualized materials help students see the purpose and relevance of numeracy skills, increasing their motivation and engagement in learning mathematics. Overall, contextualized materials are essential in teaching numeracy skills because they enhance students' understanding of mathematical concepts, promote critical thinking and problem-solving skills, and make learning math more meaningful and enjoyable (Nufus & Zubainur, 2020). In summary, the use of contextualized materials in teaching numeracy skills is essential for creating an engaging and meaningful learning experience.

In summary, contextualized materials are essential in teaching numeracy skills because they enhance students' understanding of mathematical concepts, promote critical thinking and problem-solving skills, and help students see the practical applications of numeracy in everyday life. Moreover, Kul et al. (2018) mentioned that teaching numeracy skills is essential because it allows students to see the relevance and applicability of mathematics in their everyday lives. This helps students develop a deeper understanding of mathematical concepts and improve their problem-solving skills.

Further, using contextualized materials in teaching numeracy skills is essential because it helps students see the practical applications and relevance of mathematics in their everyday lives, which enhances their motivation and engagement in learning mathematics. In summary, the use of contextualized materials in teaching numeracy skills is essential because it helps students see the practical applications and relevance of mathematics in their everyday lives.

According to RA 9155, commonly known as the Governance of Basic Education Act of 2001, as stated in the Official Gazette 2019, enhancing the quality of primary education should be empowered by the local initiatives by the State. The State might guarantee that the learning environment's qualities, needs, and aspirations are reflected in the instruction program for the learners, out-of-school youth, and adult students. Therefore, schools and learning institutions should be able to decide what is best for the students they serve.

According to DepEd Order No. 32, s. 2015 entitled ”Adopting the Indigenous Peoples Education Curriculum Framework,” the school should perceive the privilege of Indigenous people groups to fundamental instruction that is culturally rooted and responsive; the IPEd Curriculum Framework looks to give guidance to schools and other training programs, both public and private, as they draw in with indigenous groups in localizing, indigenizing, and enhancing the K to 12 Curriculum in light of their respective educational and social settings. As cited by Salao (2021), numerical skills are crucial to functioning in today's world (Burns & Hamm, 2011; Carbonneau et al., 2013). A Filipino child needs to develop higher-order skills, critical-thinking skills, and functional numeracy skills. It is given that every Filipino child with sufficient numeracy skills would have greater chances of success in life.

Numerical skills are essential today as they enable us to perform various tasks, from basic calculations to complex mathematical problems. These skills are vital in everyday life, including managing personal finances, measuring ingredients for cooking, or understanding statistics and probabilities.

In the workplace, numerical literacy is critical for data analysis, decision-making, and problem-solving. Moreover, technology has become an integral part of our lives, and understanding numbers is essential for programming, coding, and interpreting data. Therefore, developing solid numerical skills is crucial for success in personal and professional life, as it empowers individuals to make informed decisions, solve problems, and communicate effectively. Skills are not just necessary in mathematical classes; they are essential in the lives of people.

Based on a published article by worldbank.org in 2018, the Philippines placed second to last in science and math out of 79 participating economies in the 2018 PISA (Programme for International Student Assessment). This shows that even when the COVID-19 Pandemic strikes, the Philippines faces a learning crisis. Further, according to the recently conducted 2022 PISA, for the second time, the Philippines is among the countries with the lowest performance in reading, mathematics, and science. To highlight this need, the Constitution under Section 1, Article XIV of 1987 mandates that the "State shall protect and promote the right of all citizens to quality education at all levels and shall take appropriate steps to make such education accessible to all."

In response to this mandate, the Department of Education, anchored in MATATAG Curriculum: Batang Makabansa, Bansang Makabata agenda, adopts the National Learning Recovery Program (NLRP) through DepEd Order No. 13, s. 2023. The aim is to strengthen the Department's learning recovery and continuity program, improve numeracy and literacy, and accelerate the achievement of education targets. The learning recovery plan starts with assessing fundamental skills such as literacy and numeracy in the early grades. Detecting learners who have not developed the full range of reading and numeracy skills is provided with appropriate programs.

Under the NLRP, some subprograms shall help bridge the learning gaps among learners. One of the five subprograms is the National Mathematics Program (NMP). This subprogram aims to strategically support and accelerate learning progress on the mathematical fundamental skills and numeracy among crucial stage 1 learners. It also aims to provide intensive, explicit, and learner-centered instruction aligned with the curriculum and supported by assessment and learning resources. To cover the need to enhance the numeracy skills among crucial stage 1 learners, the NMP begins with a rapid assessment phase for all learners called Rapid Math Assessment (RMA) under memorandum DM-CT-2023-322, through the Curriculum Implementation Division (CID) to conduct a pretest for the Rapid Math Assessment (RMA) for Grades 1 to 3 learners using the Assessment Tools provided from October 16-27, 2023.

Consequently, the researcher, as a Grade I teacher at Sioan Integrated School, is experiencing a problem with how to improve the learners' numeracy skills. In the recent Grade 1 RMA (Rapid Math Assessment) results conducted at the beginning of the school year 2023-2024, 34 learners out of 42 falls in the intervention level with an equivalent of less than 75% of the total scores, 7 learners out of 42 fall in the consolidation level with an equivalent of 75%-84.99% of the total scores, and 1 learner out of 42 fall in enhancement level with an equivalent of equal to or above 85%. This is a big problem on the part of the researcher as their Grade I teacher to get this meager score. In the past three (3) years of handling Grade 1, she made use of different pictures as a strategy for

teaching numeracy to the pupils. Because students are driven to participate in the learning process and have historically achieved excellent exam scores, she found it helpful.

Based on the preceding discussions, the researcher considers other methods and strategies and determines their impact on Grade I students' numeracy abilities.

METHODOLOGY

The study employed a descriptive-developmental design. It involved the development and implementation of contextualized numeracy materials for Grade 1 learners, which were designed to incorporate real-life examples and hands-on activities. This study utilized the ADDIE Model which consists of five (5) phases, namely: Analysis Phase, Design Phase, Development Phase, Implementation Phase, and Evaluation Phase. The learners used contextualized numeracy materials. The materials were assessed for their validity and acceptability through quality assurance of printed materials in response to the qualification standards set by the Department of Education. The respondents of the study were 42 Grade 1 learners, who were divided into three proficiency levels based on their numeracy skills. The learners were assessed using a standardized numeracy test using the Rapid Mathematics Assessment (RMA) Tool for Grade 1. The learner's progress was monitored for 40 days.

OBJECTIVE

The objectives of the study are to:

1. **Develop contextualized numeracy materials** for Grade 1 learners that incorporate real-life examples and situations to enhance their understanding and mastery of numeracy skills.
2. **Improve numeracy skills** by providing engaging and relevant materials that cater to diverse learning needs and abilities.
3. **Enhance mathematical literacy** by connecting mathematical concepts to real-life contexts and promoting hands-on learning, problem-solving, and critical thinking.
4. **Ensure inclusivity and accessibility** by providing different levels of difficulty and various approaches to solving mathematical problems.
5. **Foster a deeper understanding and mastery** of numeracy skills by incorporating sensory experiences and interactive activities that cater to different learning styles.
6. **Promote a lifelong love for mathematics** by creating a learning environment that encourages students to develop a strong foundation in numeracy and appreciate its practical applications in everyday life.

RESULTS OR FINDINGS

What is the numeracy profile of Grade 1 learners based on the RMA (Rapid Math Assessment)?

Table 6 shows the distribution of the grade 1 learners according to their numeracy profile before using the developed contextualized numeracy materials.

Table 6

Distribution of the grade 1 learners according to their numeracy profile before the use of the developed contextualized numeracy materials

Numeracy Profile	Description	Frequency	Percentage
For Enhancement	Correct answers equal to or greater than 85% of the total items	2	5%
For Consolidation	Correct answers in 75%-84.99% of the total items	7	17%
For Intervention	Correct answers in 75% of the total items	33	79%
Total		**42**	**100%**

Table 6 presents a numeracy profile, categorizing students based on their performance in the pretest numeracy assessment. The categories are defined by the percentage of correct answers, and there are three levels: enhancement, Consolidation, and Intervention.

For Enhancement, two learners, or 5% of the learners, achieve correct answers in equal or greater than 85% of the total items. These students have demonstrated exceptional numeracy skills, with a high percentage of correct answers. They likely require minimal support and can focus on refining their skills further.

For consolidation, seven learners, or 17% of the learners, achieved correct answers in 75%- 84.99% of the total items. Students in this category have a solid foundation in numeracy. Still, they may need some additional support to solidify their understanding further. They can benefit from targeted interventions to address any gaps in their knowledge.

For Intervention, 33 learners, or 79% of learners, achieved correct answers in 75% of the items. Most students (79%) fall into this category, indicating that they require significant support to improve their numeracy skills. They may need more extensive interventions to address their knowledge gaps and develop a stronger foundation in numeracy.

The total number of students is 42, and all learners are categorized into one of the three levels based on their numeracy performance. In summary, the numeracy profile highlights the need for targeted support and interventions to improve the numeracy skills of most students. The exceptional performers (for enhancement) can focus on refining their skills. At the same time, those who require more support (for intervention) need more extensive interventions to address their knowledge gaps.

In addition, Table 6 shows the frequency and percentage distribution of the learners when grouped according to their numeracy profile before they are exposed to contextualized numeracy material. It can be observed that the majority, or 79% (33) of the learners, are for intervention, as evidenced by their scores or correct answers that were below 75%. A percentage share of 17% (7) pertains to the learners who are for consolidation while obtaining scores between 75% and 84.99%. Furthermore, only 5% (2) of the learners are for enhancement. The statistical distribution in Table 5 depicts the need to develop contextualized numeracy material.

What are the least-learned competencies in Grade 1 mathematics based on the RMA pretest?

Table 7 shows the least-learned competencies in grade 1 mathematics based on the RMA pretest scores.

Table 7
Least-learned competencies in grade 1 mathematics based on RMA pretest scores

Task	Essential Competencies	MPS	Description
A	Number Identification and Discrimination	57.52	Least Learned
B	Fractions	79.76	Mastered
C	Addition	57.14	Least Learned
D	Subtraction	64.29	Least Learned
E	Geometric Representation	82.68	Mastered
F	Missing Shapes in Patterns	78.57	Mastered
G	Time Measurements	33.73	Least Learned
H	Linear Measurements	92.86	Mastered
I	Mass Measurements	73.33	Least Learned

Table 7 presents the least-learned competencies in Grade 1 Mathematics based on RMA (Rapid Mathematics Assessment) pretest scores. The competencies are categorized into tasks, and for each task, the essential competencies, Mean Percentage Score (MPS), and a description of whether it was mastered or least learned were provided. A detailed analysis of data is presented below.

The essential competencies in Number Identification and Discrimination (Task A) **are** Identifying and discriminating numbers. This task assesses the learner's ability to identify and discriminate numbers. With an MPS of 57.52%, it is considered a least-learned competency, indicating that many students struggle with this fundamental skill.

Understanding fractions **is an essential competency i**n fractions (Task B). Having an MPS of 79.76% was considered a mastered competency. This suggests that most students have a good grasp of fraction concepts at this grade level.

In Addition (Task C), the e**ssential competency is** performing addition. With an MPS of 57.14%, it was categorized as a least-learned competency. Many students seem to have difficulties with addition, which is a crucial skill in early mathematics.

In Subtraction (Task D), the **essential competency is** performing subtraction. With an MPS of 64.29%, it was also considered a least-learned competency. Similar to addition, many students struggle with subtraction skills.

In Geometric Representation (Task E), the e**ssential competency is** representing geometric shapes. Having an MPS of 82.68% was categorized as a mastered competency. Most students demonstrate a good understanding of representing geometric shapes.

In Missing Shapes in Patterns (Task F), **the essential competency is** identifying missing shapes in patterns. With an MPS of 78.57%, it is considered a mastered competency. Students generally perform well in identifying missing shapes in patterns.

The essential competency in Time Measurements (Task G) **is** measuring time. With an MPS of 33.73%, it was categorized as the least-learned competency among all tasks. This indicates that a significant number of students struggle with measuring time concepts.

In linear measurements (Task H), the e**ssential competency is** measuring length. With an MPS of 92.86%, it is considered a mastered competency. Most students demonstrate proficiency in measuring length.

In Mass Measurements (Task I), the e**ssential competency is** measuring mass. With an MPS of 73.33%, it was categorized as a least-learned competency. Many students seem to have difficulties with measuring mass concepts.

Table 6 shows the numeracy profile of both sections of Grade 1 learners based on the result of the RMA Pretest. As shown in Table 5, Task A has an average score of 10.93 or 57.52%, Task B has an average score of 3.19 or 79.76%, Task C has an average score of 5.14 or 57.14 %, Task D has an average score of 3.86 or 64.29%, Task E has an average score of 9.10 or 82.68%, Task F has an average score of 3.14 or 78.57%, Task G has an average score of 2.82 or 33.73%, Task H has an average score of 2.79 or 92.86%, and Task I has an average score of 3.67 or 73.33%.

Based on the results of the pretest, competencies in Tasks B, E, F, and H it gained scores above 75%. This simply means that these competencies showed mastery prior to the learner's stock knowledge and critical thinking skills. On the other hand, it can be gleaned from Table 5 that there are 5 out of 9 tasks from the pretest fall in the intervention level. Among all the tasks, tasks A, C, D, G, and I reveal the least learned competencies. This further explains that these competencies that showed the least mastered skills displayed the lowest percentage of scores. Task A is from number identification and discrimination, Task C is from addition, Task D is from subtraction, Task G is from time measurement, and Task I is from mass measurement. This means that these least-learned competencies were considered for making the treatment, which is the contextualized numeracy materials.

Consequently, the result of the study is supported by Dupalco et al. (2018), as cited in the study of Maralla (2019), that the diversity of learners with diverse necessity problems is rampant nowadays, and to address this problem, the teacher needs to be conscious of their socio-cultural background in for the learners to participate and engage in the learning process. In addition, learners actively learn a particular concept or idea with appropriate teaching tools. Using materials that are accurate and localized enables the teacher to deliver the topic with learner engagement and cater to the multiple intelligences of the learners. Instructional numeracy materials that are available in the classroom and their specific community catch learners' interest in engaging actively in every learning activity.

Based on the least-learned competencies, what contextualized numeracy materials can be developed for Grade 1 learners?

The contextualized numeracy materials were developed based on the least learned competencies of the RMA from the pretest result. The five least learned competencies are from the RMA Competencies for Grade 1 Learners, namely number identification and discrimination, addition, subtraction, time measurement, and mass measurement. The said contextualized numeracy materials being used by the researcher were recycled cardboard/papers, banana cue sticks, crayons, stones, push pins, clothespins, hangers, disposable cups, yarn, pieces of wood, picture images of animals, fruits, and the like which are commonly found in the community. The materials used were local in character or place, which connects the content of local information and uses it to a particular locality in the process of giving instructions.

Instructional materials help pupils understand a math concept that would otherwise be abstract. Using contextualized numeracy materials to teach numeracy helps learners grasp concepts from complex to simple.

Here are the examples of contextualized numeracy materials used to enhance the least-learned competencies in the RMA:

Domi-Sym Cards. This contextualized numeracy material is tile-like strips that can be used by the learners. It is made of cardboard. It has dots, number symbols, and number names that are in English, Filipino, Sinugbuanong Binisaya, and the Higaunon dialect. This instructional material aims to master competency in number identification and discrimination.

Bingo cards. This instructional material is made up of cardboard, indicating numbers from 1 to 100. Every cardboard has nine cells that indicate numbers 0 to 100, depending on the batch card number bracket from 0 to 100. This material aims to master the competency in number identification and discrimination. Additionally, it can also be used to master addition and subtraction, depending on the instructions given by the teachers.

Picture Symbol Match. This instructional material depicts pictures/images of animals, vegetables, and fruits available in the community. Below are three (3) different numbers. The learners will daub the number that will match the

symbol represented by the images indicated on the card. This instructional material aims to enhance number identification and discrimination.

They are racing Cats and Dogs. This contextualized numeracy material contains images of animals found in the community. This instructional material aims to enhance competency in number identification and discrimination. The learners will arrange the given images of cats and dogs according to the sequence provided by the teacher (either in ascending or chronological order). The material is suitable for twenty (20) learners. The teacher may reproduce the cards based on the number of learners in the class.

Frog-gee Jump and Slide. This contextualized numeracy material contains an image of a frog and a slide with numbers in every cell. This instructional material aims to enhance competency in addition and subtraction. This material can also aim to master number identification through counting. The material is suitable for four learners. The learners will use dice indicating a plus (+) or minus (-) sign before a number. The teacher may reproduce the cards based on the number of learners in the class.

They were eating Bones and Fish. This contextualized numeracy material contains images of animals found in the community. This instructional material aims to enhance competency in addition and subtraction. The material is suitable for two learners. The learners will use dice indicating a plus (+) or minus (-) sign before a number. The teacher may reproduce the cards based on the number of learners in the class.

Shopping Basket Galore. Using images found in the community, illustrations of concrete, recognizable items can make number sentences or word problems seem less abstract. This contextualized numeracy material can be used to enhance the concept of solving word problems in addition and subtraction. The teacher can enhance word problems using different dialects applicable to the needs of the learners.

New's Today Chart. This contextualized numeracy material is composed of strips indicating the month of the year, the day of the week, and the date of the day. It also includes images of weather conditions, such as sunny, windy, cloudy, and rainy days. It can be displayed in the classroom and used daily during drill time. It aims to enhance students' time measurement skills.

Analog Clock. This improvised analog clock is made of cardboard and pins. The learner can easily manipulate this material to tell time. This contextualized numeracy material included number symbols to tell the time with corresponding number words that are frequently used to tell time, like ala-una, alas dos, and so on.

The improvised Weighing Scales and Counter Attacks. The primary purpose of placing objects on a weighing scale is to measure the weight of the other object. This instructional material is a non-standard unit for comparing the mass of an object. It is made up of pieces of wood, yarn, a hanger, and plastic cups. This material aims to enhance the skill of measuring the mass of an object.

Additionally, the learners' involvement in manipulating these contextualized numeracy materials allows for practical, realistic, and appealing learning. Other relevant instructional materials, such as charts, mathematical flashcards, play money (coins and peso bills), slides, and projectors, were maximized to sustain interest in learning by providing first-hand experience with the realities of the physical and social environment.

As cited by Robinson Picat, D., & Ildefonso Natividad, B. (2023), the development of contextualized materials is crucial in teaching and learning as it enhances the relevance and effectiveness of educational content. Contextualized materials are designed to incorporate real-world contexts and authentic materials, making language learning more meaningful and engaging for students. This approach helps learners understand how language is constructed and used in different situations, fostering integrated skills development and group work. Overall, the development of contextualized materials is essential for creating compelling and engaging educational experiences that cater to the diverse needs of students and support their long-term learning outcomes.

Further, permission was asked from the expert to validate the content of the developed contextualized and localized numeracy materials using the DepEd Evaluation for Printed Materials through the help of Himaya B. Sinatao, Education Program Supervisor in LRMDS, and Ma. Cristina D. Galgo, Ph.D., Education Program Supervisor in Mathematics in the Division of Gingoog City, together with the school learning materials evaluators Dionie D. Loverio, Teacher I and Mathematics School Coordinator; Melody C. Loyola, Master Teacher II, and the School Learning Resources Coordinator; and Gilda Fe G. Pisaras, Head Teacher I and School Head of the school where the study conducted. After the corrections and refinement, the materials were then used as a treatment in teaching the topics where the subject manifested the least mastered skills. The materials are found in Appendix E.

How valid are the developed contextualized numeracy materials for grade 1 in terms of:
4.1 content,
4.2 format,
4.3 presentation and organization,
4.4 accuracy and up-to-datedness of information.

According to Buan, A. T. et al. (2021), quality assurance is essential to guarantee that contextualized numeracy resources are successful and fulfill the desired learning goals. It aids in confirming that the contextualized materials adhere to the curriculum and standards of the Department of Education (DepEd).

This ensures the content is appropriate and comprehensive for the target grade level. It also involves engaging with the community to ensure the materials are contextualized and relevant to students' local environments and experiences., making the content more engaging and meaningful for learners.

Rigorous quality assurance, including content validation by experts, helps determine whether the materials are effective in facilitating learning and improving student numeracy outcomes. This includes assessing the accuracy, clarity, and appropriateness of the content.

Quality assurance evaluates the format, presentation, and organization of the materials to ensure they are user-friendly, engaging, and practical for teachers to implement in the classroom. It provides feedback for continuous improvement of the materials based on user feedback and evaluation of their effectiveness. This helps refine and enhance the materials over time.

Table 8 shows the validity of the results of the contextualized numeracy materials per DepEd Standards.

Table 8

Validity test results of the contextualized numeracy materials per DepEd Standards

Criteria for Validity	Standard	Actual Score	Highest Score	Remarks
Content	You must score at least 21 points out of the maximum 28 points to pass this criterion.	28	28	Passed
Format	Must score at least 15 points out of the maximum of 20 points to pass this criterion.	72	72	Passed
Presentation and Organization	Must score at least 15 points out of the maximum of 20 points to pass this criterion.	20	20	Passed
Accuracy and Up-to-dateness of Information	Must score at least 18 points out of the maximum 24 points to pass this criterion.	24	24	Passed

Table 8 presents the results of the validity test for the contextualized numeracy materials based on the Department of Education (DepEd) standards. The table includes four criteria for validity: content, format, presentation and organization, and accuracy and up-to-dateness of information. Each criterion has a maximum score, and the actual score is compared to the highest score to determine whether the material passes or not.

The content validity criterion assesses whether the material covers all the necessary topics and concepts according to the DepEd standards. The material must score at least 21 points out of a maximum of 28 points to pass this criterion. The actual score is 28, which is the highest score possible, indicating that the material fully meets the content requirements.

The format validity criterion evaluates whether the material is well-organized and easy to follow. To pass this criterion, the material must score at least 15 points out of a maximum of 20 points. The actual score is 72, which is also the highest score possible, indicating that the material is well-organized and easy to follow.

The presentation and organization criterion assesses whether the material is presented clearly and logically. To pass this criterion, the material must score at least 15 points out of a maximum of 20 points. The actual score is 20, which is the highest score possible, indicating that the material is well-presented and organized.

The accuracy and up-to-dateness of information criterion evaluates whether the material contains accurate and current information. The material must score at least 18 points out of a maximum of 24 points to pass this criterion. The actual score is 24, which is the highest score possible, indicating that the material contains accurate and current information.

The validity test results indicate that the contextualized numeracy materials fully meet the DepEd standards in terms of content, format, presentation, organization, accuracy, and up-to-dateness of information. The material passed all the criteria, indicating that it is effective and suitable for teaching numeracy skills.

It can be noted that the material being subjected to a validity test obtained perfect scores in all criteria. These numerals support the contextualized numeracy material's validity.

How can the developed contextualized numeracy material be institutionalized at the district level?

According to Molanda, J. M., and Martirez, J. O. (2023), institutionalizing contextualized numeracy materials in schools at the district and division levels is crucial. Institutionalizing contextualized numeracy materials ensures consistency and standardization across schools within the district and division. This helps maintain a uniform approach to teaching numeracy, which is essential for effective learning outcomes.

Institutionalizing contextualized numeracy materials ensures that they are accessible and available to all students, regardless of their location or school. This helps to bridge the gap in educational resources and opportunities. It also provides teachers with the necessary support and training to integrate these materials into their teaching practices effectively. This helps to enhance teacher confidence and competence in teaching numeracy. In addition, it helps to engage students more effectively in their learning, as the materials are designed to be relevant and meaningful to their everyday lives. This increases student motivation and interest in learning numeracy.

Further, it allows for continuous improvement and refinement of the materials based on feedback and evaluation. This ensures that the materials remain practical and relevant over time. Moreover, it ensures that they are integrated into the curriculum and aligned with the learning objectives and outcomes. This helps to ensure that students receive a comprehensive and well-rounded education.

Institutionalizing contextualized numeracy materials encourages community involvement and participation in the education process. This helps to foster a sense of ownership and responsibility among stakeholders and promotes a more collaborative approach to education. It has a long-term impact on students' learning outcomes and academic performance. It helps to develop essential skills and competencies that are necessary for future success.

In institutionalizing the developed contextualized materials at the district level, researchers must first consider the district's needs and challenges regarding numeracy education. The researcher should involve stakeholders such as administrators, teachers, parents, and local officials to ensure buy-in and support. Developing policies at the district level to support the integration of contextualized numeracy materials into the district's curriculum and teaching practices is very important to ensure sustainability. Training and professional development opportunities should be provided for teachers to use the materials in their classrooms effectively. Softcopy or layout of these contextualized numeracy materials would be given to teachers who wish to use the materials in their learning instruction for production.

Allocation of resources like funds, time, and personnel to support the implementation of contextualized numeracy materials should be carefully managed. In addition, establishing mechanisms to monitor the implementation progress and evaluate the materials' effectiveness in improving learners' numeracy skills is very important. With these, contextualized numeracy materials can become a sustainable and integral part of the education system.

What is the numeracy profile of Grade 1 learners after the use of developed contextualized numeracy materials?

Table 9 shows the distribution of the Grade 1 learners according to their numeracy profile after using the developed contextualized numeracy materials.

Table 9

Distribution of the grade 1 learners according to their numeracy profile after the use of the developed contextualized numeracy materials

Numeracy Profile	Description	Frequency	Percentage
For Enhancement	Correct answers equal to or greater than 85% of the total items	30	71%
For Consolidation	Correct answers in 75%-84.99% of the total items	11	26%
For Intervention	Correct answers in 75% of the total items	1	2%
	Total	**42**	**100%**

The provided data in Table 9 presents the results of a numeracy assessment, categorized into three levels: enhancement, consolidation, and intervention.

The categories are based on the percentage of correct answers.

The enhancement category includes students who achieved 85% or higher correct answers. This indicates that they have a strong foundation in numeracy and are performing well. The frequency of 30 students and the percentage of 71% suggests that a significant proportion of the students (71%) are in this category, indicating a solid overall performance in numeracy.

The consolidation category includes students who achieved 75% to 84.99% correct answers. This indicates that they have a good understanding of numeracy but may need some additional support to solidify their skills. The frequency of 11 students and the percentage of 26% suggests that about one-quarter of the students (26%) are in this category, indicating that they need to consolidate their numeracy skills.

The intervention category includes students who achieved 75% correct answers. This indicates that they have a significant gap in their numeracy skills and require targeted intervention to improve their performance. The frequency of 1 student and the percentage of 2% suggests that only a tiny proportion of the students (2%) are in this category, indicating that they require immediate support to catch up.

The total frequency of 42 students and the percentage of 100% indicates that all students were included in the assessment and categorized accordingly.

Overall, the data suggests that most students (71%) have a strong foundation in numeracy and are performing well. However, about one-quarter of the students (26%) need to consolidate their numeracy skills, and a small proportion (2%) require immediate intervention to improve their performance.

The numbers shown in Table 8 empirically support the improvement of the numeracy of the pupils when exposed to contextualized numeracy materials. The results of the numeracy profile distribution indicate that the developed contextualized numeracy materials have been effective in enhancing the numeracy skills of most learners.

However, some learners require additional support and consolidation to improve their numeracy skills. In contrast, a small percentage require more intensive intervention. A high percentage of learners in the enhancement category suggests that the materials have been effective in providing a solid foundation for numeracy skills. The relatively low rate of learners in the intervention category indicates that the materials have been effective in identifying and addressing areas of difficulty.

The results also highlight the importance of contextualized numeracy materials in providing a supportive learning environment for learners. The materials have been designed to be relevant and meaningful to the learners' everyday lives, which has helped to engage them and promote their numeracy skills. In summary, the results suggest that the developed contextualized numeracy materials have been effective in improving the numeracy skills of Grade 1 learners.

Is there a significant difference in the RMA result before and after the utilization of contextualized numeracy material?

Table 10 shows the paired t-test results and comparative distribution of the learners before and after the utilization of contextualized numeracy material.

Table 10

Paired t-test results and comparative distribution of the learners before and after the utilization of contextualized numeracy material

Areas	Pretest	Post-test
For Enhancement	5%	71%
For Consolidation	17%	26%
For Intervention	79%	2%
Mean Score	43.83	57.67
Mean Gain	13.84	
P-value	0.001	
Remarks	Significant	

Table 9 unfolds the paired t-test results and the comparative distribution of the grade 1 learners when grouped across numeracy profiles. Remarkably, pupils who are for enhancement have increased in the post-test to around 71% compared to the 5% during the pretest. In addition, pupils for intervention have decreased to 2% in the post-test compared to 79% in the pretest. These statistical figures indicate that most grade 1 learners performed well in the post-test after being exposed to the contextualized numeracy material.

Moreover, relative to the mean scores, Table 5 shows that grade 1 learners obtained an average score of 43.83 in the pretest, which is lower than the post-test average score of 57.67. The mean gain in the post-test of around 13.84 is significant, as evidenced by the p-value of 0.001 (less than 0.05 level of significance). These results further support the improvement in the numeracy profile of the grade 1 learners after having been exposed to the numeracy materials.

The data provided shows a significant improvement in students' numeracy skills after the implementation of the contextualized numeracy materials. In addition, the data suggests that the contextualized numeracy materials were effective

in improving students' numeracy skills. This has implications for the development of future numeracy materials and the implementation of numeracy education in schools.

According to Xu M. et al. (2017), paired t-tests help identify whether there are significant changes between the paired measurements. Using paired measurements, the paired t-test can reduce bias and increase precision in the analysis. This is particularly important when comparing naturally matched groups, such as case-control studies or longitudinal studies.

In addition, paired t-tests can help researchers understand the relationships between variables by comparing the means of paired measurements. This can be useful in identifying correlations, causal relationships, or the effectiveness of interventions. The paired t-test has numerous practical applications in various fields, including evaluating the effectiveness of treatments or interventions, comparing the performance of different products or services, analyzing changes in behavior or attitudes over time, and identifying differences in outcomes between different groups or conditions. Further, paired t-test provides a clear and concise way to report the results of paired measurements. The test statistics, p-value, and effect size give a comprehensive summary of the findings, making it easier to communicate the results to stakeholders.

In summary, the paired t-test is a powerful statistical tool that helps researchers identify significant changes, reduce bias, understand relationships, and make practical applications in various fields. Its importance lies in its ability to provide a clear and concise summary of the results, making it a valuable tool for researchers and practitioners alike.

Based on the findings, what training program can be proposed using contextualized numeracy materials?

Based on the findings of the study, the researcher developed a school-based training program to enhance the numeracy skills of learners entitled Project GOLDEN Sioan: “Gearing Outstanding Learners through Developing Engagements in Numeracy for Sioan.

Below is the school-based training program to enhance the numeracy skills of Grade 1 learners of Sioan Integrated School, Gingoog City.

School-based Training Program for Numeracy Enhancement

Project GOLDEN Sioan

(Gearing Outstanding Learners through Developing Engagements in Numeracy for Sioan)

I. Rationale

Numeracy skills are crucial to a child's overall development and success in mathematics. Children can better understand the foundation of mathematics by providing early exposure to numerical competencies through games, stories, and play. This understanding of numeracy helps them in their daily lives and lays the groundwork for more complex mathematical tasks in the future.

Many kids have trouble with math, but some students find it more difficult than others. These may be otherwise bright children who have a keen sense of logic and reasoning but still perform poorly on homework, tests, and quizzes. Over time, repeated underperformance in math can cause a student to become demotivated and believe he or she is “stupid” or not good at the subject.

To support these learners in developing strong numeracy skills, it is important to provide contextualized materials that are engaging and relevant to their everyday lives especially when using their basic natural language at home.

Studies show that children who receive education in their mother tongue perform better academically. They are more likely to understand and retain information, leading to improved educational outcomes. Moreover, as math is cumulative, falling behind might mean a learner misses out on much of what is taught for the rest of the school term. Having basic math skills is important, regardless of the career an individual chooses to pursue. That is why it’s key to identify issues early on. Given the right combination of classroom accommodations and learning strategies, every student can achieve his or her full potential in math.

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The end goal of the Department of Education is to improve the numeracy skills of all learners across grade levels and improve learning outcomes in mathematics with the aid of intervention programs and best practices that highly promote sustainable quality instruction of the k-12 curriculum. Sioan Integrated School supports this goal through the implementation of Project GOLDEN Sioan (Gearing Outstanding Learners through Developing Engagements in Numeracy for Sioan).

With the results of the recently conducted RMA, the school recorded 92 out of 130 learners from grade I to grade III fall in the intervention level. This school-based numeracy program is made to alleviate the numeracy problem of Sioan Integrated School to improve academic outcomes.

II. Goals and Objectives

Goals:

- To provide support to learners who need to enhance their numeracy skills.
- To heighten the numeracy level of the school.

Objectives:

- To help pupils become numerates.
- To inculcate among students, the importance of numeracy.
- To plan intervention programs to help develop their numerical ability.
- Develop among pupils the love for Mathematics.
- To help children overcome their frustration and fear of Mathematics.

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III. Time Frame:

This program will be implemented within 40 days from September-October 2024. This school-based training program aims to improve numeracy performance in the Rapid Mathematics Assessment (RMA) of Sioan Integrated School for Grade 1-3 learners.

IV. People Involved:

Persons involved in this activity are the following

School Head
Teachers
Pupils
Parents
Stakeholders

V. Materials Needed/Resources

Contextualized Numeracy Materials
ICT Equipment
Financial Support (School Funds and Support from stakeholders)

VI. Strategies/Activities:

DIRECT INSTRUCTION

Struggling learners often need systematic instruction, as opposed to student-centered activity.

Direct instruction (also known as "explicit teaching") provides exactly this, with the teacher leading the pupils through the content every step of the way. Here's how it works:

1. The teacher introduces a concept, connecting it with previous content.
2. The teacher models the skill to be learned.
3. Students follow precise instructions to use the skill themselves in a scaffolded, step-by-step way.
4. The teacher checks for understanding at each step.
5. The above steps are repeated until students can practice independently.

Direct instruction is great for math interventions because it allows you to guide students through individual procedures step by step and pick up on learning gaps immediately.

INSTRUCTIONAL MATERIALS:

Instructional materials will make it easier for pupils to wrap their heads around a math concept that would otherwise be an abstract mess. The use of contextualized numeracy materials in teaching instructions in numeracy will help learners grasp concepts from complex to simple ideas.

Here are a few examples of contextualized numeracy materials that can be used to enhance some of the basic competencies in the RMA:

Domi-Sym Cards: This contextualized numeracy material is tile-like strips that can be used by the learners. It is made up of cardboard. It has dots and number symbol and number name using English, Filipino, Sinugbuanong Binisaya and Higaunon dialect. This instructional material aims to master competency in number identification and discrimination.

Bingo cards: This instructional material is made up of cardboard indicating numbers from 1-100. Every cardboard has 9 cells that indicate numbers 0-100 depending on the batch card number bracket from 0-100. This material aims to master the competency in number identification and discrimination. Additionally, it can also be used to master addition and subtraction depending on the instructions given by the teachers.

Picture Symbol Match: This instructional material depicts pictures/images of animals, vegetables, and fruits available in the community. Below are three (3) different numbers. The learners will daub the number that will match the symbol

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represented by the images indicated on the card. This instructional material aims to enhance number identification and discrimination.

Racing Cats and Dogs: This contextualized numeracy material contains images of animals found in the community. This instructional material aims to enhance competency in number identification and discrimination. The learners will arrange the given images of cats and dogs according to the sequence given by the teacher (either in ascending or chronological order). The material is good for twenty (20) learners. The teacher may reproduce the cards based on the number of learners in the class.

Frog-gee Jump and Slide: This contextualized numeracy material contains an image of a frog and a slide with numbers in every cell. This instructional material aims to enhance competency in addition and subtraction. This material can also aim to master number identification through counting. The material is good for 4 learners. The learners will use dice indicating a plus (+) or minus (-) sign before a number. The teacher may reproduce the cards based on the number of learners in the class.

Eating Bones and Fish: This contextualized numeracy material contains images of animals found in the community. This instructional material aims to enhance competency in addition and subtraction. The material is good for 2 learners. The learners will use dice indicating a plus (+) or minus (-) sign before a number. The teacher may reproduce the cards based on the number of learners in the class.

Shopping Basket Galore: Illustrations of concrete, recognizable items can make number sentences or word problems seem less abstract using images found in the community. This contextualized numeracy material can be used to enhance the concept of solving word problems in addition and subtraction. The teacher can enhance word problems using different dialects applicable to the needs of the learners

New's Today Chart: This contextualized numeracy material is composed of strips indicating the month of the year, day of the week, and date of the day. It also includes images of weather conditions like sunny, windy, cloudy, and rainy days. It can be displayed in the classroom and used daily during drill time. It aims to enhance the skills in time measurement.

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Analog Clock: It is an improvised analog clock that is made up of cardboard and pins. The learner can easily manipulate this material to tell time. This contextualized numeracy material included number symbols to tell the time with corresponding number words that is frequently used to tell time like ala-una, alas dos, and so on.

Improvised Weighing Scales and Counter Attacks: The primary purpose of placing objects on a weighing scale is to measure the weight of the other object. This instructional material is a non-standard unit to compare the mass of an object. It is made up of pieces of wood, yarn, hanger, and plastic cups. This material aims to enhance the skill in measuring the mass of an object.

A sample of teaching guides and learning materials are provided for teaching instructions and reproductions. Teachers and parents can make other contextualized numeracy materials that will cater to the needs of the learners that will depend on the least learned competency that needs to be enhanced.

PEER-ASSISTED LEARNING STRATEGIES (PALS)

Sometimes, a learner's peers might do a better job at putting a difficult concept into a familiar language. Students will also feel less pressure and anxiety when working with a trusted partner.

PALS allows you to make the most of this by partnering high-ability students with those who need extra support.

These students then work together for 20–30 mins a couple of times per week, taking turns being the "coach" and the "player". That way they have the benefit of one-on-one support and the opportunity to consolidate knowledge through teaching.

Give students the strategies they need to support each other first. It's a good idea to set a structure or sequence of activities to guide them, for example:

1. The coach models to the player how they would solve a word problem, thinking aloud the whole time.
2. The player then works through another problem, thinking aloud, with the coach guiding them.
3. The player completes a problem independently, which the coach checks.

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ONE-ON-ONE STUDENT SUPPORT

If there is a learner who is considerably far behind, they may need one-on-one support in addition to the above initiatives. See if the teacher can find a regular meeting time where the teacher can work with them individually and take them through math activities step by step.

If time is at a premium (as it always is), consider supporting them with an online learning program that they can use independently. Look for one that syncs with the curriculum and automatically adjusts to the learner's ability levels.

VII. Procedure

A. Pre – Activity:

The first step will be the identification of the numeracy level of the pupils using the RMA Assessment Tools. The test will be administered at the beginning of the school year.

B. Administering Other Assessment (gain qualitative information)

To make a qualitative assessment, each of the teachers will also administer other numeracy activities deemed appropriate to the scope of the assessment tools to support the validity and reliability of the result.

C. Profiling of Learners

Based on the results of the numeracy and other assessment tools, each teacher will consolidate the class numeracy profile which in turn will be the basis for the school numeracy profile. The school numeracy profile will then be the basis for planning an appropriate remediation or intervention.

D. Interpreting Data

Interpretation of data should be done following what is presented by the class advisers.

E. Putting in Place Remediation/ Intervention Strategies

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After the identification of difficulties, appropriate activities will be provided that are expected to help spur pupils' development in a particular skill.

F. Assessment Before, During and After Intervention

The Numeracy test will be given as an assessment to monitor improvement which in turn will be the basis for giving appropriate remediation.

VIII. Program of Activities

ACTIVITIES	OUTPUT	DATE OF IMPLEMENTATION	PERSONS RESPONSIBLE	BUDGET	BUDGET SOURCE
Conduct of RMA pre-assessment	RMA Results	August 2024	Teachers Pupils	none	none
Conduct the Remedial Classes using different contextualized numeracy materials	Remedial Reading Report per Month Showing Pupil's Improvement and Status	September-October 2024	Teachers Pupils School Head	Php 5,000	MOOE
School Learning Action Cells and In-Service training on new trends math Strategies	Capacitated Teachers	August 2024	Teachers School Head	Php 5,000	MOOE
Production of contextualized numeracy materials	Self-Learning Kits Big book	August 2024	Teachers School Head	Php 5,000	MOOE Canteen Funds
Home Visitation and HPTA/GPTA meeting concerning performance in mathematics	Home Visitation Report and PTA Meeting Report	September 2024	Teachers, School Head	Php 1,000	Personal Fund
Conduct of RMA post-assessment	RMA Results	November 2024	Teachers Pupils	Php 500	MOOE
Program and Implementation Review of Project GOLDEN Sioan	PIR Forms	November 2024	School Head Teachers	None	None

IX. Suggested Training Workshop

1. Profiling of Learners
2. Designing Intervention Program for:
   - remediation
   - reinforcement/enrichment
3. Using Assessment Before, During and After Intervention

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According to the article released by the Ascends Asia Journal of Multidisciplinary Research Abstracts No. 2 Vol. 10 (2018), training programs in the development of contextualized numeracy materials are essential because they can enhance the competencies of educational leaders and teachers in instructional supervision, curriculum implementation, learning resource management, and contextualization. This training helps ensure that the materials are relevant, engaging, and effective in improving students' numeracy skills.

The following depicts the benefits of implementing a school-based training program. In terms of contextualization, is considered a crucial aspect of numeracy education, as it helps students relate mathematical concepts to real-life situations, making them more meaningful and easier to understand. Training programs for teachers are essential in developing contextualized numeracy materials. These programs help teachers understand the importance of contextualization and provide them with the necessary skills to create engaging and relevant materials.

Effective implementation of the curriculum requires trained educational leaders and teachers who can manage learning resources, contextualize materials, and monitor student progress. Training programs help ensure that these leaders and teachers have the necessary competencies. It also helps ensure that the numeracy materials developed are relevant and effective in improving student performance. This is achieved by involving teachers and students in the development process and ensuring that the materials are tailored to the needs of the learners.

CONCLUSIONS

Based on the findings of the study, the following conclusions are drawn.

1. The numeracy profile highlights the need for targeted support and interventions to improve the numeracy skills of most learners. The exceptional performers (for enhancement) can focus on refining their skills. At the same time, those who require more support (for intervention) need more extensive interventions to address their knowledge gaps.

RMA results are low, so contextualized numeracy materials for teachers are needed to aid learners' performance. This highlights the need for targeted interventions that cater to the specific needs of these learners.

2. The least-learned competencies in Grade 1 Mathematics based on RMA pre-test scores are Number Identification and Discrimination, Addition, Subtraction, Time Measurements, and Mass Measurements. These areas require more focused instruction and targeted interventions to help students improve their understanding and skills. On the other hand, Fractions, Geometric Representation, Missing Shapes in Patterns, and Linear Measurements are considered mastered competencies, indicating that most students have a good grasp of these concepts.

3. All indicators in the tool showed high responses, which means that when the validity and usability are high, the quality assurance of the developed contextualized numeracy materials is desirable. The developed contextualized numeracy materials for Grade 1 learners demonstrate a comprehensive approach to learning mathematics. The materials are contextualized, validated, and effective in promoting learning outcomes. They are relevant to everyday life situations and can be implemented in various settings.

4. Quality assurance is essential when developing contextualized numeracy materials to ensure they are aligned with standards, relevant to the local context, effective for learning, user-friendly, and continuously improved based on feedback and evaluation. The contextualized numeracy materials have been validated to meet all the DepEd Standards criteria. This suggests that the materials are comprehensive, well-structured, and accurate, providing a solid foundation for teaching numeracy skills to Grade 1 learners.

5. Institutionalizing contextualized numeracy materials in schools at the district and division levels is essential for ensuring consistency, accessibility, teacher support, student engagement, continuous improvement, integration with curriculum, community involvement, and long-term impact. The developed contextualized numeracy materials for Grade 1 learners demonstrate a comprehensive approach to learning mathematics. The materials are contextualized, validated, and effective in promoting learning outcomes. They are relevant to everyday life situations and can be implemented in various settings. The materials should be institutionalized to ensure that learners have access to high-quality, contextualized learning resources.

6. The data concludes that numeracy skills are developing, but there are areas where they need improvement. It highlights the importance of considering students' attitudes and organizational skills when planning interventions or adjustments to support their learning. It emphasizes the need to differentiate and build on students' existing knowledge and skills. It encourages them to develop more sophisticated procedures for counting and other numeracy skills.

Overall, a comprehensive approach to numeracy education should focus on both the cognitive and affective aspects of learning and take into account each student's individual needs and strengths.

7. The utilization of contextualized numeracy materials has significantly improved the numeracy skills of Grade 1 learners. The Percentage of learners in the enhancement category increased dramatically, while the Percentage in the intervention category decreased substantially. The mean score gain of 13.84 points is statistically significant, indicating the effectiveness of the materials in enhancing learners' numeracy skills.

The contextualized numeracy materials were effective in improving students' numeracy skills. The significant improvement in numeracy skills and the decrease in the number of students requiring additional support suggest that the materials were effective in addressing students' needs. This has implications for the development of future numeracy materials and the implementation of numeracy education in schools.

8. Training programs play a vital role in the development of contextualized numeracy materials. These programs enhance the competencies of educational leaders and teachers, ensuring that the materials are relevant, engaging, and effective in improving students' numeracy skills. If successfully implemented, Project GOLDEN Sioan will be effective in enhancing the numeracy skills of Grade 1 learners. The significant improvement in learners' numeracy profiles and mean scores demonstrates the success of the program in achieving its objectives.