



Implementation of 4FTERMATH: Four Fundamental Training, Engagement, and Remediation in Mathematics: Input on Localized Teaching Materials in Mathematics

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ABSTRACT

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Teaching the four fundamental operations—addition, subtraction, multiplication, and divisions are essential in building a strong mathematical foundation for elementary learners. These operations serve as the cornerstone for understanding more complex mathematical concepts and real-life problem-solving situations. By mastering these skills, students enhance their logical thinking, numerical fluency, and ability to make connections across various subjects. Incorporating interactive, inquiry-based, and reflective learning approaches ensures engagement and fosters deep understanding. Ultimately, equipping students with these fundamental skills empowers them to approach everyday challenges with confidence and precision. The study was conducted to intervene the learners with poor academic performance in Mathematics. It was conducted within the bounds of Southville VI Elementary School for the school year 2023-2024. The main objective of the project is to increase academic performance from satisfactory to at least satisfactory mastery level in Math, decrease drop-out rate, increase percentage of attendance, enhance learners' motivation and focus on learning amidst pandemic, develop intervention materials, share best teaching practices in intermediate level, and rebuild and sustain partnership between the school and community. The respondents were grade four pupils, and they were identified based on the first and second quarterly performance. It was found out that the respondents have at risk learners in Mathematics. Researchers conducted further investigations on the performance of the grade level in Mathematics for the first and second quarters of the school year. Thus, questionnaires were utilized. It was validated by the experts in the field to assure the quality, accuracy, and relevant to the level of the respondents. Furthermore, Project 4FTERMATH has had significant effect for the last six months as seen in the 66 percent as MPS on the post-test result with an increase of 0.48 percent compared to the pre-test results. The significant increase has contributed to the total performance of the grade level performance in Mathematics. The study implies that conducting this kind of intervention in addressing the learners' gap in mathematics has made an impact in the performance level in grade level and in school.

KEYWORDS:

Continuous Improvement Program (CIP), engagement activity, performance level, pre-test, post-test, drop out, fairly satisfactory

I. INTRODUCTION

Mathematics plays a pivotal role in shaping the cognitive and problem-solving abilities of young learners, making it a cornerstone of a well-rounded education. The study aims to

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address the critical need for a solid understanding of the four fundamental operations: addition, subtraction, multiplication, and division. These operations are essential building blocks that form the foundation of more advanced mathematical concepts and real-life applications. Rooted in the principles of Republic Act 10533, also known as the Enhanced Basic Education Act of 2013, this program aligns with the mandate to provide every student with access to quality education that meets global standards. RA 10533 emphasizes the importance of a pedagogically sound curriculum that not only prepares learners to be globally competitive but also ensures

that foundational skills are firmly established. By integrating these principles, the study seeks to address learning gaps and promote mastery of fundamental operations in a way that is engaging, reflective, and accessible to all learners. The study emphasizes training and engagement strategies to ensure active participation, as well as targeted remediation techniques to support struggling learners. Through innovative teaching approaches, such as inquiry-based learning and collaborative problem-solving, students are encouraged to explore mathematical concepts in a meaningful and practical manner. These methods aim to foster critical thinking, confidence, and a positive attitude toward mathematics. Ultimately, the study serves as a response to the growing need for effective educational interventions that uphold the objectives of RA 10533 while preparing students to meet the demands of an increasingly globalized world. By prioritizing the mastery of fundamental mathematical operations, the program aspires to empower learners to excel academically and apply their skills in real-world contexts.

Research Question

The study aims to determine the effect of the project on the grade 4 pupils of Southville 6 Elementary School. Specifically, it aims to answer the following question.

1. What is the pre-test score of grade4 pupils in Southville 6 Elementary School?
2. What is the post-test score of grade4 pupils in Southville 6 Elementary School?
3. What project will be proposed to intervene in grade 4 pupils?

Scope and Limitation of the Study

This study will focus on Grade IV non-numerate learners of Southville VI Elementary School. It will cover the assessment and remediation of the four fundamental mathematical operations: addition, subtraction, multiplication, and division. The participants will include learners identified as non-numerates based on diagnostic evaluations conducted prior to the intervention. The study will be limited to Grade IV learners of Southville VI Elementary School and will not include other grade levels or institutions, which may have differing contexts and needs. It will not consider external factors such as socio-economic status, home environment, or prior learning experiences that may affect learners' performance. Additionally, the study will only measure short-term improvements in mathematical skills within its duration and will not account for long-term retention or broader applications of the concepts learned.

Framework

The proponents collate account-related materials that are deemed to be helpful in attaining an in-depth discussion of the research problem and development of the research framework.



Figure 1. Conceptual Framework of the Study

The framework shows how the project affects the different members of the project. The stakeholders and the parents played a vital role in fulfilling the project, and full support to all learners was provided during the entire implementation of the project. Learners were cited in the middle of the framework represented as the primary source of the interventions created namely 4FTERMATH. Hence, Stakeholders including teachers, the prime movers of the project, supported by the barangay officials, and parents were also the team players in the success of the project as seen in Figure 1.

II. METHODOLOGY

Research Design

The research design employed in the study was experimental quantitative. The study incorporated a group of learners engaged in the learning process. The learners completed a pre-evaluation. Subsequently, a series of teacher demonstrations were carried out for the selected pupils at Southville VI Elementary School. Following the implementation of demonstrations for the third and fourth quarter evaluations, the learners completed a post-evaluation.

Respondents of the Study

The respondents in this study consisted of pupils selected from a sample of grade 4 learners at Southville VI Elementary School. The research project was conducted throughout the third and fourth quarters of the academic year 2023-2024. The selection of respondents was conducted using purposive sampling. A group of 39 learners was chosen and actively engaged in the research endeavor. All the participants in the study had below-average performance in Mathematics during the initial and succeeding grading periods.

Research Instrument

The researchers obtained the required authorizations and consent from the principal, parents, and teachers involved, as well as the active participation and collaboration of the participants. Furthermore, all participants were given an overview of the study's desired outcomes. The data collection period spanned from March 21, 2024, through June 15, 2024. A guided response survey was administered to all fourth-grade students to assess their understanding of Mathematics 6 topics. The survey consisted of a set of 20 multiple-choice questions. Teacher-led demonstrations were conducted on

topics that pupils found to be least comprehended. The analysis focused on evaluating the efficacy and efficiency of the localized materials and the process itself. The data was validated by assessing the analysis for the post-test results.

Data Gathering

Two sets of data were gathered within the bounds of Southville VI Elementary School, particularly pupils with unsatisfactory levels from the first to second grading period. The initial data were derived from the learners' existing schema about the topic area. The second dataset was obtained from the outcomes of the post-evaluation carried out by the demonstration teachers. This data analysis aims to identify the effectiveness and efficiency of the 4FTERMATH through the utilization of localized materials and teaching strategies employed such as indoor and out-door math engagement activities.

Statistical Treatment

The analysis focused on assessing the pre- and post-evaluations of learners' competence on the least learned lessons in Mathematics using simple mean and percentage.

Research Ethics

Ethical considerations were diligently implemented during the study, thereby protecting all participants' rights, and preventing potential violations. The participants of the study have appropriately signed the consent forms. The data collected has been and will continue to be handled with confidentiality by the researchers.

III. RESULTS

This chapter shows the data and analysis derived from the results based on the research questions of the study. The pre-test and post-test results in the implementation of AFTERMATH through the utilization of validated materials and teaching strategies of teachers in Mathematics.

Pre-test and Post-test Results

The participants took the pre-test before the implementation of AFTERMATH. The tool used was teacher-made and validated by the 1 principal inclined in Mathematics 2 master teachers and 3 teachers with more than ten years' experience in teaching Math in elementary. The tool comprises 20 items with multiple choices, and the questions constructed were all least learned lessons in the third and fourth quarters. The results are shown in Table 1.

Table 1. Pre-test Scores of Selected Grade Four Pupils in Math

Group	Pre-test	Post-test
Mean	8.36	11.07
MPS	41.80	55.13
N	39	39
Ave. Score	8	11

Table 1 shows the Pre-test scores of grade 4 pupils in Mathematics for quarters three and four. It shows that most of the pupils obtained 40 percent or 8 correct answers out of 20 items among 39 pupils with poor academic performance in Math. Also, the 8.36 mean or the 41.80 means that most of the least learned lessons in grade four shall be taught and served as the basis for intervention. However, the average score of grade four pupils was 11 with 55 percent. Thus, resulted in an 11.07 mean and 55.13 MPS with 13.33 difference which significantly contributed to the performance of the pupils in Math. The 39 pupils who underwent the AFTERMATH were all attained a satisfactory level.

IV. DISCUSSION

The chapter discussed the implementation process of AFTERMATH and its effect on the pupil's performance. As a result, the MPS increased from **41.80%** on the pretest to **55.13%** on the posttest. From the third to fourth quarter, 100% of the participants' quarterly grades improved from below satisfactory to at least satisfactory level. It simply means that the project is efficiently and effectively implemented as seen in the post-test and quarterly grades of the pupils.

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