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**CREATING AND USING IMPROVISED MATHEMATICS MANIPULATIVES FOR THE GRADE SIX PUPILS STRUGGLING IN MATHEMATICS**



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**ABSTRACT**

The purpose of this research was to determine the effectiveness of “Creating And Using Improvised Mathematics Manipulatives For The Grade Six Pupils Struggling In Mathematics” to enhance their mathematical skills. The researcher selected 4 male Grade Six learners as his respondents for this study. The researcher created improvised mathematics manipulatives to lessen the number of struggling learners in Mathematics.

The researcher used the pre-test and post-test as research instrument to determine the level of numeracy performance of learners. There were seven (7) tasks to be answered in Numeracy Assessment. Task 1 is oral counting of numbers. Task 2 is one-to-one correspondence of the position order of the underlined number figure. Task 3 is number naming fluency. Task 4 is quantity discrimination. Task 5 is finding the missing number. Task 6 is word problem. Task 7 is multiplication and division.

The efficiency of the improvised Mathematics manipulatives among the respondents was determined using the descriptive research methodology. As part of the statistical analysis, mean and percentage were used.

The study's findings were interpreted by level during the pre-test in the school and post-test. It showed that for Task 1 during the pre-test, students answered a mean of 3.00 out of three (3) levels, or 100.00%. The students' average score at Task 2 was 1.50 out of three (3) levels, or 50.00%. The students' average score at Task 3 was 1.25 out of three (3) levels, or 41.67. For Task 4, Task 5, Task 6 and Task 7 during the pre-test, students answered a mean of 1.00 out of three (3) levels, or 33.33%.

Furthermore, during the post-test, pupils who took Task 1 received a mean score of 3.00 out of three (3) levels, or 100.00%. The students' mean score at Task 2 was 2.50 out of three (3) levels, or 75.00%. The students' average score at Task 3 was 2.35 out of three (3) levels, or 58.33%. Students who took Task 4 received a mean score of 2.00 out of three (3) levels, or 50.00%. The students' mean score at Task 5 and Task 6 was 1.00 out of three (3) levels, or 33.33%. The students' average score at Task 7 was 1.25 out of three (3) levels, or 55.95%.

The data gathered additionally presented the mean difference between the pre-test and post-test scores for the Task 1 is 0.00 since they reached the highest mean of 3.00 which tells that Task 1 is the easiest task in numeracy assessment. There is a mean difference of 1.00 for Task 2, Task 3 and Task 4. For the pre-test and post of Task 5 and Task 7, there is a mean difference of 0.25. The most difficult task in numeracy assessment is Task 6 since the mean difference between the pre-test and post-test scores for the Task 6 is 0.00.

It was recommended that teachers in elementary schools utilize the improvised Mathematics manipulative materials as intervention tools. For the continuous improvement of their pupils' mathematical skills, parents can also use the Mathematics manipulatives with their grade six students. They were further encouraged to produce educational materials, which they might modify based on the needs and interests of younger learners. The outcomes of the study revealed the necessary requirements for pupils to ensure the development of their numeracy ability.

**Keywords:** Mathematics Manipulatives materials, effectiveness, numeracy skills.

## INTRODUCTION

The in-person classes were greatly missed by both teachers and students. We can conduct class discussions, group activities, recitations, and other exercises that promote interaction between the teacher and the students in face-to-face classes. Together with these activities, we used a variety of learning tools, including real objects, charts, and manipulatives. Manipulatives are concrete objects used to help students understand abstract concepts in the domain of mathematics (McNeil & Jarvin, 2007). The use of manipulatives provides teachers with great potential to use their creativity to do further work on mathematics concepts as an alternative to

merely relying on worksheets (Furner, et al, 2005). The idea that children learn best through interacting with concrete objects has sparked much interest in the use of mathematics manipulatives, which are concrete objects that are designed specifically to help children learn mathematics (Ball, 1992). Available to us in the World Wide Web are tools referred to as "virtual manipulatives" (Moyer, et al, 2002). By being presented as concrete items in various Mathematics lessons and numeracy-related topics, materials like manipulatives can aid pupils in visualizing abstract concepts.

After conducting numeracy assessment, teachers found out that there are some students who are struggling in Mathematics.

The goal of this study is to better understand how sixth-grade students who struggle with mathematics might use improvised and commercially available manipulatives to help them with various math activities and receive intervention and remediation.

The findings of this study will aid educators as they employ improvised manipulatives to track the progress of non-numerate sixth-graders and develop monitoring tools to assess the efficiency of manipulatives in various remedial, intervention, and intervention-related mathematics activities.

## METHODOLOGY

The researcher used pre-test and post-test questionnaires to measure the learners' progress. The researcher created the improvised Mathematics Manipulatives materials with activities as pre-test and post-test needed for evaluation. The researcher wrote a letter of request to conduct the study. The researcher sent the approved letter of request among the target respondents and conducted orientation with the parents and the learners. The pre-test and post-test questionnaire will be administered after classes.

## RESULTS

The level of performance of Grade six learners Using improvised Mathematics manipulatives which were interpreted using the mean and percentage.

During the pre-test, four (4) learners are non-numerates based on their MPS. For Task 1, all learners are numerates. For Task 2, two (2) learners are instructional while the other two (2) learners are non-numerates in this task. For Task 3, one (1) learner is instructional while the other three (3) learners are non-numerates. For Task 4, Task 5, Task 6, Task 7, all learners are non-numerates.

During the pre-test, the learners got a mean of 9.75 out of 7 tasks or 46.43%. For Task 1, the learners got a mean of 3.00 out of 3 levels or 100.00%. For Task 2, the learners got a mean of 1.50 out of 3 levels or 50.00%. For Task 3, the learners got a mean of 1.25

out of 3 levels or 41.67%. For Task 4, the learners got a mean of 1.00 out of 3 levels or 33.33%. For Task 5, the learners got a mean of 1.00 out of 3 levels or 33.33%. For Task 6, the learners got a mean of 1.00 out of 3 levels or 33.33%. For Task 7, the learners got a mean of 1.00 out of 3 levels or 33.33%.

During the post-test, two (2) learners became instructional while the other two (2) are still non-numerates based on their MPS. For Task 1, all learners are numerates. For Task 2, one (1) learner is numerates while the other three (3) learners are instructional in this task. For Task 3, one (1) learners became numerate, one (1) learner is instructional and the other two (2) learners are still non-numerates. For Task 4, two (2) learners are instructional while the other two (2) learners are still non-numerates. For Task 5, one (1) learner become instructional while the other three (3) learners are still non-numerates. For Task 6, all learners are still non-numerates. For Task 7, one (1) learner became instructional while the other three (3) learners are still non-numerates in this task.

During the post-test, the learners got a mean of 12.00 out of 7 tasks or 57.14%. For Task 1, the learners got a mean of 3.00 out of 3 levels or 100.00%. For Task 2, the learners got a mean of 2.50 out of 3 levels or 75.00%. For Task 3, the learners got a mean of 1.75 out of 3 levels or 58.33%. For Task 4, the learners got a mean of 1.50 out of 3 levels or 50.00%. For Task 5, the learners got a mean of 1.25 out of 3 levels or 41.67%. For Task 6, the learners got a mean of 1.00 out of 3 levels or 33.33%. For Task 7, the learners got a mean of 1.25 out of 3 levels or 41.67%.

The pre-test and post-test scores for Task 1 has a mean difference of 0.00, but reached the highest Mean which is 3.00 that makes Task 1 the easiest task in numeracy assessment. For Task 2, there is a mean difference of 1.00 which showed improvement in learners after using the Mathematics manipulatives in Math drills. For Task 3 and Task 4, there is a mean difference of 0.50 which showed slight improvement in learners. For Task 5 and Task 7, there is a mean difference of 0.25, which showed slightest improvement in learners performance in

numeracy assessment. For Task 6, there is a mean difference of 0.00 which indicates that Task 6 is the most difficult task for the learners to answer. The pre-test and post-test scores has a total mean difference of 2.25.

It indicated that the pre-test and post-test scores of P1 and P2 had improved their level from non-numerates into Instructional learners while P3 and P4 remained non-numerates since they haven't reached the next level in some tasks.

From the findings, we can infer that the use of improvised Mathematics Manipulative materials has a significant effect in the performance of Grade six learners.

## DISCUSSION

The goal of this research was to evaluate the effectiveness with which grade six students used their improvised manipulatives for mathematics. The researcher specifically chose 4 male students in Grade six. Based from his viewpoints and observations in the field, The researcher considered the demands made by the participants.

The data that was gathered was statistically processed using the mean and percentage To determine the performance level of grade six pupils using an improvised Mathematics manipulatives used in remediation.

The students' performance on the pre-test at Task 1 was a mean of 3.00 out of three (3) levels, or 100.00%. The students received a mean score of 1.50 out of three (3) levels, or 50.00% at Task 2. The students' average score at Task 3 was 1.25 out of three (3) levels, or 41.67%. The students' performance on the pre-test at Task 4, Task 5, Task 6 and Task 7 was a mean of 1.00 out of three (3) levels, or 33.33%.

For Task 1 on the post-test, the students achieved a mean score of 3.00 out of three (3) levels, or 100.00%. The students' mean score at Task 2 was 2.50 out three (3) levels, or 75.00%. The students' average score at Task 3 was 1.75 out of three (3) levels, or

58.33%. For Task 4 on the post-test, the students achieved a mean score of 1.50 out three (3) levels, or 50.00%. The students' mean score at Task 5 was 1.25 out of three (3) levels, or 41.67%. The students' average score at Task 6 was 1.00 out of three (3) levels, or 33.33%. For Task 7 on the post-test, the students achieved a mean score of 1.25 out of three (3) levels, or 41.67%.

Additionally, it showed that there is a mean difference of 0.000 between the Task 1's pre- and post-test scores. For the Task 2, there is a mean difference of 1.00. There is a mean difference of 0.50 for Task 3 and Task 4. For the Task 5 and Task 7, there is a mean difference of 0.25. For the Task 6, there is a mean difference of 0.00.

From the findings, it can be concluded that, it is indicated that the pre-test and post-test scores of P1 and P2 had improved their level from non-numerates into Instructional learners while P3 and P4 remained non-numerates since they haven't reached the next level in some tasks.

From the findings above, we can infer that the use of improvised Mathematics Manipulative materials has a significant effect in the performance of Grade six learners.

1. Elementary school teachers may also create extra mathematics resources to better suit the needs of intermediate numeracy learners.
2. The mathematics activities may be revised and modified by elementary school teachers in response to the demands of their students.
3. As a school intervention, elementary teachers are advised to employ the mathematics manipulatives. Parents can use the mathematics tools at home with their grade 6 learner to further improve their numeracy skills.
4. It is suggested that grade six pupils use the manipulatives in mathematics to improve their numeracy abilities and develop a love of the subject.

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