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Visualize, Represent and Solve Problem Technique as Teaching Strategy to Improve the Learner's Problem Solving Skill in Mathematics 2

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Abstract*: Teaching mathematics to students at the elementary level needs logical thinking, the students have to be encouraged to study hard to improve solving skills. The objective of this study is to improve the learner's problem solving skill in mathematics 2. This research aims to find out how the implementation of the visualize, represent and solve problem technique as teaching strategy to improve the learner's problem solving skill. The respondents of the study were purposively selected which composed of thirty (30) students in La Concepcion College in the Schools Division of San Jose Del Monte, Bulacan. Moreover, having conducted the pretest and posttest, the researcher found out that students were able to solve math problem more effectively. The study revealed that there is a significant difference between the pretest and posttest scores of the students in the utilization of visualize, represent and solve problem technique as teaching strategy to improve the learner's problem solving skill in mathematics 2*

Keywords: Visualize, Represent, Problem technique, Problem solving

1. INTRODUCTION

Mathematics is seen as essential since it is used extensively in all aspects of human life including school topics such as Introductory Technology, Biology, Chemistry, and Physics as well as Agricultural Science. Mathematics is used to analyze and communicate data and ideas in order to solve a variety of practical tasks and real-world challenges. Mathematics is the application of matter because of that the man teaches to be systematic. Mathematics brings order to our lives by the power of reasoning, abstract, critical thinking or problem-Solving abilities. Mathematics also helps us to be good in communication that can contribute to the mathematical procedure. Mathematics is a subject that relates to numbers, measurements, quantities and shapes. Teaching mathematics cannot be conducted effectively without understanding knowledge, pedagogy and skills to be used in teaching and learning sessions (Oslund, 2016).

In elementary grade they need to enhance or teach the solving problem to improve the solving skill of the learners by visualizing or presenting the different instructional materials. The learners can build problem solving skills that trains the brain to seek information or solutions in a systematic way. Mathematics in Elementary grade can provide a way of building discipline and logical reasoning for the learners. We all know that Mathematics was the most disliked subject of the learners. Some learners don't like mathematics because they don't like it and they are not excited about solving problems so they become bored. Furthermore, Mathematics for them is very difficult because it can consume their time and effort in solving the mathematics equation or problem that needs to be computed in step by step solving formula.

Solving problems involves discovering and analyzing problems that the mental process of the learners can develop. Solving problems has a step by step guide that can be used by the student to formulate or solve the problem. In elementary school they need different instructional materials that will help them to easily get the attention of the learners, so that they will be active in listening and participating in learning activities.

Instructional materials are very effective especially in the subject of mathematics before we are not encountered the covid 19 virus in our country. Even we are in new normal that the education system are in online, instructional materials also need to improve by using different application that the teacher have a knowledge to use the platform and the teacher can easily distribute the activity by sending to learners, and the learners are easily access it.

Visualization facilitates comprehension, memory and recall, and problem solving. It is a critical component of problem representation, yet many students do not use this important process in learning. (Cynthia Warger, 2018). The visualization process requires students to picture familiar situations or settings. In Mathematics we also used visualization to remember the given in problem solving.

As most commonly interpreted in education, mathematical representations are visible or tangible productions such as diagrams, number lines, graphs, arrangements of concrete objects or manipulatives, physical models, mathematical expressions, formulas and equations, or depictions on the screen of a computer or calculator that encode, stand for, or embody mathematical ideas or relationships. Such a production is sometimes called an inscription when the intent is to focus on a particular instance without referring, even tacitly, to any interpretation. To call something a representation thus includes reference to some meaning or signification it is taken to have. Such representations are called external – i.e., they are external to the individual who produced them, and accessible to others for observation, discussion, interpretation, and/or manipulation. (2014)

Visual Literacy is the ability to critically analyze the form and content of visual materials. The ability to understand how powerful images are created, and the ways in which form and content are used to evoke a specific response from the viewer are key skills in visual literacy. (2014)

Several studies conducted whether visual representation was a much efficient way of learning. Some studies claimed that it is much faster to process (visuals) unlike "text only" materials. Learning is a work, it is committed to the time and ability of an individual. It helps a person know oneself, and it helps a person know what they are passionate about. The aim of this study is to know a much better, much more efficient and more convenient strategy of learning and teaching. to assess,to be knowledgeable about the things that can affect and can improve the learning system. This also specify, a better way to understand mathematics and enhance the students' problem solving skills. Although this is a subject that young individuals avoid, this paper aims to find a material that is suitable for young learners which one of the overlooked ways is visual representation. This aims to get to know an answer and to seek new knowledge. This will show an effective way of learning. This study will show the young learners, the mentors and possibly the parents a broadened you and an efficient and more convenient strategy of learning.

In response to the Educational challenges that are encountered, Teachers can use a variety of teaching strategies and instructional materials for improvement of skills of students. That is why, the researcher decided to conduct this Visualize, Represent and Solve problem as a Teaching Strategy to improve the learner's Problem Solving Skills in Mathematics 2.

Action Research Questions

The main objective of the study is to determine the effects of Visualize, Represent and Solve Problem technique as Teaching Strategy to Improve the learner's Problem Solving Skills in Mathematics 2.

Specifically, the study sought answer to the following questions;

1. What is the level of learners mathematical problem-solving skills in terms of :

    1.1 numeral recognition
    1.2 mathematical operation symbols
    1.3 solving a problem
    1.4 interpretation

2. How effective is the Visualize, Represent and Solve Problem technique in improving the problem-solving skills of Grade 2 learners as revealed by their pretest and posttest mean scores

3. Is there a significant difference between the pretest and posttest mean scores?

4. What lesson exemplar in problem-solving in Mathematics 2 may be developed based on the findings of the study?

METHODS

This study examines the effectiveness of visualize, represent and solve problem technique as teaching strategy to improve the learner's problem solving skill in Mathematics II in pretest-posttest true-control group design. The study determines how this innovation helps the students to visualize, represent and solve problem techniques as teaching strategies to improve the learner's problem solving skill in Mathematics II. More specifically, this study investigated what is significantly different between the pretest and posttest on the implementation of the visualize, represent and solve problem technique as teaching strategy to improve the learner's problem solving skill in Mathematics II. This research is conducted on thirty (30) Grade 2 in La Concepcion College in the City of San Jose del Monte City, Bulacan during the school year 2021-2022.

Results and Discussions

To ensure transparency and accuracy, the data obtained in this analysis was thoroughly analyzed and interpreted.

Table 1: Level of students' academic achievement in the pretest and posttest on visualize, represent and solve problem technique as teaching strategy to improve the learner's problem solving skill in mathematics 2

	Pretest Score	Post test Score
Mean	46	71

Based on table 1 were the learners' achievement based on the pretest and posttest results as implemented the visualize, represent and solve problem technique as teaching strategy to improve the learner's problem solving skill in mathematics 2. Looking at the data provided on the table, it indicates that before the utilization of innovation learners' achievement in pretest were 46, then in posttest were 71. Thus, there is significant difference between the result of pre test and post test as seen on the table, it can be culled that implementation of the
visualize, represent and solve problem technique as teaching strategy to improve the learner's problem solving skill in mathematics 2 had a positive effect on the learners' achievement, as evidenced by the significantly greater mean in posttest than in the pretest.

Table 2: Test of significant difference between the pretest and posttest on the implementation of the visualize, represent and solve problem technique as teaching strategy to improve the learner's problem solving skill in mathematics 2

N	T-test Value	T-test Critical value	Probability Level	Standard Deviation		Statistical Significance
				PRE TEST	POST TEST	
30	7.43	2.05	P< 0.0001	1.89	2.89	True

In the course of investigation in Table 2, the study hypothesized that there is significant difference that exists between the pretest and posttest results as implemented the visualize, represent and solve problem technique as teaching strategy to improve the learner's problem solving skill in mathematics 2, the data collected were subjected to analysis of t-test to determine the extent difference between the means of two data on the variables under study.
Since the computed t-test of 7.43 is greater than the t-test critical value of 2.05 at the 0.0001 level of probability with the number of respondents of 30, the null hypothesis is rejected, and the alternative hypothesis is accepted. Specifically, the researcher concludes that pretest and posttest are significantly different as the learners are exposed to innovation in teaching Mathematics 2.

Conclusions

The research results of and discussion on the effectiveness of visualize, represent and solve problem technique as teaching strategy to improve the learner's problem solving skill in mathematics 2 draw several conclusions.

1. As shown by the significantly higher mean in the posttest than in the pretest, the innovation visualize, represent and solve problem technique had a positive impact on the learners' achievement.

2. The learners exposed to visualize, represent and solve problem techniques in teaching Mathematics 2 are significantly different in pretest and posttest results.

3. Application of visualize, represent and solve problem technique learners are able to assimilate knowledge and apply real life situations more quickly and efficiently.

Recommendation

Based on the findings of the study and the conclusion drawn, the following are recommended:

1. The utilization of visualize, represent and solve problem techniques is a more engaging and enjoyable method of learning fractions.

2. Furthermore, using visualize, represent and solve problem techniques removed the ambiguity surrounding the concepts and vocabulary related with mathematics and added excitement and enjoyment to mathematics learning.

3. For more comprehensive findings, further studies on the same area of concentration may be conducted for improving education where the students will be benefited.

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