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| Title | Developing Problem-Posing Abilities Among Preservice Mathematics Teachers |
| Year | 2004 |
| Program | Doctor of Philosophy in Science Education (Mathematics) |

## ABSTRACT


This study was conducted to develop and enhance prospective mathematics teachers' skills in formulating problems. This was done by providing them direct instruction on problem posing with utilizes constructivist-inspired teaching strategies, such as reflective writing, small-group discussions, peer critiquing, and self-assessment. The study looked into the changes in the subjects' skills in problem-solving, problem posing, and conceptual understanding after their exposure to the formal instruction on problem posing. It also investigated the relationships among students' ability in solving problems, formulating problems, and understanding some mathematical concepts.

The study involved 17 third-year pre-service education students who have mathematics as their area of concentration and who were enrolled in the course, "Strategies in Teaching Mathematics," during the second semester of AY 2001-2002 in the University of San Jose-Recoletos, Cebu City.

Since the study involved only one group, high and low-achieving students in the group were identified based on their scores in the problem-solving test administered before the intervention. Data from the two sets of students were analyzed qualitatively to establish a detailed comparison of the perceivable changes in their problem-posing performance, problem-solving skills, and conceptions of some mathematical concepts.

To monitor the relative changes in the subjects' skills in problem posing and problem-solving and their understanding of some mathematical concepts, pencil and paper tests were constructed, validated and tried out.

Multiple and comprehensive methods were used in analyzing the students' problem-solving, problem-posing and conceptual understanding scores along with their journal/diary entries, oral interviews of those students who comprised the high and low groups, and observation notes made by the researcher during class session observation focusing on representatives from the high and low groups.

The data showed that after being exposed to the instruction on problem posing, the subjects were able to formulate and solve problems better. Their skills improved significantly. Not only did they generate better-constructed problems; they also solved more problems correctly after the intervention.

Moreover, results of the modified multiple-choice test on conceptual understanding revealed some predominant misconceptions held by the subjects about common and decimal fractions, measurement, and linear equations in one unknown. These misconceptions were changed to correct conceptions and the subjects' performance in the aforementioned test was better after they underwent the intervention.

Quantitative results likewise revealed positive linear relationships among problem-posing, problem-solving and conceptual understanding.

The study provided evidence that the use of constructivist-inspired teaching strategies promotes the development and enhancement of preservice mathematics teachers' skills in problem-solving and problem posing. These strategies also enhanced the subjects' comprehension of some mathematical concepts. The study identified misconceptions on some concepts in mathematics and ways by which students modify given problems. It also evolved some instructional materials (session guides) that include problem-posing activities that can be used by teachers in integrating problem posing in their mathematics classes or which can serve as guides in developing other problem-posing activities.