

The Effect of George Play's Mathematics Teaching Method on Problem Solving Skill and Mathematics Achievement of 5th Grade Girls Students

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Introduction

Mathematics teaching has important role in people mental and social improvement. In current digital world, teaching math is increasingly necessary, but many problems may occur in students' functioning in math. The present study aimed to investigate the effects of George Polya's mathematics method on problem solving skill and math achievements of fifth grade female students in Dezful.

Method

This research was a quasi-experimental research with the design of non-equivalent groups. Three female primary schools from three different social-economical regions of Dezful, "uptown, city center, downtown", were selected by cluster random sampling method. In each school, two 5th grade classes were selected. Then, one class was assigned randomly to experimental group and the other one as the control group. The number of the students in each group was 65 persons. Research instrument was a descriptive researcher-made test that implemented in two steps (pre-test and post-test). This descriptive 20 items test included 5 main questions. Each question included 4 minor questions that assessed components such as comprehension, strategy selection, calculation and assessment, in the way of George

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Poliya`s problem solving. The validity of the test was confirmed by some experts in education. For investigating the reliability, Pearson correlation coefficient was 0.81. Univariate and multivariate analysis of variance was used to analysis data.

Findings

The findings showed that the mean scores of experimental group had a significant increase in post-test, in comparison to pre-test; that means teaching problem solving skills has a significant positive impact on the students' achievement. The highest effect was on comprehension ($\eta^2 = 0.57$), strategy selection ($\eta^2 = 0.56$) and review ($\eta^2 = 0.57$), and the lowest effect was on calculation ($\eta^2 = 0.42$).

Conclusion

Based on these finding, we can say that problem solving is a learnable skill, and must be taught to reach academic progress, especially in mathematics. By teaching this skill, the important part of academic disappointment of students in math can be diminished.

Keywords: Problem Solving Skill, Mathematical Achievement, Understanding, Strategy Selection, Review