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**Original Article** 

# Investigating the Effectiveness of the Math Teaching Method Based on Fullan's Approach to the Creativity and Academic Progress of Elementary School Students

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## Introduction

Modern educational evidence and surveys indicate that achieving deep learning and improving the educational system toward lofty goals requires diligence in adopting new teaching methods across various subjects. One of the key subjects is mathematics, which unfortunately often presents major difficulties for students due to its abstract nature and limited connection to real-life situations .Despite extensive reforms in Iran's curriculum, Iranian students continue to perform poorly in mathematics compared to students in most other studied countries. This highlights the necessity of continuously reviewing and implementing new teaching methods in mathematics. One prominent figure in this field is Fullan (2013). He describes the revision of teaching methods as a process involving four levels, including six global competencies, four elements of learning design, necessary conditions for learning, and ultimately, collaborative research. According to Fullan (2013), revising teaching methods should lead to increased student creativity and academic progress. A review of existing studies reveals that, despite emphasis on curriculum reform and teaching methods in elementary school mathematics, these methods have not been developed based on Fullan's fourlayer model. Therefore, this research aims to answer the question: Is a mathematics teaching method based on Fullan's approach effective in enhancing the creativity and academic progress of elementary school students?

### Method

The research method was semi-experimental with a pre-test-post-test design with a control group. The statistical population was male students of elementary school in Isfahan city in 2022. From the six districts of Isfahan

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city, one district and from that district an elementary school for boys were randomly selected and from that school, two fourth grade classes, each with 31 students, were randomly considered as experimental and control groups. The math scores of the students of the previous semester of two classes were recorded and in the next step they were asked to complete the creativity questionnaire (TTCT). In the following, the experimental group was taught this subject in one academic semester according to the math teaching method based on Fulen's approach, while the control group received conventional education. Finally, after the end of the academic semester, the post-exam was conducted. Data analysis was done using SPSS software and the method of covariance analysis.

#### **Results**

The results showed that by controlling the pre-test scores of both groups, the math teaching method based on Fulen's approach to creativity and learning progress is significant and this teaching method increases the creativity and learning progress of students in math lessons. The results of the eta coefficient show that 51.9% of the difference in creativity and 47.2% of the difference in academic progress between the two control and experimental groups was caused by the method of teaching mathematics based on the Fullen approach (p<0.001).

#### Discussion

Therefore, the method of teaching mathematics based on Fulen's approach can be used as an efficient method in elementary school mathematics education.

Keywords: revision pattern, mathematics, Fullen, creativity, academic progress.

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