

Embedding Virtual Manipulatives into Middle School Mathematics Curriculum

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ABSTRACT The use of virtual manipulatives in mathematics education has increased in the last decade. Many researchers attempted to investigate the effects of using virtual manipulatives on mathematics education. The purpose of this study is to investigate the effects of extensive and intensive use of virtual manipulatives on the mathematics achievement and the attitudes of 8th grade students. For this purpose, the researchers used a dynamic software called *Matletik* written in *Mathematica* language and specially prepared for every grade of K-12 mathematics curriculum of Turkish National Education Ministry. The study was conducted using six classes of 8th grade students, selected from three different schools as a sample. Two classes of each school were randomly assigned as the treatment and the control groups. A pre and posttest experimental design was used to measure the efficiency of the method. In the treatment groups the software was used for 14 weeks, while the traditional instruction was given to the control groups. The results showed that mathematical achievement and the attitude toward mathematics could be improved upon through the use of virtual manipulatives.