The Effectiveness of Object Operation Teaching on Geometric Cognition of Cones, Cylinders, Prisms and Pyramids for ...

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ABSTRACT

The purpose of this research is to investigate the effectiveness of object operation teaching on geometric cognition of cones, cylinders, prisms and pyramids for junior high school students with learning disabilities. The experimental teaching and cognitive assessment establish the survey data of three (2 girls and a boy) eighth-grade students with learning disabilities in Miaoli County, where cognitive assessment comprises four types of geometric problems. By the machinery of visual analysis consisting of multiple baseline across-subjects designs, multiple probe designs and withdraw designs, the numerical data collected from cognitive assessment are initially analyzed. Furthermore, Tryon ’ s simplified time-series analysis and Pearson ’ s correlation coefficient are applied to indicate the statistical significance of a trend in the data. The main results of this study are summarized as follows: There is a statistically significant improvement in each specific type of geometric cognition for all participants as soon as object operation teaching has been introduced as an experimental treatment. Moreover, the cognitive effectiveness on overall but not specific geometry is still kept even though such a treatment has been withdrawn. That is, object operation teaching is helpful to improve geometric cognition but not to retain cognitive effectiveness.

Keywords : object operation、learning disability、geometric cognition

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