Abstract

Introduction. The main objective of this study is (a) to investigate whether cognitive styles and working memory capacity could predict mathematical performance and which variable is relatively most important in predicting mathematical performance and b) to explore whether cognitive styles and working memory capacity could predict mathematical performance when the impacts of students' prior math knowledge and the amount of math homework completed are controlled. Method. The sample of 183 K9 school girls (15-16 years old) were tested on (1) the Witkin's cognitive style (Group Embedded Figure Test) (2) Digit Span Backwards Test (3) Homework questionnaire (4) Mathematics exam. Data of this research was analyzed by standard multiple regressions from SPSS (Statistical Package for the Social Sciences) software. Results. Results obtained of standard regression indicated that both predictors were correlated with mathematical performance and consistently predicted mathematical performance. Also, standardized coefficients indicated that cognitive style ($\beta = .58$) was stronger predictor of mathematical performance than working memory capacity ($\beta = .43$). After controlling for students' prior math knowledge and the amount of math homework completed, finding of standard multiple regressions showed that cognitive style and working memory were still significant predictors of mathematical performance but the effects of these variables on mathematical performance decreased to .21 and .10, respectively. Discussion and Conclusion. According to results obtained, doing math homework and having high prior math knowledge may diminish the negative effects of being field dependent and having low working memory capacity on students' mathematical performance.

Keywords