An Investigation of Multiplication Fact Automaticity and Grades in Intermediate Algebra

Michele Poast, Dixie State University
Linda Reichwein Zientek and Susan Troncoso Skidmore, Sam Houston State University

The intent of this study was to illuminate if intermediate algebra students with high multiplication fact automaticity were more successful in their developmental mathematics course than those with low multiplication fact automaticity. Even though scientific calculators were permitted throughout the course and on all tests, average unit test scores and end-of-course grades were statistically significantly higher for students who scored at or above the sample’s median score on a multiplication fact automaticity test than students below the median. Findings suggest student success rates could increase in intermediate algebra by requiring multiplication fact automaticity as a prerequisite. Placement scores, attendance; time lapse between institutional enrollment and first mathematics course, and withdrawal decisions were not related to multiplication fact automaticity status.

multiplication fact automaticity, cognitive load theory, developmental mathematics, intermediate algebra

Michele E. Poast is an assistant professor of mathematics at Dixie State University. She recently earned her doctorate in developmental education administration from Sam Houston State University. Her research primarily addresses developmental mathematics teaching and learning, as well as student experiences.

Linda Reichwein Zientek is a professor at Sam Houston State University in the Department of Mathematics and Statistics. Her research interests include the preparation of mathematics teachers, developmental mathematics, and quantitative research methods.

Susan Troncoso Skidmore is an associate professor of developmental education administration in the Department of Educational Leadership at Sam Houston State University. Her research focuses on statistical assumptions violations; effect sizes; cultures of assessment; and the recruitment, development, and retention of underrepresented groups in secondary and postsecondary institutions.