

PREDICTORS OF SUCCESS FOR COMMUNITY COLLEGE DEVELOPMENTAL
MATHEMATICS STUDENTS IN ONLINE, HYBRID, AND TRADITIONAL COURSES

A Dissertation
by
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ABSTRACT

PREDICTORS OF SUCCESS FOR COMMUNITY COLLEGE DEVELOPMENTAL MATHEMATICS STUDENTS IN ONLINE, HYBRID, AND TRADITIONAL COURSES

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The recent growth of the internet has had a large impact on education and caused a growing demand for online courses. There has also been a demand for hybrid courses, which offer a compromise between the flexibility of online courses and the personal interaction of seated courses. Online and hybrid courses provide new educational opportunities for students who are unable to attend traditional classes because of conflicts due to work and family responsibilities. This is particularly true of community college students, who are often nontraditional adult learners. A significant number of these students face the additional obstacle of arriving unprepared for college level classes. In the United States, over half of the students in community colleges take one or more developmental courses to prepare themselves for credit-bearing classes in their program. The largest segment of developmental education is developmental mathematics. Developmental students start out behind their peers; the flexibility of online or hybrid classes can provide a way to help them catch up. Unfortunately, there is very little research on the relationship between the unique characteristics of

community college developmental math students and their ability to succeed in online and hybrid courses.

The problem addressed by this study is the need to identify practical predictors of success for community college developmental mathematics students in online, hybrid and seated course delivery formats. This study examined two possible predictors of success, mathematics self-efficacy and technology self-efficacy, in the three delivery formats and how they related to performance on a final assessment.

The study used a quantitative research design employing binomial logistic regression to determine if the independent variables (math self-efficacy and technology self-efficacy) were significant in predicting the outcome category (score on the final assessment dichotomized about the mean). Next linear regression analysis was used to build a predictor equation for a particular score on the outcome variable. A previously developed survey and an adapted version of another survey were combined to measure the independent variables; demographic factors were also measured for descriptive purposes.

Binomial logistic regression analysis showed that math self-efficacy was a valid predictor of success for the developmental math students in this study but technology self-efficacy was not. Regression analysis produced a valid equation to predict standard score from average math self-efficacy score. When separated into groups according to course format, math self-efficacy was only a valid predictor for students in hybrid courses. The implications of these results are discussed and recommendations are made for further research.