Using Hybrid Instructional Support in Precalculus Concepts to Advance Undergraduate Students’ Success in Calculus

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Summary

The purpose of this project is to investigate the predictive effect of undergraduate students’ competency (or lack thereof) in Precalculus on their success in learning Calculus. The study involves 2 types of interventions: online learning and assessment modules and in-class tutoring sessions with a teaching assistant; both interventions will target Precalculus skills and concepts. Six instruments will be employed: online weekly precalculus quizzes, tutoring attendance and observation logs, Calculus tests, pre- and post Precalculus Skills Check quizzes, pre- and post attitude questionnaires, and informal interviews. To analyze quantitative data 3 techniques will be employed: ANOVA, t-tests, and reliability analysis. Qualitative data will be analyzed by screening for emerging patterns in students’ responses. Results of the project will help develop a best practice model for teaching calculus, which will contribute to students’ success in calculus courses at Georgia State University and beyond. A website will be designed to provide regular updates on the progress of the project and to share findings of the study. The research findings will be published in refereed journals and reported on conferences.