Abstract No. 09 ***Mathematics Education***

EFFECTS OF MATHEMATICS RECITATION SESSIONS ON COURSE SUCCESS AND ITS EQUITABLE IMPACT ON COLLEGE CALCULUS

C. Corchado

Department of Mathematics, California State University, Fresno, USA
catiec721@gmail.com

To combat a prevalent low success rate as college STEM majors take courses in the Calculus sequence, recitation support sessions focusing on group work and discussion were introduced at a public university. This research studies the effects of this implementation in Precalculus, Calculus I, and Calculus II courses by investigating failure rates and course success. Discussing the qualitative student-reported perceptions of recitation sessions and quantitative ordinal linear regression analysis of course outcomes helps bridge the gap between how research views these sessions versus the experiences of the impacted students. The probability of earning an F (versus a D or above) in Precalculus without recitation is 47.37%, while it is 12.28% with recitation. Calculus I students had a 17.36% probability of failing the course without recitation, and 9.91% with. Calculus II students had a 15.25% chance of failing the course without recitation and a 13.04% chance with. Students overall had lower rates of earning lower course grades. Of the students surveyed, 86% agreed that they interact with their peers during recitations. This allows greater opportunity for collaboration and a leveling of understanding throughout the lecture sections. This is reflected in the 73% of students who agreed that recitations help them understand mathematics concepts better. In recitation sessions, small learning communities of problem solvers are formed, and students can enter a safe space to practice mathematics content. Diving into the setbacks and successes of recitations offers an example of how to catalyze change in the classroom. Since the odds and probabilities of earning lower scores significantly decrease as recitations are introduced, this data indicates that students are more likely to not only pass their course but also receive higher grades. Although this study focuses on undergraduate students, the ideas for the sessions and strategies can be utilized in almost any academic environment. Showcasing researched recitation sessions and their effects could offer insight into other supplemental courses or recitation-like classroom setups.

Keywords: Calculus, Higher Education, Mixed Method, Peer Collaboration, Recitations

Financial assistance from What Why How Calculus Grant (360559/9532.8) is acknowledged.