Investigating Academic Outcomes of Mandatory Precalculus Workshops at a Predominant Hispanic-Serving Institution

Kwabena Duodu[1], Rebekah Reysen[2], Maria C. Mariani[1], Joe Guthrie[1] and Alex Sadovski[3]

Abstract

This study investigates the relationship between Precalculus (Math 1508) workshop attendance and course performance among students at a predominantly Hispanic-serving institution. We examine how various factors—such as major, gender, and ethnicity—affect both attendance and academic success in precalculus. Utilizing a mixed-methods approach, we analyze attendance data alongside course grades to identify patterns and correlations. Our findings indicate a positive correlation between workshop attendance and course performance, with biology majors demonstrating the highest attendance and grades, followed closely by computer science and mechanical engineering students. Gender analysis reveals that female students achieved a greater proportion of A grades than male students, although males attended more workshops overall. Furthermore, Hispanic students attended more workshops than their non-Hispanic peers and outperformed them academically, suggesting that targeted interventions may benefit historically marginalized groups in STEM fields.

We also address methodological concerns regarding how performance is measured across different majors, emphasizing the need for caution when interpreting results based on total enrollment numbers. Future directions include replicating this workshop model at other institutions and exploring the motivations behind the observed academic success among different demographic groups. The findings support the effectiveness of collaborative learning initiatives in enhancing student engagement and academic outcomes, advocating for continued investment in such educational strategies to promote diversity and success in STEM education.

[1]University of Texas at El Paso, Department of Mathematical Sciences

[2]Counselor Education Department, Sacred Heart University

[3]Texas A&M Corpus Christi, Department of Mathematics and Statistics