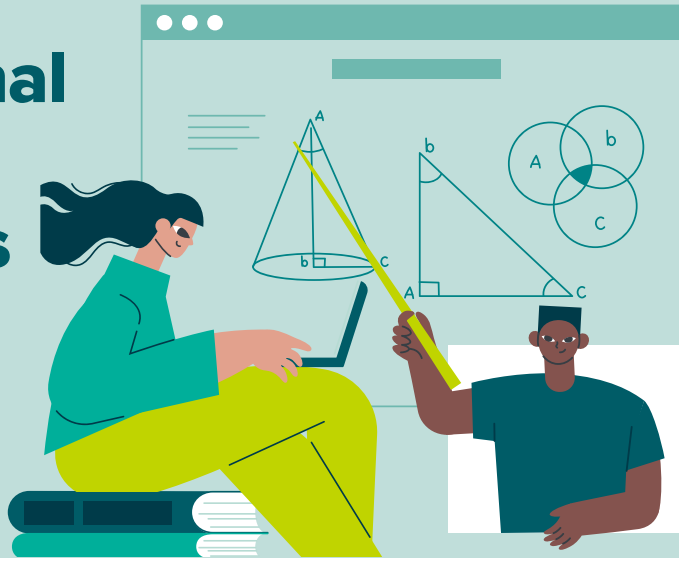
education northwest

POSTSECONDARY SUCCESS

Counting on Math Faculty: Examining the Role of Faculty and Instructional Practices in Students' Gateway Math Success

Partners Education Equity Solutions, College Futures Foundation

Team Mina Dadgar (EES), Sam Riggs, Michelle Hodara, Dina Buck (EES)



Student success in introductory community college math courses, also called gateway math, influences transfer and degree completion. However, these courses are often barriers for Black and Latino students, among others. Education Equity Solutions (EES) partnered with Education Northwest to study the factors that contribute to student success in gateway math—including the role of individual faculty members and what instructional practices are most effective. Prior work has largely focused on the connection between success in gateway math and student demographic characteristics or academic preparation. While these factors can help colleges identify which students may benefit from additional support, they do not enhance understanding of what colleges and faculty can do to support success in gateway math. This work, funded by the College Futures Foundation, examined how a broad array of factors, including individual math faculty and their instructional practices, influence student success in gateway math courses.

Examining student success in gateway math

EES led this project and worked closely with a math dean or faculty member and the institutional research office at each of the four participating California community colleges. EES also assembled an advisory group of math higher education experts to guide design of the study, develop a rubric of evidence-based practices in four domains, and develop survey instruments. Education Northwest researchers collaborated with EES to develop and implement the study.

Education Northwest researchers also partnered with EES to:

Work with the four colleges to identify gateway math courses on their campuses and establish data-sharing agreements

Collect data from two sources—by using classifications from the National Center for Education Statistics and Urban Influence Codes, with modifications based on the Foundation's internal categorizations

Analyze student and instructor-level administrative data from the four colleges to examine the role of math faculty in determining student success in gateway math

Combine administrative data with survey and syllabi data to explore whether and how specific instructional practices promote success in gateway math courses for students overall and particularly for Black and Latino students

Meet with four colleges to interpret and frame findings

Publish findings in a brief and **technical report**

Present findings in **national webinar series** for math faculty

Instructional practices to support students

This study's key finding is that faculty members are the most important predictors of student success in gateway math. The data demonstrate this to be true even after accounting for differences in outcomes that could be due to student demographics, academic preparation, the high school that a student attended, or attributes of the math course itself.

We also found that specific instructional practices are linked with success for Black and Latino students. These practices include implementing growth-oriented and transparent assessment and grading practices, offering accommodations equitably, encouraging students to seek help and communicating support, fostering belonging, and taking responsibility for addressing racial equity.

Years of reform in community college math have led to promising gains in increasing and diversifying the gateway math population. Yet, we continue to see poor success rates and disparities in outcomes by race in these courses. This study suggests that faculty development should be prioritized to support student gateway math success. **Inside Higher Education** and **Diverse: Issues in Higher Education** reported on the study findings to bring attention to the key role faculty play in students' college math success.

Future research should seek to test more rigorously which of these practices lead to student success, under what conditions, and for which students. Such findings could be used to develop professional development opportunities for educators that support student success and close equity gaps in gateway math coursework.