

CARNEGIE MATH PATHWAYS: USING NETWORKED IMPROVEMENT TO REFORM COLLEGE MATHEMATICS

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Over 14 million students in the United States are enrolled in 2-year community colleges, seeking an educational pathway to a productive career and better life. Community college students are more likely to be low-income, the first in their family to attend college, from an underrepresented minority, and underprepared for college (Bailey, et al, 2005). Between 50 and 70% of incoming community college students are placed, typically based on standardized test measures, in courses below college level mathematics, regardless of their level of mathematics completion in high school. These students are required to take at least one remedial math course before they can enroll in college-credit mathematics (Bailey, et al, 2010; Complete College America [CCA], 2012). However, 80% of the students who place into remediation do not complete any college-level math course within three years (Bailey et al., 2010). The pattern is similar in comprehensive 4-year institutions in the United States. Of the approximately 20% of incoming students placed into remedial math, 63% do not complete a college-level math course within 2 years (CCA, 2012). Taken together, these figures indicate that roughly 1.7 million first-time undergraduate students are placed into remedial math each year in the United States (CCA, 2012), and the significant majority of them do not achieve college level math credit within three years. They are therefore unable to graduate, transfer to university, or achieve their career goals.

To address this national challenge, significant reform efforts are underway that seek to dramatically improve student mathematics outcomes by changing the system of mathematics education in community colleges, including course sequences, course content, transfer policies, advising, student services, and, of course, curriculum and instruction (Bailey, et al, 2015; Bailey, et al, 2016). This lecture will share one such effort - the Carnegie Math Pathways initiative - which employs a networked improvement approach to developing, testing, implementing, and scaling improvements to the system. This approach utilizes tools and methods from improvement science together with structures and processes from networked learning and research-practice partnerships to advance local knowledge and innovation and scale that knowledge through processes of adaptive integration into other settings (Bryk, et al, 2015). Findings about processes and methods as well as the developed solutions and outcomes will be shared (e.g., Edwards, et al, 2015; Huang, 2018).

References

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