Community College Paths Linked to Remedial Math

Bahr (2013) studied the topic of behavioral patterns and student outcomes as they relate to progress in remedial math among community college students. His analysis primarily uses data for the 105 semester-based community colleges in California (the fall 2002 first-time for-credit course cohort that included 190,637 students). He makes the following points, among others, in his analysis:

1. Specifically, I seek to understand how the course-taking behavior of these students in the period after their exit from the remedial sequence (i.e., the after-math period) differs from their prior course-taking behavior and from that of students who achieve college-level math competency…” [p. 172]

2. “In sum, I consider three possible explanations for the low rate of certificate completion among students who exit the remedial math sequence without achieving college-level math competency, including difficulty navigating to the alternative vocational credential as measured by vocational course enrollment rate, declining participation in the community college as measured by average course credit load, and declining academic performance as measured by course success rate. I test each of these possibilities by examining the relationship between students’ behavior after exiting the remedial math sequence (i.e., their after-math behavior), their corresponding behavior prior to exiting the remedial math sequence, and their highest level of math achievement…” [p. 175]

3. “To varying degrees, the evidence [from this analysis] supports all three of these explanations…” [p. 195]

4. “…despite the fact that the majority of remedial math students who do not complete the remedial math sequence continue in the community college after exiting the sequence, few of these students complete a certificate. In fact, more than two-thirds of remedial math students in California (three-fifths of students nationally) who exit the remedial math sequence without achieving college-level math competency continue in the community college (for an average of about three semesters), but only 7% of these students complete a certificate, and only 18% complete a credential of any kind or transfer to a four-year institution. This constitutes an important missed opportunity for community colleges…” [p. 195]

5. “Remedial math students who do not achieve college-level math competency tend to have a significantly lower mean course credit load after exiting the remedial math sequence than they had prior to exiting the sequence, slowing their academic progress during the critical “make-or-break” after-math period. In addition, though unsuccessful remedial math students who had a typical (fairly low) concentration of vocational course-taking prior to exiting the remedial math sequence tend to increase this concentration modestly in the after-math period, they do not experience the wholesale shift toward vocational coursework in the after-math period that would be necessary for most students to complete a certificate in their limited remaining time in the community college…” [p. 196]

6. “This study also indicates that the combination of premature exit from the remedial math sequence and the low rate of certificate completion may not be entirely a product of the remedial sequence itself. Specifically, the lower average course credit load and lower course success rate observed in the after-math period among students who did not complete the sequence suggests the possibility that students’ premature exit from the sequence may be a consequence of students’ gradual departure or “slippage” from college, rather than a cause. In turn, this interpretation leads to a more tempered level of optimism about the potential impact of improving the remedial math sequence on community college students’ rate of credential attainment…” [p. 196]

Bahr’s analysis has relevance for researchers and policy makers because the relationship between remedial math and student outcomes has implications for what actions states and institutions should consider trying. Peter Riley Bahr (Center for the Study of Higher Education and Postsecondary Education, University of Michigan, School of Education) details his analysis and provides a literature review in an article (“The Aftermath of Remedial Math: Investigating the Low Rate of Certificate Completion among Remedial Math Students”) in the peer-reviewed Research in Higher Education (2013, vol. 54, pp.171-200). The article should be accessible to readers with a background in higher education and data analysis (given that Bahr applies some complex statistical methods here).

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