ies NATIONAL CENTER FOR EDUCATION EVALUATION AND REGIONAL ASSISTANCE
Institute of Education Sciences
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STUDY SNAPSHOT
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Regional Educational Laboratory
At Florida State University

Math course sequences in grades 6–11 and math achievement in Mississippi

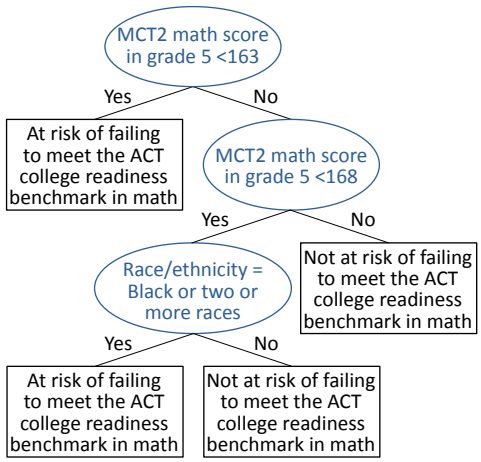
In spring 2015 Mississippi began testing the college readiness of all grade 11 public high school students and found that approximately 18 percent were ready for college math, a percentage that had changed little by 2017/18. This study examined the sequences of math courses that Mississippi students took in grades 6–11; the math achievement and demographic characteristics of students who took similar math sequences; and how math sequences, prior math achievement, and student demographic characteristics relate to college readiness in math.

The study used longitudinal student-level transcript data, student achievement data, and student demographic data for 2011/12–2016/17 from the Mississippi Department of Education. Methods used include sequence and cluster analysis, descriptive statistics, and classification and regression tree analysis.

Key findings

- **Math sequences became more diverse in later grades, consistent with the increase in course options.** The 10 most common of the 3,404 sequences in grades 6–11 were followed by 47 percent of students.
- **The 3,404 unique math sequences that students took in grades 6–11 can be grouped into six clusters based on similarities in the courses taken and when they were taken.** Cluster A (Pre-Algebra in grade 8 to a combination of courses that includes Algebra I in grade 9) and cluster B (Transition To Algebra in grade 8 without prior Pre-Algebra) accounted for the largest shares of students but included a diverse set of sequences. Cluster D (Algebra I in grade 8) had the most rigorous sequence of courses.
- **Average math achievement in grade 11 was highest for students who followed the Algebra I to Geometry to Algebra II to Algebra III sequence beginning in grade 8; the sequence was followed by disproportionately more female students than male students and more White students than Black students.** The cluster with the lowest achievement was followed by disproportionately more Black students than White students and more students eligible for the national school lunch program than students who were not eligible.
- **Grade 5 math achievement and race/ethnicity—but not math sequence—were the most efficient variables with the highest classification accuracy for identifying a student as at risk of failing to meet the ACT college readiness benchmark in math.** This suggests that math sequence has no clear relationship with the likelihood of college-ready performance in math, after grade 5 math achievement and race/ethnicity are controlled for.

Classification and regression tree model decision rules for identifying students as at risk of failing to meet the ACT college readiness benchmark in math, based on math achievement in grade 5 and race/ethnicity, 2011/12–2016/17



MCT2 is Mississippi Curriculum Test, Second Edition.
Source: Authors' analysis based on data from the Mississippi Department of Education.

For the full report with technical details, see https://go.usa.gov/xyfzC.