Middle-school math classes are key to closing racial academic achievement gap

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More challenging middle-school math classes and increased access to advanced courses in predominantly black urban high schools may be the key to closing the racial academic achievement gap, according to a University of Illinois study.

"Although we've poured a lot of money and resources into trying to reduce inequalities between black and white students, we've mainly focused on test scores and that hasn't been successful," said Christy Lleras, a U of I assistant professor of human and community development.

Why target middle-school math? Lleras said there's a feedback loop between math placement, student effort, and academic achievement.

"Over time, these three factors affect each other. Students who take more advanced math courses in middle school lengthen their lead over time, and the positive school-related behaviors developed in those advanced courses lead to even higher achievement.

"But the opposite is also true. Lower math placement in middle school significantly lowers a student's chances of getting into higher-level math courses in high school, which translates into fewer skills and behaviors and greater achievement gaps in high school," she said.

These gaps are largest in high-minority urban schools. "For kids in predominantly black urban schools, the biggest predictor of the math

course they took in high school was the math course they took in eighth grade. For all other students, the biggest predictor was their prior achievement, not the course they took," she noted.

Lleras used data from the U.S. Department of Education's National Educational Longitudinal Study to follow the effects of math placement, school-related behaviors, and achievement in more than 6,500 public school students as they progressed from the eighth to the tenth grade.

Transcript data indicated the highest-level math course the student had taken at these levels. Math achievement was measured via tests given at the end of these school years. And engagement and effort were measured by teachers' evaluations of the student's attentiveness, disruptiveness, and homework habits.

Lleras believes that increased access to more advanced and rigorous math classes in high-minority urban schools can have a significant direct effect on all students' achievement and particularly that of African American students.

"Being in a classroom where the expectations are higher, the course work is more rigorous, and the climate is more academic has huge effects on student effort," she said.

Lleras worries that lower-performing schools will concentrate on teaching to the tests mandated by No Child Left Behind.

"Instead of focusing on test scores, we may be better able to affect educational trajectories by improving teacher quality and reducing class sizes, which helps to create school climates that foster both academic learning and student effort," she said.

Because racial achievement gaps were already significant by eighth

grade, Lleras believes educators must begin to address gaps in achievement and opportunities to learn much earlier.

She argues that universal preschool and expansion of Head Start would go a long way toward reducing early racial inequalities because early-childhood programs tend to affect student-related attitudes and engagement more than achievement test scores.

"Children can't learn new material until they have the toolkit of skills and school-related behaviors to do so," she said.

"Then we have to make a sustained effort to keep these children learning over time. We need a persistent and additional effort to support urban minority students through tutoring programs and improved access to challenging material and high-quality teachers," she said.

"This study was a snapshot of three years in these kids' lives, and in just three years, they were falling farther and farther behind," she added.

More information: The study was published in a recent issue of the *American Educational Research Journal*.

Source: University of Illinois at Urbana-Champaign (news : web)