EDUCATION

How Does Race Affect a Student's Math Education?

A new paper examines the ways "whiteness" reproduces racial advantages and disadvantages.

MELINDA D. ANDERSON **APRIL 25, 2017**

ROGELIO V. SOLIS / AP

Kassie Benjamin-Ficken, a teacher in Minneapolis, discovered her love of math in elementary school. One of her earliest memories is begging her mother to come to school so her teachers could share how she excelled in math class. While earning average scores in reading, she was consistently above average for math—which instilled her with a sense of accomplishment. That continued into middle school, where she recalls asking her math teachers to move her into a higher grade for more advanced content. But she remained in the same middle-school class.

Then in high school, her excitement for math slowly turned to disappointment. Benjamin-Ficken, a citizen of the Mille Lacs Band of Ojibwe (a tribal nation in Minnesota), was one of two students of color in her 11th-grade pre-calculus class.

When her study partner was absent for a series of days, Benjamin-Ficken began to struggle with the material and barely passed the class with a D-minus. Her senior year in AP Calculus repeated the pattern—lacking support and feeling ignored in the class, she passed with a D.

“I didn’t have a math teacher that I could go and get help from, [and] I didn't feel comfortable at all approaching my own math teacher,” she said. Recognizing the undercurrent—how her feelings of isolation were related to her race—she admits “those two [classes] really made me question: Do I consider myself good at math anymore?”

Lately, much of the discussion of race in math education has centered on the persistent underperformance of certain student groups, particularly black, Latino, and indigenous youth, and their disparate access to honors, gifted, and advanced mathematics courses. Yet a new paper disrupts those narratives by examining an unaddressed element of the equation—namely, the ways in which “whiteness” in math education reproduces racial advantages for white students and disadvantages historically marginalized students of color.

Dan Battey, an associate math professor at the Rutgers University Graduate School of Education, said he set out to synthesize for math educators the research literature from sociology, history, and other disciplines on whiteness—defined in the paper as “the ideology that maintains white supremacy, valuing one racial group over others.” He also sought to expose how whiteness operates in classrooms and schools, leaving black, Latino, and indigenous students disenfranchised mathematically.

According to Battey, there are ways in which math teachers, math educators, and math researchers “are perpetuating racism in schools”—which is shaping the expectations, interactions, and kinds of mathematics that students experience. And the lack of attention to whiteness as the fundamental cause leaves it invisible and neutral. “Naming white institutional spaces, as well as identifying the mechanisms that oppress and privilege students, can give those who work in the field of mathematics education specific ideas of how to better combat racist structures,” writes Battey and his co-author Luis Leyva, of Vanderbilt University’s Peabody College of Education.

One example of whiteness explored in the paper is how the relentless drumbeat from researchers about racial differences in math achievement is linked to racially differential treatment in math classrooms. The concept of racial hierarchy of mathematical ability—a term coined by Danny Martin, education professor at the University of Illinois at Chicago—basically says constantly reading and hearing about underperforming black, Latino, and indigenous students begins to embed itself into how math teachers view these students, attributing achievement differences to their innate ability to succeed in math.

As the theory goes, with white and Asian students consistently at the top of math-achievement rankings—and black and other nonwhite students continuously trailing behind—teachers start to expect worse performance from certain students, start to teach lower content, and start to use lower-level math instructional practices. By contrast, white and Asian students are given the benefit of the doubt and automatically afforded the opportunity to do more sophisticated and substantive mathematics. The consequences are classrooms where Asian students not excelling in math are seen as an oddity, and black students excelling in math are seen as an outlier.

Battey pointed to whiteness to help explain the roots of the widely reported racial inequality in gifted-education programs. He cited data from an undisclosed metropolitan area where 18 percent of white students were identified for gifted programs, compared to 1 percent of black students, signaling that "we're not looking for gifted [students] within predominantly black settings, and we're constantly looking for giftedness in white settings … whiteness is impacting how and where we see mathematics ability." The opposite also holds true, he added, with more targeted interventions for white students who are struggling in math and fewer for black students "possibly because we expect [them to struggle.]"

Another instance of whiteness is seen in how math "achievement gaps" are commonly defined. Even though research shows Asian students on average outperform white students in math, this underachievement receives scant attention—and when discussed, is seldom characterized in a negative light. "A lot of times in whiteness literature, we talk about the refusal to pathologize whiteness, and this is a case," Battey explained. "For African Americans, for Native Americans, for Latinos in mathematics, we attribute something internally to the child or internally to the

culture that's making them achieve lower. We don't do that for white students … producing some deficit idea about who whites are."

In practice, whiteness can create a self-fulfilling prophecy, Battey said, where some children receive rote, basic mathematics—counting apples and brownies, and completing worksheets—while other children are given rich problem-solving tasks. "You could just reinforce that certain students are bad at math by giving them poorer and poorer quality of instruction," he said, "and they'll start to look poorer and poorer at math [by default]."

For non-Asian students of color in math classrooms, one response to whiteness is to dis-identify with mathematics—telling themselves "I don't care about math. Math isn't important to me." Similarly, students can begin to internalize the racial stereotypes surrounding math performance. A 2014 study published in the *Journal of Research on Adolescence* found that children as early as the fifth grade were acutely aware of the label that "Asians are good at math." The report cautioned about "the pernicious nature" of this belief, and its effect on how students of all races view themselves as individual learners.

Benjamin-Ficken, whose high-school experience challenged her confidence as a math student, is now a math specialist at Anishinabe Academy, a Minneapolis public school focused on using Native language and culture to support academics for urban indigenous students. A self-described math nerd, her teaching philosophy is grounded in breaking down the negative thoughts and ideas her students hold about mathematics. "If they want to choose this as a career, it's possible, [and] even if they don't … they can still think mathematically. A huge goal of mine is to build up that identity."

But she's also constrained by the institutional aspects of whiteness in her classroom that exist outside her teaching methods—not simply the how of teaching, but what the state standards value. She and her students share a culture that isn't reflected in the way she's expected to teach math. Required to rely on what she calls a "western white lens," other sources of math knowledge that would be relevant to her students remain untapped. "What are the theorems that we have known here in America before colonization? What indigenous mathematicians have we had? We're not a written society, so we don't have these books that say, 'Here's this Ojibwe person's

knowledge.' It's not the fact that I'm teaching this theorem … it's what else can we highlight in our own community, in our own history here in Minnesota?"

Echoing this observation, Erika Bullock, an assistant professor of math education at University of Wisconsin-Madison, welcomed the whiteness paper's framing of racism in institutional terms. She stressed the importance of this emphasis in moving the discussion away from looking at race and racism in math education solely at the interpersonal level. "We usually don't talk about math education from an institutional perspective. We tend to very much focus at the classroom-teacher-student level," she said. "We don't zoom out very much to talk about it institutionally."

While acknowledging its contributions, Bullock still questioned a core principle: In scrutinizing whiteness, had the paper skirted the idea of anti-blackness? By definition, she said, whiteness and anti-blackness might appear to mean the same thing. But the terms can mask distinctions, she noted. To illustrate, Bullock applied a critical race-theory lens to the paper's findings—for example, how the conclusions on racial stereotypes might be viewed differently if the measure wasn't the dominant positioning of white students (whiteness) but how the test is racially biased (anti-blackness). "I think it centers white [people] in a way, even as you're thinking about interrogating whiteness," she said. "A framework for whiteness necessitates a discussion of anti-blackness. To operate in anti-blackness [is] a very different thing."

Still, both Bullock and Battey agreed that school systems ought to support math educators in deconstructing and discarding the white frame of mathematics education. "Hopefully this starts to attune people to what to look for in classrooms [and how to] provide more opportunities for students to engage more openly in mathematics," Battey said.

We want to hear what you think about this article. Submit a letter to the editor or write to letters@theatlantic.com.