Mathematics Learning in a Racial Context: Unpacking Students’ Reasoning about “Asians are Good at Math”

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This paper draws on interview data (n = 35) from a larger study that explored how high school students make sense of racial discourse in mathematics learning contexts. All students interviewed reported awareness of the “Asians are good at math” narrative. Frequently, students linked it to narratives that position other racial groups—particularly Black, Latina/o, and Polynesian students—as mathematically inferior. Further, students situated this racial-mathematical discourse within broader racial discourses about innate intelligence and cultural traits (e.g., parenting). These findings suggest that racial-mathematical discourse may limit certain students’ access to productive identities as capable doers of mathematics, thereby impeding learning and participation. The paper concludes with a discussion of how the findings might inform the design of pedagogical environments that disrupt racial-mathematical discourse and promote equitable learning opportunities for all students.

Introduction

Recent research in the learning sciences has called into question perceptions of mathematics as a “neutral” or “culture-free” discipline. Working from a sociocultural perspective on learning (Lave & Wenger, 1991), researchers have illustrated the centrality of students’ engagement and domain identities to the learning process (Cobb & Hodge, 2002; Nasir, Hand, & Taylor, 2008). And yet, while the emphasis on culture has led to a more comprehensive conceptualization of learning, less is known about how issues of race mediate the mathematics learning process. This paper builds on sociocultural analyses of learning by reporting findings from a study that explored how high school students in the United States reason about race in the context of their mathematics learning experiences.

Historically, research on race in mathematics education has been limited to quantitative studies of racial achievement gaps on standardized tests and disparities in course-taking patterns (Oakes, 2005; Reyes & Stanic, 1988). However, because gap-oriented research conceptualizes race as purely a demographic variable (i.e., as a set of racial categories), some have questioned the incremental utility of this approach (Gutierrez, 2008; Martin, 2009). To better understand the impact of race (and racism) on mathematics learning at the level of everyday experience, the present study operationalized race as a discourse, or the expressions, symbols, and practices that facilitate both individual reasoning and inter-personal dialogue about race (Goldberg, 1993). Racial narratives (i.e., stereotypes) represent one type of expression central to racial discourse. In the United States there exists a racial narrative specific to mathematics education that explicitly connects race with mathematical ability: the widespread belief that “Asians are good at math.” On its surface, the “Asians are good at math” narrative seems a benign compliment directed at only a single racial group. But is this how students make sense of it? What implications might it hold for students of other racial backgrounds, as well as for the learning process in general?

In exploring these questions, this paper draws on interview data (n = 35) from a larger study conducted at Eastwood High School (a pseudonym), a racially diverse, urban public school located in Northern California. The findings presented here highlight two themes that reveal subtleties in students’ reasoning about the “Asians are good at math” narrative: a) students implicitly linked “Asians are good at math” to narratives that position other racial groups—particularly Blacks, Latina/os, and Polynesians—as mathematically incapable; and b) students related the “Asians are good at math” narrative to broader discourses outside mathematics, such as racial discourses about innate intelligence and cultural traits (e.g., parenting).

These findings are significant because they reveal an underlying complexity that demands a more nuanced conceptualization of the “Asians are good at math” narrative. Rather than understanding it to be a harmless compliment, educators and researchers should situate this narrative within a larger array of racial discourses that tends to position students from historically marginalized communities as less capable of succeeding in mathematics. Another way of framing the issue is that racial-mathematical discourse creates inequities by obstructing many students’ access to productive identities as doers of mathematics, which from a sociocultural standpoint limits students’ opportunities to learn. The paper concludes with a brief reflection on how educators might leverage these findings to design more equitable learning environments for all children.

Pivoting from Achievement Gaps to Racial Discourse
Studies of racial achievement gaps remain the predominant form of research on issues of race in mathematics education (Reyes & Stunic, 1988; Riegle-Crumb, 2006). Departing from this paradigm, recent research on African Americans in mathematics education has instead investigated the impact of race and racism on students’ everyday learning experiences vis-à-vis their identities as mathematics learners (Martin, 2006; Stinson, 2008). This body of literature has demonstrated that some learners perceive their mathematics identities as inextricably linked with their racial identities, and that mathematics learning and participation can be considered “racialized forms of experience” (Martin, 2006, p. 198).

While consistent with the basic theoretical commitments of this body of literature, the theoretical approach employed here differs in two ways. First, instead of exploring how issues of race affect students’ pathways through mathematics, the goal here was to unpack students’ reasoning about racial discourse in mathematics. Framing the study in this way led to a new analytical focus: racial narratives (e.g., “Asians are good at math”). A few exceptions notwithstanding (see Nasir, et al., under review; Shah, 2009), little is known about how students engage in and reason about racial-mathematical discourse. Second, whereas prior research has been confined to the traditional Black-White paradigm of race, this study sought to operationalize race in a more expansive way by including perspectives from students of other racial backgrounds. In his analysis of racial discourse, Goldberg (1993) argued that since its inception, the concept of “race” has been rooted in the notion of hierarchy. This means that race must be conceptualized in relational terms. For example, to understand how issues of race affect a Latina/o student in mathematics, one must consider how racial discourse positions Latina/os relative to students of other racial backgrounds. Based on this theoretical premise, recruiting a racially diverse interview sample was an intentional aspect of the study’s design.

**Methods**

Data collection took place during the 2010-2011 school year at Eastwood High School (a pseudonym), a large, comprehensive urban high school located in Northern California. The racial and ethnic demographics of the school at the time of the study were 48% Latina/o, 25% Black or African American, 14% White, 8% Asian (includes Filipina/o), 3% Polynesian, and 2% other. Although this paper analyzes interview data, the larger study also included participant-observation conducted in four mathematics classrooms. Of the 35 students from those classes that were interviewed, participants ranged from 14 to 17 years in age and self-identified as follows: 29% White, 23% Asian, 17% Latina/o, 14% Black, African, or African American, 14% Polynesian, and 3% mixed race.

Interviews relied on a semi-structured protocol and lasted approximately 30 minutes. The first half of the interview focused on students’ beliefs about mathematics and their self-perceptions as mathematics learners. The second half of the interview probed students’ reasoning about racial-mathematical discourse. To prompt this part of the conversation, students were asked: “Have you heard people say that some groups are better than others at math?” That interviewees tended to interpret this question in racial terms—typically making reference to the “Asians are good at math” narrative—requires critical reflection from a methodological standpoint.

In an interview such as this, the racial background of the researcher matters at least as much as the racial backgrounds of the students. The author, who conducted all of the interviews, is a brown-skinned male with parents of South Asian origin. Thus, it is possible that rather than student utterances reflecting omnipresent societal discourses, that the author’s positionality cued students to think about Asians and frame them in a positive light. However, this seems unlikely. Students elaborated on the “Asians are good at math” narrative in extensive detail, often citing multiple examples of moments they saw it arise in conversation with peers and in the media. This would suggest that interviewees were tapping into their knowledge and experiences, instead of merely attempting to appease or “perform” for the researcher.

All interviews were transcribed, and common themes were identified across the data corpus and subsequently refined using an iterative process (Glaser & Strauss, 1967). It was not the purpose of this study to determine the extent to which students either endorsed or rejected particular racial narratives. Instead, the aim was to better understand how they made sense of the aspects of racial-mathematical discourse most salient to them. For that reason, questions were designed to gauge their perceptions of what people say about race, rather than their own personal beliefs.

**Findings**

All 35 students interviewed reported awareness of the “Asians are good at math” narrative. By itself, this finding illustrates the pervasiveness of this particular narrative. Students spoke at length about other racial narratives as well, but “Asians are good at math” was usually the first mentioned. Subtleties in students’ reasoning about the narrative contradict its surface connotation as nothing more than a benign compliment directed only at Asians. The rest of the paper unpacks two themes that emerged from the data: a) students linked “Asians are good at math” to narratives about the mathematical incapacity of other racial groups; and b) students related racial-mathematical discourse to broader racial discourses beyond mathematics, such as racialized perceptions of innate intelligence.
Implicit Linkages to Narratives about Other Racial Groups

If the “Asians are good at math” narrative pertained only to Asians, students would have discussed it in terms of its implications for only that racial group. The data, however, do not support this perspective. Students consistently linked the “Asians are good at math” narrative to narratives about the mathematical incapacity of other racial groups (e.g., “Latina/os are bad at math”). Consider the following comment from Troi, a 12th grader in Precalculus who identified as Polynesian (Samoan):

So there's a lot of jokes that say "Where the Asians at?" cause, you know, Asians are supposed to be the good ones at math….or like, you know, the Indians like Sanjay [a classmate of his in Precalculus] are supposed to be good at math, and uh Tariq [another classmate] is supposed to be good at math, but I don't think they'll notice me like, "Oh Troi…big Troi, Samoan Troi is good at math.” (Laughs).

In noting that, “Asians are supposed to be the good ones at math,” Troi mentions several of his Asian classmates as examples of students that are expected to succeed in mathematics. But he does not stop there. Instead, he connects this narrative to societal beliefs about his own ethnic group (i.e., “Samoans are not good at math).

Talking about disparate racial narratives in conjunction with each other was typical of students’ reasoning, but students often connected them in subtle ways. A common rhetorical strategy was for students to challenge the validity of the “Asians are good at math” narrative by citing examples of mathematically successful non-Asians as exceptions to the narrative. For example, Monet, a 12th grader in Algebra 2 who identified as Black, describes her stance on the “Asians are good at math” narrative by highlighting herself as a counterexample:

I don’t… I don’t agree (with the stereotype) because I feel like it doesn't really make a difference what race you are. Like I’m Black but I’m good at math. So are you not going to ask me for help because I’m not Asian? So I don’t really agree with the stereotype.

Embedded in Monet’s reasoning is the idea that only Asians can be good at math (i.e., that other racial groups cannot be good at math). Thus, a narrative about Asians, which superficially seems to have little to do with other racial groups, actually positions other students as less capable of doing mathematics. Students appear to be articulating what Martin (2009) has termed a “racial hierarchy of mathematical ability,” where some racial groups are expected to excel at the expense of others that languish at the bottom. Again, students do not necessarily endorse this hierarchy; what their comments show is that they believe that others talk as if such a hierarchy exists.

Relationships to Broader Racial Discourses Beyond Mathematics

Besides linking narratives about Asians to narratives about other racial groups, data suggest that students also contextualized their racial-mathematical reasoning within racialized discourses outside mathematics. For instance, in addition to asserting that people tend to believe that Asians good at math, nearly half of the students interviewed also indicated that Asians are thought to excel in school overall. Some students explained these beliefs in terms of perceived differences in intellectual capacity. Silvia, an 11th grader in Precalculus who identified as Mexican, argued that if she had been born Asian instead of Mexican, “students would have thought I was smarter because, like, they say: Asians are smart.” Silvia’s comment reflects what Mills (1997) has termed a “racial-rational” discourse, which frames some racial groups as inherently more intelligent or “rational” than other racial groups. Given the long history in the United States of using intelligence to index both race and mathematical ability, students engaging in racial-rational discourse in a mathematics context is unsurprising (Shah, 2010).

Apart from engaging in racial-rational discourse, most prevalent in students’ reasoning were explanations rooted in perceptions of the cultural practices of certain racial groups. Twenty-four of thirty-five students mentioned that Asians were thought to have “stricter” parents, which resulted in an enhanced ability to focus and be disciplined about school compared with other groups. Consider the following comment from James, a 12th grader in Precalculus who identified as African American:

I think, like, not their religion, but just they way they're brought up, like, cause, um, I used to have Asian friends--well I still do--but like, just the way it's all put together it's like, it's like real serious, it's very serious in the household, like, like…one of the girls here--she had a 4.5 (grade point average) or she had a 4.3, and she was kind of like down about it. And it's like, woah, that GPA is amazing to me, and I'm like dang, and she was kind of down about it. She about to go far, for sure…
In touting their “very serious households,” James’s comment echoes the oft-voiced notion of Asians as a “model minority” in the United States that succeeds through hard work in school and strong parental support (Wu, 2003). Of course, as with all racial discourses, the existence of a “model minority” necessarily implies the existence of a “non-model minority.” Indeed, students mentioned a variety of narratives along these lines, such as “Polynesian parents don’t care” and “Blacks are lazy in school.”

To summarize, as illustrated in Figure 1 students contextualized racial-mathematical discourse within discourses about academics in general, intellectual capacity, and cultural traits. It should be noted that Figure 1 uses “Asians” only as an example; the data suggest that based on the narratives mentioned by students, similar models of nested racial discourses are applicable to other racial and ethnic groups (e.g., “Latina/os are bad at math,” “Whites are bad at school,” etc.).

Conclusion and Implications
Sociocultural theory has done much to broaden our understanding of the behaviors and needs of students from diverse cultural backgrounds, specifically with respect to the dynamics of students’ engagement and domain identities (Nasir, Hand, & Taylor, 2008). And yet, the emphasis on cultural practices has not yet shed light on how issues of race mediate the learning process. This paper represents one of the first empirical efforts to address this void in the learning sciences.

In lieu of focusing on racial achievement gaps, the present study used interview techniques to explore how high school students in the United States engage with racial discourse in mathematics. Much of students’ racial-mathematical reasoning revolved around the widely known “Asians are good at math” narrative. On its surface, this narrative seems little more than a benign compliment directed at Asians. However, the findings of this study suggest a more complex picture. Rather than existing in isolation, the “Asians are good at math” narrative is but one element of a more complex racial-mathematical discourse that holds implications for students of all racial backgrounds. What makes this discourse problematic is that it positions non-Asian students in the United States—usually Black, Latina/o, and Polynesian students—in pejorative ways, thereby limiting these students’ access to productive identities as capable mathematics learners (Nasir & Shah, 2011). This is significant because from the sociocultural perspective, students’ identities are deeply consequential for learning. Further research is needed to detail the particular ways in which racial discourses affect processes of identity formation in everyday classroom activity.

Altogether, the findings from this study would appear to paint a bleak picture for the possibility of designing interventions that might challenge the status quo. Certainly, educators have limited control over certain aspects of societal beliefs that may transcend the local classroom context. But still, there is reason for optimism. Research has shown that certain pedagogical structures, when grounded in malleable theories of intelligence (Dweck, 2000), can in fact disrupt hierarchical discourses by equalizing status among students and challenging views of mathematical ability as genetic (see Boaler & Staples, 2008). Given that students in this study tended to conflate both mathematical ability and race with perceptions of innate intellectual capacity, such approaches may warrant renewed consideration.

To be sure, designing learning environments equitable for all students is a challenging proposition. By analyzing the content and structure of racial-mathematical discourse, this paper offers a starting point for identifying potential points of leverage.
References


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