

# Counter Narratives: Examining the Mathematics and Racial Identities of Black Boys who are Successful with School Mathematics

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*This study investigated the mathematics and racial identities of Black 5<sup>th</sup> through 7<sup>th</sup> grade boys who attend school in a southern rural school division. The data pool consisted of focus group interviews, mathematics autobiographies, review of academic records, and observations. Four factors positively contributed to mathematics identity: (a) the development of computational fluency by third grade, (b) extrinsic recognitions, (c) relational connections, and (d) engagement with the unique qualities of mathematics. For these boys, racial identity in school is connected to perceptions of others' school engagement; this sense of "otherness" lead to a redefinition of their own mathematics and racial identities.*

Successful Black boys in school mathematics receives little attention in the research literature, while there is a vast amount of literature that describes the academic achievement and schooling experiences of Black boys in terms of failure (Thompson & Lewis, 2005). The underachievement and low-level course enrollment patterns of Black boys is well documented in the literature. However, there are Black boys who stand in opposition to the literature that documents their failure and underachievement. Black boys' mathematics identities are shaped by culture, community, and experiences with mathematics (Berry, 2003 & 2008). The development of a positive mathematics identity is essential towards helping boys sustain an interest in mathematics and develop persistence with mathematics. Examining the perceptions of successful Black boys is critical to identifying the strengths, skills, and significant factors that promote their success. This paper discusses the academic constructs of mathematics and racial identities among thirty-two Black 5<sup>th</sup> through 7<sup>th</sup> grade boys who are considered successful in school mathematics as measured by high pass rates on the state standardized mathematics assessments and above average grades in mathematics.

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## Review of Literature

### *African American Boys: Stories of Success*

Much of the literature on closing the achievement gap in mathematics positions Black students as being deficit, underachievers, possessing inferior abilities when compared to White and Asian peers (Ladson-Billing & Tate 1995; Moses-Snipes & Snipes, 2005; Oakes, 1995; Reyes & Stanic, 1988; Tate, 1997). Implicit in the calls for closing the achievement gap are the suggestions that if Black students are to become more proficient and high achievers they must be more like White and Asian students in terms of their dispositions and values (Martin 2009). Martin (2007) argues that existing literature has juxtaposed “African American status, underachievement, and marginal participation” to create what Giroux, Lankshear, McLaren, and Peters (1996) call a master narrative. Stanley (2007) defined a master narrative as a script that specifies and controls how some social processes are carried out. Master narratives embody and dictate expectations about how things work and how stories are framed. Often, master narratives present contrasts between groups of people by advantaging dominant groups and disadvantaging members of marginal groups such as women and people of color. There is a master narrative operating in the mathematics literature that focuses on the achievement gap by positioning African American learners as being deficit and positioning White and Asian students as the standard of high status for achievement in mathematics. Master narratives have driven the discussions in mathematics literature focusing on the achievement gap by using standardized achievement test scores to make comparisons of groups of students to invoke race as a categorical variable that assumes casual relationship (Martin, 2007). The constant depictions of African Americans as deficient mathematics learners has crafted images that failure is normative with respect to African American mathematics learners (Johnson, 1984; Ladson-Billing & Tate 1995; Martin, 2000, 2005, 2009b; Moses-Snipes & Snipes, 2005).

Counter narratives are perspectives that run opposite or counter to the presumed order and control (Stanley, 2007). These narratives arise out of the experiences of individuals or groups that do not fit and are often critical of the master narratives. Counter narratives present alternatives to the dominant discourse and act to deconstruct the master narratives (Stanley 2007). They, for example, challenge the dominant discourse in the mathematics literature that hold African American students’ mathematics achievement as deficient and White and Asian students’ mathematics achievement as the standard for success. Counter narratives provide alternative lenses of analyses and interpretations of the experiences of African American students as mathematics learners. Few stories have been told of African American students that have achieved success in school mathematics (Berry, 2003).

Several researchers provide counter narratives that challenge the master narratives concerning the achievement and the mathematics education experiences of African American boys (e.g. Berry, 2003, 2008; Hrabowski, Maton, & Greif, 1998; Lattimore, 2005; Martin, 2006; McGlamery & Mitchell, 2000; Stinson, 2006; Thompson & Lewis, 2005). Berry (2008) focused on the experiences of eight African American boys in middle school and examined how these boys gain access to upper level mathematics in an environment that is often in opposition to them being successful. Berry (2008) reported five themes in his work: (a) positive early educational experiences with schooling and mathematics, (b) recognition of mathematics abilities by being placed in a high tracked mathematics group, (c) families serving as guardians of opportunities, standards setters, and as mathematics resource, (d) positive mathematics and academic identities,

and (e) alternative identities related to co-curricular, sports, and religious activities. Thompson and Lewis (2005) investigated how one African American male, concerned that he would not have a sufficient background in mathematics for his career interest, successfully lobbied his principal to have a Pre-Calculus/Calculus course offered at his school. They reported that their participant wanted to be a role model for younger kids, combat negative images of African American males and had goals of attending college. Additionally, they reported that he had a positive self-image towards mathematics.

McGlamery and Mitchell (2000) studied the recruiting and retention of African American young men into predominately White upper level mathematics classes and reported that the young men who were successful had teachers with whom they developed a rapport that allowed them to be active participants in the classroom. This rapport allowed for positive student-teacher interactions, allowed the students to ask higher-level questions, and supported positive interaction among students. McGlamery and Mitchell (2000) also reported that cohort grouping allowed the African American boys to develop a positive academic and social group in which to belong.

Hrabowski et al. (1998) investigated the mathematical experiences of African American men who were high-achieving students enrolled in programs of study in the fields of mathematics and/or science at a major university and reported that these men benefited from exposure to advanced mathematics courses, surrounded themselves with academically motivated peers, were positively influenced by their mathematics teachers, and participated in special school-based organizations in mathematics and science. Stinson (2006) examined three discourse clusters (discourse of deficiency, discourse of rejection, and discourse of achievement) to understand the mathematics experiences of African American male adolescents. Stinson suggest that the discourse of achievement is necessary when developing education theories and classroom practices that assist in eradicating the mathematics achievement gap. These studies provide much needed insights into the lives of African American boys, specifically how their experiences shape them and how they enacted agency to achieve success. However, more work is needed in relation to how these students develop such successful identities.

### *Identities*

Academic identity is not formed in isolation from other identities (Murrell, 2007). Thus, mathematics identity and racial identity are not formed in isolation of each other (Martin, 2007). Martin argues, for African American learners of mathematics, their mathematics identities and racial identities are co-constructed due to the racism and the raced experience they encounter throughout their mathematics education. Nasir (2002) has looked at how African American males learn mathematics through out of school experiences and how those experiences help to facilitate the development of identities, goals, and learning. Berry and McClain (2009) found three overlapping components that contributed to the development of a positive mathematics identity: (a) motivation to succeed in mathematics; (b) strong beliefs in their mathematical ability; and (c) caring mathematics teachers. Additionally, Berry and McClain (2009) found that parents of Black boys engaged in racial socialization practices designed to help their sons' manage in a world where racial prejudice and discrimination are likely to be aimed at them. The boys received explicit messages about racism and messages of expectations concerning high levels of mathematics and academic achievement. Martin's (2007) work provides a critical framework for examining the complex nature of how race and racism influence the mathematics

educational experiences of African American children and adults. Martin has sought to understand how African American students construct identities in the contexts of being African Americans and as doers of mathematics.

Nasir, McLaughlin, and Jones' (2009) reviewed the research on the relations between racial identities of Black students and school related outcomes to find that the literature indicated three conflicting findings. First, findings indicated that when students hold strong identities as Blacks, their academic achievement suffers and/or academic identification decreases (Fordham, 1996; Noguera, 2003; Osborne, 1997). Second, other findings indicated the opposite of the first finding suggesting that racial identity is a protective factor for education for Blacks and serves as a buffer for racial discrimination (Chavous et al., 2003; Oyserman, Harrison, & Bybee, 2001; Sellers, Copeland-Linder, Martin, & Lewis, 2006; Wong, Eccles, Sameroff, 2003; Wright, 2009). The third finding suggested that there is no linear relationship between racial identity and academic outcomes for Black students and that it varies depending on the nature of Black identity (Carter 2005; Chavous et al., 2003, Harper & Tuckerman, 2006; Sellers, Chavous, & Cooke, 1998). Nasir, McLaughlin and Jones (2009) offered two explanations for these mixed findings: (1) researchers have used various definitions of racial identities; consequently, this lack of consensus may contribute to differential findings; (2) difference in racial identity is constructed in local contexts; thus being Black in a southern rural town may be different than being Black in a large urban city.

### Theoretical Framework

Martin (2009) contends that mathematics learning and participation should be conceptualized as "*racialized forms of experience*" that are structured by the relations of race that exist in the larger society (Martin, 2009; p. 299). Martin contends that conceptualizing mathematics as *racialized forms of experience* situates issues of identity and agency as central to understanding how students make sense of, and respond to, their mathematical experiences. Martin's (2009) framework that contrast approaches to race in mathematics education research, policy, and practice is the theoretical framework. The paper considers two conceptualizations of Martin's framework: conceptualization of race and conceptualization of learners. The conceptualization of race focuses on race as a sociopolitical construction that is historically contingent and considers race and racism. That is, understanding the mathematical stories of African American learners we must give considerations to the construction of race and racism and how it plays out in these learners' contexts. Conceptualization of learners considers the negotiated nature of identity with respect to mathematics by asking, "What does it mean to be Black in the context of mathematics learning?" We must consider that Black students in urban contexts have different experiences than Black students in rural contexts. We sought to understand how Black boys conceptualized race in the context of learning mathematics and how they negotiated their identities as learners of mathematics. This study defined mathematics identity as one's belief about (a) their ability to do mathematics, (b) the significance of mathematical knowledge, (c) the opportunities and barriers to enter mathematics fields, and (d) the motivation and persistence needed to obtain mathematics knowledge (Martin, 2007).

This study investigated the constructions of mathematics and racial identities among Black<sup>1</sup> boys who are considered successful in school mathematics as measured by high pass rates on the state standardized mathematics assessments and above average grades in mathematics. The boys attend public school in a school division where Black students are 12% of the student

population. The school division serves a primarily rural to suburban population. Consequently, it is plausible to consider that these boys' identities are constructed in a largely White rural to suburban community. In many cases, these boys are the only Black student in their mathematics class or one of very few. The purpose of this phenomenological study is to investigate mathematics identity development of Black boys and explore how racial identity interacts with mathematics identity. Three research questions guided this study:

1. How do Black 5<sup>th</sup> through 7<sup>th</sup> grade boys who are considered successful in school mathematics construct their mathematics identities?
2. How do Black 5<sup>th</sup> through 7<sup>th</sup> grade boys who are considered successful in school mathematics construct their racial identities within the context of learning mathematics in a rural school division?
3. What is the relationship between construction of mathematics identities and racial identities amongst Black 5<sup>th</sup> through 7<sup>th</sup> grade boys who are considered successful in school mathematics?

## **Methodology**

### *Participants*

The participant pool consisted of 32 rising fifth through seventh grade Black boys who participated in a two-week summer program focusing on algebraic reasoning and problem solving. Thirteen rising seventh graders, twelve rising sixth graders, and seven rising fifth graders attended the summer program in which they were the only attendees. The boys were selected for the program based on their potential for placement or their current placement in advanced mathematics courses. All of the boys earned or were close to an "advance pass" designation on the state standardized test.

### *Data Collection*

For this study, we employed focus group interviews, boys' mathematics autobiographies, review of documents (grades, test scores, and teachers comments), and observations. The purpose of the focus group interviews was to gain insights into the boys' experiences and perceptions. Twenty-three boys participated in one of three focus group interviews (six boys per focus group) that lasted about 45 minutes. A focus group protocol was used to maintain consistency across all groups. All focus group interviews were video-recorded and transcribed. The purpose of the mathematics autobiography was to engage the boys in thinking about their experiences with school mathematics, documented important mathematical milestones, and gain a sense of how the boys perceive themselves as learners of mathematics. The boys' student records (courses, grades, standardized test scores, teacher comments, and exceptionality status) were reviewed for placement in the summer program, to get a sense of the boys' mathematical history, and to verify previously collected data. Informal daily observations during the two-week summer program provided insights into the boys' interactions with their peers and with their teacher.

### Data Analysis

Analysis occurred after the two-week summer program because the authors were also the instructors of the summer program. The video-recording was transcribed and copies of the mathematics autobiographies were made so that memoing could occur within the transcription and the mathematics autobiographies. Memoing allowed the authors to do initial coding. The codes used during the memoing came from the literature. For each code, definitions were created so the codes could be consistently used throughout the analysis of data. Once initial coding was completed, the data was reread and re-coded to verify the initial coding, and to assure consistency. After this, the database was sorted by codes then reread and re-coded. At this point, we looked for themes within each section (code) to see if there were dimensions that required the data to be further discriminated. Through this process, themes emerged from the data. From this categorization and classification of the data, we described the findings.

### Findings

Three themes arose from the data and are presented according to the three research questions: (a) construction of their mathematics identities, (b) construction of their racial identities, and (c) the relationship between these two processes to redefine their own racial and mathematics identities. Four factors positively contributed to mathematics identities: (a) the development of computational fluency by third grade, (b) extrinsic recognition in the form of grades, standardized test scores, tracking, and gifted identification, (c) relational connections between teachers, families, and out-of school activities, and (d) engagement with the unique qualities of mathematics. For the boys in this study, racial identities in school are connected to perceptions of other students' school engagement. The interaction between the boys' racial and mathematics identities led to a sense of "otherness" and resulted in a redefinition of their own racial and mathematics identities.

#### *Four Factors Positively Contributed to Mathematics Identities*

*The development of computational fluency by third grade.* The boys articulated computational fluency as a characteristic of people who are good at math. During focus groups, several boys described this attribute similarly. For example Tinashe stated, "I think I'm good at math because there are some things that I can get down quickly." Fluency with mental mathematical strategies and computing large numbers was defined by boys as a significant characteristic for mathematics achievement. As the boys wrote their mathematics autobiographies, they described computational fluency as an attribute that contributed positively to their mathematics identities. Their speed and accuracy with mathematics operations initially drew boys to mathematics. For most boys, they recognized computational fluency as a positive factor contributing to their mathematics identities in third grade. Derrell and Jamal's voices represent this recognition: "I was first drawn to mathematics in 3<sup>rd</sup> grade. My whole grade was learning multiplication, decimals, and fraction...I picked up on it very quickly. I finished my work quicker and faster than everyone so I would have to read" (Derrell, Mathematics Autobiography). "I was drawn to math when I was in third grade. What drew me to math was realizing that I was really good at it. I saw that I could solve math problems faster than I could solve problems in any other subjects" (Jamal Mathematics Autobiography).

*Extrinsic recognition.* The boys utilized extrinsic recognition as a factor in contributing to their mathematical identities. Several outside authorities such as grades, standardized test scores, tracking, and gifted identification provided the boys with proof of their mathematical success. For example, Vince stated, "...because every time I answer a question or something, well not every time but most of the time, I get the question right. And most of the time at school or math tests I usually get A's and B's every time." Similarly, Calvon, stated, "Yeah because...in sixth grade we had a lot of tests, and I got A's and B's on them. And I was a really good student, and I had A's on my report card in math." School performance was a defining attribute of their mathematics identities. The boys shared the standard of A's and B's on tests and report cards to demonstrate success in mathematics. Other boys referenced their scores on the standardized state test, the Virginia Standards of Learning (SOLs). Jamal and Mateo's responses are representative of the boys' descriptions of the SOLs test as contributing to their positive mathematics identities: "I think I'm successful at mathematics cuz the last two years I advanced passed in my math SOLs and I can figure out problems" (Jamal, Focus Group) and "...in fourth grade I got pretty good on my SOLs" (Mateo, Focus Group).

The boys' awareness of tracking in advanced mathematics classes and gifted identification in mathematics also contributed to their mathematics identities. Zuberi and Eddison's quotes are representative of the boys' reflections about tracking and gifted identification, "I think I'm successful in mathematics because I've been in advanced math classes and I've done a lot of hard stuff...I was in it this year and I think last year and maybe third grade." (Zuberi, Focus Group) and "...because most of the time I'm good with numbers. And the past four years I think I've been in either advanced or advanced honors." (Eddison, Focus Group). The boys realized that being placed in advanced or gifted mathematics courses meant that others recognized them as successful in mathematics.

*Relational connections between teachers, families, and out-of school activities.* The boys' relationships with their teachers, families, and out-of school activities contributed to their mathematics identities. In their mathematics autobiographies, many boys described their parents as having a significant impact on seeing themselves as successful at mathematics. For example, Geff wrote in his mathematics autobiography, "My mom actually was the first person to tell me I was good at math. I felt good because my mom told me it can lead to a good education." Marcus described his parents' support and extension of mathematical learning: "My dad is a math teacher so I learned most of the stuff I know from him. It felt fun because I was learning things I never knew. My dad helped me realize I was good at math. My best math teacher was my mom because I would come home not knowing what to do with my homework and my mom helped me." These excerpts are representative of the significant role of families in positively impacting boys' mathematics identities.

Connections with mathematics outside of school often created contexts for boys to construct positive mathematics identities. For example, Derrell described an out-of school context in which his family enabled him to realize his positive mathematics identity: "I realized I was good at math when my mom, brother, sister, or grandparents were doing bills or taxes and needed to know simple multiplication like  $8 \times 8 = 64$  and I knew the answer in one second...Also, everyone asked me, 'How did you know this and that?' That made me feel very happy." The out-of school activity of doing bills and taxes provided an opportunity for Derrell to demonstrate his computational fluency. His family's praise initiated Derrell's development of his positive mathematics identity. Other boys described similar situations with family and friends in which they solved a problem and the other inquired about the abilities to solve the problem.

Relational connections with teachers contributed to the boys' mathematics identities as the boys described individual mathematics teachers who helped them connect with mathematics in positive ways. The following excerpt from Ishmael's mathematics autobiography is typical of boys' positive descriptions of teachers:

My mom and teachers helped me realize I was good at math. My best teacher was my fourth grade teacher, Mrs. Hebblethwaite. She was my best math teacher because she pushed me to the limit. She was a good math teacher. It was fun to be in her class because she always made math fun. She was different from my other teachers because she took time to explain and help me when I had hard work. (Mathematics Autobiography)

The boys described influential teachers, like Ishmael's, who "made math really exciting" (Calvon, Mathematics Autobiography), "challenged" boys (Jamal, Mathematics Autobiography), "could be fun and could get you to do your work" (Reymond, Mathematics Autobiography), and "actually helped" boys understand mathematics (Vince, Mathematics Autobiography).

*Engagement with the unique qualities of mathematics.* The boys differentiated between the unique qualities of mathematics and other disciplines by describing the challenge of mathematics and their pride at persevering to completion. Jamal's portrayal of mathematics is representative of the boys' comments:

What I like about math is it's kind of complicated, and I like, I want my work to be complicated so I can actually do better when I get to higher grades. And it feels like I finished something. It's like when it's hard, like when we were doing an engineering project, I feel like I finished something really good, like I did a really good job with it. (Mathematics Autobiography)

The boys' descriptions of mathematics included words like complicated, complex, challenging, and requiring concentration. Mathematics presented these boys with the opportunity to problem-solve, engage interactively, and utilize multiple strategies while also making connections to other disciplines.

### *Racial Identities In School Connected to Perceptions of Others' School Engagement*

The boys' construction of racial identities in school was influenced by their perceptions of other students' school engagement. Typically, the boys described differences in the ways teachers treated various groups of students, which resulted in different levels of school engagement. The boys perceived that teachers treated groups of students differently, based on race, gender, or ability. The following focus group conversation is representative of these comments:

Damitri: Some of the teachers. Like sometimes teachers give other kids more attention than other kids. Well it feels that way.

Keeshawn: Yeah

Damitri: Like different races of kids...yeah they favor kids...well in my math class, my math teacher favored a couple of kids over me and a couple of my friends... Well when I'd like raise my hand when she's working with some student and then she'd say, 'I'll come to you in a minute.' And so she'd be like, 'I'll come to you after this student.' And then she'd look at me and then walk to a different student and then go over and help them and then help me.



Keeshawn: Yeah, it's happened to me but not with race. It's not about like your skin color or anything. It's about like the people who usually get more questions right.

Damitri: The smarter students or the ones they think are smarter.

Black boys were in the minority in these boys' mathematics classes and schools. As a result, many boys felt isolated. One of the purposes of the summer program was to bring this group of Black boys together because many of them were the only Black boy in their mathematics class. In fact, the school division had only one Black boy enrolled in Algebra I in middle school. For some boys, the feeling of isolation created discomfort. Wynn and Kavion's quotes represent the perceptions shared by boys during focus groups: "At my school really it matters what classes I'm in...I was the only African American who was in there the whole year....It's better in the gifted classes because personally I think the teachers are nicer," (Wynn, Focus Group). "I kind of feel uncomfortable in my school cuz...they wear shirts and it has [confederate flags] on it. It just makes me feel very uncomfortable. So when I see a whole group of them in the bathroom, I just don't go. I just go back to my class," (Kavion, Focus Group). The boys' perception and feeling of disparity existed both physically and through interactions with others.

#### *A Sense of "Otherness" and Redefining Their Racial and Mathematics Identities*

As the boys connected racial identities with their perceptions of others' school engagement, they made distinctions between other Black males in mathematics at their school and themselves. This sense of "otherness" caused many of the boys to reflect on how they perceive other Black boys and how others perceive them. The following focus group conversation is representative of the boys' descriptions of other Black males in mathematics:

Jamal: I think some African Americans just give up on math because they say they can't do it and they don't even try to learn. So I think that's part of their parents talking to them.

Mateo: I see that at my school too.

Jamal: Yeah, some people are just trying to be cool.

*Echoes of yeah, yeah*

Jamal: And then some people will pretend that they're cool and not nerds and not answer questions.

Mateo: I see that at my school.

Eddison: Mostly they're failing...They gave up.

Jamal: Cuz like most of the black people in my grade they don't have black friends so they would rather be cool cuz they think if you're cool you might get more friends.

Mateo: If you be yourself, you'll get more friends.

Jamal: I'm sometimes called nerd in my grade.

The boys described other Black boys as preferring to "show off" (Wynn and Kavion, Focus Group) or "be cool" (Jamal, Focus Group).

The boys also clarified that Black males can be successful in mathematics. Some boys described the perception of Black males' lack of success in mathematics as a "negative stereotype" (Malcolm Focus Group). For example, Calvin described this when he said, "I think

like African Americans are good at math. It's just that like some people like putting them down and like not making them feel good" (Calvon, Focus Group).

Collectively, the boys described people who are successful in mathematics as those who follow directions, persevere, collaborate, want to learn, meet challenges, and are smart. The boys contrasted these attributes with their perceptions of others' school engagement. The interaction between the boys' racial and mathematics identities led to a sense of "otherness." Keeshawn described the impact of his perception of others on his own mathematics identity:

I know that African American males aren't usually, don't achieve too well in math and stuff. But I feel that just because like statistics show that African Americans don't do as well in math, don't achieve more, I still feel that we can do good. It's just statistics say most African American males, so that kind of makes me, that kind of gives me a boast. (Focus Group)

The boys used these perceptions to redefine their own racial and mathematics identities. Tinashe and Zaire's quotes are typical of the boys' connections between attributes of mathematics success and their experiences with racial identities in school: "I think [being Black] hasn't affected me because it doesn't really matter what color I am... I'm addicted to math," (Tinashe, Focus Group) and "[Being successful in mathematics] feels ok because some people think we're actually, we're smart," (Zaire, Focus Group). The boys recognized important attributes in themselves that enabled them to be successful in mathematics. They also explained that these attributes helped them overcome potential obstacles.

### **Discussion**

The boys in this study attended schools in a school division with a small percentage of Black students and most were the only Black boys in their advanced mathematics classes. Understanding this context provide a lens of these boys conceptualized race, thus they developed a sense of "otherness." Interestingly, this sense of "otherness" may be reinforced by the master narrative that plays out in their contexts. That is, these boys gained privileged access to advance mathematics, which is regarded as primarily the space for White students. The perceptions of "otherness" allow these boys to engage in school differently from their own and others perceptions of how Black boys engage in schools. The perceptions of "otherness" shifted during the summer program because the boys were surrounded by other Black boys who were identified as smart in mathematics. Many of the boys saw this as an opportunity to engage with other boys by collaborating and challenging one another. The summer program enabled the boys to connect with other successful Black males in mathematics and to form an academic community supportive of positive identity development. While the summer program had an academic mission, it was the social and personal interactions that appeared to have a strong impact on the boys. Many boys commented on how their engagement was different during the summer program than at their schools. The boys often position themselves in postures of confidence and challenge when solving mathematics problems. Teachers must understand the structure of the boys' experiences to appreciate that such postures are not deficit nor defiant; rather, they are transferences from other settings. A study of transferences across settings may be necessary to broaden understandings of Black boys' development of mathematics identities.

Teachers' knowledge and appreciation of the unique qualities of mathematics that attracted, motivated, and engaged these Black boys may provide them with a lens to identify mathematics problems that may positively impact the development of the boys' mathematics

identities. The complexity and challenge of mathematics was one significant quality of mathematics that should not be ignored. This type of engagement allows the boys to conceptualize themselves as learners who are “smart” with mathematics. Mathematics should not be simplified or dumbed-down but rather teachers should hold high expectations for their students to solve challenging and complex mathematics problems. Significant to this study, was the balance between high expectations of the mathematics teacher and the scaffolding and support of the mathematics teacher so that the students could experience success. This careful balance between creating a learning environment where challenging mathematics is accessible but without negating the challenge appears to be instrumental in promoting the boys’ positive mathematics identities.

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### Endnote

1. We use the term Black because it represent broadly the boys in this study. Four of the boys are bi-racial (all have African American and White parents) and three boys are African

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