

CASE STORIES OF MATHEMATICAL AND RACIAL IDENTITY AMONG BLACK GIRLS IN A SMALL URBAN SCHOOL DISTRICT

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This mixed methods, qualitative research focused on the experiences of African-American female adolescents in an urban school district. Data were collected to 1) identify and analyze affective, social and mathematical interactions related to identity, 2) identify attitudes and beliefs pertaining to maths identity, and 3) uncover stable dimensions of mathematical and racial identity. Results document the influence of affect on their maths learning, and the most important influences on their maths identity - classroom opportunities to work together on challenging maths tasks, classroom environments that value mistakes and correct answers, and respect and value as members of classroom maths learning communities.

Math identity, affect

BACKGROUND

Education research in the United States regularly reports “achievement gaps” that highlight unequal standardized math test scores between White and Black students. NAEP scores of White students are used to “normalize” American students’ mathematics achievement (Martin, 2009), and White students’ math scores have been consistently higher than those of Black (and other non-White students). The smallest score difference occurred in 1990 (NCES, 2001) and while Black students’ math scores have improved since then, the “gap” between White and Black eighth-graders’ maths scores has not changed (NCES, 2009).

Different researchers suggest a number of possible explanations for school maths underachievement and the under-representation of Blacks in maths-related careers. Seminal work by Moses & Cobb (2001) connects the history of racial politics and voting rights in Mississippi in the United States to the maths, curriculum, teaching practices, student achievement and equitable learning opportunities that Black and minority students receive in poor rural and urban schools. In the 1990s, critical race theory (CRT) gained prominence to theorize and understand embedded inequities in the structure of schools and schooling in the U.S., and to place distinct and unique perspectives on race taken by Blacks and other minority groups in American culture at the center of understanding differences in school experiences and academic performance and in the foreground as counterstories to the dominant narrative in academic literature and the wider culture (Ladson-Billings & Tate, 1995). Maths identity includes beliefs about one’s ability, and access and opportunity to maths in and out of school, and is related to one’s racial identity (Martin, 2009). In order to increase the numbers of African-Americans who pursue maths and maths-related

careers in the U.S., especially girls, it is important to understand their own narrative perceptions of identity, ability, and opportunity as maths learners.

THE STUDY

Primary goals were to 1) illuminate affective, social, and mathematical events that may pertain to racial and maths identity, 2) explore perceptions of racial and maths identity, and 3) infer relationships between and co-construction of racial identity and maths identity. Data collected during 7th grade (2006-2007 school year) included videotaped classroom lessons, individual student interviews, and maths attitudes surveys. Data collected during 9th, 10th and 11th grade included a maths attitudes survey, videotaped individual interviews, an inventory of Black identity (MIBI-t, Sellers et al., 1998), and a videotaped group interview.

FINDINGS

Findings provide evidence that the girls perceive themselves as capable maths learners who are able to “do math”, and complex relationships among maths activities, affective and social interactions, and classroom environment. The girls believed that a “good maths teacher” creates a supportive learning community for all students. Stable dimensions of math identity include belief in ability, and both opportunities and barriers to maths learning. Stable dimensions of racial identity include high Private Regard (e.g. I am proud to be Black), and low Public Regard (e.g. most people think that Blacks are as smart as people of other races). However, the girls did not perceive relationships between their own racial and mathematical identities. Rather, the most important reported influences on their maths identity were a) classroom opportunities to work together on fun but challenging maths tasks, b) classroom environments in which both correct answers and mistakes are valued, and c) respect and value as members of classroom maths learning communities.

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