

Mathematics as a Space of Intersectional Racism and Bias Against Black Girls

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Black Girl Narratives in Society, Schools, and Math

Dear Educators,

Black girls are not loud-they want to be heard.

Black girls are not seeking attention-they are seeking a connection.

Black girls are not aggressive--they know what they want.

Black girls are not bossy-they are leaders.

Last, Black girls are not adults.

• Dr. Terri Watson, Twitter, November 18, 2019

What we know: Educational Problems

The US mathematics education system does not love Black girls—intentionally designed to erase and dehumanize them (i.e., math/science teachers calling them loud/too talkative/encouraging social majors, rather than scientific fields; constant comparisons to White femininity, limited access to gifted programs).

These negative experiences contribute to their underrepresentation, fragmented identities, and pushout of mathematics and STEM broadly.

The US mathematics education system (culture, community, discourses, policies) is structurally exclusionary, oppressive, and upholds gendered anti-blackness, white supremacy and whiteness (i.e., tracking, neutrality).

STEM Pre/In-Service teachers and higher education faculty have NO STRUCTURAL INCENTIVE to engage in the work of critically examining these issues and how they relate to instructors' teaching practice and Black girls' learning outcomes. Professional development in K-12 is non-existent and tenure track faculty are protected.

Black girls seldom have access to high quality mathematics teachers, liberatory curriculum and transformative instruction (common experiences include worksheets, rote learning, teacher lectures).

How have these problems been studied?

I. Overall scholarly neglect. Mathematics education researchers seldom study Black girls and women. A review of literature found only 11 empirical studies on K-12 Black girls' mathematics learning between 1999 and 2019.

II. Many existing empirical studies are singleaxis analyses, rather than <u>multiplicative or</u> <u>intersectional</u>. For example, Black + Girl + Mathematics Identity DOES NOT EQUAL Black Girl Mathematics Identity. Studies should also include a historical framing. These recommendations should be done in solidarity WITH BLACK GIRLS and their families; otherwise, we run the risk of perpetuating current inequalities, such as White benevolence and saviorism.

- **Black girls need:** Funding agencies to establish on-going and significant support for projects focused on Black girls' and women's educational experiences.
- **Black girls need**: Racially conscious mathematics instructors, who share power, make the curriculum interesting and challenging, build caring/authentic relationships with students, hold high expectations, and allow humor/social interactions.
- Black girls need: Their racially conscious mathematics instructors to also have strong content knowledge and use a rigorous mathematics curriculum that is inquiry-based and culturally relevant. This means that teachers should STOP using WORKSHEETS as the main learning activity. Robust pedagogies can include problemposing, classroom discourse, small group work, and manipulatives/technology for modeling mathematical ideas.

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- **Black girls need**: Schools systems and the people who work in them to treat Black girls with dignity, understanding that they are complex individuals who have a right to bring their full humanities to learning spaces and contexts.
- **Black girls need**: Strong cultural brokers and advocates for accessing educational resources, such as recommendations for gifted/talented programs.
- Black girls need: Policies that create opportunities for "intersectional interventions." An example of an intersectional intervention would be a "Black Girls Do Mathematics Club" at local schools. The club would be advised/facilitated preferable by a critically conscious Black woman mathematics instructor because representations matters. It is not sufficient, but it matters.
- **Black girls need**: University level mathematics professors to reject the idea of "neutrality" of mathematics learning, but understand the role racialized/gendered oppression has played in preventing many Black women from feeling like they "belong" in mathematics and science, which can push them out of STEM.

Where do we go next?

Practice: Start Tomorrow!

- I. State data of all consequential metrics (i.e., math course enrollment, GT programming, high school graduation, teacher qualifications, ACT/SAT scores) related to Black girls, especially from District of Columbia, Georgia, Louisiana, Maryland, Mississippi—the states with the largest enrollment of Black girls in public K-12 schools. This provides a snapshot of these issues at the state level and can lead to targeted change in policies.
- II. Local school context disaggregated data that documents successful Black girls' mathematics learning opportunities. "Successful" should be expansive beyond grades, GPA, and test scores to include constructs such as persistence, interest, and self-efficacy.
- III. Local school context data on Black girls & school punishment (e.g., suspension, expulsion). This data could show if "mathematics" or "science" are the courses in which they are getting "sent out of the classroom."
- IV. Development and implementation of math teacher education programs/professional development that disrupt gendered anti-Black sentiments, ideologies, and practices.

Where do we go next?

Empirical Research Studies

- I. Large-scale national Critical Quantitative Research Studies to document the "what" that is happening in schools as it relates to Black girls.
- II. Deep ethnographic and longitudinal research studies of Black girls' mathematics experiences, including
 - Key actors that propel the success of Black girls and women in math and how they may change overtime,
 - Structures that hinder or foster Black girls' and women's participation in math,
 - Black girls' and women's strategies of persistence and resistance,
 - Cross examination of context specific factors that impact Black girls' and women's mathematics experiences (e.g., state policies, focus on teaching for testing vs a more critical teaching), and
 - Non-institutionalized mathematics practices that Black girls and women engage in their everyday lives but is seldom recognized in academic settings.
- III. Development and implementation of Black feminist pedagogical practices that attend to and honor the complexities of Black girls' lives.
- IV. Development of scholarship that envisions and creates mathematics educational spaces that are structured to foster Black girls' flourishing.
- V. Development of scholarship that examines the mathematics experiences of Black girls and women grounded on robust understandings of historical and sociopolitical configurations that impact their experiences inside and outside mathematics.
- VI. Development of scholarship that disrupt deficit-perspectives about Black girls and women in mathematics (the point of the departure should be that Black girls are brilliant and perfectly capable of doing mathematics).

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