CHAPTER 27

Centering Race, Racism, and Black Learners in Mathematics Education: A Critical Race Theory Perspective

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Introduction

Science, technology, engineering, and mathematics (STEM) knowledge plays a significant role in promoting and advancing global capitalism, gentrification, and international warfare to protect and promote whiteness (Morales-Doyle & Gutstein, 2019). The global impact of racism, anti-Blackness, and Eurocentrism in STEM education has primarily gone uncontested and unchallenged (Davis, 2018; Martin, 2019; Martin et al., 2019). STEM education fields are viewed and operated as race-neutral, culture-free, and objective disciplines, but they are not. Critical examinations of STEM fields and Black students are confined to two main disciplines: mathematics and science education (Martin, 2003, 2009; Mutegi, 2011). Most critical examinations of STEM education have occurred in mathematics education, the gatekeeper to the STEM enterprise (Martin et al., 2010).

Black scholars have been leading the way in establishing new paradigms and theories to offer critical perspectives of mathematics education, especially for Black learners (Davis & Jett, 2019; Davis & Martin, 2008; Leonard & Martin, 2013; Martin, 2009). Scholars have offered critical perspectives of mathematics education policies, research, curriculum, mathematics standards, pedagogy, courses, standardized testing, racialized achievement gaps, research approaches, and how they impact Black students (Davis, 2018; Davis & Jett,

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2019; Martin, 2009). These critiques have ushered in a liberatory paradigm to advocate for Black learners and challenge the Eurocentric paradigm in mathematics education (Martin, 2010; Martin et al., 2019). Scholars have centered Black students' mathematical experiences in the liberatory paradigm to address race, racism, and the impact of whiteness.

Critical race theory (CRT) has emerged as a framework to address race, racism, classism, and gender in mathematics education. CRT also advocates for liberatory outcomes for Black learners in mathematics education. In this chapter, I continue to illustrate CRT's usefulness as a framework for identifying, analyzing, and beginning to address the impact of race and racism for Black learners in mathematics education. By employing the lessons learned from the use of CRT in critical examinations of mathematics education, liberatory outcomes—such as reframing mathematics standards, discourses, pedagogy, and classroom settings—may be attainable for Black learners.

Critical Race Theory in Mathematics Education

Researchers have traced the genealogy of critical race theory in mathematics education (CRT(ME)) to William F. Tate's scholarship (Davis & Jett, 2019). In the twentieth century, Tate (1993) published the first CRT(ME) article entitled, "Advocacy versus Economics: A Critical Race Analysis of the Proposed National Assessment in Mathematics" in *Thresholds in Education*. In the same year, Tate collaboratively published another article merging the law, CRT, education, and mathematics education (Tate et al., 1993). A few scholars have considered Tate to be the chief architect of CRT in education because of his early scholarship (Davis & Jett, 2019; Lynn & Adams, 2002). Most scholars in the space employ Ladson-Billings' and Tate's (1995) seminal article, "Toward a Critical Race Theory of Education," in *Teachers College Record* to introduce this framework in the field. However, Tate considers Derrick Bell (1976) to be the first savant to introduce CRT to the educational community with the article, "Serving Two Masters: Integration Ideals and Client Interests in School Desegregation Litigation" in *The Yale Law Journal*. Tate developed into one of the leading CRT in education scholars, earning him his reputation as the Father of CRT(ME).

CRT(ME) is a pedagogical, theoretical, methodological, and analytical framework that attempts to understand and critique race, racism, classism, sexism, and other forms of oppression. Davis (2019) asserts that scholars who seek to use CRT(ME) must have an operationalized definition of race and racism, a critical view of Black adults and students' lived experiences in urban areas, a sociohistorical context to analyze race and racism, and developed sociopolitical consciousness. The foundational components of CRT(ME) involve :

a. Accepting racism as an endemic and permanent feature of American society, including schools, mathematics spaces, and structures;
b. Challenging the dominant ideology, paradigms, research, theories, and texts about Black adults and students used to blame them for the conditions of their communities, families, schooling, and mathematics education;
c. Centralizing the racialized, gendered, classed, and mathematical experiences of Black adults and students;
d. Using an interdisciplinary approach and knowledge to better understand race, racism, sexism, classism, life, and mathematical experiences of Black adults and students in and out of mathematics spaces; and
e. A commitment to achieving liberatory and social justice outcomes for Black adults and students in society, schools, and mathematics spaces (Davis, 2019, p. 192).

Applying these essential elements of CRT (ME) facilitates the identification of race-specific factors that have a negative impact on learning outcomes for students of color—in this case, Black students—within both institutional and individual mathematics paradigms. By accepting the widespread and pervasive presence of racism in the discipline's very foundation but simultaneously challenging the dominant ideology and centralizing Black mathematical experiences in the discourse, CRT offers a means of redressing the historically monochromatic mathematics education of the West.

While CRT is by no means restricted to the examination of racism against African Americans and Black people more broadly, some scholars have argued that CRT's foundational elements in law and education are rooted in a focus on Blackness and have accordingly called for BlackCrit in education to engage in a deeper understanding of Black identities, needs, aspirations, and hopes (Dumas & Ross, 2016). Early articulations of CRT in the law and education indicate that Black people's experiences have been privileged and that Blackness has been conflated with the concept of race, writ large (Phillips, 1998). Many of the key critical race scholars in law and education are Black and have grounded their scholarship in the Black experience, which is significant to the framework. Non-Black scholars have critiqued them in education and the law for centering the experiences, histories, and present conditions of Black people (Phillips, 1998), but most of the CRT critiques in the law and education from the Black experience are about the Black/white binary or paradigm.

I have centered the Black/white binary in mathematics education scholarship and do not view it as a problematic choice, but rather as one that is essential to understanding how racism (white supremacy, in particular) impacts Black people (Davis, 2019). Black scholars should use CRT in law, education, and mathematics education to center Black experiences, cultures, histories, and present conditions without focusing on all racial and ethnic groups. In mathematics education, CRT(ME) has been primarily advanced by critical Black scholars for use with Black populations who have centered Blackness

in explicit and implicit ways. My analysis of Black history has illustrated how Black people's needs often get lost if Blackness is not centered, particularly when all other racial and ethnic groups' needs are prioritized at the exclusion of Blackness. Black scholars have acted with a sense of urgency to conceptualize, analyze, and deploy this justice-seeking as counter-oppressive critical scholarship committed to challenging and undermining knowledge, learning, and pedagogical racism foremostly weaponized against Black people.

Scholars have argued that CRT in education is not equipped to address anti-Blackness because it is a theory intended to focus on racism and not Blackness's specificity (Dumas & Ross, 2016). I agree with the need to explicate the specificity of Blackness and the need for "language to richly capture how anti-[B]lackness constructs Black subjects, and positions them in and against the law, policy, [education], and every day (civic) life" (Dumas & Ross, 2016, p. 417). Scholars recognize that anti-Blackness and white supremacy are different and that CRT in education does not fundamentally possess the language needed to fully express Blackness or anti-Blackness (Dumas & Ross, 2016). Anti-Blackness is a social construct that highlights how Blackness is despised and embedded in the lived experiences of Black people and in opposition to whiteness, which is perceived as pure and humane (Dumas & Ross, 2016). White supremacy "informs and facilitates racist ideology and institutional practice" (Dumas & Ross, 2016, p. 417) that is connected to whiteness.

Dumas and Ross (2016) used Ladson-Billings' and Tate's (1995) proclamation that Blackness needs to be communicated in detailed ways to articulate BlackCrit in education. While I appreciate how Dumas and Ross (2016) expressed the need for BlackCrit in education to centralize discourses and experiences of Blackness and anti-Blackness, most of their arguments have used CRT in education to create this space, which suggests that the framework is fundamentally equipped to address the specificity of Blackness, anti-Blackness, and racism. Scholars in mathematics education have begun to use BlackCrit in education to poignantly address Blackness and anti-Blackness in the field (Martin et al., 2019).

A Critical Race Analysis of Mathematics Education

Critical race theory provides the components necessary to critically examine STEM education through theoretical, methodological, pedagogical, and analytical lenses. Education policies, funding, mathematics standards, standardized testing, racialized achievement gaps, curriculum, instruction, assessment, and courses are sources of anti-Blackness, whiteness, racism, and white supremacy. These education areas illuminate how race and racism impact Black learners in STEM, but for the purposes of this chapter, I focus on mathematics education.

The Impact of Educational Laws and Policies on Mathematics Education

To fully understand the experiences of and challenges for Black adults and children in mathematics education, it is necessary to reach an understanding of race, laws, policies, education, and social customs in America. Mathematics education is a microcosm of a larger educational and social system predicated on race, law, and the exclusion of Black people that still exists in the present day. The Father of CRT, Derrick Bell, developed the concept of revisionist history to "reexamine America's historical record, replacing comforting majoritarian interpretations of events with ones that square more accurately with" Black peoples' experiences—in this case, mathematics education (Delgado & Stefancic, 2001, p. 20). It is important to note that racism and racialized issues impacting society and the larger field of education also impact what transpires in mathematics education.

One of the main ways that institutional, structural, and systemic racism continues to persist in schools and mathematics settings is through federal, national, state, and local laws and policies (Martin, 2003, 2007, 2009; Snipes & Waters, 2005; Tate, 1993, 1997). The federal, state, and local governments have a long history of institutionalizing laws and policies that renew and rejuvenate social constructions of race and racism in education and mathematics education—legislative and policymaking contexts that significantly impact and exclude Black people. For instance, Jim Crow Laws of the late eighteenth- and early-to-mid-nineteenth-century—a subject to which this chapter will return in the next section—upheld school segregation based upon the principles of scientific racism.

Historically and presently, most legislative and policymaking bodies in education, mathematics education, and other societal contexts are mainly composed of white people. A significant reason for pervasive whiteness in legislative and policy contexts stems from efforts to maintain white power structures and exclude and dehumanize Black people, thereby creating institutionalized anti-Blackness. From my analysis, there is no period in American historical or contemporary records when anti-Blackness was critically examined and addressed in the legal, social, educational, and mathematical records for the betterment of Black people. Ladson-Billings (2006) argued that Black communities had little to no legislative representation in or access to the educational franchise that whites occupied with social, legal, and economic power.

Legal, social, and racial segregation of Black people from white people in educational and policymaking arenas has a long history in the United States of America. During the eighteenth and nineteenth centuries, many Black people were enslaved, legally and socially separated from white people, and forbidden to be educated, especially in arithmetic. The prevailing thoughts about Black people were that they were inferior, subhuman, and lacked the intelligence to overturn slavery and their inhumane treatment (Tate, 1997). Most Black people did not have any of the legal or political rights afforded to white people.

Therefore, they had no legal rights to oppose them or advocate for themselves in legal or policymaking arenas and social settings (Ladson-Billings, 2006). This line of thinking and related legal and social practices represents some of the foundational anti-Blackness embedded in society and educational and mathematical spaces through legal, political, and social actions. After abolishing slavery, Black codes and social practices maintained racial segregation and inhumane treatment in educational areas and, by default, mathematics learning spaces.

Racialized Legal, Educational, and Mathematical Developments in the Nineteenth Century

During the nineteenth century, the institutionalization of race in American society significantly impacted the role of education and law. The federal government's role in education became more formalized, with efforts focused on vocational training and land grants. It created the Office of Education in 1867. The government sought to collect information about schools and teaching that would lead to effective school systems. Given the racial temperament of the time in the federal government, justice, and legislative bodies, it was evident that Black people were not considered in the development of effective education. White interests and white power were the focal points of the development of school systems. America's economic growth and its white power structure were the driving forces behind the federal government's educational investments.

In the late nineteenth century, the U.S. Supreme Court upheld racial segregation through the *Plessy v. Ferguson* (1896) ruling, establishing a law for a legal distinction between Black and white people. As a result, the "separate but equal" doctrine was birthed to maintain legal segregation under the false guise of equality in public spaces, including educational and mathematical spaces. From the *Plessy v. Ferguson* ruling, restrictive Jim Crow laws became commonplace to enforce racial segregation and the unfounded belief in the superiority of white people and inferiority of Black people.

In Georgia, *Cumming v. Richmond County Board of Education* (1899) was a class-action suit and another landmark U.S. Supreme Court case that further sanctioned the de jure segregation of races in American schools. The plaintiffs, J.W. Cumming, James S. Harper, and John C. Ladeveze, claimed that a $45,000 tax levied against the elementary, middle, and high schools was illegal given that Black people were excluded from high schools and these educational spaces were exclusively for white students. The plaintiffs in the class-action suit sought an injunction to bar the money collection because it was earmarked for the white-only high school system. The Supreme Court justices indicated that they had no jurisdiction, ruling to allow the city to determine the allocation of taxes unless it utterly disregarded Black people's constitutional rights.

Throughout the nineteenth century, there were several developments in mathematics teaching that coincided with the federal government's efforts to

shape education and school systems. White men were the primary leaders in shaping the mathematics education landscape in both K-12 and higher education settings. Teaching arithmetic and numbers, calculator usage, logic and the utility of mathematics, teaching methods, and principles of psychology—including how psychology impacts teaching and learning—were the focal points of the development of mathematics education (Bidwell & Clason, 1970). During this period, national education organizations and committees were formed to shape the mathematics education organization (Bidwell & Clason, 1970). Given the racialized nature of the law, society, and education, Black adults and children were not central to these mathematics education developments. These developments represent the foundational white power structure. Whiteness was the ultimate property right, and exclusion of Blackness was central in mathematics education.

Pre and Post *Brown* Mathematics Education Developments

National education organizations and the federal government's legal and economic role in education and mathematics education expanded in the twenty-first century under continued racial turmoil in the larger society and the educational sphere. In the early part of the twenty-first century, education organizations and committees were commissioned to shape the teaching of elementary and secondary arithmetic and mathematics in private and public schools. Mathematics organizations emerged to defend and shape the mathematical landscape in K-12 and college settings.

The Mathematical Association of America (MAA) and the National Council of Teachers of Mathematics (NCTM) were founded in 1915 and 1920, respectively, as two predominately white organizations that have shaped mathematics education. White men were the primary founders and leaders of these organizations, which were historically derived from white institutions of higher education. The MAA focused on collegiate and secondary mathematics. Klein (2003) noted that NCTM was created at the behest of the MAA. NCTM and MAA are organizations that have played a significant role in shaping school mathematics, mathematics content, pedagogy, learning, assessment, research, and the future direction of mathematics education. The 1923 Report, also known as the Reorganization of Mathematics in Secondary Education, was an influential group report designed to shape the discipline. These organizations and committee members shaping mathematics education were primarily white mathematics teachers, professors, researchers, and policymakers.

The early formation of these organizations and committees represents Harris's (1993) arguments about whiteness as property and the exclusion of Blackness in mathematics education. These entities were responsible for providing leadership in mathematics education for the country when Black adults and children were overtly treated as second-class citizens, and racial conflict and racial segregation defined American society and schools. It would

be unreasonable to assume that the racial tensions of American society and schools did not affect these organizations and Black adults' and children's mathematics education. Before the landmark *Brown v. Board of Education of Topeka* decision, several mathematics and mathematics education developments excluded Black people altogether.

In the twentieth century, the *Brown* case overruled the *Cumming* and *Plessy* Supreme Court decisions. The justices in the *Brown* decision unanimously ruled that racial segregation in public schools was unconstitutional. The decision helped establish that the "separate but equal" doctrine in education and other places was not equal. The court ruling was instrumental in efforts to desegregate American public schools. *Brown* represents a legal remedy to a social problem (Tate et al., 1993). It also connotes that the decision to desegregate schools was not one that white people willingly conceded to, but one that they were forced to accept through protests, the courts, executive orders, and the military.

Many critical race theorists have offered a critical analysis of the *Brown* decision in the larger field of education and mathematics education (Bell, 1976; Bullock, 2019; Tate et al., 1993). Central to these critiques is the loss of scores of Black educators and administrators, the closure of Black schools, and the integration of Black children into hostile white schools with white educators, students, and stakeholders who did not want them in their spaces and possessed low expectations of them connected to racist assumptions and beliefs about Black people. In those ways, CRT also allows scholars to explore the educational losses that came with desegregation. Integrating schools also inaugurated a period during which Black students were being pushed into lower-level mathematics courses, and gifted education, advanced placement, and honors programs and courses were developing for white educators and students in mathematics as a form of racial segregation based on the idea of white superiority.

Federal Legislation, Standards, Standardized Tests, and Racialized Achievement Gaps

The federal government enacted the ESEA, requiring schools to use standardized tests that ultimately renew and rejuvenate racism in mathematics education. The ESEA required schools to use standardized tests to measure students' performance in mathematics and other subject areas. The federal government's legislative branches have played a significant role in ensuring that standardized tests and standards-based reform shape national, state, and local legislation and policies. The laws and policies enacted fail to take issues of race and racism, past and current inequities, and injustices against Black people—which continue to shape how these legal documents impact Black students' education, in general, and specifically in mathematics education—into consideration (Ladson-Billings, 2006; Martin, 2003). These legal materials maintain

and sustain racism (white supremacy) in schools, mathematics settings, and society.

The *No Child Left Behind (NCLB) Act* was one of the policies aimed at shaping Black students' mathematics education, specifically through high-stakes testing. Initially, the ESEA required schools to use standardized tests, and later, NCLB reauthorized and repositioned standardized testing. The policy repositioned standardized testing by seeking "to close the so-called racial achievement gap ... that is to move students who are socially identified as African American [and other marginalized students] from their perceived positions of mathematical illiteracy to new positions of mathematical literacy occupied by Whites" (Martin, 2009, p. 316). The federal government created NCLB based on the premise that white students were mathematically literate and Black students were mathematically illiterate (Davis & Martin, 2008). Embedded in this policy were racist assumptions and beliefs about Black and white students' intellectual abilities in mathematics. Black students unable to earn test scores at the level of their white counterparts were characterized through inferior labels associated with racist beliefs and assumptions about them, their school systems, schools, and mathematics performance (Davis & Martin, 2008; Lattimore, 2001, 2003, 2005).

In 2015, the *Every Student Succeeds* (ESSA) *Act* reauthorized ESEA and replaced the NCLB Act to expand the federal government's role in public education. The Act redirected responsibility for standardized testing and academic standards in mathematics to the states. The ESSA did not require states to adopt Common Core State Standards (CCSS) Initiatives in mathematics (which were developed and sponsored by the National Governors' Association and Council of Chief State School Officers). States could withdraw. Although the legislation prohibited the federal government from influencing states to adopt the standards, the Race to the Top federal grant funds required states who received the funds to adopt the CCSS in mathematics.

Tate's (1995) scholarship is mainly responsible for critically examining mathematics standards on behalf of Black students in urban areas. Tate (1995) and Apple (1993) contend that mathematics standards are a slogan system that led to the illusion that everyone's interests are being met while really representing the interests of those in power (i.e., Whites). Critical race theory's interest convergence principle addresses how whites-only support efforts that converge with their interests. In his critique of CCSS, Gutstein (2010) further states that:

> The lives and voices of people and scholars of color are "conspicuously absent." There is also no mention of class or gender. It is as if one could develop a common core of standards and ignore these issues. Yet institutional and structural racism and political economy loom large in the experiences of urban youth, both within and outside the mathematics classroom. (p. 16)

CCSS lacks a discussion of race, racialization, racism, and equity as if Blacks do not exist, underscoring the disregard for issues of race and inequality that permeates many white mathematics organizations, as well as government boards and committees.

Standardized tests were designed to continue the tradition of upholding racist beliefs and assumptions and subordinating Black students under the idiom of "scientific" theories (Gould, 1981; Ladson-Billings, 1999; Tate, 1993). According to Ladson-Billings (1999), "throughout U.S. history, the subordination of Blacks has been built on "scientific" theories (e.g., intelligence testing), each of which depends on racial stereotypes about Blacks that makes the conditions appear appropriate" (p. 23). Conditions such as low-test scores and high rates of remedial class participation give the appearance that the situation in schools serving large numbers of Black students was appropriate. Tate (1993) made the case that institutional and structural racism has placed standardized testing measures in a position to maintain white privilege and advantages in education, economics, and other human activities. He argued that standardized tests were "scientifically" constructed to reproduce Black students' lived realities socially. He declared that standardized tests were designed to prepare poor Black students to replicate their parents in the labor division by providing them with instruction in mathematics suitable for this purpose.

The tax base supporting predominantly Black schools continues to be insufficient to implement mathematics standards and assessments. Most schools serving large Black student populations operate from an inadequate tax base. While taxes must be given the appearance of neutrality (Tate, 1993), the current school funding system was like the past funding system. Essentially, relying on taxes derived from poor Black communities creates the same funding disparities historically experienced by Black people. The school funding structure makes Black students victims of systemic and structural racism, even if they never experience individual acts of racism (Ladson-Billings, 1999). Black students were generally in schools that were drastically underfunded compared to those serving white students (Kozol, 2012; Ladson-Billings, 1999). Schools serving Black students lack the funding to implement (mathematics) education policies and other costs associated with educating them. Tate (1993) argued that Black students were put in a subordinate position by continually disenfranchising educational and economic policies.

In the twentieth century, the importance of mathematics shifted as science and technology placed new demands on mathematics because of World War II (Moses & Cobb, 2002). International warfare and capitalism are two important pillars of white power that rely on mathematics education to maintain and expand white supremacy. World War II and the Cold War were instrumental to the federal government's increased investment in education and mathematics education. Mathematics was viewed and positioned as the key discipline to advance America's international standing in warfare, economics,

and STEM education. A critical race analysis underscores the role that whiteness plays in creating (mathematics) education policies at the national/federal, state, and local levels. Martin (2008) has critiqued mathematics education policy arenas, specifically, the National Math Advisory Panel, as a white institutional space. The panel was mainly composed of white mathematics educators, and "no African American, Latino, or Native American mathematics education researchers were members of the Panel" (Martin, 2008, p. 390). Black mathematics education researchers' exclusion from these policymaking spaces helps to manifest anti-Blackness in decision-making that impacts Black learners, educators, and researchers.

A Critical Race Analysis of Mathematics Curriculum, Pedagogy, and Courses

CRT(ME) exposes Eurocentrism and whiteness in the mathematics education curriculum, pedagogical approaches, and courses. Anderson (1990) asserts that the presence of Eurocentrism and whiteness and the exclusion of Blackness have been institutionalized in the mathematics curriculum. Ladson-Billings (1999) argued that efforts to challenge white supremacy—the dominant culture of power and authority in the educational setting—was muted and erased by the master script. She described Swartz's (1992) notion of the master script as the,

> silenc[ings of] multiple voices and perspectives, primarily legitimizing dominant, White, upper-class, male voicing as the "standard" knowledge students need to know. All other accounts and perspectives are omitted from the master script unless they can be disempowered through misrepresentation. Thus, content that does not reflect the dominant voice must be brought under control, mastered, and then reshaped before it can become a part of the master script. (p. 341)

She continues to note that the mathematics curriculum used in U.S. schools, generation after generation for centuries, "has been reproduced in the objective and subjective pursuit of justifying racism and imperial rule" (p. 350).

White men have been centered in the mathematics curriculum as the intellectual proprietors of knowledge without any consideration of Black people's contributions to mathematics in Africa and the U.S. Anderson (1990) states, "The dominant [mathematics] curriculum in use today throughout the United States is explicit in asserting that mathematics originated among men in Greece and was further developed by European men and their North American descendants" (pp. 349–350). Black mathematicians are seldom mentioned in textbooks or other curricula materials, and are often "relegated to passing sentences, paragraphs, or, on rare occasions, a non sequitur chapter" (p. 350). The dominant mathematics curriculum used in U.S. society reinforces anti-Blackness, as well as racist perceptions of Black people's inferiority (Anderson, 1990) and white people's superiority (Martin, 2009). Davis (2018) argued

that the dominant curriculum does not include Black people's contributions and represents a taken-for-granted power structure.

The pedagogical strategies used to teach Black students frequently start from the premise that they are deficient (Ladson-Billings, 1999). Ladson-Billings argues that the instructional approaches used for Black students mainly revolve around some aspect of remediation. Black students' mathematics instruction emphasizes drill, repetition, and convergent, right-answer thinking (Ladson-Billings, 1997). These students rarely receive instruction that encourages them to challenge mathematics rules or to use their prior knowledge and experiences to support and challenge their school mathematics. The masses of Black students, more so those students who were poor, were typically overrepresented in lower-level mathematics courses (Oakes, 1990). Generally, schools serving Black students provide less challenging, intellectually rigorous mathematics instruction and curriculum (Brand et al., 2006; Ladson-Billings, 1997). Taken separately, these acts may appear normal, but taken together, they perform to systematically exclude others—a strategy that was typically associated with the pedagogy in schools serving Black learners.

Moreover, school desegregation gave birth to tracking, a practice used to re-segregate Black and white students in mathematics classrooms (Oakes, 1990). Tracking practices were used to track the masses of Black students into lower-level schooling and mathematics tracks, while advanced programs were used to benefit and protect white students' privileges in mathematics settings (Snipes & Waters, 2005; Tate et al., 1993). The masses of Black students continue to be exposed to lower-level mathematics content, lower-level instruction by inexperienced, less qualified, and less prepared teachers (Oakes, 1990). White students were more often exposed to what was perceived as a better-quality curriculum, higher-level content, and more challenging and rigorous instruction by more qualified, experienced, and prepared teachers in mathematics (Martin, 2007). White students were most often provided access to "gifted" programs, honors programs, and advanced placement programs within "desegregated" schools. Martin (2007) argues

> ...tracking is... one component of a societal sorting system that sets students up for different positions in a social hierarchy that benefits some and marginalizes or disempowers others. Although White students are tracked as well, the larger reward systems in which tracking occurs often afford White students' important opportunities to recover and rebound from these experiences. (p. 17)

In essence, tracking maintains the benefits and advantages conferred to whites without threatening their economic and social advantages (Ladson-Billings, 1999). In addition, the curriculum, instruction, assessment, school funding, and desegregation efforts used to configure the educational system were never designed to provide Black students with the education, particularly in mathematics, that would (a) allow them to infringe on the white monopoly of

intellectual, material, physical, and fiscal resources, (b) improve the lived realities of the masses of Black people, and (c) allow them to be self-sufficient. The school system was designed and intended to ensure that the only way Blacks would change their social conditions would be through education to a white standard that would not threaten whites' social, economic, educational, and mathematical interests.

The Liberatory Paradigm in Mathematics Education

Over the last ten years, a paradigm shift has focused on Black learners, providing them with a liberatory mathematics education (Martin, 2010; Martin & McGee, 2009). The paradigm shift has been led by critical Black scholars who seek to challenge the deficit discourse, inadequate conceptualizations of race and racism, privileged perspectives of mathematics, substandard instruction, and mistreatment of Black students in mathematics education research, policy, classrooms, and out of school spaces (Martin, 2008, 2009; Martin et al., 2010). The mathematics education liberatory paradigm has mainly focused on pedagogy and research related to Black students (Martin, 2010). Martin and McGee (2009) argue, "any relevant framing of mathematics education for African Americans must address both the historical oppression that they face and the social realities that they continue to face in contemporary times" (p. 210). As the situation is now, mathematics education is the leading STEM field challenging racism and advancing a liberatory paradigm for Black learners.

Success and high achievement in mathematics education for Black students are mainly based on their grade point average, standardized test scores, and college-level course participation. I have challenged the high achievement and successful Black learners' paradigm in my scholarship because success based on grades, grade point average, standardized test scores, and college-level course participation is grounded in the Eurocentric paradigm and not the liberatory paradigm (Davis, 2018). Successful and high-achieving Black students in mathematics education have a responsibility to give back to their communities as a means of ensuring that others are supported and liberated.

In Martin's (2010) edited book, *Mathematics Teaching, Learning and Liberation in the Lives of Black Children*, he assembled critical Black scholars committed to Black students with a meaningful liberatory mathematics education to "change the direction of research on Black children and mathematics" (p.vi). Scholars have examined and explained Black learners' achievement, learning, experiences, socialization, and identity development through the lens of Black liberation. In my view, Black learners in a liberatory paradigm are instrumental in advancing the Black liberation struggle in and out of mathematics education. Black adults and students in mathematics education must develop a collective agenda that uses their intellect, as well as their economic and political resources, to achieve liberatory outcomes for their people and

communities. Such a liberatory mathematical paradigm, as advanced by Black scholars for Black learners, is critically informed (undergirded) by interactively connected conceptual, theoretical, and practical perspectives of CRT(ME).

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