

Book Review

Black, Brown, Bruised: How Racialized STEM Education Stifles Innovation. By Ebony Omotola McGee. Cambridge, Massachusetts: Harvard Education Press, 2020, 190 pp., \$32.00 (paper).

The United States (U.S.) has been a global leader in STEM (science, technology, engineering, and mathematics), but a persistent lack of diversity in these fields threatens this leadership. Black, Latinx, and Indigenous students are often overlooked and underestimated, their potential dismissed by faculty and peers, while Asian Americans are applauded as the model minority. In *Black, Brown, Bruised: How Racialized STEM Education Stifles Innovation*, Ebony O. McGee highlights the critical consequences of this bias, arguing that it limits individual potential and stifles the broader innovation capacity of the U.S. in STEM. How can structural and cultural barriers within our educational institutions be dismantled to create a more inclusive and supportive learning environment for Black, Latinx, and Indigenous students in STEM? McGee's book, *Black, Brown, Bruised*, provides many answers and suggestions.

McGee compellingly argues that the lack of diversity in STEM leads to a homogenous workforce, missing the varied perspectives necessary for groundbreaking innovation. By excluding these voices, STEM fields miss unique insights that could drive significant advancements. As she noted, "Being marginalized by race in this society gives a person a trove of painfully acquired knowledge. That knowledge makes it possible to ask a whole different set of questions and encourages innovative and racially conscious approaches" (McGee, 2020, p. 21). According to McGee, embracing diversity could mean the difference between life and death, as inclusive teams are better equipped to address complex and diverse challenges, such as developing equitable healthcare technologies that save lives and improve care quality. She emphasizes the need to eliminate structural barriers for underrepresented minoritized (URM) students to foster innovation and create effective STEM products. She argues that increasing racial diversity in universities and STEM industries would create less racially insensitive

environments and enhance URM students' sense of belonging, which is crucial for their success. Supported by data and personal narratives, McGee underscores the urgency of creating inclusive and equitable educational and professional environments in STEM.

Structure and Organization

McGee's decision to write is methodically structured to guide the reader to a comprehensive understanding of how racialized issues impact STEM. While some question racialization's impact on STEM fields, this book outlines the facts in a logical, well-researched narrative that includes personal experiences from research participants.

McGee opens chapter one by sharing how she was fascinated by the television show *The Jetsons*, with the realization that the characters were White and had gendered roles. She also questions why *The Jetsons'* flying cars have yet to become a reality. Simply put, there are no flying cars because of the overly homogenous STEM environments that lean toward individualistic, competitive Western ideologies perpetuating homogeny. For McGee, higher education institutions should widen the space for non-Western cultures, such as Afrocentricity, TribalCrit, and LatCrit, and "a pedagogy of solidarity" is necessary to create belonging and affirmation for URM learners' racial and STEM identities.

In Chapter 2, McGee delves into the pernicious effects of structural racism in higher education, illustrating how it fosters a psychologically unsafe environment for students and faculty alike. Efforts to increase participation have failed due to persistent racial stereotypes, a scarcity of URM students and faculty, students switching majors due to a lack of role models, limited opportunities for racial justice work, and unwelcoming institutional climates. Consequently, many URM students enter a survival mode, compromising their self-care as their well-being is threatened.

Chapter 3 delves into how toxic the STEM field can be for URM students; specifically, it explores the experiences reported by students in engineering and mathematics disciplines. Drawing from previous studies, McGee details the impact of stereotypes on URM students and their strategies for coping with and managing the abuse. She highlights code-switching techniques, like altering ways of speaking to mimic the dominant culture, as a significant response to the toxic environment in STEM disciplines.

Chapter 4 discusses strategies for recruiting and retaining minoritized and marginalized students in STEM disciplines. McGee introduces the concept of equity ethic, a set of moral values centered on justice, particularly racial justice, addressing racial inequities, and supporting those suffering from various injustices. She highlights how STEM URM students often seek to give back to their communities with practical solutions and honor those who sacrificed for them. She emphasizes the importance of broadening the definition of family to include fictive kinship—supportive, communal relationships akin to family—which benefits URM students in collaborative learning environments. Equity ethic, fictive kinship, and mentoring are crucial elements that colleges can also apply to enhance the recruitment and retention of URM students.

McGee provides insight on best practices for integrating STEM URM college students, emphasizing that the issue lies in discriminatory beliefs and structural barriers, and students are not the problem to be fixed. McGee stresses that focusing on student resilience is not enough and calls for abolishing the structural inequity in STEM education. She recommends that STEM departments create welcoming environments with comprehensive development opportunities and culturally responsive curricula like the Meyerhoff Scholars Program and the Minority Engineering Program. McGee also stresses the importance of mentoring while cautioning that it must be racially or multiculturally competent to avoid perpetuating racialized practices and

policies. Effective mentoring should counter deficit-based perspectives and genuinely support the lived experiences of URM STEM students.

In the final chapter, McGee states that the entire STEM higher education system needs to be dismantled. In this chapter, she outlines actions that institutions can introduce to transform how racism operates in STEM training programs' experiences, ideologies, practices, and policies. In the absence of dismantling the entire system, she suggested seven strategies universities can take to increase URM student success and promote innovation. Those strategies included hiring more faculty of color in STEM faculty positions, implementing identity-conscious STEM mentoring programs, hiring counselors of color who specialize in trauma experiences, creating pathways for POC to pursue STEM entrepreneurship, doing more to retain STEM faculty and industry leaders, acknowledging the work of STEM research educators, and respecting and adequately funding HBCUs, HSIs, and Tribal Colleges as the leaders of URM STEM student success.

Contribution to STEM Higher Education

As outlined throughout the book, McGee argues for reconstructing STEM higher education to center people of color in leadership roles, fostering a transformative "STEM for all" mindset rooted in equity and inclusion. Her book highlights the often-overlooked racialized experiences of Black, Latinx, and Indigenous students, challenging dominant narratives that ignore race in STEM. McGee humanizes statistical disparities by focusing on personal stories, showcasing these students' unique challenges and resilience. She thoroughly critiques systemic inequities, from biased admissions to unequal resource access, urging educators and policymakers to address the root causes of racial disparities in STEM.

McGee also emphasizes the psychological toll of racism and discrimination, linking these experiences to mental health outcomes. This underscores the need for holistic support systems that address academic and emotional well-being. By debunking the meritocracy myth, she reveals how racialized perceptions of merit are and advocates for equitable talent assessments. Beyond critique, *Black, Brown, Bruised* offers concrete solutions, including policy changes, mentorship programs, and culturally responsive teaching. These recommendations align with a feminist approach to inclusion, valuing diversity as essential for sustainable development and transformative change. McGee's call for greater diversity and inclusion demonstrates how fully embracing all students' potential can lead to more innovative and impactful advancements in STEM.

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(1207 words)

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