

FOREWORD

A Treatise for the Punished Pushed to an Imminent Rebellion

DR. EBONY OMOTOLA MCGEE has charged me with the responsibility of offering some opening words. In response to her call, I am reminded of the work of critical science educator, researcher, and scholar Daniel Morales-Doyle in that we rarely take into account the idea that mainstream White society still maintains its hold on who is allowed to be a scientist. By the time a Black or Latinx youth reaches second grade and expresses an interest in science, we cut their dreams short and write it off as impossible given their conditions (structural racism, poverty, low test scores, disinvested schools, etc.).

When we think of the preparation, study, and commitment to trial and error required to engage for inquiry into the natural, physical, and medical sciences, rarely do we think of Black and Latinx youth as potentially having the solutions to address their conditions. In worst-case scenarios, scholars Nicole Nguyen, Sepehr Vakil, and Shirin Vosoughi inform us on how STEM, in some instances, is utilized to usher students of color, particularly those from historically marginalized and isolated communities, into the war economy by way of the military industrial complex. As science is weaponized to combat concerns like “international terrorism” (via Homeland Security institutes at the high school level), the same technologies are used domestically on Black and Latinx communities to justify surveillance and occupation (e.g., war or

drugs, war on crime, war on gangs, etc.). Again, Black and Brown folks are asked to produce and/or justify the same violent mechanisms that are used against them in the name of science. To some, STEM or STEAM (A is added for art to the science, technology, engineering, and mathematics moniker for good measure) has solidified itself as yet another tool by which to sort the have-nots from the chosen.

I am pleased to state that the offering *Black, Brown, Bruised: How Racialized STEM Education Stifles Innovation* seeks to challenge the aforementioned realities. Where some may think my comments to be a harsh and unfair critique of STEM or STEAM, I remind them that my writing of this document takes place during a global health pandemic. The novel coronavirus COVID-19 (SARS-CoV-2) has spread across countries and continents, exposing those who have historically been deemed disposable to the worst of its wrath. This moment is not only timely and relevant to *Black, Brown, Bruised* currently, but will remain salient for the foreseeable future for the following reasons. First, this moment has laid bare societal disparities along the lines of race, class, gender, age, (dis)ability, and sexual orientation that have existed for time immemorial. Second, and into the distant future, STEM education will make a pivot to pay specific attention to the prevention and containment of pandemics, prioritizing disciplines that engage environmental and medical sciences. As *Black, Brown, Bruised* dares to propose suggestions on how to address the prevalence of White supremacy in STEM-related education in colleges and universities, it is also providing a road map to open the gates to those who potentially have the answers for some of humanity's most pressing concerns.

Given Dr. McGee's dedication to poignantly illuminate the totalizing power of White supremacy in STEM education, the assumed views and values of White, Western European-descended, cis-gender, heterosexual, protestant, able-bodied males as normal, right, and good while

othering everything else (White supremacy) are challenged explicitly. If we understand White supremacy as one of the baseline realities in STEM education, it becomes easier to embrace radical imaginaries like those of Dr. McGee that push us to work with others to change the current condition.

I have to admit, I envision many reading the previous paragraph and saying, *“Why can’t we just have a conversation about the promise and possibility of STEM?”* To their question, I would reply, *“It is impossible to talk about any possibility of STEM in the current moment and for the long haul without an explicit acknowledgment of the totalizing power of White supremacy.”* Currently in Chicago, almost 70 percent of deaths from COVID-19 have been Black folks. As schools have been forced to shutter their doors, many have limited or no access to reliable Wi-Fi networks, computers, or tablets. Before the shelter-in-place orders issued by local and state governments, 60 percent of young people in Chicago Public Schools (CPS) accessed the internet via their phones. These are the people who are structurally marginalized from STEM education. Dr. McGee, as a Chicago Southsider herself, understands these realities while revealing the consequences of not valuing Black, Brown, and Indigenous minds and bodies. *Black, Brown, Bruised* is fearless in its understanding of these realities while uplifting the necessity of prioritizing the needs of people who come from these conditions who are entering STEM fields in colleges and universities.

Years ago, I would ask my high school students in the beginning of the year if they had ever been punished for not reading or doing math well. It would always surprise me how many of my students answered yes. Reflecting on it now, I realize that I was really asking them to confirm my own trauma given my struggles with math. I can remember dismissing myself as “not good” at math and isolating myself, refusing to engage in math-centered activities. When I got to high school, I was

surprised by what was expected of me in my math classes. As I started to talk to my classmates, I began to realize that the things I was doing in eighth-grade math were done by my classmates in their fourth- and fifth-grade classes. Because I didn't conceptualize the fact that they had a different set of resources regarding math instruction, I just wrote it off as them being "smarter" than me. Instead, it confirms the fact that this has never been an aptitude issue as much as it is a resource issue. Pushing us forward, *Black, Brown, Bruised* challenges us to entertain the questions *STEM for what? STEM for whom? How can the skills learned in STEM programming be used to develop tangible mechanisms for changing the conditions of my community and the people I care about?* In the end, I think science will be appreciative of these subjective questions.

We have to come to grips with the fact that we still ask young people to suffer through their university experiences in STEM education, with the hope that they won't ask deeper questions of its relevance and utility. Science, technology, engineering, (art), and mathematics *might* present an avenue to rupture the orthodoxy of White supremacy in STEM, but it will only do so if paired with critical analysis and fugitive planning. *Black, Brown, Bruised* digs deeper into the challenge of making sure that the justice-minded Black, Latinx, and Indigenous scholars have a way to build what we need. The current state of affairs (before and after the pandemic) remains unacceptable. I know that more orthodoxy won't give us the answers we need. Instead, we need to consider whether or not STEM, STEAM, or any iteration has the power to shift the paradigm.

As disruptive work, I understand *Black, Brown, Bruised* to operate in the spirit of Katherine Johnson, Ellen Ochoa, and Susan La Flesche Picotte. Because Dr. McGee has dared to be unpopular and has named the devil in the room concerning the exclusion of Black, Brown, and Indigenous folks in the physical, natural and medical sciences, engineering, technology, and mathematics, it is important that we support

her fugitive and revolutionary praxis. Given the responsibility placed on me by Dr. McGee, it is my humble prayer that these words reflect solidarity with her efforts.

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