Chapter 15
Perspectives on Building Racial Equity in Science, Technology, Engineering, Math, and Health Science Education and Workforce Systems

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ABSTRACT

Persistent and deeply entrenched systemic racism too often contributes to the lack of Black and Latinx people from low-income communities ascending and succeeding at the highest levels of STEM and healthcare careers. The authors examine the relationships between equity-centered innovations in K-12 STEM education, persistence, and attainment. The authors identify community-specific constructs with potential to engage partners and increase collective capacity for more Black and Latinx youth. They focus on how to structure social-emotional health into STEM and health science learning models, occupational identity development, and specific work-based learning strategies for students. Data and infrastructure are considered, and approaches to program design are discussed from a methodological point of view. This analysis considers these elements through its case study of the rush education and career hub (REACH), a pipeline and workforce intermediary. REACH is distinct for its position within Rush University Medical Center, an anchor institution on Chicago's west side.

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INTRODUCTION

People of color are dramatically underrepresented in STEM fields—according to a recent Pew Research Center report, just 2.2% of Latinos, 2.7% of African Americans, and 3.3% of Native Americans and Alaska Natives have earned a university degree in STEM fields (Funk & Parker, 2018). The same Pew report surveyed current STEM professionals, finding that 52% of those surveyed believed this lack of representation was due to a lack of educational opportunities for people of color and 45% believed the cause was people of color not being encouraged at an early age to pursue STEM-related subjects (Funk & Parker, 2018). Finally, around one-third of those surveyed also attribute this underrepresentation to a lack of belief in their ability to succeed in these fields, the lack of diverse role models in these fields, and racial/ethnic discrimination in recruitment, hiring and promotions (Funk & Parker, 2018).

There is a great and growing demand for workers in the STEM and healthcare fields. It is projected that between 2016 and 2026, health sector employment will grow at a significantly higher rate than employment in all other sectors (Lacey, Toossi, Dubina, & Gensler, 2017). Health sector employment is projected to grow from nearly 16.5 million jobs in 2016 to more than 19.5 million jobs in 2026, an increase of 18%, compared to only 6% growth for jobs in all other employment sectors. The U.S. Bureau of Labor Statistics employment projections show that by 2029, jobs within STEM fields are expected to grow at more than double the rate for all occupations (Zilberman & Ice, 2021).

There is an imperative to improve the representation and the trajectory for Black and Latinx workers in healthcare and STEM and to improve health outcomes through a diverse, culturally competent workforce. The diversity gap within the STEM and healthcare fields directly impacts the economic opportunities for Black and Latinx workers and also has disastrous health impacts for patients of color. Less than 10% of nurses and physicians are Black and Latinx (Association of American Medical Colleges, 2019). Black and Latinx patients consistently experience negative health outcomes, in comparison to White patients, even when controlling for other variables-including income and health insurance status. The infant mortality rate in the black population is twice that of whites. Black men are seven times more likely than white men to receive a diagnosis of H.I.V. and more than twice as likely to die of prostate cancer. Black women are 40 percent more likely to die from breast cancer (Tweedy, 2015). Research demonstrates that when Black, Indigenous, People of Color (BIPOC) patients receive care from BIPOC doctors, the outcomes improve exponentially. A recent study by Stanford University found that increasing the number of black physicians could lead to a 19 percent reduction in the black-white male cardiovascular mortality gap and an 8 percent decline in the black-white male life expectancy gap (Alsan, Garrick, & Graziani, 2019).

Persistent and deeply entrenched systemic racism throughout systems impacting students and families, including K-12 education too often contribute to the lack of Black and Latinx people from low-income communities who are succeeding at the highest levels of STEM and healthcare careers. Students of color, especially Black and Latinx students, routinely demonstrate dramatically lower test scores than their White peers. A report from the National Assessment of Educational Progress (NAEP)—which measures whether students can apply tech and engineering skills to real-life situations—revealed a 38-point gap between Black and White students (Strauss, 2019). Nationally, more than half of White students across grade levels score at or above average on STEM standardized tests, compared with 28 percent of Latinx and 18 percent of Black students (Smith & Reeves, 2020). These gaps are exacerbated by the lack of access to high-quality and culturally relevant STEM education for students of color within the k-12 educational system. The 2018 National Survey of Science and Mathematics Education found only about a quarter of middle school and about a third of high school science teachers have participated in