


Chapter 12

Culturally Sustaining Pedagogies in STEM Preparatory Programs: The Woods Hole Partnership Education Program

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ABSTRACT

Through the exploration of the literature and promising practices in the field, this chapter explores the following questions: How do STEM programs build culturally sustaining pedagogy into curriculum? How does engagement in culturally sustaining pedagogy guide the move into graduate school and professional work among BIPOC scientists? This chapter focuses on one such program as a model: The Woods Hole Partnership Education Program (PEP). The findings and implications may be insightful for readers designing higher education courses and programs, scientific professional development practitioners, or others invested in understanding how to sustain science interest in those from underrepresented backgrounds.

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INTRODUCTION

The expansion of access to opportunities in STEM (science, technology, engineering, and mathematics) has been lauded as a critical first step to further scientific knowledge and innovation (Specht & Crowston, 2022). For decades, programs and initiatives have been developed to “broaden participation” across the STEM disciplines. These programs often aim to recruit meritorious students from diverse backgrounds, including women, those from economically marginalized communities, and individuals from Indigenous, Black, Latinx, Asian, and Pacific Islander (BIPOC) communities.

In the ever-evolving sociopolitical context, where programs with a central aim of “diversity, equity, and inclusion” (DEI) are being dismantled, there is an opportunity to explore the limits of narrowly defined initiatives that focus on access as a primary goal. We argue that these types of programs can be subject to erasure - reverting the nation back to policies and practices that structurally deny opportunities for individuals with a diverse array of backgrounds, talents, and perspectives on the world’s problems.

Programs that engage culturally sustaining pedagogy (CSP), however, go beyond the goal of access to achieve diversity. CSP requires an understanding of equity from a broader perspective by centering on the impact of hegemonic whiteness in shaping our educational systems (Alim et al., 2020). For example, educational systems in the United States evolved to not only segregate BIPOC students from white students, but also to emphasize that knowledge curated from white scholars was the only acceptable, objective way of understanding the world. Amid progressive solutions to this segregation is the inclusion of BIPOC students as “guests” to these educational systems, a notion which is contended by the rightful presence framework (Calabrese Barton & Tan, 2020). Instead of “equity as inclusion”, rightful presence pushes educational interventions to re-evaluate disciplinary learning, centralize students’ experiences with injustice, and promote a shared responsibility of learning amongst students and teachers.

To counter this deeply rooted system of knowledge creation and knowledge distribution, CSP centers instead on the pedagogical practices on the cultural identities, ways of knowing, and experiences of BIPOC communities (Paris, 2012). By engaging a CSP approach, instead of seeking out “meritorious” students to participate in a program, we problematize the definition of meritocracy that narrowly restricts the criteria by which individuals are included in STEM programs to standardized test scores, GPAs, or institutional prestige (Alim et al., 2020). The concept of CSP can be used to evaluate the extent to which research mentors in STEM programs see BIPOC undergraduate students as valuable thought partners and contributors to the scientific process, or “obedient, cheap sources of labor” (Alim et al., 2020, p. 262).

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