


Chapter 10


To Be Seen in That Room: Culturally Sustaining Pedagogy in Science Education as Everyday Teacher Practice

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ABSTRACT

Based on their lived and professional experiences, these authors call for a reimagining of science education through the lens of Culturally Sustaining Pedagogy (CSP). Here, we examine model classrooms and real-world examples of CSP in action, while also addressing the challenges of teacher preparation and professional development in adopting these practices. By building classrooms in which students leverage authentic science practice while acknowledging systemic inequities in science and actively incorporating diverse perspectives, educators facilitate students achieving their potential. This inclusive approach enhances critical scientific literacy by cultivating social consciousness and supporting individuals who are prepared to contribute meaningfully to a more equitable and just world. Through the exploration of different contexts and theoretical insights, this manuscript provides a roadmap for creating transformative science classrooms that nurture the future stewards of our world.

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INTRODUCTION

Science, and by extension science education, has been posited as neutral and objective. However, scientific disciplines, their practice, and dissemination along with current disparate student achievement data reveal systemic inequities. In this chapter, we explore the transformative potential of Culturally Sustaining Pedagogy (CSP) in science education. Specifically, we aim to highlight two central themes: (a) examples of model classroom practice, including efforts led by the authors, that effectively integrate CSP principles into their curriculum and instruction, and (b) the challenges and opportunities in science teacher preparation and professional development for adopting CSP. The title of this chapter, “To be seen in that room,” is from a direct quote from a student reflecting on their experience in an AP Biology class (Upegui, 2022, 20:03):

I would not say that, like, I absolutely love science, but if I'm being honest AP Biology is probably my favorite class that I'm taking this year...When we talk in class, it's not just a science environment – it's just a human connection environment, where [our teacher] sees us and we see him ... To be seen in that room makes it like, even though it's science and I'm not a big science person, it just makes you feel so great to be seen, to be represented and to be able to have someone who really believes in you.

This poignant statement encapsulates the core of our argument: science education, when approached inclusively, has the power to make students feel seen, valued, and empowered. Moreover, this process does not require them to “absolutely love science,” but instead encourages critical engagement with the roles that science may play in their lives and our futures. Through this lens, we argue for a reimagined science education that is inclusive, socially conscious, and deeply impactful for all learners.

It is with this generation of learners, as with those before them, that the future of humanity rests. The students in our classrooms today are problem solvers of the future and the present. Their lives are shaped by pressing and complex challenges such as the accelerating impacts of climate change, food and water insecurity perpetuated by the instability of global political systems. They will be tasked with addressing the threats of antibiotic resistance and future pandemics and outcomes in the fields of biotechnology and medicine that exacerbate our shared history of access for the few. Unlike those of previous generations, contemporary students have unparalleled access to knowledge, tools, and technologies that hold the potential to drive transformative progress. The modern era, brimming with innovation, demands a science education that is not only engaging and empowering, but also inclusive and attuned to the diverse perspectives necessary to solve these global issues. By leveraging CSP and, in so doing, equipping students with the skills to think critically,

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