JRST
Journal of Research in Science Teaching
Research Brief
VOL. 61, NO. 4, PP.937-971(2024)

Gender-Inclusive Science Education for Trans and Nonbinary Youth

K. Rende Mendoza, Carla C. Johnson

OVERVIEW: This study explored the pedagogical practices of 10 transgender science teachers with the purpose of learning from their experiences creating gender-inclusive curriculum.

AUDIENCE: Administrators (K-12), District science coordinators, Formal educators, K-12 science teachers, Science education leaders, Secondary science teachers, Teacher educators, Biology educators

KEY POINTS

- Trans teachers are vital in the advancement of effective gender-inclusive science education.
- The TRANS framework signifies a major shift in gender-inclusive educational models and aims to provides strategic guidance for conceptualizing new curriculum and pedagogy.
- Meeting the needs of trans students, particularly in hostile states and districts, is increasingly necessary, necessitating ongoing dialogue and action in this area.

INTRODUCTION. Despite progress in gender-inclusive science education for women and girls, transgender, non-binary, and gender non-conforming youth still face underrepresentation in educational reform efforts. Utilizing a qualitative approach, this study focused on the experiences of transgender science educators, analyzing the practices of 10 teachers to understand their development of gender-inclusive curricula. Data sources included three serial interviews, examination of teaching materials, and evaluation of educators' reflective statements about integrating gender-inclusive curriculum. Participants were recruited from online queer and trans educator communities. The research question that guided this study was: How, and in what ways, do trans science teachers incorporate gender-inclusivity into their science curriculum and instruction?

FINDINGS. The TRANS Framework encompasses three distinct yet interrelated domains. The first domain, "Interrogating and Accessing Power," urges students and educators to critically examine the interplay between science and power, encouraging them to question dominant narratives and recognize science's dual role as both a potential oppressor and a tool for addressing inequality. The second domain, "Resisting Essentialism," is bifurcated into two parts: "Affirming Diversity" and "Teaching with Accuracy and Scientific Precision." The former advocates for an educational stance that challenges binary thinking regarding sex, gender, and sexual diversity, celebrating the rich spectrum of natural phenomena. The latter emphasizes the importance of precise, scientific language in discussing biological processes, fostering a deeper understanding of complex scientific phenomena beyond gendered oversimplifications. Finally, the third domain, "Embracing Experiential Knowledge and Personal Epistemologies," referred to helping students to understand themselves scientifically by drawing from their own experiential knowledge and embodied epistemologies.

TAKEAWAYS. To effectively address gender inclusivity in K-12 education, it's suggested that ongoing discussions and proactive efforts be integrated into educational policies and practices. This evolving domain calls for a sustained commitment to inclusivity, particularly for trans, nonbinary, and gender-creative youth. Key to this progression is the continuous training and professional development of teachers. It's recommended that educators be provided with current and comprehensive training in gender-inclusive practices, ensuring they are well-versed in the latest issues and terminology related to gender and sexual diversity. Such training will enable educators to adeptly navigate the changing educational landscape, particularly in states with anti-trans and anti-LGBTQ legislation.

Furthermore, it is advisable to revise science curriculum design to embrace inclusivity. Shifting away from traditional binary perspectives on gender and sex and focusing on precise, scientifically accurate language in teaching materials is recommended. This approach not only helps to dismantle prevailing stereotypes but also fosters a richer and more inclusive understanding of human diversity. Science curriculum should also encourage students to critically analyze the role of science in societal power dynamics and its impact on marginalized communities, fostering a more empathetic and socially conscious student body.

Full Title: A (TRANS)formative Approach to Gender-Inclusive Science Education