

CRITICAL MINDSET AS A 21-ST CENTURY SKILL: CHALLENGING HETERONORMATIVE ASSUMPTIONS THROUGH TEACHING HIGH SCHOOL BIOLOGY

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Abstract

This study focuses on the lived experience of an experienced biology teacher and their desire/ability to develop a gender-inclusive curriculum. Grounding on a narrative inquiry methodology, the narratives of our genderqueer high school biology teacher illustrate their beliefs about biology teaching and advancing students' knowledge in ways that empower the students. The study highlights a need to teach biology in a way that develops students' critical mindset as part of a 21st-century skill by emphasizing and weaving sociopolitical issues into their curriculum.

Overview of the Study

As classrooms become more culturally and linguistically diverse, attention must be turned to understanding how science teachers disrupt hegemonic school science practices to engage all learners as an inclusive and equitable practice. This study draws on pedagogical content knowledge (Magnusson et al., 1999) and sociotransformative constructivism (Rodriguez & Barryman, 2002) by focusing on Teacher Johnson's experience as a genderqueer high school biology teacher and how they organize biology content knowledge while attending to their agency and power dynamics in disrupting heteronormativity in the classroom. Our study took place in the West of the United States, in an area that serves communities of Color and immigrant families. We utilized narrative inquiry to contextualize how Teacher Johnson's lived experiences shaped their beliefs, informed their biology teaching and their desire to create gender-inclusive curricula. We conducted four narrative interviews with Teacher Johnson. The first three focused on understanding critical points in their lived experience that later inform how they organize biology content knowledge that is disruptive to heteronormativity. The fourth interview focused on a read-out-loud approach, where we asked Teacher Johnson to share an example of a developed gender-inclusive biology curriculum and talk through their conception of the unit.

Through thematic narrative analysis, one key finding highlights Teacher Johnson's intentionality in developing students' critical consciousness to prepare students to be scientifically literate, or what we call a critical mindset. For example, Teacher Johnson teaches students about the complexity of sex determination and introduces socially relevant connections to terms like intersex and transgender. They encourage students to apply these perspectives to critique hegemonic social conceptions of human sex and examine the sociopolitical impact view of sex when conflating it with gender as social constructs. This theme highlights how Teacher Johnson cultivated students' critical mindset. Including sociopolitical issues by challenging commonly accepted ideas highlights how biology can develop students' understanding of social inequities and disrupts hegemonic practices of teaching high school biology.

References

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