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Beyond the Land Acknowledgement - Cultivating Motivation and Connection with Science Education

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There is an enduring deficit in the representation of marginalized students in graduate programs and tenure-track research positions disproportional to the general populations of western countries. Despite the opportunity and excitement from science learning, studies report students continue to become discouraged from pursuing science subjects. While education researchers have identified some general factors for why students become unmotivated or disconnected with science, such as difficulty, assessment anxiety, and career expectations, most studies have not specifically investigated the experiences of marginalized students and their barriers to engaging with science. Empirical bias may further our understanding of the average student experience, while neglecting the multitude of experiences that diverge from that. To address this bias and knowledge gap, this study uses a small-scale qualitative interview approach to investigate science teachers' perspectives on science motivation and connection in schools with high diversity in Ontario, Canada. The courses represent the last mandatory science courses all high school students must take in Ontario, which provides a key window to the deciding years on whether students continue to pursue science.

Interview transcripts were deductively coded via axial coding, descriptive coding, and grouping, from which three major themes emerged. The participants reported that students felt science had a reputation for focusing on grades to the detriment of long-term connection and learning; that marginalized students benefit from specific and targeted supports to develop connections with science; and that building positive teacher-student relationships fosters connection with science content. Lastly, culturally-relevant pedagogy and connection through practices like “place-based learning” can increase all students' engagement with science, but particularly those of marginalized students by integrating their experiences and cultures into course content and delivery. The curriculum of these grade 9 and 10 courses feature core biology, physics, and chemistry, but also raise units on planetary sciences and climate change that provide ripe opportunities to build practical connections from students of all backgrounds to the science interwoven with the land they live and grow in.