

Sense of Belonging of Minoritized Female STEM Students in Introductory Mathematics Classes: A Mixed Methods Study

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Higher education institutions are becoming increasingly diverse in their undergraduate populations, but minoritized female students, especially Black and Latina women, continue to be underrepresented in almost all STEM fields (Hatfield, 2022; Ong et al., 2016). Although minoritized female students often begin college with a strong interest in STEM, they are more likely to leave the STEM major due to an absence of belonging in their introductory courses (Rainey et al., 2016). Researchers argue that sense of belonging at the classroom level, is a key factor in supporting minoritized student persistence, and it may even improve participation and academic performance (Strayhorn, 2019). Understanding female minoritized students' sense of belonging in the introductory mathematics classroom context, therefore, is crucial in better understanding their academic experiences, and by extension, understanding how to better support their persistence and achievement in STEM (Museus et al., 2017).

The following research aim will guide this study: How do their identities as female minoritized students play a role in their sense of belonging in gateway mathematics classrooms at a racially and ethnically diverse open access institution? Specifically, 1. How do Black and Latina female students' sense of belonging in the college algebra and precalculus classrooms compare to students in other racial and gender groups? 2. Does Black and Latina female students' sense of belonging in college algebra and precalculus change from the beginning to the end of the semester? 3. How do Black and Latina female students describe their college algebra and precalculus learning environment, experiences, participation, persistence, support systems and challenges as it relates to their sense of belonging?

Theoretical Perspectives – I frame my study using three conceptual frameworks: (a) sense of belonging (Strayhorn,

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