Creating Counterspaces Through Critical Conversations About Race and Gender in STEM

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Undergraduate STEM educational spaces, and particularly, mathematics educational spaces, are uniquely racialized and cisheteronormative. (e.g., Leyva et al., 2022; Ong et al., 2011). STEM *counterspaces* are academic and social spaces that allow minoritized students to validate one another's critical knowledge from their experiences, share stories of isolation, discrimination, etc., broadly challenge deficit notions of minoritized groups, and establish positive racial climates (Ong et al., 2018, p. 209). Research has begun to uncover the benefits of counterspaces on students, such as improving students' sense of belonging, mitigating feelings of isolation, and affirming students' academic identities (McGee & Martin, 2011; Oppland-Cordel & Martin, 2015). In this poster, we explore the question: *To what extent can critical conversations about race and gender function as a counterspace for minoritized students?*

Critical Conversations (CC) about Race and Gender in STEM was an activity that we designed with the objective of supporting minoritized students and instructors to build empathy, solidarity, and community with one another through affirmations and shared stories. It was part of a larger three-year professional development project at a Hispanic Serving Institution focused on anti-deficit teaching (Adiredja et al., 2024). Three cohorts of students and instructors participated in five conversations, two during a summer math workshop and three during the following Fall semester. We used the same curriculum for each year, and each conversation was facilitated by undergraduate STEM peer mentors from minoritized backgrounds.

We focused our analysis on exit tickets after each of the CCs in the fall because they were held at the university cultural resource centers, thus involving more members of the university community. The fall CCs also discussed topics that were explicitly about race and gender in STEM: stereotype and stereotype threat (Steele, 1997), stereotype management (McGee & Martin, 2011), and community cultural wealth (Yosso, 2005) respectively, all discussed in the context of STEM education. The exit tickets were anonymous and asked for one take-away and one feedback about the conversation. Over all nine CCs, we had 90 participants (75 students and 15 instructors). From these participants, we received 89 responses.

Eleven themes emerged through a constant comparative method (Glaser, 1965), with three being especially relevant: connecting through shared experiences (26 responses), experiencing affirmation and support (20 responses), and learning how to respond to stereotypes (22 responses). These themes connect to Ong's definition of counterspaces, as they provide evidence participants are sharing stories, validating each other's knowledge and experiences, and challenging deficit narratives. Notably, we found that participants reported connecting with each other through shared experiences instead of shared identities, which may make CCs a valuable counterspace for people who feel left out of more homogeneous groups. For example, one participant reported "a good sense of shared humanity with other men," though they were initially worried their sexuality would render them invisible to straight men. They were able to connect over shared experiences "that had different sources but the same impact," and found that "really affirming." Our findings suggest that leveraging shared experiences can support the creation of counterspaces, especially in a department without critical masses of underrepresented groups. Even so, we found the collaboration with the university cultural centers to be fruitful.

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