

MAS17-2017-000218

Abstract for an Invited Paper
for the MAS17 Meeting of
the American Physical Society

Interrogating Physics Classroom Culture in an Active Learning Environment to Promote Inclusion

DIANE JAMMULA, Rutgers University, Newark

While active physics curricula have nearly doubled students' learning gains (Von Korff et al., 2016), gender and race gaps persist (Brewer et al., 2010; Kost, Pollock, & Finkelstein, 2009). Kost-Smith, Pollock, & Finkelstein (2010) refers to an elusive and pervasive "smog of bias" in the physics classroom that contributes to these disparities. This qualitative study takes place in an active learning physics classroom in an urban public college to answer the questions: 1) What subjectivities do students bring to the physics classroom? 2) How can the physics classroom culture be characterized? 3) What instructional practices help or hinder an inclusive physics classroom culture? Participants were 7 female and 16 male students of different race and ethnic backgrounds, and I was the course instructor. Field notes, students' journals, and classroom artifacts were analyzed using open coding. Results show a wide range of student identities that both align with and contradict gender, race, and class stereotypes. Some class activities were conducive of a patriarchal classroom culture described as elitist, competitive, and hierarchal. However, other class activities facilitated community, caring, and support. Findings suggest inclusive physics instruction must move beyond a binary "physics for her" and "physics for him" to accommodate intersectional identities and variation within gender categories. Patriarchal classroom culture worked to marginalize many students, especially women and students of color. To increase the participation and achievement of underrepresented students in physics, inclusion must be intentionally cultivated.