APR16-2016-020028

Abstract for an Invited Paper
for the APR16 Meeting of
the American Physical Society

Becoming physics people: Development of physics identity in self-concept and practice through the Learning Assistant experience[1]

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The physics department at Texas State University has implemented a Learning Assistant (LA) program with reform-based instructional changes in our introductory course sequences. We are interested in how participation in the LA program influences LAs' identity both as physics students and as physics teachers; in particular, how being part of the LA community changes participants' self-concepts and their day-to-day practice. We analyze video of weekly LA preparation sessions and interviews with LAs as well as written artifacts from program applications, pedagogy course reflections, and evaluations. Our analysis of self-concepts is informed by the identity framework developed by Hazari et al., and our analysis of practice is informed by Lave and Wenger's theory of Communities of Practice. Regression models from quantitative studies show that the physics identity construct strongly predicts intended choice of a career in physics; the goal of our current project is to understand the details of the impacts of participation in the LA experience on participants' practice and self-concept, in order to identify critical elements of LA program structure that positively influence physics identity and physics career intentions for students. Our analysis suggests that participation in the LA program impacts LAs in ways that support both stronger "physics student" identity and stronger "physics instructor" identity, and that these identities are reconciled into a coherent integrated physics identity. In addition to becoming more confident and competent in physics, LAs perceive themselves to have increased competence in communication and a stronger sense of belonging to a supportive and collaborative community; participation in the LA program also changes their ways of learning and of being students, both within and beyond physics.

[1]This research and the TXST LA program are supported by NSF DUE-1240036, NSF DUE-1431578, and the Halliburton Foundation.