

Characterizing Classroom Interactions to Assess the Quality of Algebra Instruction at Community Colleges

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As part of a large-scale study of algebra instruction at community colleges, we developed a video coding instrument that seeks to identify the quality of the interactions between students, instructors, and content that will be used to test how these interactions support student learning of algebra. We present findings regarding patterns of instruction derived from the coding of 972 segments, from 88 videos and 40 instructors at six different colleges. The majority of the segments in this sample focused on the teaching of a procedure via lecturing with limited use of technology. In this article, we present four codes to illustrate what evidence we are using to characterize ways in which students make evident their reasoning and sense-making, how instructors help students make sense of the mathematics, how instructors allow for students to steer the lesson, and what counts as errors and imprecisions in content and language. We use a short excerpt on linear equations to exemplify the codes. These codes highlight both evident and more subtle aspects of instruction. Drawing attention to sense-making, errors and imprecisions, and the balance of teaching–learning space for instructors and students provides reflective material for practitioners as they plan instruction that attends to student thinking.



Vilma Mesa is professor of education and mathematics at the University of Michigan. She investigates the role that resources play in developing teaching expertise in undergraduate mathematics, specifically at community colleges and in inquiry-based learning classrooms. She has collaborated with several community college faculty on numerous federally-funded projects and is currently serving as associate editor for Educational Studies in Mathematics.



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April Ström teaches mathematics at Chandler-Gilbert Community College in Chandler, AZ. She has taught at the community college level for over 20 years. She served as the Principal Investigator for the NSF-funded Arizona Mathematics Partnership and currently serves as a Co-Principal Investigator for Algebra Instruction at Community Colleges: An Exploration of its Relationship with Student Success project (NSF award 1561436).