

Linking Instructor Moves to Classroom Discourse and Student Learning in Differential Equations Classrooms

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This presentation provides a preliminary analysis of how teacher moves in an undergraduate classroom can be specifically linked to student learning about one overarching mathematical topic: parametric curves. Preliminary analysis of one teacher and classroom using an inquiry oriented discursive move framework and grounded theory supports the hypothesis that a teacher's mathematics and his pedagogical choices provide focus for student discourse and learning about parametric curves. The authors found that the teacher's moves motivated by his own lateral and vertical curriculum knowledge, desire to deepen students currently held knowledge, and promotion of the students' abilities to think like mathematicians and develop mathematical habits of mind links to student learning of the parametric equations and graphs as seen through discourse and student work. Finally, the research offers ideas about how university professors can be more aware of their choices of pedagogy to influence learning about large mathematical ideas.

Keywords: differential equations, discourse, teaching moves, parametric equations