

Precalculus Students' Perceptions of Instructor Actions and Intentions via Stimulated Recall

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The results in this poster contribute to a larger dissertation study aiming to understand how students' perceptions of their interactions with their instructor relate to their math identity, or their view of themselves as a "doer of math." This is a participative approach to math identity, influenced by the figured worlds framework (Holland et al., 1998) and Wood's framework of micro-identities (2013), which both contest that the 'kind of person' one enacts within specific environments relates to the 'kind of person' they generally identify themselves as. Studies conducted in undergraduate STEM courses show how instructors can set classroom expectations that influence the STEM identities students are permitted to enact (Jackson & Seiler, 2017), and that students are aware of these different expectations that may be imposed on them (Lim et al., 2023). This poster will discuss results on students' varied interpretations of instructor actions and intentions in an undergraduate math context.

Data for this poster comes from observations of an interactive precalculus class in the southwestern U.S. during Fall 2025, and early- and late-semester interviews with seven focal students. Observations involved video-recording each class session, providing video clip data used for stimulated recall (Lyle, 2003) in both interviews. The interviews were designed to understand students' beliefs about their math ability and have them reflect on their roles while interacting with their instructor. Analysis for these results was completed via open coding (Strauss & Corbin, 1998) of interview transcripts, involving refining codes along three dimensions: (1) *emotions* and *beliefs* expressed by the student about the interaction; (2) perceptions of the *emotions* and *beliefs* of the *student in the video clip* (sometimes themselves); and (3) perceptions of *instructor actions* and their *intentions*. These codes have been organized into various categories of meaning and are still actively being explored. For this poster, two initial findings will be presented: (a) *variability of an interaction*, and (b) *the typical interaction*.

For (a), the students had variation in both the instructor actions they noticed in these clips and their interpretations of these actions (and their intentions). For a particular early-semester clip, some students noted a vocal inflection used by the instructor when responding to incorrect answers, while others noted the instructor's physical gesturing. With the vocal inflection, students also had varied interpretations for the instructor's intent, including to indirectly guide the students to the correct answer or to push back against student responses. For (b), the students overall described a typical student-instructor interaction as the instructor probing for student understanding and avoiding directly giving answers to students, which students typically interpreted as the instructor encouraging them to think deeply about the material.

These findings suggest that students may be consistent in interpreting the 'typical' interactions in their classroom, but may have varied perceptions of more unique interactions. Further work needs to be done to understand how these different perceptions might be impacting students' math identities. There are future plans to analyze the math identity items from the interviews to understand the students' relationship to math throughout the semester. In doing so, I will be able to better connect the different ways these students interpret instructor actions to the different math identities they enact (and believe they enact), which will lead to a deeper understanding of the complex ways instructors can influence student math identity development.

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