

Exploring Conceptions of Smartness in Mathematics: Connecting Student and Instructor Perspectives at a Hispanic-Serving Community College

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In this poster, we build upon the work of (Hernandez, Wilkes, Camacho, & Pilgrim, 2025), describing how community college students' conceptions of smartness in math class can be categorized based upon a framework that accounts for both dominant (Boaler & Staples, 2005) and counternarratives (Reinholz, 2021), which are important for how learners see themselves and how classrooms reinscribe and perpetuate inequities (Leonardo & Broderick, 2011; Hatt, 2012). To build on this work, we leveraged the perspectives of the students' instructors to explore potential alignment between student and teacher conceptualizations of smartness.

The study takes place at a Southern California Hispanic-Serving Institution (SCHSI) a comprehensive two-year community college. Participants were students enrolled in math classes taught by five instructors who participated in professional development (PD) sessions. The students were enrolled in gateway mathematics courses. The data collected consisted of 103 open-response answers to the question: "What do you think it means to be smart in math at SCHSI?" In the first phase of analysis, the student data were analyzed using thematic analysis (Braun & Clarke, 2012) across three coders, resulting in a two-axis coordinate system and a heat map to visualize the distribution of student responses. The coordinate system ranged from process to outcome and from dominant to counternarratives. (Hernandez et al., 2025)

The next phase of analysis looked at 10 interviews (2 interviews per instructor) that focused on instructors' beliefs, experiences, and practices around equity in mathematics. While the interviews did not explicitly focus on smartness, we argue that instructors implicitly communicated their conceptions of smartness. The analysis was done in two parts: a) disaggregate students' placement on the axis based upon their instructor, b) leverage the coding scheme developed in the first phase to gain a broadened understanding of where instructors' conceptualizations fall in the aforementioned coordinate system.

One major finding is that one instructor, Paul, has prominent placements along the tension of counterprocess and dominant outcome, as well as numerous counter outcomes. Nhung has equal amounts of dominant outcome and counter process, also demonstrating a tension. The second finding is that the instructors seem to describe tensions in the interviews that describe their own experiences against their desired practices. Nhung described striving for conceptual understanding but often reverting to procedural practices, such as limited wait time, relying on frequent participants, and narrowly structured lessons. Similarly, Paul noted the tension between wanting to meet students' needs through varied supports and the reality that time and content demands constrain his ability to do so.

After analyzing interviews by instructors to understand their conceptualizations of smartness, we found that instructors had tensions between their implicit conceptions and their students' explicit conceptions of smartness. While we do not make claims about the instructors' impact on students' placement in this study, we believe it's important to consider instructors' conceptualizations of smartness as opportunities to disrupt the conceptualizations of smartness that students may hold, which might be unproductive.

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