

Student Mathematical Identity as a Framework for Reflective Practice

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The 21st century has seen the rise of math education research which seeks to understand and contextualize students' affective beliefs as well as large-scale professional development and policy interventions targeting student identity (Aguirre et al., 2013). The authors of this study are teacher researchers at a large public Hispanic-Serving Institution in Southern California whose prior work investigates student attitudes. Our dual roles led us to the following research question: **How do we use knowledge of students' prior and developed mathematical attitudes in our classes to inform our future teaching?** The goal of our poster presentation is to share a methodology for how scholarship can return to teacher practice.

We use action research, specifically the dialectical action research spiral described in Mills (2018), to frame our analysis. The steps of this process – identifying an area of focus, collecting data, analyzing and interpreting the data, and developing an action plan – are linked in a loop with no fixed starting or endpoint. Based on our prior work and internal evaluation, we use the Mathematics Attitudes and Perceptions Survey (MAPS) (Code et al., 2016) to measure students' *expert-like attitudes* in the dimensions of Growth Mindset, connections to the Real World, Confidence, Interest, Persistence, Sense Making, and the nature of Answers in math; we augment this instrument with an Identity dimension taken from the High School Longitudinal Survey (HSLS:09) (Ingels et al., 2011).

Student data is drawn from the populations of the researchers' courses in Fall 2022 and Spring 2023. The MAPS+Identity survey was used as a metacognitive classroom activity in each of these courses at the beginning and end of the semester; our analysis includes only students who gave informed consent for their data to be used in research. Author 1 identifies as white and non-binary; they teach content courses for pre-service elementary and secondary teachers. Author 2 identifies as white, male, and a former low-income first generation college student; he teaches content courses for pre-service secondary teachers as well as general education courses. Author 3 identifies as white, female, a former first-generation college student, and a non-native English speaker; she teaches general education courses. All three authors are coordinators for courses in the mathematics department at our institution.

Our poster will refine and present the following preliminary results and implications for our practice, based on initial teacher researcher conversations:

- Instruments used in RUME have historically been validated primarily in the contexts of research institutions with predominantly white student populations. Our work extends the validity evidence of the MAPS to our context, which increases our confidence as teachers that these dimensions are salient for understanding our students.
- Recent prior work (Balady & Taylor, 2022) found that students' pre-course Growth Mindset scores were higher than those in earlier uses of the instrument, which the authors suggested might reflect the increasing popularity of K-12 mindset interventions. Students in our population are consistent with this trend, which suggests that such interventions may be reaching a ceiling of effectiveness.

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