

## Statement of Research on Mathematics Pedagogy

I envision a world in which we collectively relate to mathematics in empowered, joyful, and thoughtful ways across our varied contexts (Ardila-Mantilla, 2016; Gutiérrez, 2013; Su, 2024), and I orient my pedagogy research around this vision.

### **My Research Methods of Choice**

I work to center methods that heal, empower, build relationships, and recognize each person's humanity (Aguilar et al., 2022; Justice Design Network, 2018). This has drawn me to qualitative methods like narrative inquiry (Estefan et al., 2016), reflexive thematic analysis (Braun et al., 2023), poetic transcription (Prendergast, 2009), collaborative and analytic autoethnography (Anderson, 2006; Chang, 2013), and embodied inquiry (Leigh & Brown, 2021). Moreover, it calls me to conceptualize techniques like triangulation and member checking as not only sources of credibility (Lim, 2024), but also as opportunities to listen deeply to one another (Birt et al. 2016). As another form of deep listening, I employ discourse analysis (Rogers, 2004) in two of my four co-authorships for the 2026 RUME conference. On quantitative methods, I have built [four data visualization dashboards](#) for a descriptive statistical analysis of survey responses from 90,000 undergraduates.

### **My Orientation to Research: The Importance of Uncertainty**

In a solo submission to the 2026 RUME conference, I observe an increase in the term “love” in math pedagogy literature and develop a theoretical framework for thoughtful use of this complex word. My theoretical framework foregrounds the “simultaneous holding of countless complexities” and calls for us to “[depend] on one another for mutual knowledge production” (Black, under review). I therefore envision “researcher” and “practitioner” as overlapping and in constant dialogue, which I practice with colleagues in *loving* self-critique of a transformation-oriented research practice partnership (Black et al., under review; compare Basile & Azevedo, 2022). In another co-authored submission, I observe that “ontological tensions can be *generative* [emphasis mine] and powerful informants for liberatory ontological possibilities in mathematics education” (McNeill et al., under review; compare Anzaldúa, 2002; Myers et al. 2023). I therefore work to draw upon diverse ways of knowing across sciences and cultures (Gleiser, 2014), and orient to my research practice with curiosity and a celebration of my *uncertainty*.

### **Research in my Current Class**

In support of my students' well-being (Chaves, 2021), I designed a research study for my current course, an introduction to proof for non-math majors. I combined Hill et al.'s (2021) framework for *mathematical* well-being with a well-established flourishing measure (VanderWeele, 2017) to design a mathematical well-being survey. Also, a growing number of scholars explore how mindfulness practices can support students both in general (Leland, 2015; Zajonc, 2015) and specific to mathematics (Morgan & Abrahamson, 2016), especially through breathwork (Kulick, 2024; Peper et al., 2016). In consultation with this literature, I developed reflection surveys for my course that prompt attention to breath. These well-being and reflection surveys together constitute my current investigation of more general research interests: I am curious about the potential of somatics (where *soma* refers to the body), or embodied knowledge, as a supporter of mathematical well-being in and beyond the classroom.

## My Future Research: Somatics for Collective Mathematical Well-being

With collaborators Jess Hagman, Nancy Kress, Kachine Kulick, and Geillan Aly, I developed a recent [Spencer Foundation Vision Grant](#) proposal on collective (teacher, student, and beyond), somatic (body-centered) mathematical well-being. Embodied cognition frames mathematics learning with movement and gesture (Edwards et al., 2014; Khatin-Zadeh, 2022) and the (re)humanizing mathematics framework (Gutiérrez, 2018) includes a component of “body and emotions”. However, neither perspective considers *healing* from our *mathematical trauma* (Lange & Meany, 2011), unique to the discipline of mathematics. I aim to work within this gap. To be clear, I affirm healing as always a process, never a destination.

In our proposal, I draw upon neuroscience literature that provides evidence for affective experience as inextricably interwoven with(in) the body (Boem et al., 2024; Kiverstein & Miller, 2015; Tschentscher, 2017). In addition, I draw upon Black and Indigenous healing practices to affirm a *relational* view of somatics as beyond the confines of the individual body (Linklater, 2020; Menakem, 2017; Mullan, 2023); rather, each body is situated within a social and political sea of bodies. I see deep implications for mathematics teaching and learning, especially because mathematics is often positioned as disembodied and outside of human activity (Battey & Marshall, 2024; de Freitas & Sinclair, 2013; Gutiérrez, 2017). Indeed, Stolz (2021) has argued that an *interdisciplinary* approach to embodiment in education remains in its early stages, and in 2018 the Organisation for Economic Co-operation named “embodied learning” as one of six “innovative pedagogical approaches” (Paniagua & Istance, 2018).

*Implications for research with (future) teachers:* Hauk et al. (2014) draw upon Bennett’s (2004) model of intercultural sensitivity for training of post-secondary math instructors. I argue that the linearity and hierarchy of Bennett’s model limit its application, while the relational and dynamic nature of somatics provides a powerful re-framing. Indeed, Lanas (2017) calls for teacher education that embraces dynamic and emotional elements. In addition, somatics as a framework acknowledges mathematical trauma (Allen & Wallus, 2025), because trauma lives in the body and travels between bodies through generations, such as from teachers to students (Foo, 2023; Menakem, 2017). I am therefore curious to support teachers’ mathematical well-being and healing through somatics, which in turn supports the same for our students. For example, a research study might equip teachers with somatics-based tools for relational and self care (compare Kulick, 2024; Sheinman & Russo-Netzer, 2021), and investigate the impact on teacher burnout (Brasfield et al., 2019) and teachers’ political work (Gutiérrez, 2013).

*Implications for research with students:* As in my current study, a simple practice might invite students to attune to their breath during mathematics coursework, or engage in stretch and rest breaks (compare Immordino-Yang et al., 2012), and investigate the influence on students’ mathematical well-being. Similarly, one might study the impact of providing snacks (compare Burrows et al., 2017; Gómez-Pinilla, 2008), water (compare Beezhold et al., 2018; Pawson et al., 2013), and hygiene supplies during assessments. Somatics also affirms a holistic perspective of each student as a whole human being (Darder, 2017), and a *relational* layer might frame social co-regulation as soothing of student nervous systems (Clughen, 2024). For example, I would love to study collaborative classroom practices, such as in-class groupwork conducted on boards (compare Liljedahl, 2018), from a lens of relational somatics.

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