

## Mathematics Education Colloquium

### *Solving Problems and Developing Theory: The Case of Teaching Proof in School Mathematics*

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**Abstract:** Not only do students find the learning of proof to be challenging at all levels, but research has shown that school mathematics teachers also find the teaching of proof to be a difficult endeavor. The pivotal epistemological role that proof plays in mathematics makes it an important object of inquiry for mathematics education researchers. Thus, if the field wishes to better prepare teachers to address the goals of current standards and therefore change the nature of school mathematics, we must first address the factors that shape it. Past research has explored many of these factors, including: the role of proof in the school curriculum; teachers' conceptions of proof; students' difficulties with proof; students' proof schemes and categories of justification; and descriptions of what 'doing proof' looks like in high school geometry. There is a need, however, for studies that look into classrooms and examine the work of teachers in practice. This notion will be explored through the case of The Geometry Proof Project, a collaborative study with high school mathematics teachers, which investigated some challenges of introducing formal, deductive proof. Through this colloquium, I will provide insights into the work of teachers in practice, specifically some of the conditions, challenges, and issues related to teaching proof at the secondary level. In addition, potential solutions for addressing these challenges will be presented through data and findings from the three-year research project. These findings may also have implications for teaching reasoning that leads to proof at the middle school level and for teaching proof at the post-secondary level.

Tuesday, January 27 at 5:00 PM in SEO 636