

Texas State University
Department of Mathematics Colloquium
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The role of mathematics in describing, explaining, and improving its teaching



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Abstract: The work of teaching is often described using generic labels of diverse granularity: traditional or reform, lecturing or group work, open or closed questions, etc. But are those labels useful to explain the decisions mathematics teachers make and to identify concrete ways in which instruction can be improved? In this talk I describe the scope of a program of research on mathematics teaching that explores a content-specific way of accounting for the work of teaching. Using the case of high school geometry instruction, I introduce the notions of situation and norm, and show how they help us model teaching as content-specific work. I illustrate how we operationalize these ideas for their use in empirical work: Results from an experimental study of teachers' attention to details in the management of students' proofs in geometry (Dimmel & Herbst, 2018) are provided. I show how this content-specific language of description provides the means to design incremental ways to improve the quality of instruction.