Relating Preservice Teacher Noticing with Mathematical Knowledge for Teaching

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Abstract: This presentation will share findings from a study undertaken in a mathematics content course that was designed to encourage the development of preservice teachers' (PSTs) *professional noticing* of student thinking, that is to attend to and interpret student's thinking, and to also increase both content knowledge (CK) and knowledge of content and students (KCS). Research has shown that *teacher professional noticing* is a critical element for effective teaching and that it develops with deliberate practice involving particular experiences. Our study used writing assignments (WAs) as an intervention to focus the PSTs on student thinking and to have them analyze the students' work. We report changes in the CK and KCS of the 128 PSTs and the nature of changes in their *teacher noticing* by examining 8 of the PSTs WAs. We also interviewed the 8 PSTs to better understand the relationship between their development of *noticing* and their *mathematical knowledge for teaching*. We discuss the implications of this study to the preparation of preservice teachers in mathematics content courses and report on our continuing examination of the development of the PSTs through their teacher preparation courses at Texas State.

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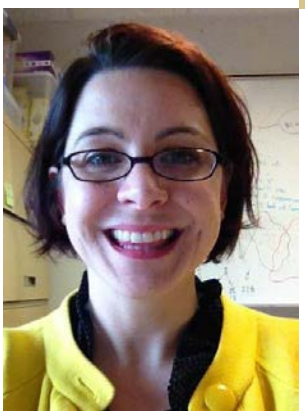

Sharon's work centers on mathematics teacher education with emphases on epistemology and language in the classroom. Recently she has been working on projects that explore preservice teachers' noticing of students' mathematics as well as how inservice teachers' respond to students' mathematical thinking during class discussions. Other areas of interest including students' learning to prove and the use of dynamic geometry software.

Hiroko is an assistant professor of mathematics at Texas State University specializing in mathematics education. Her research interests include teacher noticing and areas of teaching and learning that foster productive struggle.

Nama is a PhD student in Mathematics Education at Texas State University. Nama also holds a BS in computer science from Angelo State University, and a M. Ed in Mathematics education from Texas State University. Her research interests are associated with informal mathematics programs such as math camps and the effect they have on women's participation in STEM fields.

Lauren is a former PhD student in Mathematics Education at Texas State University and transferred to the University of Michigan last fall to continue her work under Deborah Ball.