

Unpacking Core Teaching Practices in Elementary Mathematics to Support Teacher Learning and Assessment *Timothy Boerst, Pamela Moss, and Merrie Blunk, University of Michigan*

Question(s) for Discussion: How can we develop and deploy language for unpacking core practices in mathematics teaching to guide and assess teachers' learning across contexts?

Session Description: The capacity of the field of mathematics teaching to name and describe practices that are central to the work of teaching, and attend to their necessary mathematical dimensions, is essential for multiple purposes including supporting those who are learning to teach (Grossman et al., 2009), assessing teaching (Moss et al., 2008), reflecting on and improving teaching (Grossman & McDonald, 2008), enhancing dialogue among professionals (Shulman, 1999), and establishing the sort of specialized knowledge that underpins a field's claim to a territory of professional work (Spodek et al., 1988). In their case studies of practice in professional education (with teachers, clergy, and clinical psychologists), Grossman and colleagues (2009) note "one of the well-documented problems of learning from experience is knowing what to look for, or how to interpret what is observed." This requires "the existence of a language and structure for describing practice.... Without such a language, it is difficult to name the part or to provide targeted feedback on students' efforts to enact the components of practice."

In this session, participants will explore, elaborate, and critique language being developed around core practices in mathematics teaching—language that integrates attention to pedagogy and its mathematical entailments. The analytical language is grounded in a practice-based theory of mathematical knowledge for teaching (Ball, Hill, & Bass, 2005) that probes how teachers need to know mathematics in the course of their work as teachers and focuses on knowledge use. This approach is a kind of "job analysis," similar to analyses done of other mathematically intensive occupations, like nursing (Hoyles, Noss, & Pozzi, 2001), engineering and physics (Noss, Healy, Hoyles, 1997), carpentry, and waiting tables (Rose, 2004). This language is initially being developed for use with elementary mathematics teachers from their initial preparation through their first years in the classroom as a part of a mixed-methods assessment system intended to serve multiple purposes (Moss, Girard, & Haniford 2006; Wilson, 2005).

The session will be structured as follows:

1. We will begin a rationale of the value of developing language for describing core mathematics teaching practices and an overview of the system in which the language is being put to work (15 minutes).
2. We will then focus on language for one core practice: leading a whole-class discussion in mathematics. Participants will explore specific terms and frames to describe the work involved in leading a classroom discussion. They will use examples of mathematics discussions as a way to try out the language and to consider the ways in which the mathematical aspects of the work are incorporated (45 minutes).
3. They will then consider ways in the which various stakeholders—methods and field instructors, cooperating teachers, student teachers, and program leaders—might be supported in using the language to serve various assessment purposes, from "discursive" (Jordan & Putz, 2004) forms of assessment that support coaching and collaborative reflection to more formal documentation that support program evaluation and decisions about student-teachers' readiness to engage in the practice (15 minutes).