

# MATHEMATICS TEACHING AS INVISIBLE WORK

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The point of departure for this research is the notion that significant features of mathematics teaching are invisible. "Invisible" refers here not only to the features of teaching that are physically invisible: these include such practices as the planning work that goes on in the mind of the teacher, or the relational work that the teacher engages as a medium for learning. But in this work, "invisible" connotes the features of teaching that are actually physically visible but nonetheless go unnoticed by observers of teaching. For example, the teacher often works hard to knit together student ideas in her efforts to build collective understandings in whole class discussions. These efforts, though physically present and easy to discern, often evade the notice of observers. Teachers likewise deploy mathematical knowledge to move a problem along or engage a particular student. Knowing what piece of mathematical information, or what question to ask at a given moment, is the essence of good mathematical teaching practice. And yet even practiced observers of teaching miss these important moves made in the flow of instruction.

This research is based on data collected in an elementary mathematics methods course for prospective teachers. The prospective teachers engaged in a modified form of lesson study (Lewis, 2002; Stigler and Hiebert, 1999) in which the prospective teachers and their instructor planned, executed, and analyzed lessons for elementary mathematics students. All data for this modified lesson study were collected for analysis, including videotapes of the planning, teaching, and reflection sessions on the lessons, student work, children's written work in class, and the instructor's field notes. This short oral presentation will include categories of teaching practice that were generally found to be "invisible" to prospective teachers, and will detail the efforts made to make such features of teaching more visible. The usefulness of lesson study in this context will be considered. Finally, this presentation will touch briefly on the theoretical framing for why teaching work is often "invisible." This theoretical framework is drawn from scholarship in such diverse fields as mathematics, anthropology, women's studies, organizational psychology, and sociology.

## References:

- Lewis, C. C. (2002). Lesson study: A handbook of teacher-led instructional change. Philadelphia, PA, Research for Better Schools, Inc.
- Stigler, J. W. and J. Hiebert (1999). The teaching gap: Best ideas from the world's teachers for improving education in the classroom. New York, N.Y., Summit Books.