

## **Teacher Quality, Quality Teaching, and Student Outcomes: Measuring the Relationships** *Heather Hill, Harvard University*

**Question(s) for Discussion:** What aspects of teacher quality are related to student outcomes in mathematics?

**Session Description:** Many assume that better quality teachers will lead to improvements in the quality of teaching—and thus student outcomes. However, these relationships, taken for granted by many policies such as NCLB’s “Highly Qualified” teacher provisions or even NSF’s Math-Science Partnership program, have gone largely untested. For instance, until recently the mathematics-specific literature on the relationship between teacher quality—measured as teacher knowledge—and the quality of teaching consisted primarily of case studies. And few modern studies have examined the relationship between subject-specific teacher behaviors and student outcomes.

Over the past decade, we have developed a program of research around measuring key components of mathematical teacher quality and the mathematical quality of teaching. In 2001, we began developing an assessment that captures Mathematical Knowledge for Teaching (MKT); in 2003, we began developing an instrument to capture the mathematical quality of instruction (MQI). In this session, we will describe the efforts to develop these measures and, borrowing from “value-added” modeling techniques, describe the relationships between MKT, MQI, and student outcomes.