

**PROFESSIONAL DEVELOPMENT OF MATHEMATICS TEACHERS: THROUGH THE LENS
OF THE CAMERA**

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Imagine a group of mathematics teachers, watching together a videotaped lesson of a teacher unknown to them, and discussing it. What is there in this situation that might make it a worthwhile experience in terms of professional development? Several answers may be given, depending on the aim of this encounter, and indeed various projects around the world use video very differently from one another within in-service professional development for mathematics teachers. The VIDEO-LM project (Viewing, Investigating and Discussing Environments of Learning Mathematics), developed at the Weizmann Institute of Science in Israel, is aimed at enhancing secondary mathematics teachers' reflection, as well as their mathematical knowledge for teaching (as defined by Ball et al., 2008). The central means to achieve this is by creating a collection of videotaped lessons that serve as learning objects and sources for discussions with teachers. The videos are taken, in a sense, as "vicarious experiences" which allow for indirect exploration of one's own perceptions on the practice of mathematics teaching, through the observation of "remote" teaching events in a supportive atmosphere which does not focus on evaluative feedbacks. The discussions are guided by the use of an analytic framework, comprised of six viewing lenses, which directs teachers to explore the videotaped lesson from the following six aspects: (1) mathematical and meta-mathematical ideas around the lesson's topic; (2) explicit and implicit goals that may be ascribed to the teacher; (3) the tasks selected by the teacher and their enactment in class; (4) the nature of the teacher-student interactions; (5) teacher dilemmas and decision-making processes; and (6) beliefs about mathematics, its learning and its teaching as inferable from the teacher's actions. In the research we conducted to assess and characterize the impact of the VIDEO-LM project, data was collected from nearly 20 implementation sites all around the country, where the project's team facilitated video-based in-service courses. Findings show that using the six-lens framework supports the development of a reflective language, with which teachers can engage in deep discussions about core issues embedded in the mathematics teaching profession. There is also preliminary evidence for growth, or crystallization, of the participants' mathematical knowledge for teaching.

In this lecture, I will describe the six-lens framework and present some of the findings, with particular reference to possible mechanisms that can explain the processes of change that teachers undergo.

References

Ball, D. L., Thames, M. H., & Phelps, G. (2008). Content Knowledge for Teaching: What makes it special? *Journal of Teacher Education*, 59(5), 389-407.