BACKGROUND

• Reform initiatives value teachers’ understanding of student mathematical thinking (NCTM, 2000).
• Research demonstrates impact of PD learning communities in which teachers inquire about their practice and analyze student work (Kazemi & Franke, 2004; NCTM, 2000).
• Research on effective PD for teachers of ELLs is still lacking (Téllez, 2001).

PURPOSE

This study explores:
• The impact of classroom-based professional development on teacher’s understandings of teaching mathematics to Latina/o students;
• Issues of language and culture with which the teacher grappled while engaged in reflecting on students’ mathematical thinking.

THEORETICAL FRAMEWORK

• Cognitively Guided Instruction (CGI) and the importance of teachers constructing models of children’s mathematical thinking (Franke et al., 2001).
• Sociocultural construction of knowledge and research on communities of practice (Wenger, 1998).
• Professional development as inquiry into practice through the analysis of student work (Kazemi & Franke, 2004).
• Current research on the professional development of bilingual teachers (Varghese, 2004).

METHODS

• Part of ongoing ethnographic longitudinal study
• Data analyzed for the purposes of this case study involve:
  • Field notes from classroom visits during Fall 2006, Spring 2007, and Fall 2007.
  • Videotaping of debriefing sessions during Fall 2006, Spring 2007, and Fall 2007.
  • Teacher interviews (N = 2)
• Videotaped classroom sessions, Fall 2007 (N = 3).

PROFESSIONAL DEVELOPMENT DESIGN

• Classroom based teacher-researchers collaboration
• Weekly researchers’ visits to the classroom to:
  • Model CGI problem-solving lessons
  • Co-plan problem-solving lessons
  • Observe teacher implementation of CGI approach
  • Meet for debriefing conversations after each session

CASE STUDY

• Ms. Lopez, a bilingual 1st grade teacher
  • Native Spanish speaker, originally from Peru
  • Bilingual certified teacher
  • 12 years teaching experience, 3 years in 4th-5th combined and 9 years in 1st grade
  • Mathematics instruction in Spanish

School Setting
• Urban elementary school in the Southwest
• Promotes bilingualism and biculturality
• 86% Latino population
• 99% free or reduced meals
• Everyday Mathematics curriculum
• Large Mexican immigrant population

TEACHER BELIEFS

• Teaching mathematics
  If a child has... a solid number sense concept, then the child may be able to not only relate a problem to the problem itself, but to life. I think the big idea is that they build, not only for first grade but for later in the other grades and for life... is that whatever they are learning, that they can see that connection; how related it is to life, to everyday life. (Interview, November 2006)

• Teaching in a bilingual program
  And then again the first year that I taught, I was doing the math in English, but the kids were not understanding. And then I realized, you know: what’s the point of teaching in English? I think it’s important that they build their own native language, in this case Spanish, they [need] to build academic language to be successful later. (Interview, November 2006)

BIBLIOGRAPHY
