Publications and Papers (partial list)

Diverse Perspectives on Teaching Math for Teachers: Living the Tensions

ABSTRACT

While many post-secondary institutions offer mathematics content courses for prospective elementary school teachers within mathematics departments (MFT courses), very little is known about the nature of these courses or the instructors who teach them. This dissertation begins to fill this gap in the research literature through a qualitative analysis of interviews with 10 MFT instructors, all mathematicians in mathematics departments at universities or colleges in British Columbia, offering insight into their diverse interpretations of the course and, particularly, the tensions they experience. This research seeks to go beyond considerations of what MFT courses should be, to begin to build a picture of how they actually are.

Research methods were informed by constructivist grounded theory and hermeneutic phenomenology, while examination of interview transcripts involved thematic coding, constant comparative analysis, and techniques of discourse analysis. Activity theory and positioning theory facilitated the interpretation of results.

The data presented supports the view that for MFT instructors, the experience of teaching MFT courses is very different from their experiences in other mathematics courses. Furthermore, the course as offered is highly dependent on individual instructor decisions related to course priorities, classroom methods, and emphases with respect to conceptions of mathematics, and degree of orientation towards teacher preparation. Personal, practical, and socio-cultural factors are identified that contribute to this diversity. Three levels of tensions experienced by MFT instructors are also articulated, including personal tensions related to instructor identity, internal tensions related to setting course priorities and standards, and systemic tensions related to societal uncertainties with respect to the role of MFT courses. Factors that contribute to these tensions are identified, including indications of influential norms at work in post-secondary mathematics instructional contexts.

While tensions cannot always be resolved, their identification offers avenues for positive change. The dissertation concludes with a number of recommendations, including calls for closer lines of communication between mathematicians and mathematics education researchers, clearer definition of the role of MFT courses, and further research into the knowledge needed by mathematicians to be effective MFT instructors.

Awards

Graduate Fellowships – Simon Fraser University, 2008, 2009, 2010
President’s Research Stipend – Simon Fraser University 2010

Academic Record

Doctor of Philosophy – Mathematics Education, Simon Fraser University

Dissertation – Diverse Perspectives on Teaching Math for Teachers: Living the Tensions

Master of Science – Mathematics, Simon Fraser University

Thesis – Resolvable and Near-Resolvable Oriented 3- and 4-cycle Decompositions of the Complete Symmetric Digraph

Bachelor of Science – Major in Mathematics, Minor in French, Simon Fraser University

Other Scholarly Activity

- Reviewer for Psychology of Mathematics Education—North American Chapter 2009 Meeting
- “What is Mathematics-for-Teaching and Why Does It Matter?, Workshop Presenter, Changing the Culture Conference 2011, Vancouver

Other Conferences Attended

- Changing the Culture (annually since 1999).
- Association of Mathematics Teacher Educators Annual Conference (2010, 2011)
- Special Mathematics Education Forums: The Canadian Forum for Education in Mathematics (May 1995), the BC Mini-Forum (December 1995), the Montreal Forum (May 2003), and the Canadian Mathematics Education Forum (May 2009)
- International Congress on Mathematics Education, Seville, Spain, 1996.