Recollected Changes in Mathematics Teachers’ Beliefs and Practices: Perceptions and Psychological Type Preferences

Bulent Cetinkaya
August 2006

Committee: Prof. Joanna O. Masingila, Chair
Prof. Jack Graver
Prof. Randall Jorgensen

Dissertation Abstract

Recent efforts to improve teaching and learning in schools have identified teachers as key people who will create change and bring reform efforts to light. Research studies suggest that teachers’ belief systems/structures, particularly their core beliefs, about teaching and learning mathematics, have a significant effect on their change, and there exist individual differences in teachers’ change. This has raised the need for exploring the factors and circumstances that bring about change in individual teachers’ views and practices while considering teachers’ individual functioning. The purpose of this study was therefore to explore the role of individual differences in psychological functioning in teachers’ perceptions of their changes and in their core beliefs about teaching and learning. Qualitative research methods and topical life history methodology were used to answer the questions: What are the perceptions of teachers regarding how their beliefs and practices of mathematics teaching and learning have changed? What is the role of teachers’ psychological type preference in the perceptions of their change processes? How are teachers’ belief structures related to their psychological type preferences?

Four experienced secondary school mathematics teachers with different personality characteristics were selected to participate in this study. This selection was made based on their psychological type preferences, which were identified by administration of the Myers Briggs Type Indicator. Data were collected through an open-ended collective survey, classroom observations, and formal and informal interviews.

The result of this study suggested that these four teachers had very different core beliefs and belief systems about education in general, and teaching and learning mathematics in particular. Their core beliefs were, respectively (a) teaching for the good of the students, (b) attaining excellence in formal mathematics, (c) making mathematics learning fun, and (d)
conducting classroom activities in a structured and orderly manner. The findings indicated that the teachers’ belief systems were, to some extent, in harmony with their respective psychological type preferences. The teachers’ mathematics teaching life histories also indicated that the teachers’ psychological type preferences influenced the nature and way of change in the teachers’ beliefs and practices. Implications for teacher development and for further research are drawn.