An Inquiry into the Changes in Mathematics Teachers’ Conceptions: New Lenses

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Research Apprenticeship Report Abstract

There have been efforts to improve mathematics teaching and learning in schools (e.g., NCTM, 1991, 2000). Key people who will create change and bring reform efforts to light are commonly agreed to be teachers. Research studies suggest that teachers’ conceptions about teaching and learning mathematics have a significant effect on teachers’ change and that there exist individual differences in teachers’ change. This has raised the need for exploring the natural factors and circumstances that bring about an enduring change in individual teachers’ conceptions together with considering teachers’ individual functioning and personal characteristics.

In this study, emphasizing the normative-reeducative perspective with a naturalistic view of change, I explored the nature and way of seven secondary school mathematics teachers’ change that they experienced throughout their career using an open-ended reflective survey, observations and interviews. Teachers’ individual functioning was identified by using psychological type theory (Jung, 1923) and administering the Myers-Briggs Type Indicator.

The analysis of the data from two teachers indicated that the teachers’ psychological type preferences governed the nature and way of change in the teachers’ conceptions of teaching and learning mathematics. Consistent with their psychological type preferences, changes in one teacher’s conceptions came from cooperation and accumulated experiences; on the other hand, the other teacher’s change and development was prompted and supported by three factors: being part of the process and influencing the change, independence, and reasonableness. It is argued that efforts to bring about development in teaching practices must consider teachers’ prior knowledge and conceptions about teaching and learning, along with knowledge of the teachers’ psychological functioning.