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The Power of Dilemmas: Catalyzing Transformative Learning in Mathematics Teacher Education

Constanta Olteanu

Linnaeus University/Department of Mathematics, Sweden

Abstract

While much has been written about transformational learning, the preservice teacher's role in the process is undertheorized. This article develops the concept of the power of dilemmas as a theoretical construct for understanding transformative learning in mathematics teacher education. The framework views dilemmas not as obstacles but as generative mechanisms that stimulate reflection, variation, and theoretical integration. It explains how preservice teachers' engagement with dilemmas—emerging from tensions between their practical experiences, didactical approaches, and theoretical perspectives—supports their progression across different levels of professional reasoning and understanding. Dilemmas generate variation by exposing differences in attitudes and interpretations. This variation encourages reflection that links their practical experiences with theoretical ideas. In this process, dilemmas serve as catalysts that connect theory and practice, supporting ongoing and meaningful professional development. The article also discusses how teacher education environments can be designed to capitalize on productive tensions and foster reflective dialogue. By using dilemmas as opportunities for noticing critical differences and rethinking established ideas, the framework offers a way to understand how transformative learning can develop in mathematics teacher education and how preservice teachers can build a more reflective, adaptable, and theoretically informed professional approach.

Keywords: Transformative Learning; Dilemmas; Professional Theorizing; Variation Theory; Mathematics Teacher Education