

Chapter 19

Practice-Based Approaches to Mathematics Education: Vignettes and Experiences

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ABSTRACT

This chapter provides a description of three efforts to integrate practice-based approaches to preparing pre-service teachers to teach mathematics to elementary and middle grades learners. The vignettes include a university laboratory school focused on middle grades students, a tutoring program for elementary school students, and a small group teaching experience with elementary school learners. Within each vignette, the authors describe findings from examining how these experiences influenced pre-service teachers. Lastly, they close the chapter with implications and directions for future research.

INTRODUCTION

Need to Reconsider Approaches to Teacher Education

The American Association of Colleges for Teacher Education (2018) recently called for teacher education programs to reconsider what entails clinical work and clinical practice for pre-service teachers. They put forth a number of recommendations, including carefully structured and extended work in schools for pre-service teachers. These recommendations come at a time when teacher education programs are still trying to make revisions based on the Blue Ribbon Panel Report from the National Council for the Accreditation of Teacher Education (NCATE, 2010).

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A “sink or swim” metaphor is commonly used to describe the induction into teaching for beginning educators (Wood, Jilk, & Paine, 2012). There are a few problems with this metaphor, however. First, it oversimplifies the varying struggles of new teachers and ignores the common areas of greatest need, including content knowledge and pedagogy (Sleep & Boerst, 2012). Furthermore, it insinuates the message that teaching is a static practice devoid of experimentation and improvisation (Forzani, 2014). Finally, and most importantly, it negates the experiences pre-service teachers gain during their student teaching experience. Teaching is a unique and difficult profession to learn; it cannot be learned from reading a book or passively observing another teacher in a classroom. Instead, it is a constructivist practice requiring exploration, trial and error, and reflection of practice (Wood, Jilk, & Paine, 2012). Student teaching, as part of teacher education programs, is intentionally designed to prepare novice teachers with these necessary opportunities.

Student teaching experience, or school-based clinical experience, is a critical component of teacher preparation and is increasingly emphasized as such in research (Darden, Scott, Darden, & Westfall, 2001; Gut, Beam, Henning, Cochran, & Knight, 2014). Student teaching provides preservice teachers with routine practice of essential aspects of teaching, which allows them to build a repertoire of successful instructional habits (Peercy & Troyan, 2017). Preservice experiences allow novice teachers to construct their pedagogical views, gain insight into the spoken and unspoken school norms, and practice classroom management (Darden, Scott, Darden, & Westfall, 2001). According to Darden and colleagues (2001), the multitude of tasks and rules learned during student teaching can be overwhelming and disconcerting for some preservice teachers, especially if they have had limited exposure to the classroom setting as a professional educator.

Practice-Based Teacher Education

Many variations of teacher education have been researched and attempted at preparing novice teachers for the complexities of the U.S. classroom. Teacher education researchers (e.g., Ball & Forzani, 2009; Zeichner, 2010) have called for a practice-based curriculum to prepare novice teachers with the necessary teaching skills in addition to the knowledge required to carry out teaching tasks. Instead of reading about and theorizing the teaching practice outside of the educational setting, practice-based teacher education emphasizes the need for preservice teachers to have routine exposure to classroom settings as well as multiple opportunities to practice the multi-layered tasks of teaching (Ball & Forzani, 2009). Immersing preservice teachers into the field as a method of teacher education is sometimes referred as “teacher training,” “teacher residencies,” or “field experience” (Forzani, 2014).

Practice-based teacher education is highly beneficial for novice student teachers in numerous ways. First, it equips student teachers with the practical tools necessary to facilitate learning (Ball & Forzani, 2009). Secondly, it deepens their theoretical understanding of educational best practices (Peercy & Troyan, 2017). Third, it offers “significantly more—and more deliberate— opportunities for novices to practice the interactive work of instruction” (Ball & Forzani, 2009, p. 503). Finally, it provides vast opportunities to experience the ambitious teaching conditions held as the norm expectancy in today’s schools (Forzani, 2014). While practice-based teacher education has many benefits, it has not been widely adopted by teacher education programs across the U.S. (Forzani, 2014). According to Peercy and Troyan (2017), widespread adoption of practice-based curriculums would require “massive epistemological and practical shifts” in teacher education (p. 27).

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