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MATHEMATICAL MISCONCEPTIONS OF A DIFFERENT KIND: WOMEN PRESERVICE TEACHERS' WORKING THEORIES OF MATHEMATICS TEACHING

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Background

Mathematical anxiety and confidence in women who are entering the elementary teaching field is a subject that has captured the interest of mathematics teacher educators. Previous research has revealed that women who pursue elementary teaching careers are often individuals who themselves have confronted anxiety and low confidence in mathematics during their own K-12 experiences (Brady & Bowd, 2006; McGlynn-Stewart, 2010; Sloan, 2010).

Prior studies in mathematics education reveal that individuals' experiences with mathematics shape how they think about doing and teaching mathematics (Ball, 1988; Rodríguez & Kitchen, 2005). Long before preservice teachers step foot into their teacher education program, their student experiences have shaped how they view mathematics as well as how they perceive their own mathematics abilities (Ball, 1988). "In short, prospective teachers do not arrive at formal teacher education "empty-headed." Ball, 1988, p.40). Instead, they have already begun to develop a plan or a program of action (Kounin, 2009) of how teachers should teach mathematics. These teaching ideas are derived primarily from their personal experiences as mathematics students (Ball, 1988). Through the use of narratives, teacher educators can gain access to a better understanding of the sense making that preservice teachers have about what qualities and characteristics are important for a mathematics teacher to possess.

Methods

This study examined eighty-two narratives written by women elementary preservice teachers that revolved around the theme of anxiety and low confidence in mathematics.

Findings

Finding 1: Isolated "I" Imperatives

One major finding revealed in this study was that participants focused their understanding of what it means to be a mathematics teacher by isolating what they believed teachers should not do while teaching mathematics. These behaviors came from places of specific personal mathematics burdens the preservice teachers wanted to resolve or "fix."

Finding 2: Fragmented Frameworks

Another major finding discovered in this study focused on preservice teachers' understanding of what it means to be a mathematics teacher by stressing broader ideas or concepts that teachers should employ when teaching mathematics. These comments included such statements as teachers need to implement policies in the mathematics classroom that motivate their students, teachers should help their students to find the resources they need to learn new concepts and to work with peers to promote all students' learning, and teachers must be passionate about teaching mathematics in order to create a greater impact on students' mathematical learning.

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