ABSTRACT

DISSERTATION: Mathematics Efficacy and Its Relationship with Elementary Teacher Demographics

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Self-efficacy is well known to shape the instructional decisions and effectiveness of teachers (Pajares, 1996; Tschannen-Moran, Woolfolk Hoy & Hoy, 1998). It stands to reason that mathematics efficacy would also influence the quality of instruction students receive and therefore their abilities to achieve and grow in their mathematics abilities.

The purpose of this study was to explore the relationship between elementary teacher mathematics efficacy and teacher demographics through a better understanding of the individual variables contributing to elementary teachers’ mathematics efficacy. Another purpose was to adapt and test the Teacher Sense of Efficacy Scale as an appropriate measure for mathematics efficacy. After reviewing the efficacy work of other researchers (Bandura, 1977; Tschannen-Moran, Hoy & Hoy, 1998) the need for this specific research was clear as there were limited quantitative studies focused on teacher mathematics efficacy at the elementary school level. Therefore, this study sought to add to the body of research through deepening the understanding of how different variables shape teachers’ mathematics efficacy within the confines of a large urban district.
Data for this study were collected from 9 elementary schools and 240 teachers using the long version of the Teachers’ Sense of Efficacy Scale (TSES) that was adapted with permission to measure mathematics efficacy. The TSES is a Likert-scale survey tool that was developed by Tschannen-Moran and Woolfolk Hoy (2001). The study’s design was to measure mathematics efficacy for instructional strategies, student engagement, and classroom management.

Statistically significant relationships were found between teacher mathematics efficacy, gender, and degree as measured by the TSES. Specifically, males were more mathematically efficacious than females and mathematics efficacy rose with the completion of each degree after an undergraduate degree. Statistically significant relationships were also found between teacher mathematics efficacy and degree attained (subscale 1 Student Engagement), gender (subscale 2 Instructional Strategies), and grade level taught (subscale 3 Classroom Management). The results of this study also suggested the need for a larger and more inclusive sample size to give deeper understanding to the findings. Implications for future research included recommendations for elementary teacher mathematics studies incorporating schools serving rural and suburban students as well as studying how school climate and culture contribute to teacher mathematics efficacy.

*Keywords*: elementary teacher mathematics efficacy, TSES, gender, degree, grade level