

Trena L. Wilkerson

Algebra Teacher Efficacy Instrument Development
(Curriculum and Instruction / Education)

In this time of ensuring that we have excellent, qualified, confident mathematics teachers in our middle and high schools it is imperative that we assist in their development and understanding of teaching mathematics. This in turn can positively impact our children's understanding of mathematics and ultimately their success in high school and post-high school education. This is critical for our future society. Additionally with the focus on STEM (Science, Technology, Engineering, and Mathematics) Education, we must work with practicing teachers and teacher education students to support their providing the best, most effective mathematics education to our children.

The purpose of the grant would be to support funding for developing an instrument to measure teacher self-efficacy related to the teaching and learning of algebraic concepts in middle and high school preservice and inservice mathematics teachers. At present there are instruments available to measure self-efficacy, teacher self-efficacy, and mathematics and science teacher efficacy in elementary pre/in-service teachers but none specific to a content area such as algebra. Recent research has determined the importance of a more accurate measure where it is content and concept specific. Algebra was selected as it is a key area that all students in high school must master and is considered a gateway to college and other post-secondary education opportunities. It is critical for college and job readiness.

I lead a multi-university collaborative research group in Texas studying this area. Our first task is to develop an appropriate, reliable instrument to measure algebra efficacy levels. This would include item writing and analysis with determination of validity. In the future (but not specific to this proposal) piloting and revision of the instrument would be needed then a move to using the instrument with a large group across Texas and ultimately development that could be used nationally and internally in the mathematics education community.