


Chapter 1


Preservice Teacher Views on Roles in Promoting Equitable Mathematical Proficiency

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ABSTRACT

This book chapter employs a mixed-methods survey research design, integrating both closed- and open-ended questions to explore the perceptions of pre-service teachers in their initial training phases regarding their responsibilities in embedding diversity, equity, and inclusion (DEI) principles into the instruction of mathematical proficiency. A cohort of forty-two pre-service teachers participated in this study. The results revealed that pre-service teachers who value DEI are more likely to advocate for equitable mathematical proficiency, while those confident in addressing DEI-related challenges are inclined to adopt inclusive pedagogical practices in their future teaching environments; furthermore, the pre-service teachers' viewpoints on DEI and mathematical proficiency significantly influence their future instructional

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strategies. The insights derived from this research have the potential to enhance professional development initiatives within teacher education programs aimed at fostering inclusive mathematics education.

INTRODUCTION

Mathematical proficiency intertwined with diversity, equity, and inclusion (DEI) in mathematics education is gaining significant attention, advocating for teaching approaches that are responsive to the diverse needs of students to ensure equitable access to mathematics learning. In recent years, there has been an abundance of research exploring how inclusive pedagogical strategies can support diverse learners in developing mathematical proficiency (Bishop et al., 2015), as well as equitable practices, pedagogies, and curricula designed to enhance mathematical proficiency for every student (Vithal et al., 2024). While these scholars highlight the importance of creating learning environments that recognize and value students' cultural backgrounds to promote equity in mathematics education, there is a notable absence of studies assessing how effectively teacher education programs equip preservice teachers. Training teachers as frontline educators is pivotal in determining how DEI principles are integrated into classroom practices. Furthermore, there is a lack of reliable psychometric tools to measure mathematical proficiency in the context of DEI.

This book chapter investigates the perceptions of preservice educators at distinct phases of their teacher preparation curriculum (specifically, first- or second-year training), who are focusing on teaching various grade levels that include pre-K through 12th grade, regarding their perceived role in integrating DEI principles within the instruction of mathematics proficiency. The objective of this study is to explore preservice teachers' beliefs about their role in fostering DEI through instruction in mathematics proficiency, assess preservice teachers' preparedness based on the training they receive in their teacher education programs to apply DEI principles in their future mathematics classrooms, identify anticipated barriers that preservice teachers foresee when attempting to implement DEI practices within mathematics classrooms, highlight strategies and practices that preservice teachers have learned during their training that they plan to use to create inclusive and equitable mathematics learning environments, and provide practical recommendations for teacher education programs aimed at improving DEI training and preparing preservice teachers to effectively tackle DEI issues in their future classrooms. The following three research questions are investigated in this study:

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