

# Exploring Elementary Pre-Service Teacher's Perceptions of Student Attitudes and Struggles with Mathematical Content

*Madison Hutto*

The purpose of this study was to explore and analyze elementary pre-service teacher's perceptions of elementary students' attitudes and struggles with mathematical content. This research is important as it will help determine pre-service teachers' professional noticing skills, how to identify the trends where students lack basic skills in mathematics, and how to pinpoint and ultimately address negative student behaviors at the elementary level.

This study involved the analysis of twenty-two pre-service teachers' "Kidwatching Notes," taken on the students they observed in a local school system's summer school program in Auburn, Alabama. The program served approximately 150 students who were identified as struggling in the areas of mathematics and/or reading. The students ranged from kindergarten to fifth grade. Each pre-service teacher chose one or two subjects to observe. The subjects were observed for three weeks (15 school days).

The notes containing the teachers' observations were analyzed to look for patterns and to categorize those patterns to determine what the majority of pre-service teachers noticed. After analyzing the pre-service teachers' notes, I found seven themes, including attitude, symbols and keywords, manipulatives, number lines, place value, regrouping, and algorithms. These results show that pre-service teachers shared connections between attitude and achievement. In addition to taking notes about students with negative emotions who struggled in mathematics, they also noted the relationship between attitude and success when students experienced change. The majority of pre-service teachers' observation notes outlined the importance of student attitudes toward mathematics. Their notes suggest it was vital to encourage students to succeed in mathematics, and to help to build their confidence levels if their attitudes were negative.

Ultimately, granting pre-service teachers more opportunities to work one-on-one with students would provide the chance to observe individual students progressing from counting on their fingers, to frequently using number lines, manipulatives, pictures, and other strategies to solve problems. Relating the observations to what is known about student learning trajectories and the content the pre-service teachers are learning in their coursework can help the pre-service teachers learn what to do to push students forward in their mathematical thinking. It is also important for pre-service teachers to understand the importance of the conceptual understanding of mathematics in place of procedural understandings. Observing students individually can help pre-service teachers see the misconceptions that can form when teachers are not using professional noticings to make instructional decisions to support student growth.

## **Statement of Research Advisor:**

There has been little research performed at the undergraduate level, so Madison hopes that her research will serve as a catalyst for other undergraduate students to complete research in the field of education.

-Dr. Megan Burton, Curriculum & Teaching