



University of
Central Arkansas™

DEPARTMENT OF MATHEMATICS MASTER THESIS DEFENSE

- Speaker:** Haley Laffoon, Graduate Student
Department of Mathematics
- Title:** The Relationship Between Teacher and
Student Attitudes Toward Mathematics and
Reform Oriented Teaching
- Date:** Friday, April 5, 2016
- Time:** 1:40-2:30 (X-period)
- Place:** MCS 220

In general, educators desire for students to learn in a way that will lead to successful careers. However, educators do not always agree on the best approach when it comes to teaching those students. At opposite ends of the spectrum are the traditional mathematics versus reform mathematics philosophies and curricula. Reform-oriented teaching stresses instruction that engages students as active participants in their own learning, as opposed to the passive, lecture-based traditional teaching. Even though there is research that indicates students may be more successful in a reform-oriented classroom, there are many other factors that can affect student performance in a mathematics course. The attitude a student holds toward mathematics is one such factor. The instructor may also affect student performance with his/her own attitude towards teaching mathematics.

In this study, seventeen instructors and their students participated in a study over a single semester that compared attitude toward mathematics, the teachers' degree of reform, and the students' grade in the course. Ten of these classrooms took place in the mathematics department at the University of Central Arkansas and the other seven took place in the surrounding school districts. Each class was observed by the principal researcher, and attitude surveys were administered. The Reformed Teaching Observation Protocol (RTOP) was used to measure the teachers' degree of reform. The Attitudes Toward Mathematics Inventory (ATMI), developed by Martha Tapia and George E. Marsh was used to measure student attitude toward mathematics. A survey developed by Kathryn E.H. Race was used to measure teacher attitude toward teaching mathematics. Grades were reported for all participating classes at the end of the fall semester. Results were analyzed using SAS (Statistical Analysis System) to determine whether there were any significant relationships between the four factors: degree of reform, student attitude, teacher attitude, and grade in the course. Relationships involving gender and level of education (secondary vs. university) were also determined.