

FACTORS THAT INFLUENCE STUDENT MATHEMATICAL DISPOSITIONS

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Why do secondary students in the US consistently and increasingly report a lack of interest in mathematics? Lack of interest in mathematics has been well documented by the TIMSS studies; students' dissatisfaction with mathematics more than doubled by 2011, when 40% of 8th graders reported not liking math, up from 18% as 4th graders in 2007. And, sadly, the trend appears to be worsening. In 2015, 47% of 8th graders indicated not liking math, up from 22% as 4th graders. In order to positively impact student attitudes towards mathematics, it is important to understand factors that may influence secondary students' relationship with the discipline. This poster presents findings from an exploratory study of student disposition toward mathematics.

We designed an online survey to learn about students' relationship with mathematics, including experiences and settings that contribute to both positive and negative feelings about the subject. We surveyed 275 students, grades 9 to 12, in 11 classes in three schools in three New England districts. Though not randomly chosen, this sample allows us to examine student attitudes across a variety of contexts. We asked students about their feelings towards mathematics over the years, as well as which aspects of class they most enjoyed or disliked. Finally, we included items from the TRIPOD survey (Wallace et al., 2016) and the 2015 NAEP survey, which allows us to compare our sample with the national sample.

Initial results indicate that student view their teachers and the topics of study as the central factors influencing their enjoyment of mathematics class. We found a correlation between responses that math is boring and that it is not relevant. Students who like math and those who do not reported different class activity preferences. For example, students who like math reported disliking watching a video in class, while students who dislike math reported disliking learning something new. Both groups of students (those who like math and those who do not) dislike math class when they have to present work to classmates, but hold positive views of solving puzzles and working with other students. Technology seems to appeal equally to both groups. Students who reported disliking math also look forward to playing competitive games. We saw no evidence that gender or race corresponded to students' level of appreciation math. Finally, students reported liking math class less in high school than in middle school.

Identifying factors that influence secondary student mathematical dispositions can inform curriculum designers seeking to improve mathematical attitudes. Future studies can learn if new curricular designs can change student relationships with mathematics to reverse recent trends.

References

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