

Female teachers' math anxiety can hurt girls' confidence, study says

Girls with anxious female teachers score worse in math, U. of C. report says

*By Kristen Mack, Tribune reporter
January 25, 2010*

Female elementary school teachers who are anxious about math may undermine girls' confidence and unwittingly encourage them to believe that boys are better at the subject, research at the [University of Chicago](#) shows.

The ill effects go beyond stereotypes: girls who bought into the notion actually performed worse in math, chipping away at their self-assurance in related fields, such as science, the study found.

The effect was limited to girls — a finding that could have far-reaching implications in a country where more than 90 percent of elementary teachers are women. Researchers believe girls were affected by female teachers' [anxieties](#) because children generally emulate the behavior and attitudes of same-gender adults.

Researchers said the next step is to determine what teachers did or said to transfer their anxieties.

"There are lots of questions to be answered about what's going on in the classroom," said Sian Beilock, a psychology professor and lead author of the report "Female Teachers' Math Anxiety Affects Girls' Math Achievement," published in the Proceedings of the National Academy of Sciences this month.

Co-author Susan Levine, a psychology professor, said the x-factor did not appear to be teachers' knowledge of the subject, but rather "their feeling about the discipline."

"We are not sure whether it's something overt, whether it's non-verbal behavior or perhaps (anxious teachers are) not spending much time on the subject," Levine said.

The study's findings are the product of a yearlong study of 17 first- and second-grade teachers and their students.

Researchers first assessed teachers' feelings about the subject. Then, at the start and end of the school year, they measured students' math achievement and gender stereotypes about math.

At the start of the year, student achievement was unrelated to teachers' math anxiety. But by the end of the year, the more anxious their female teachers were about math, the more likely girls were to endorse the view that boys are better at math. Girls who bought into the stereotype scored six points lower than other students.

Max McGee, president of the Illinois Mathematics and Science Academy in Aurora, said the research illustrates a problem — "but it's one that's easily solved."

"One thing we do to take the anxiety out of math is work on teaching it in ways that make it active and relevant to students' lives," such as explaining probability by playing Yahtzee, McGee said.

The authors suggest that elementary teacher preparation programs be strengthened by requiring more math as well as addressing attitudes and anxiety about the [subject](#).