

Girls' Confidence in Math Dampened by Parents' Stereotypes

Research that included a survey of middle school girls reveals that their self-confidence in math suffers when their parents believe the gender stereotype that math is a male domain and give unsolicited help with homework.

U of I researchers Ruchi Bhanot and Jasna Jovanovic reported their findings in the May 2005 issue of the journal *Sex Roles: A Journal of Research*.

"There's still a gender gap in math and science," said Jovanovic. "It's not a gap about performance or achievement. It's about attitudes. Girls are not as confident about math and science."

According to the 2000 National Assessment of Educational Progress, 71 percent of eighth-grade boys and 60 percent of eighth-grade girls reported confidence in their math ability. The gender gap in confidence persists in high school.

Jovanovic studies the factors that play a part in that gap. "National achievement tests and performance in class show that girls have the same math ability as boys," said Jovanovic, who also is a professor of women's studies. "Yet girls continue to underestimate their ability. I'm interested in what contributes to their lack of confidence."

Bhanot and Jovanovic decided to study whether parents influence their children's confidence in math ability. "Previous work shows that children's confidence decreases when parents give unsolicited help on homework," said Bhanot, who is a graduate student in the Department of Human and Community Development.

Bhanot, who conducted this study for her master's thesis, became curious whether parents who endorse gender stereotypes and who give intrusive help on homework unintentionally undermine a child's self-confidence in academic abilities.

"Research shows that when parents endorse the stereotype that math is a male domain, their daughters underestimate their math ability," Bhanot said.

Somehow, parents communicate gender stereotypes to their children. Jovanovic and Bhanot hypothesized that parents inadvertently impose stereotypes when they give unsolicited help with their child's homework.

Thirty-eight middle-school boys and girls received checklists to complete after they finished their homework in math and English. The checklists asked the children if their parents had given unsolicited help, if their parents had checked their homework without being asked and if their parents had reminded them to do their homework. Children and parents also answered questionnaires. Children assessed their math and English abilities. Parents answered questions about their gender stereotypes for abilities related to math and English and their perceptions about their child's ability in those subjects.

Bhanot and Jovanovic found that while boys received more intrusive support than girls, girls were more sensitive to such intrusions. "We found that girls have less self-confidence in their math ability when their parents give intrusive support," Bhanot said. "This was not true for intrusions during English homework and not true for males."

"The moral of our paper is about girls' sensitivity," Jovanovic said. "Girls may be thinking 'If mom/dad helps me, that means I can't do it.'" But these results shouldn't be interpreted that helping with homework is detrimental to children. "We're not saying, 'Parents, stop helping your kids,'" Jovanovic said. "We know that all children benefit from having parents involved — just be more sensitive to how help is perceived."

Bhanot and Jovanovic conclude their paper by writing that to boost girls' confidence in math and science it must be understood how girls perceive messages from parents and other adults about their abilities. "We need to help girls learn to interpret these messages to their advantage," Bhanot and Jovanovic wrote.

The USDA funded the research. Bhanot's work also was supported by a grant from the Graduate College at U of I.

