

Girls' internalization of their female teacher's anxiety: A "real-world" stereotype threat effect?

The deleterious effects that stereotypes can have on girls' school performance in mathematics are best exemplified by the stereotype threat paradigm (1) showing that when women are reminded of stereotypes alleging male superiority in math, their math performance suffers (2). However, evidence is mixed on how much these threat effects apply to girls' math performance in "real-world" settings (3), and how girls develop their vulnerability in the first place.

Results of a study conducted by Beilock et al. (4) raise an interesting possibility: Perhaps the deleterious effects of gender stereotypes on girls' math performance are implanted by their female teacher's own math anxiety. In their study, first and second graders' stereotypes and math performance were assessed at the beginning and end of the school year. Whereas teachers' math anxiety did not affect students' stereotypes or math performance at the beginning of the year, it predicted girls' end-of-year math performance, suggesting that girls' performance decreased as a function of their teacher's math anxiety. Moreover, this effect was mediated by girls' stereotypical conceptions at the end of the year. However, boys remained unaffected by their female teacher's math anxiety. These findings thus provide evidence that even if girls are not explicitly taught negative stereotypes, their teacher's math anxiety is sufficient to increase their stereotypical beliefs and decrease their math performance through role-modeling mechanisms or emotion contagion processes.

Although seemingly indicating that female schoolteachers are involved in the vicious circle bringing girls' math performance down and maintaining social stereotypes alleging male superiority in math, close examination of the Beilock et al. results suggests otherwise. First, boys' and girls' math performance was similar at the beginning and end of the school year. Second, the majority of students did not report stereotypes favoring either gender in math, and the proportion of students endorsing

stereotypes favoring males was only slightly superior to the proportion of students endorsing stereotypes favoring females. These last results are consistent with findings from recent studies showing a decrease, and sometimes even a reversal, in students' math stereotypes (5). Thus, gender stereotypes favoring boys in math as well as their effects on school performance appear to have greatly diminished over the past decades.

Thus, the overall math anxiety level of Beilock et al.'s teachers does not seem to have been sufficient to produce decreases in overall girls' math performance. Results simply show that when girls were paired with a teacher with high math anxiety, their performance was lower and, conversely, when paired with a teacher with low math anxiety, their performance was higher. It is indeed quite possible that a reduction of schoolteachers' math anxiety was one of the vectors by which math stereotypes came to decrease over time. Whereas the predominance of women in educational settings facilitates these role-modeling effects on girls' attitudes and performance, boys are deprived of these modeling opportunities, which could explain in part the pervasiveness of stereotypes disadvantaging them in language arts (5). Thus, future studies assessing the effects of male schoolteachers on boys would be worthwhile.

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