Both genders think women are bad at basic math

By John Bohannon, Science/AAAS source

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Think women can't do math? You're wrong — but new research shows you might not change your mind, even if you get evidence to the contrary. A study of how both men and women perceive each other's mathematical ability finds that an unconscious bias against women could be skewing hiring decisions, widening the gender gap in mathematical professions like engineering.

The inspiration for the experiment was a 2008 study published in Science that analyzed the results of a standardized test of math and verbal abilities taken by 15-year-olds around the world. The results challenged the pernicious stereotype that females are biologically inferior at mathematics. Although the female test-takers lagged behind males on the math portion of the test, the size of the gap closely tracked the degree of gender inequality in their countries, shrinking to nearly zero in emancipated countries like Sweden and Norway. That suggests that cultural biases rather than biology may be the better explanation for the math gender gap.

To tease out the mechanism of discrimination, two of the authors of the 2008 study, Paola Sapienza and Luigi Zingales, economic researchers at Northwestern University's Kellogg School of Management in Evanston, Illinois, and the University of Chicago Booth School of Business in Illinois, respectively, teamed up with Ernesto Reuben, an experimental psychologist at Columbia Business School in New York City, to design an experiment to test people's gender bias when it comes to judging mathematical ability.

Study participants of both genders were divided into two groups: employers and job candidates. The job was simple: As accurately and quickly as possible, add up sets of two-digit numbers in a 4-minute math sprint. (The researchers did not tell the subjects, but it is already known that men and women perform equally well on this task.) The employers were motivated to choose the best people for the job because they made more money if their hires outperformed the candidates they turned down. At the end of the experiment, the employers took the Implicit Association Test, which measures unconscious bias by forcing you to quickly group together various words. If you associate the word "man" with the word "math" more quickly than "woman" and "math," for example, that reveals a possible bias.

The employers had limited information to make their hiring decisions. In some cases, they got nothing but a glance at the candidate — this revealed the candidate's gender, of course. In other cases, the employers also had the candidate's self-appraisal of how many problems he or

she expected to be able to complete in the 4-minute period. And sometimes, after the employers made their hiring decision, they had a chance to change their minds after they were told by a researcher how the candidates had actually performed on a test run of the math sprint.

Men and women employers alike revealed their prejudice against women for a perceived lack of mathematical ability. When the only information that the employers had was a photograph of the candidate, men were twice as likely to be hired for the simple math job, no matter whether it was a man or woman doing the hiring, the team reported online Monday in the Proceedings of the National Academy of Sciences. The hiring bias did not disappear when candidates self-reported their ability on the task, in part because women tended to underestimate their ability while men tended to boast. And even when the employers received accurate information about the actual performance of the candidates, the bias did not fully disappear. The more prejudiced a person was, as measured by the Implicit Association Test, the less likely they were to correct their bias.

The study is "quite important," says Mahzarin Banaji, a psychologist at Harvard University who was not involved in the research, because it shows that people's prejudice not only affects their judgment of women's math skills, but also impairs their ability to correct it. "The stronger the gender stereotype, the less you are likely to change in favor of women even when you hear about [a woman's] strong performance on the test." What's more, the work comes hot on the heels of a paper published just last week in Current Biology that revealed a lack of collaboration between women in science. The fact that women not only tend to underestimate their own math skills when they are job candidates but also underestimate the ability of other women when they are in a hiring position reveals what "members of disadvantaged groups are costing themselves," Banaji says.

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