

RESEARCH REPORT

Gender-Based Math Gaps

Despite advances in gender equity, troubling patterns in mathematics persist, according to a new study by the American Education Research Association (AERA). In “Have Gender Gaps in Math Closed? Achievement, Teacher Perceptions, and Learning Behaviors Across Two ECLS-K Cohorts,” researchers mined data from two nationally representative studies: ECLS-K:1999 and ECLS-K:2011. The first demonstrates gender gaps in both mathematics achievement and teacher perceptions of male and female mathematic ability. The second study extends this earlier analysis by comparing 1999 and 2011 cohorts from grades K through 3, and remarkably similar gender gap patterns were observed in three areas.

In both studies, the gender gap developed early at the top of the achievement distribution and spread throughout during the first few years of elementary school. Girls represented fewer than one-third of students above the 99th percentile as early as spring of kindergarten. This representation worsens with girls comprising less than one-third of students above the 90th percentile and only one-fifth of those above the



99th percentile by grade 3 in the 1999 study and grade 2 in the 2011 study.

In addition, when both boys and girls had the same math achievement and similar behavior ratings, teachers underrated the skills of girls throughout the achievement distribution as early as grade 1. Results from the 1999 study indicate that teachers rate girls

on par with similarly behaving and performing boys only when they perceived these girls as working harder and behaving better than those boys and this pattern of differential rating was unique to math. Stereotypes about linking males to math and research suggests that teachers likely endorse this by attributing

MYTWOCENTS

What's the most important lesson you've learned from a staff member?



Annette Wallace (@Aewallace8): Never, never, never be afraid to apologize and admit that “I messed up.”

Alecia Cobb (@AcobbCobb): The lesson I learned from my teachers was to listen more and talk less. The best solutions came from the teachers themselves.

LaVette Lang Ford (@fordaka): I have learned many lessons, but one that sticks out more than any is provide honest feedback & support regardless.

boys' failure at math to lack of effort, and girls' failure to lack of ability and success to hard work.

The third area of "Have Gender Gaps in Math Closed?" focuses on gender differences in learning approaches. Several studies have suggested that boys and girls differ in problem-solving, with boys more likely to use bolder strategies such as backwards reasoning, and girls more likely to use familiar, teacher given procedural strategies that may benefit early learning, but not development of confidence and achievement with more complex math.

In contrast to these studies, recent evidence from state tests has suggested that such gender gaps have closed, which may result from the fact that state tests tend to lack high-level questions on which gender differences are most apparent. The highly publicized lack of gender differences on state tests might have removed incentives for schools to address girls' specific math needs.

Research has shown that elementary school children continue to hold implicit and explicit stereotypes of mathematics as a male domain and women remain severely under-represented in higher paying math-intensive fields. Early math success may influence career paths in both direct and indirect ways, and examining gendered patterns can help illuminate how early school experiences impact later choices and outcomes.

Top Tweet



Minnesota principal Brad Gustafson posed this challenge to fellow colleagues on Twitter during the opening session of the 2016 National Distinguished Principal program. Discover more about Gustafson—this issue's Member Spotlight—and his approach to leadership on page 38.

TWITTER.COM/GUSTAFSONBRAD/STATUS/784092296962797568

Douglas Elmendorf (@delmendorf): I learned from my secretaries that they appreciate my presence/support when confronted by upset visitors and parents.

Emily K. Trace (@MGUSC_Eagles): Building relationships takes time and is worth the time. It's the No. 1 factor to building a positive school culture!

Isaac Durmus (@IsaacDurmus): Support and guide them as they support and guide their students.

Want to connect with your peers? Contribute to the conversation by following @NAESP on Twitter.