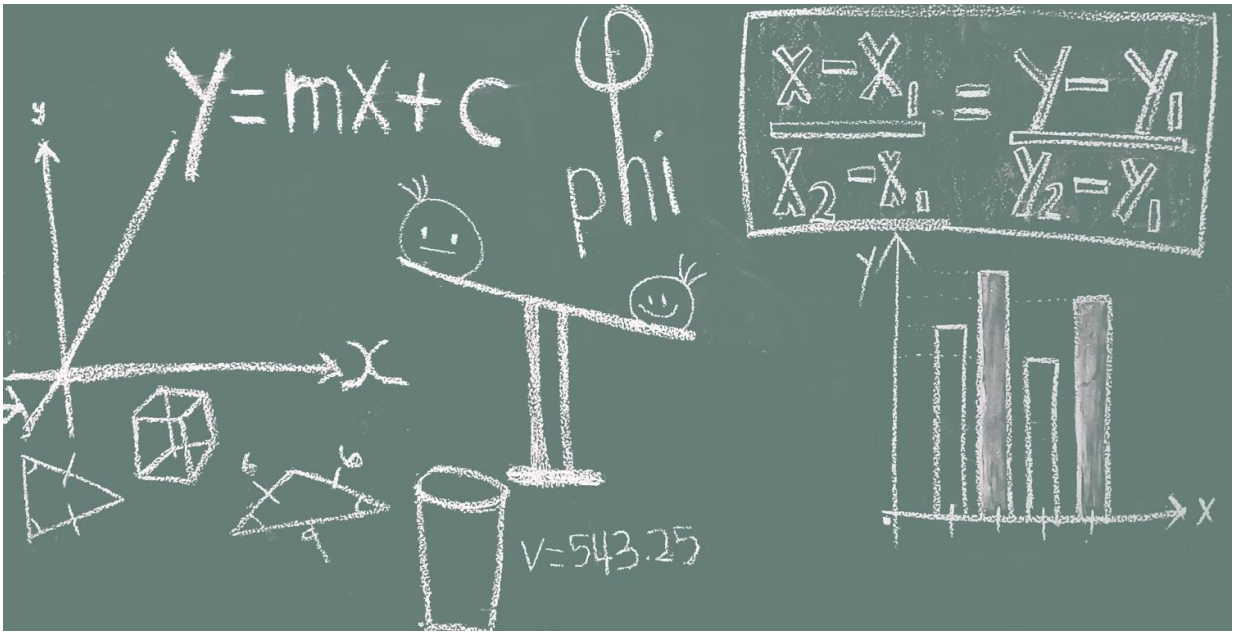
High achievement cultures may kill students' interest in math—especially for girls

November 25 2020



Credit: CC0 Public Domain

A new study in *Frontiers in Psychology* suggests that high national math achievement combined with societal pressures may contribute to how well girls and boys like math. Past research has shown that achievement-driven cultures frequently correlate with less enthusiasm for learning subjects like math. This study of over 500,000 eighth graders from 50 countries is the first to show that girls appear even more susceptible to this effect, providing insights into how to close this gender gap.

"I think we need to look more critically at the idea that we can judge a country's school system mainly on the achievement level its pupils attain—other important aspects, such as pupils feeling interested in their schoolwork, may get lost in the process," says the author, Prof Kimmo Eriksson of Mälardalen University College and Stockholm University in Sweden. "It seems that cultures that promote high achievement in math may also tend to kill many pupils' interest in math schoolwork and I found that this negative effect of high-achievement culture was stronger among girls than among boys."

Eriksson used the results from the multinational Trends in Mathematics and Science Survey (TIMSS) from 2011 and 2015 to look at trends between math performance and students' interest levels. Although the survey had been performed in prior years, 2011 and 2015 were the first years when the survey included both a math test as well as a questionnaire about the students' interest in what they were learning.

The results showed that girls were significantly less interested in math in countries like Japan, Hong Kong, Sweden and New Zealand. But, surprisingly, the roles were reversed in countries like Oman, Malaysia, Palestine and Kazakhstan, where girls were far more engaged in the subject.

One particularly striking result was that whichever way national interest levels trended, the effect was more pronounced among girls. Eriksson named this effect 'female amplification' and suggests that this may be due to girls' stronger tendency to conform to peer influence.

It is important to note that these findings only imply correlation. Additional research is needed to better understand the underlying factors that cause these differences. But these observations may provide useful guidance for how to promote both math interest as well as achievement for girls and boys. Countries such as Singapore have also shown that it is

possible to have both high interest and high performance, and further study of these school systems may help improve teaching methods elsewhere.

"By highlighting how girls' interest in schoolwork is especially sensitive to high-achievement culture, perhaps my work can make researchers and policy-makers recognize and address this challenge: How can schools promote high achievement in mathematics without killing pupils' interest in their schoolwork?" says Eriksson.

More information: Kimmo Eriksson, Gender Differences in the Interest in Mathematics Schoolwork Across 50 Countries, *Frontiers in Psychology* (2020). DOI: 10.3389/fpsyg.2020.578092

Provided by Frontiers