

Study supports new explanation of gender gaps in academia

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University of Illinois psychology professor Andrei Cimpian and his colleagues found that the expectation that one must be brilliant to succeed in certain academic fields was associated with the underrepresentation of women in those fields. Credit: L. Brian Stauffer

It isn't that women don't want to work long hours or can't compete in highly selective fields, and it isn't that they are less analytical than men, researchers report in a study of gender gaps in academia. It appears

instead that women are underrepresented in academic fields whose practitioners put a lot of emphasis on the importance of being brilliant - a quality many people assume women lack.

The new findings are reported in the journal *Science*.

The research, led by University of Illinois psychology professor Andrei Cimpian and Princeton University philosophy professor Sarah-Jane Leslie, focused on a broad swath of academic disciplines, including those in the sciences, the humanities, social sciences and math.

The researchers focused on the culture of different fields, reasoning that stereotypes of [women](#)'s inferior intellectual abilities might help explain why women are underrepresented in fields - such as physics or philosophy - that idolize geniuses.

The team surveyed more than 1,800 graduate students, post-doctoral researchers and faculty members in 30 academic disciplines and, among other things, asked them what qualities were required for success in their fields. Across the board, in the sciences, technology, engineering and math (the so-called STEM fields), as well as in the humanities and social sciences, women were found to be underrepresented in those disciplines whose practitioners put a premium on brilliance.

"We're not saying brilliance - or valuing brilliance - is a bad thing," Cimpian said. "And we're not saying women are not brilliant or that being brilliant isn't helpful to one's academic career. Our data don't address that. What they suggest is that conveying to your students a belief that brilliance is required for success may have a differential effect on males and females that are looking to pursue careers in your field."

The team also tested three other hypotheses that might help explain

women's underrepresentation in some fields: one, that women avoid careers that require them to work long hours; two, that women are less able than men to get into highly selective fields; and three, that women are outnumbered by men in fields that require analytical, systematical reasoning.

"We found that none of these three alternative hypotheses was able to predict women's representation across the academic spectrum," Leslie said. "A strong emphasis on brilliance among practitioners of particular fields was the best predictor of women's underrepresentation in those fields."

The researchers are still investigating whether women are actively avoiding fields that focus on cultivating brilliant individuals, or if practitioners in those fields are discriminating against women based on their beliefs about women's aptitudes. A combination of the two is certainly plausible, Cimpian said.

"There is no convincing evidence in the literature that men and women differ intellectually in ways that would be relevant to their success across the entire range of fields we surveyed," Cimpian said. "So it is most likely that female underrepresentation is not the result of actual differences in intellectual ability - but rather the result of perceived or presumed differences between women and men."

More information: Expectations of brilliance underlie gender distributions across academic disciplines, *Science*, www.sciencemag.org/lookup/doi/.../1126/science.1261375

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