

Who's smarter in the classroom—men or women? New study shows it's all about perception

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In the college biology classroom, men perceive themselves as smarter, even when compared to women whose grades prove they are just as smart. And, ASU researchers were surprised to find that women were far more likely to underestimate their own intelligence than men. Credit: Sandra Leander/ASU

If you believe it, you can achieve it. You've probably heard this motivational phrase more than once. But what if your beliefs about your own intelligence compared to others come down to your gender?

A first-of-its-kind study shows that in the college biology classroom, men perceive themselves as smarter, even when compared to [women](#) whose grades prove they are just as smart. The study, published April 4 in the journal *Advances in Physiology Education*, shows that gender greatly impacts students' perceptions of their own [intelligence](#), particularly when they compare themselves to others.

Katelyn Cooper, a doctoral [student](#) in the Arizona State University School of Life Sciences and lead author of the study, has talked with hundreds of students as an academic advisor and those conversations led to this project.

"I would ask students about how their classes were going and I noticed a trend," shared Cooper. "Over and over again, women would tell me that they were afraid that other students thought that they were 'stupid.' I never heard this from the men in those same biology classes, so I wanted to study it."

The ASU research team asked college students enrolled in a 250-person biology course about their intelligence. Specifically, the students were asked to estimate their own intelligence compared to everyone in the [class](#) and to the student they worked most closely with in class.

The researchers were surprised to find that women were far more likely to underestimate their own intelligence than men. And, when comparing a female and a male student, both with a GPA of 3.3, the male student is likely to say he is smarter than 66 percent of the class, and the [female student](#) is likely to say she is smarter than only 54 percent of the class.

In addition, when asked whether they are smarter than the person they worked most with in class, the pattern continued. Male students are 3.2 times more likely than females to say they are smarter than the person they are working with, regardless of whether their class partners are men or women.

A previous ASU study has shown that [male students](#) in undergraduate biology classes perceive men to be smarter than women about course material, but this is the first study to examine undergraduate student perceptions about their own intelligence compared to other people in the class.

Is this a problem?

"As we transition more of our courses into active learning classes where students interact more closely with each other, we need to consider that this might influence how students feel about themselves and their academic abilities," shared Sara Brownell, senior author of the study and assistant professor in the school. "When students are working together, they are going to be comparing themselves more to each other. This study shows that women are disproportionately thinking that they are not as good as other students, so this a worrisome result of increased interactions among students."

Brownell added that in a world where perceptions are important, female students may choose not to continue in science because they may not believe they are smart enough. These false perceptions of self-intelligence could be a negative factor in the retention of women in science.

Cooper said: "This is not an easy problem to fix. It's a mindset that has likely been engrained in female students since they began their academic journeys. However, we can start by structuring group work in a way that

ensures everyone's voices are heard. One of our previous studies showed us that telling students it's important to hear from everyone in the group could be enough to help them take a more equitable approach to group work."

More information: *Advances in Physiology Education*, [DOI: 10.1152/advan.00085.2017](https://doi.org/10.1152/advan.00085.2017)

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