

Confidence (or its absence) is contagious in the workplace, study finds

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New research by Caltech's Kirby Nielsen, assistant professor of economics and William H. Hurt Scholar, shows that the gender gap in confidence that is often held responsible for women's underachievement in the workplace is "contagious"; that is, when evaluating a worker's

performance based on self-assessments, reviewers will reward apparent self-confidence—and conversely, penalize a lack of confidence—rather than focusing solely on performance.

Think of it like this: You have been in your current job for three years, and you could really use a pay increase. Your performance reviews are good, and you are well within your rights to ask for a raise. Do you?

Many factors influence a decision like this, but one, unquestionably, is gender. If you are a man, you are statistically more likely to reason that you're doing quite well at your job and deserve more money, and you will approach your boss with just this attitude: "It's time for a raise, and maybe a promotion too."

But if you are a woman? You are statistically more likely to recall the "room for improvement" notes from your last performance review and imagine your colleagues are all performing better. You decide that your boss will offer a raise when you deserve it. Or, you may ask your boss for a raise, but when you do, you are hesitant, apologetic: "I shouldn't bother you, but do you think maybe it's time for me to get a raise?"

One potential consequence of this so-called "confidence gap" is predictable: Even when equally performing, equally trained [women](#) and men are present in the workplace, on average men are paid more and have greater upward mobility than women.

For some time, the standard advice given to women to rectify this problem was to "lean in," a slogan made popular by the 2013 book of the same title by Sheryl Sandberg, formerly the chief operating officer of Meta Platforms. Lack confidence in your own worth in the workplace? Lift a page from the careers of more successful men. Value yourself. Tell others they should value you. Nurture your [self-confidence](#) and, in the meantime, fake it as best you can, and the rewards will follow.

Some have objected to this advice, believing the onus should be on employers to realize that women and men assess their own performance differently, and that self-reports should be read through this interpretive lens. "Many people know about the confidence gap," Nielsen reasons. "If I, as an employer, think about how people communicate, I might be able to realize that men and women communicate differently about their performance on average. If my male employee is saying he's amazing, maybe I should tone that down a bit in my mind. If my female employee is saying she's OK, maybe I should consider that an understatement."

To shed some light on these questions, Nielsen crafted an experiment. Participants were recruited and assigned randomly to two categories: workers and evaluators.

The workers were given a 10-question math and science quiz. "We incentivized them to do their best by paying them more for each correctly answered question," Nielsen explains. This quiz was followed by 17 self-assessment questions, also incentivized: The closer participants got to their actual test scores in their self-assessments, the more they were paid. False modesty was not rewarded.

One set of questions focused on the participant's absolute performance: Did they answer at least three questions on the test correctly? Another group of questions measured relative performance: Do they think they scored in the top half among everyone who took the test?

Finally, some questions were directed toward subjective beliefs about performance: Do they think another person would describe their performance on this test as evidence of poor skills in math and science?

This first stage of the experiment yielded the expected confidence gap. Male and female participants' actual test scores landed in the same range; there was no difference by gender. But on the 17 measures of

confidence, significant differences appeared. "On every single one of the self-assessment questions, women report more pessimistic beliefs about their performance than men," Nielsen notes. "Basically, we replicated the expected finding that there is a gendered confidence gap between equally performing individuals."

Next, in the second part of the experiment, the evaluators stepped in. How would they react to these differences in confidence between the workers whose results they viewed?

Evaluators were first presented with a random worker whose gender was specified but about whom nothing else was known. The evaluators were asked to guess the percentage chance that this worker's performance was poor. Evaluators gave similar guesses about performance for any random person, whether male or female. This eliminated the possibility of what Nielsen calls "taste-based discrimination"; that is, evaluators do not arrive at their task already believing that women are more likely to perform poorly on a math and science quiz.

Then the evaluators were presented with the worker's self-assessments and were again asked to specify a percentage chance that this worker's performance was poor. Here, Nielsen says, "women's relative lack of confidence was shown to be contagious. It causes other people to now conclude that women performed worse."

To test evaluators' prior familiarity with the [gender gap](#) in confidence, they were asked to guess workers' likelihood of being overconfident or lacking confidence. The evaluators guessed—accurately—that male workers were more likely to be overconfident and female workers were more likely to be lacking in confidence, indicating that they did know about the confidence gap. However, even being asked these questions did not help the evaluators recognize the influence of confidence in workers' self-reports.

"We thought that maybe if we just asked them about gender and confidence, this would nudge the evaluators to take that into account," Nielsen says. "But that had no effect on their assessments about workers' performance. They continued to guess that women actually performed worse than men after learning about the workers' self-reports."

"What the experiment indicates is that evaluators experienced a type of cognitive bias," Nielsen explains. "They were trying not to discriminate against women but ended up doing so anyway because of the women's pessimistic self-reports, even though they understood that women are typically less confident than men."

There are many real-world implications of this research, Nielsen says, "For example, some people think that having gender-blinded applications or reports could rectify gender imbalances. But this research shows that a gender-blinded process might only make the situation worse. Without knowing applicants' or workers' gender, evaluators would not be able to account for the gender gap in confidence even if they wanted to."

The cognitive bias uncovered in this research could well apply to other groups, for example, people whose cultural codes lead them to project more humility and less confidence. Nelson's experiment tested to see if evaluators would exhibit the same [cognitive bias](#) toward non-gendered groups by telling some evaluators that they were looking not at women and men but at members of "group A" and "group B." The results were the same.

Although the findings may be disheartening to people who present with less self-confidence, the good news, Nelson says, is that "we know a lot about cognitive biases, and we know that there are ways we can de-bias people. Evaluators form these biased assessments because they are having a problem incorporating the information they're given, not

because they are actively discriminating against women. But this means that interventions to help on this dimension could be very promising."

The [paper](#) describing Nielsen's research, titled "The Gender Gap in Confidence: Expected But Not Accounted For," appears in the March 2024 issue of the *American Economic Review*. Nielsen's co-author is Christine L. Exley of the University of Michigan.

More information: Christine L. Exley et al, The Gender Gap in Confidence: Expected but Not Accounted For, *American Economic Review* (2024). [DOI: 10.1257/aer.20221413](https://doi.org/10.1257/aer.20221413)

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