



Do Women Shy Away from Competition, Even When They Can Win?

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At a recent presentation at Wharton, attendees watched as a *New Yorker* cartoon flashed on the screen showing a group of women in what looked suspiciously like a faculty club dining room. The caption read: "I hear we're all getting Valentines from Lawrence Summers." The reference, of course, was to the Harvard University president's famous remark in January that the lack of women in science and engineering might be caused in part by gender differences in aptitude.

Stanford University economist and guest presenter Muriel Niederle, who clearly disagreed with Summers' sentiment, used the cartoon to highlight some of her research into other possible factors behind the scarcity of women in top engineering and science positions. Niederle, the guest speaker at a Decision Processes Seminar, focused in particular on a paper she co-authored with University of Pittsburgh economist Lise Vesterlund titled, "Do Women Shy Away from Competition? Do Men Compete Too Much?"



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Her answer, at least to the first question, was a firm "Yes." The research indicated that even at a task that women clearly perform as well as men, they are less likely to choose a competitive setting, more likely to underrate their performance when they have to guess at it, and perhaps even more likely to shy away from receiving feedback. "If women shy away from competition and men compete too much," the authors wrote, "this ... decreases the chance of women succeeding in competition for promotions and more lucrative jobs."

Their conclusions were based on a rigidly controlled experiment in which male and female subjects indicated a willingness, or lack of willingness, to have their work rated in a competitive -- in this case a tournament involving the solution of simple math problems. Men and women performed the tasks about equally well, she and Vesterlund found, but women at all ability levels were less likely to choose a tournament setting. There was no follow-up questioning to determine why the subjects -- University of Pittsburgh undergraduates -- made the choices they did.

Scratch Paper In, Calculators Out

The four-part experiment worked as follows: The subjects -- 40 men and 40 women -- were divided into 20 groups of two men and two women. They were paid a flat participation fee and additional money depending on how well they accomplished their task: adding as many groups of five-digit numbers as possible under a five-minute time limit. They could write on scratch paper but not use calculators.

In the first part -- called task 1 -- the subjects were given five minutes to solve correctly as many problems as possible. They were given a piece rate of 50 cents for each correct answer. Since a screen kept track of correct answers, each knew how well he or she had done but not the scores of others in the group. They could also see who else was in their group.

In task 2, the subjects were given a similar series of problems but were asked to solve them in a tournament format. The high scorer would get \$2 per correct answer, the other three nothing. Participants in each group were not told immediately who had won the tournament. They learned this only after the

experiment was over.

In task 3, the subjects were asked whether they wanted to be paid on a piece-rate basis or a tournament basis. If they chose the tournament basis, their scores were evaluated against the scores of other group participants in task 2. Niederle said this assured that they weren't competing against just those who chose to enter a tournament. By the same token, she said, their decision could in no way impact the potential earnings of others in the experiment. Participants whose scores were higher than the task 2 scores of their competitors got \$2 per correct answer. Others got nothing.

In task 4, subjects were again asked to make a choice. They could be paid 50 cents per correct answer in their task 1 performance, or they could enter a dummy tournament in which their task 1 performance was evaluated against that of the other three participants. If their score was highest, they got \$2 per correct answer; otherwise they got nothing. Since no actual tournament was involved, the decision was unrelated to willingness to perform in a tournament, but rather to tolerance of risk and estimation of how well they had done previously.

Niederle said that despite the stereotype of women not doing as well in math as men, she chose the simple arithmetic problems because research in the field showed that at this level there is no difference. "We tested anagrams," she said, "and men did better."

At one point, Niederle cited a study indicating that just 2.5% of the five highest paid executives in a sample of large firms were women. In academia, she said, the picture is similar if one judges by rank. She also cited psychological studies on women's reluctance to compete, and set out to test this.

Among her findings:

- Twice as many men as women are likely to select a tournament setting rather than a non-competitive setting.
- If participants are told only their raw score and not their relative ranking, "men are significantly more overconfident about their relative ranking."
- Women may be more risk-averse than men and more averse to receiving feedback on relative performance.

Niederle found that in task 1 -- when everyone worked on a piece-rate basis -- there was no gender difference on performance. Both men and women also tended to do better in a competitive tournament setting and to improve by similar margins.

But when the groups moved on to task 3, just 35% of the women chose a tournament setting compared with 73% of the men. Even the best-performing women were more reluctant to enter the tournament than the lowest-performing men.

Although participants only knew their raw scores during the experiment, they were asked to estimate how well they had done relative to others. Here, she said, the differences were striking: 75% of the men guessed they had been best in their group compared with 43% of the women. Three quarters of the men felt they had finished in the top quartile as against less than half the women. Men's greater optimism about their performance appeared to be only a partial explanation for their greater willingness to enter the tournament, she said: "High-performing women enter(ed) the tournament too rarely, and low-performing men enter(ed) the tournament too often." In fact, she said, the difference between the willingness of men and women to enter the tournament was most pronounced among the top performing quartile in each group.

While family pressures and sex discrimination are often blamed for the scarcity of women in high positions, particularly in science, math and engineering, the authors speculate that “women may shy away from competition simply because they dislike being in an environment where they have to compete.” “You might not like competition,” Niederle told the group, “even if you’re good at it.”

But Niederle also cited the results of task 4 in her experiment -- when no tournament performance was required -- as evidence that women may also be more risk averse. In this task, 55% of the men chose the tournament compared with 25% of the women.

In an interview after the talk, Niederle said she is encouraged by the interest in her topic that is being shown by economists as well as psychologists and sociologists. This, she said, may indicate growing concern about the loss of potential talent when women are underrepresented in certain fields. She plans to expand her own research into the area of affirmative action: For example, in an experiment such as hers, would women make different choices if there was a reward for being the highest-performing female in a group? This would, in effect, add an additional incentive for a female participant that would not be available to the males against whom she was competing. As for the academic world, she said she was concerned “whether men are more likely to seek out harder tasks than women. In college, more women pick the majors that ‘seem’ easy, such as English.”

Some attendees at the presentation questioned using a task where men were perceived to be better. “Could men be more confident based on math stereotypes?” asked one woman. Another questioner, noting that participants could see others in their group at work, suggested that men’s body language might show more confidence and thus influence the female participants. A male audience member took a slightly different, and humorous, tack. “What if you had picked a task requiring patience?” he asked.

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