

Study finds female students less likely to drop engineering program if female mentored

22 May 2017, by Bob Yirka



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(Phys.org)—A pair of researchers with the University of Massachusetts has found evidence that suggests women are more likely to continue to pursue a degree in engineering if they have a female mentor. Nilanjana Dasgupta, an instructor, and her Ph.D. student Tara Dennehy paired first-year female engineering majors with older mentors for a year and then looked at the impact mentoring had the decision to continue pursuing their degree as they moved into their second year. They have published their findings in *Proceedings of the National Academy of Sciences*.

Far fewer women than men receive bachelor's degrees in the STEM fields (just 13 to 33 percent), despite women comprising approximately 56 percent of all students attending college in the United States. Dasgupta and Dennehy note that the disparity is most notable in engineering. They suggest the reason that [women](#) choose to drop out or to change majors is because many such environments are unfriendly, or even hostile to

female students. Quite often, female students are made to feel as if they do not belong. They note also that some efforts have been made to make such environments friendlier, but thus far, little progress has been made. They wondered if female students in such fields might benefit from having a female [mentor](#). To find out, they enlisted the assistance of 150 people (male and female) working as engineers to serve as mentors for 150 female engineering students during their freshman year. The students met with their mentor once a month and were interviewed by the research pair three times during their first year and then again, a year later.

The researchers found that the female students were much more likely to continue to pursue their engineering degree if they had a female mentor, but not if they had a male mentor (18 percent of them dropped out) or no mentor (11 percent dropped out). They report that all of the female students given a female mentor chose to continue with their major their second year. They also note that mentoring appeared to have a lasting impact, as most of those assigned female mentors reported plans to continue with their engineering degree into their third year.

More information: Female peer mentors early in college increase women's positive academic experiences and retention in engineering, *Proceedings of the National Academy of Sciences* (2017).

www.pnas.org/cgi/doi/10.1073/pnas.1613117114

Abstract

Scientific and engineering innovation is vital for American competitiveness, quality of life, and national security. However, too few American students, especially women, pursue these fields. Although this problem has attracted enormous

attention, rigorously tested interventions outside artificial laboratory settings are quite rare. To address this gap, we conducted a longitudinal field experiment investigating the effect of peer mentoring on women's experiences and retention in engineering during college transition, assessing its impact for 1 y while mentoring was active, and an additional 1 y after mentoring had ended. Incoming women engineering students ($n = 150$) were randomly assigned to female or male peer mentors or no mentors for 1 y. Their experiences were assessed multiple times during the intervention year and 1-y postintervention. Female (but not male) mentors protected women's belonging in engineering, self-efficacy, motivation, retention in engineering majors, and postcollege engineering aspirations. Counter to common assumptions, better engineering grades were not associated with more retention or career aspirations in engineering in the first year of college. Notably, increased belonging and self-efficacy were significantly associated with more retention and career aspirations. The benefits of peer mentoring endured long after the intervention had ended, inoculating women for the first 2 y of college—the window of greatest attrition from science, technology, engineering, and mathematics (STEM) majors. Thus, same-gender peer mentoring for a short period during developmental transition points promotes women's success and retention in engineering, yielding dividends over time.

[Press release](#)

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APA citation: Study finds female students less likely to drop engineering program if female mentored (2017, May 22) retrieved 19 September 2020 from <https://phys.org/news/2017-05-female-students.html>

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