



How the tyranny of prestige disadvantages women

By [Beryl Lieff Benderly](#)
[Science Magazine Careers](#)
Mar. 8, 2017 , 11:30 AM

A while back, we [examined](#) the crucial role that prestige plays in the academic labor market and discussed [research](#) showing that a small minority of the nation’s hundreds of Ph.D.-granting institutions produces the great majority of tenure-track faculty members. It’s also well known that, in many fields, women are underrepresented at the faculty level. A [study](#) published last month explores the connection between these phenomena: Women are disadvantaged in the competition for doctorates from those topflight universities, which “presages gender inequality in the jobs for which the doctoral degree is a gateway,” write authors Kim Weeden and Dafna Gelbgiser of Cornell University and Sarah Thebaud of the University of California, Santa Barbara.

“On average, between 11 and 13 percent of female doctoral students would need to ‘trade’ programs with men in order to” gain equal representation in the most prestigious Ph.D. programs, they continue. That average blurs quite substantial variance among fields. In mathematics, the most male-dominated discipline, men have a 50% advantage in the top programs. The male advantage exceeds 20% in physics, geosciences, and economics, according to data in a [supplement](#). Women have an advantage in a small minority of fields—including biomedical engineering, materials science, and geography—but the largest is just 14%; men have approximately this magnitude of advantage in a significantly larger number of disciplines, including biochemistry, psychology, ecology and evolutionary biology, chemistry, and computer science. Fields that are relatively gender-neutral include cell biology, molecular biology, astrophysics, chemical engineering, and mechanical engineering.

The power of criteria

The authors don’t specify a reason for the observed gender discrepancies in Ph.D. prestige, but one causal factor that appears particularly likely is differences in what they call “readily observed indicators of ability”—most particularly GRE scores, especially in math. On average, men score higher than women on these tests. Moreover, to understand admission chances at elite programs, it is crucial to note that, even among intellectually gifted young people, males are significantly [overrepresented among those who get the highest scores](#) on tests of math ability. The cause of this discrepancy—whether differences in inherent ability, in reactions to high-stakes testing, in self-confidence, or other factors—has long been the subject of scholarly debate, even as the percentage of women among the top scorers has [risen sharply](#) over recent decades. Regardless of the reason, however, the existing discrepancy serves to reduce the number of female applicants who have a serious crack at getting into top science graduate programs.

That’s because these programs receive applications far in excess of what they can accept. Faculty members, rather than administrative staffers, must choose among the many—often closely ranked—candidates. To make that task manageable for professors with many other calls on their time, only a small percentage of applicants get full, serious consideration, observes education researcher [Julie Posselt](#) of the University of Southern California in Los Angeles in her book [Inside Graduate Admissions: Merit, Diversity, and Faculty Gatekeeping](#). The rest are discarded in the preliminary review stages on the basis of GRE scores and grade point average.

As a result, at elite departments only the very top GRE scorers—a group that is disproportionately male—survive the initial screening, despite the [questionable ability](#) of any single test to predict something as complex as future scientific achievement. Even at the point when faculty members give close attention to individual applications, for many professors “numbers seem to quickly cut through the ambiguities involved in comparing students who are different on many dimensions,” Posselt writes. In

science fields, she notes, an applicant's math GRE score is seen as a leading initial indicator of merit, and faculty members tend to interpret "small increments in test scores" as "the equivalent of significant variance in intelligence, preparation, or general admissibility." Apparently objective test scores thus serve as "a vital decision-making tool, particularly as applicant pools have grown."

Reliance on the GRE is far from the only factor that can contribute to the graduate school gender prestige gap. Other possible contributors, Weeden and her co-authors write, could include differences in "the talent of incoming students, the quality of the training they receive, the level of financial support they enjoy, the professional networks they develop, the 'halo' effect of obtaining a [previous] degree from a high-prestige program, or some combination." Moreover, they note that women tend to underestimate their abilities relative to men's, especially in male-dominated pursuits, which may discourage women from even applying to top-ranked programs. In addition, women are likelier to leave science programs, which would further reduce the number who complete degrees at the highest prestige departments. Overall, the authors write, the prestige differences appear to be "an expected, albeit underappreciated, outcome of more general social processes" related to gender in general.

Computing how gender works

A [study](#) of faculty hiring in computer science—a field where women account for a mere 15% of faculty members on the tenure track—offers further insight into the subtle and complicated relationship between prestige and gender. As in many other fields, the "relative prestige" of the institution that granted an applicant's doctorate and the institution that hired the person as assistant professor plays a crucial role. "[O]nly 12% of individuals were hired at an institution more prestigious than their doctorate institution," write authors Samuel Way of the University of Colorado in Boulder, Daniel Larremore of the Santa Fe Institute, and Aaron Clauset of both institutions.

Interestingly, however, top-ranked institutions, which appear to "value prestige more than lower-ranked" ones, nonetheless hire "more women than expected," the authors write. Departments of slightly lower standing meanwhile tend to hire somewhat fewer women, a pattern that "may suggest that efforts made by top institutions to rectify instances of gender imbalance in their own departments could come at the expense of impeding similar efforts" elsewhere. And even though universities generally prefer to bring in new faculty members from other institutions, when they do hire one of their own alumni, they are considerably likelier to choose a female graduate: 9.4% of women, but only 6.1% of men, landed a faculty job at their own Ph.D.-granting school. The authors offer no explanation for this difference, but it could reflect departments' desire to rectify a shortage of women by hanging on to an able graduate rather than seeing her hired at a competing school.

Individual fields each have their own particular patterns and quirks, Weeden and co-authors point out.

Still, the tyranny of prestige does appear to rule throughout academe. Until elite departments come to grips with the factors that may be disqualifying able women from getting in, the faculty gender gap is likely to persist.