

Reducing the Impact of Negative Stereotypes on the Careers of Minority and Women Scientists

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Social science research powerfully demonstrates how stereotypes, even those that people are not consciously aware of, can influence the careers of women and minorities. For example, people [rate the quality of a scientific paper differently](#) depending on

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whether they think a man or a woman wrote it. Stereotypes also reduce the self-esteem, motivation, and intellectual performance of women and minorities through a process called stereotype threat. Stereotype threat reduces performance in situations where an individual might confirm a negative stereotype about his or her group. In one example, researchers found that African-American college students [performed worse](#) on an SAT test when the students had been told that the test is a valid measure of intelligence.

Such findings suggest that negative stereotypes pose a serious career obstacle for women and minority scientists. In 2006, the National Academy of Sciences released the report [Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering](#), which recommended that scientific institutions adopt interventions that combat stereotypes. [See this box](#) for recommendations on what institutions can do.

But the focus of this article is on individual scientists: What can they do to prevent stereotypes from stifling their career advancement? The advice this article offers is derived from my experiences as a social psychologist working in the [Office of Diversity and Leadership](#) at Stanford University School of Medicine. Individual scientists can take at least three steps to buffer themselves against negative stereotypes: educating themselves and others about the science of stereotypes, adopting a growth mindset, and expanding their professional networks.

Recommendations for Institutions on Reducing the Impact of

Negative Stereotypes

1. Demonstrate institutional commitment to diversity through strategic plans, mission statements, and other communication to employees.
2. Educate organizational leaders on how stereotypes, especially those that are unconscious, affect hiring and evaluation decisions.
3. Consider educating all employees about how stereotypes affect decisions.
4. Diversify the members of all hiring committees.
5. Make efforts to diversify candidate hiring pools in order to avoid creating "tokens."
6. Create ground rules for hiring discussions, including keeping job criteria front and center and focusing on evidence rather than opinions.
7. Appoint at least one senior leader who is responsible for monitoring institutional fairness.
8. Although numbers are important, focus equally on creating an inclusive organizational culture that supports diversity.
9. Help build and support professional networks that connect scientists of different backgrounds and ages.
10. Develop leadership-development programs for scientists that incorporate diversity training.

Educate yourself and others about the science of stereotypes

One simple-yet-effective way to combat stereotypes is to raise awareness of how stereotypes affect decision-making. Making people more aware of these processes helps them -- and you -- self-correct and thereby reduce the negative effects of stereotypes on decisions. Educating others can be as simple as presenting them with the social science research that demonstrates how, why, and when stereotypes are most likely to influence evaluation decisions.



Daisy Grewal (Credit: Steve Gladfelder, Stanford University)

When talking to others about stereotypes, it is important to emphasize that stereotypes are often not under our conscious control. Emphasizing this fact will reduce feelings of defensiveness. Scientists have been able to measure our

unconscious stereotypes through a computer task called the Implicit Association Test (IAT). You may want to take the IAT at the Web site [Project Implicit](#) and encourage others to do the same. Most people find their results on the IAT surprising. Because stereotypes originate from the societies we live in, we all hold them to some degree.

Evidence is growing that educating people about stereotypes helps foster diversity in science. At least two studies -- one at the [University of Michigan, Ann Arbor](#), and the other at the [University of Wisconsin, Madison](#) -- have shown that educating science faculty members about stereotypes leads to improvement in the rates at which women are hired onto faculties. Faculty attendance at training events also correlated with better hiring experiences for faculty recruits, especially women.

So, while it's a good idea to try to raise awareness, stereotypes are a touchy subject. An alternative to forcing people into a difficult conversation is to direct them toward resources from credible national organizations. For example, the Association of American Medical Colleges offers a [free e-learning seminar](#) titled "What You Don't Know: The Science of Unconscious Bias and What To Do About it in the Search and Recruitment Process."

Learning more about the science of stereotypes can also help women and minorities prevent stereotypes from interfering with their intellectual performance. In one study, researchers taught women college students about stereotype threat and how it affects performance. Those women [did just as well as men](#) on a subsequent math test. These results suggest that simply informing stereotyped groups about how stereotype threat works can diffuse its power.

Grow your mindset

Stanford University psychology professor [Carol Dweck has found](#) that our views of human nature influence our likelihood of stereotyping others. People with a "fixed" mindset view human abilities as stable and difficult to change; consequently, they are more likely to use stereotypes to describe themselves and others. In contrast, people who have a "growth" mindset view human abilities as malleable through sustained effort. They are less likely to stereotype themselves or others.

Research has shown that a fixed or growth mindset can have powerful effects on people's behavior, especially people who belong to stereotyped groups. For example, African-American students with a fixed mindset [are less likely to incorporate constructive criticism](#) when trying to improve their intellectual work. Among women taking an advanced math class, those with fixed mindsets felt more anxious during the class and didn't [perform as well](#). In contrast, the women with growth mindsets felt more comfortable and confident in their abilities and performed better. Importantly, the women with the growth mindsets were just as aware of negative stereotypes about women in math, but their mindsets gave them a resilience that helped them overcome those stereotypes.

People with growth mindsets are less likely to become discouraged after making mistakes and more likely to view difficult situations as challenges rather than threats. Adopting a growth mindset can benefit everyone, but it might be especially important for those who belong to stereotyped groups.

You might think there is little you can do to change your mindset, especially if your mindset is fixed. Dweck, however, has been able to change people's mindsets in experimental settings. She suggests four steps:

- Pay attention to what you are telling yourself.
- Recognize that you have a choice.
- Talk back to your fixed mindset "voice."
- Accept challenges and interpret the results within a growth mindset.

For a more in-depth look at these four steps, visit Dweck's [Web site](#).

Expand your professional networks

An unfortunate byproduct of stereotypes is that they often make people feel like they don't belong, which can exert powerful effects on people's career choices. For example, research shows that women who feel like they don't belong in computer science [are less likely to want to pursue a career in it](#), even if their aptitude for computer science is high. Women and minority scientists are at a higher risk of feeling like they don't belong or fit in with their colleagues.

Feelings of belonging directly influence people's motivation and satisfaction with a scientific career and can predict whether they stay at an institution.

If your institution provides opportunities for networking with colleagues, you should attend. Networks serve many purposes, including mentoring, access to information, and professional and personal support. If you don't have an official networking program, develop your own, unofficial one. Make an effort to keep in contact with colleagues who support you and your career. Talking with experienced scientists, who have weathered challenges in the past, can help women and minorities interpret difficulties less personally, improving their resiliency. In experimental settings, researchers have found that increasing feelings of belonging [provides a buffer](#) against negative stereotypes and reduces the drop in performance caused by stereotype threat.

The world would be far better place if women and minorities did not have to deal with negative stereotypes in the first place. History and society have placed the burden of negative stereotypes unfairly on women and members of minority groups. By providing early-career researchers with strategies that can help them deal with stereotypes, we are by no means absolving institutions of their responsibility to confront and try to change negative stereotypes. Universities and other scientific organizations have an obligation to do this, and their contributions -- like the contributions of individual scientists -- are necessary if we are to avoid losing out on critical sources of scientific talent.

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