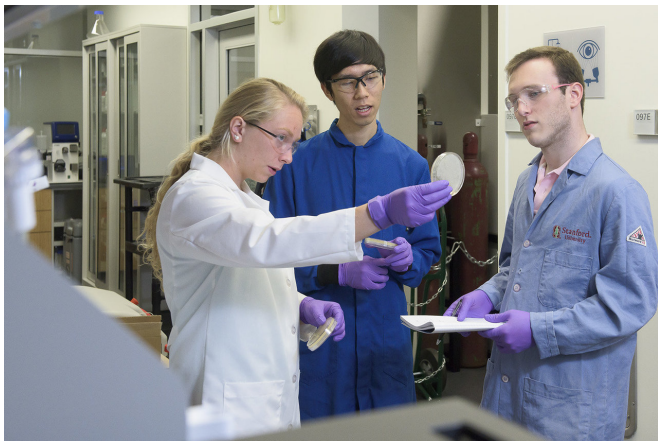


Gender diversity is linked to research diversity

5 October 2018, by Amy Adams



Maria Filsinger Interrante, Christian Choe, and Zach Rosenthal, aka Team Lyseia, strategize about upcoming experiments to test their new antibiotics. Credit: L.A. Cicero

Women and girls are increasingly encouraged to pursue STEM careers, potentially leading to greater gender diversity within research organizations. While Stanford historian Londa Schiebinger sees that as a positive step, she wants those organizations to go further by also supporting the changes to research itself brought on by the greater diversity.

"Everybody supports diversity these days," Schiebinger said. But for the most part that diversity refers to the people on the team, not the outcomes. "Our hypothesis is that if you bring diversity to the team, you get diversity in the kinds of questions people ask," she said.

And those new research directions could have their consequences. "If people are asking new questions we might also get new participants," she said.

Schiebinger and a team of researchers recently

published a paper in *Nature Human Behaviour* proposing ways organizations can continue to encourage [gender diversity](#) while also supporting diversity in new research directions that may result. Their paper lays out how research organizations – from research teams to universities to the broader disciplines in which they are embedded – can create the conditions for diversity to flourish.

Many types of diversity

Schiebinger points out three kinds of diversity – diversity in research teams, diversity in [research methods](#) and diversity in the questions being asked.

The first form of diversity refers to who is on the team, Schiebinger said. "The other two are about how we create knowledge."



Graduate students Cristina Salvador and Ryan Navratil collect seeds for the Boething restoration experimental plots at the serpentine meadow at Jasper Ridge. Credit: L.A. Cicero

Those three types of diversity are interrelated, Schiebinger said. "Improving one likely leads to

improvements in the others." In areas like engineering, where [women](#) are still poorly represented, paying more attention to diversity in methods and questions asked may result in more success in attracting women to the field, she said.

In previous work, Schiebinger and postdoctoral researcher Mathias Nielsen, now at Aarhus University in Denmark, showed that when women are involved in medical research they are more likely to take sex and gender into account in their work – looking at drug side effects in men versus women, for example, or including both sexes in a study and reporting the results by sex.

The results of considering both sexes are wide-ranging, including finding significant osteoporosis risk in men over 75, which had been overlooked in the focus on women with the disease. Other examples include a new awareness of how heart attacks manifest differently in women compared with more frequently studied men, pregnant crash-test dummies, and how human biases may be amplified in machine learning. Schiebinger has an international project called Gendered Innovations that tracks these and other discoveries that come out of research that considers gender.

Incentives for diversity

Schiebinger said that although women are more likely to consider gender in their research, sex and gender analysis are technical skills that anyone can learn, especially with the right incentives, such as those recently put into place in at the European Commission, the U.S. National Institutes of Health, the Canadian Institute of Health Research, and the Germany Research Foundation, among others. "If research is funded by taxpayer monies, you need to integrate sex and gender into your work so that everyone in society benefits," she said.

The group's members hope their analysis will encourage related policies at the U.S. National Science Foundation. "You can think of gender as a variable and if you leave it out, you potentially miss something important in scientific research with human outcomes," Schiebinger said. "While our study focused on gender diversity, we hope it contributes to a better understanding of the

possible benefits associated with other types of diversity as well."

Creating more diversity in people and in research methods are changes funding agencies or universities can directly encourage. Schiebinger said that when more men join fields like nursing or when more women join fields like computer science and engineering, those fields should be open to the changes in research directions and agendas newcomers are likely to introduce. They point to historians, who began exploring gender history, the history of sexuality and a host of new questions as women entered the field over the past 30 years.

Schiebinger's team, which includes Carter Bloch of Aarhus University in Denmark, points out that it's not necessarily clear whether [diversity](#) among researchers spawned the expanding [research](#) directions, or if those directions came out of larger shifts in society, such as the women's movement and the civil rights movement. Either way, Schiebinger said, society needs diverse teams asking the questions with the [gender](#)-inclusive data to get the best possible scientific outcomes.

More information: Mathias Wullum Nielsen et al. Making gender diversity work for scientific discovery and innovation, *Nature Human Behaviour* (2018). [DOI: 10.1038/s41562-018-0433-1](https://doi.org/10.1038/s41562-018-0433-1)

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