Issues of Diversity and Inclusion for the Sciences

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How are we doing with gender diversity in the physical sciences?

	% of women earning degree	
	Bachelors	PhD
Physical Sciences	39.1	30.9
Chemistry	48.5	37.8
Physics	19.3	19.3

National Science Foundation, National Center for Science and Engineering Statistics. 2019. *Women, Minorities, and Persons with Disabilities in Science and Engineering: 2019.* Special Report NSF 19-304. Alexandria, VA. Available at https://www.nsf.gov/statistics/wmpd.

So what's up?

- Is it the women?
- Is it the men?

- It's the culture!

Cultural factors

- Societal belief that women don’t belong in science

- Implicit bias
- Stereotype threat
- Mindset
- Discrimination
- Sexual harassment

Implicit (Unconscious) Bias

- Growing up → culturally instilled values
- Pervasive: everyone has them
- Different from explicit biases (can be same or different)
- May differ from our declared beliefs
- Tend to favor our own in-group
- Malleable—thank goodness!

http://kirwaninstitute.osu.edu/research/understanding-implicit-bias/

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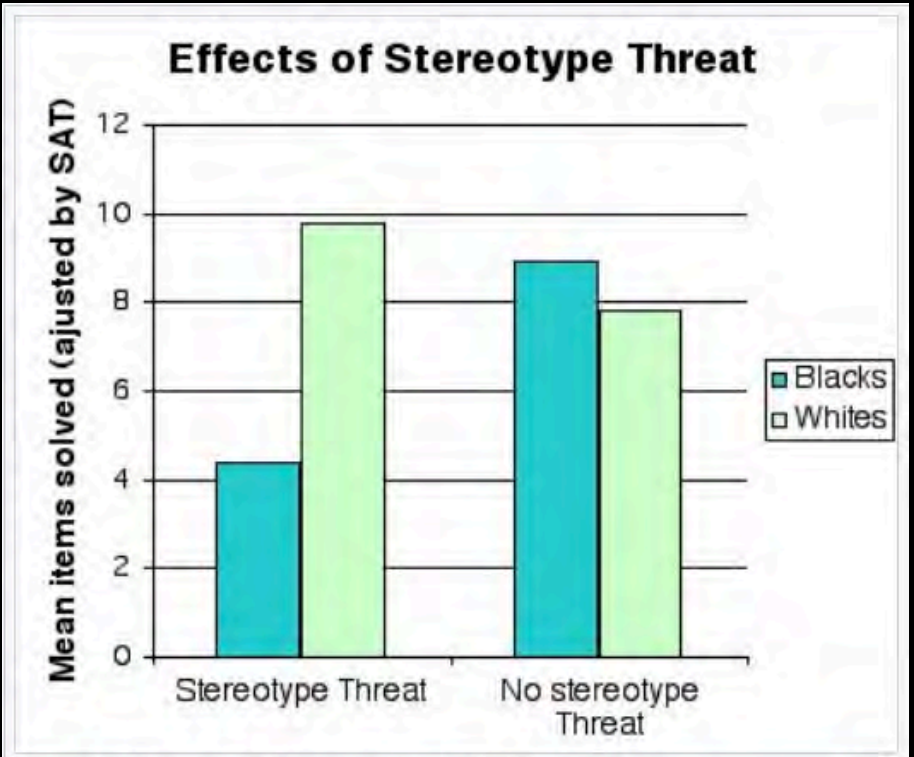
Stereotype Threat

- Risk of confirming a negative stereotype
- Triggered by mentioning stereotype (or even being unconsciously aware of it)
- Lowers performance of stereotyped groups



"The Effects of Stereotype Threat on the Standardized Test Performance of College Students (adjusted for group differences on SAT)". From J. Aronson, C.M. Steele, M.F. Salinas, M.J. Lustina, *Readings About the Social Animal*, 8th edition, ed. E. Aronson

http://www.reducingstereotypethreat.org/
https://en.wikipedia.org/wiki/Stereotype_threat

Mindset

- Fixed mindset: your qualities are set and unchangeable
- Growth mindset: your qualities can be cultivated and developed

https://www.mindsetkit.org/

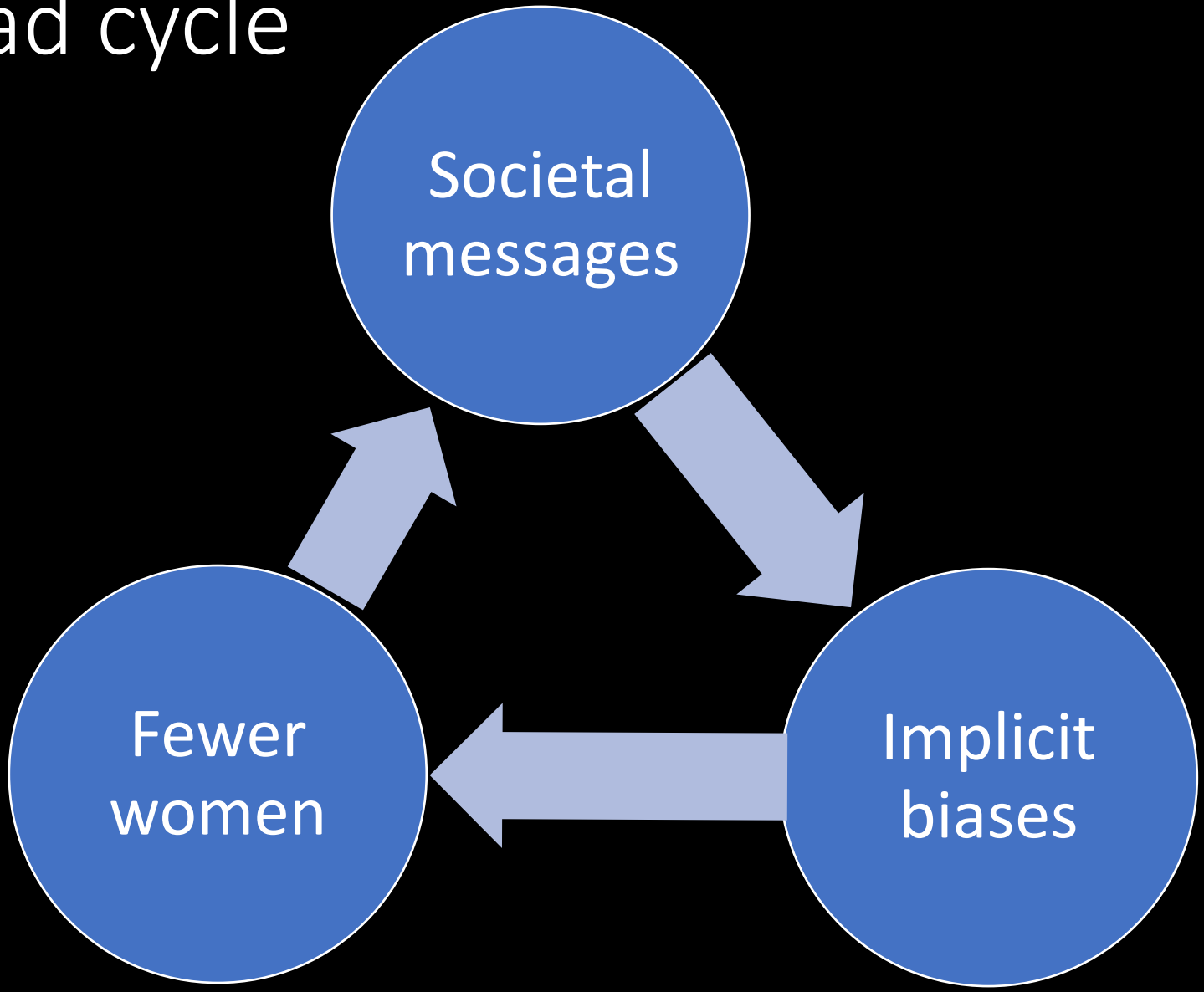
How do these affect women?

- Implicit bias:
  - Women get lower evaluations, lower starting salaries, fewer job offers, etc.
  - Women's work is valued less than men's
- Stereotype threat:
  - Women's performance is lower than it should be
  - Self-doubt, less connection to field
- Mindset:
  - "Girls can't do science" vs. "Anyone can do science!"
  - Growth mindset improves women's performance more than men

How do these affect organizations?

- Implicit bias:
  - Fewer women hired
  - Slower promotion for women
  - Loss of talent, ideas
- Stereotype threat:
  - Women under-perform to their potential: slower promotion; self-doubt; wasted talent; less connection to organization
- Mindset:
  - “But we’ve always done it this way!”

A bad cycle



What can organizations do?

- Have to change culture
- Support professional development and leadership opportunities for all
- Family-friendly policies help everyone
- Make policies and procedures transparent
- Find your blind spots and old boys' hangouts
- Hire/appoint an ombudsperson
- Support collaborative leadership styles
- Look at best practices from peer organizations

What doesn’t help?

- Hire more women
- Broad diversity training
- Make it the women’s problem/task
- Hire a diversity officer/form a diversity committee without resources or authority

What can individuals do?

- Find your biases! Take the Implicit Association Test.
- Look for counterexamples to stereotypes and share them widely
- Collaborate, support, promote
- Watch for bad language
- Bystander/observer training

https://implicit.harvard.edu/implicit/

Some reassurance

- Women's representation in science is much better than it was 20 years ago
- Most of obvious discrimination is gone
- Women are moving into positions of leadership and power

- Things have been getting better! We need to keep the momentum going.
- This means YOU!

Thank you!

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