

Hot Topic Discussion

# Valuing Diversity: A Quantitative Look at the Economics of Gender in STEM

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# Women's History Month!

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## Women's History Month - Celebrating Women in Nanotechnology!

This year for Women's History Month, we're celebrating women that are making history in nanotechnology by recognizing 31 of the many amazing scientists, engineers, and entrepreneurs, along with their achievements. Keep the conversation going by highlighting your favorite women nanoscientists using #WomeninNano!



Reference: The National Nanotechnology Initiative

# Lancet: Spotlighting Inequity in STEM



Key topics from the Lancet Issue:

- Gender equality in science, medicine, and global health: where are we at?
- A culture of accountability is critical to end workplace inequity and harassment
- Engaging men to support women in science, medicine, and global health
- Funders should evaluate projects, not people

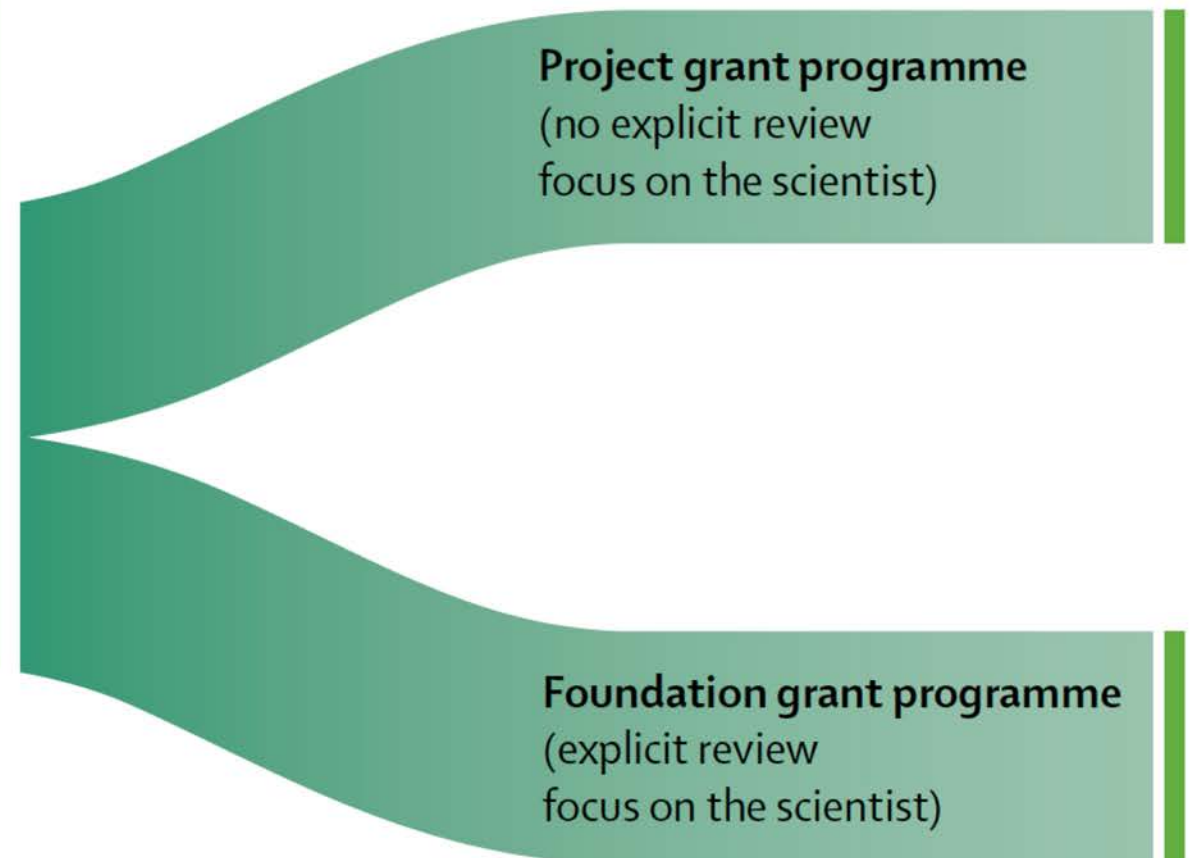
# A Case from Canadian Institutes of Health

2011

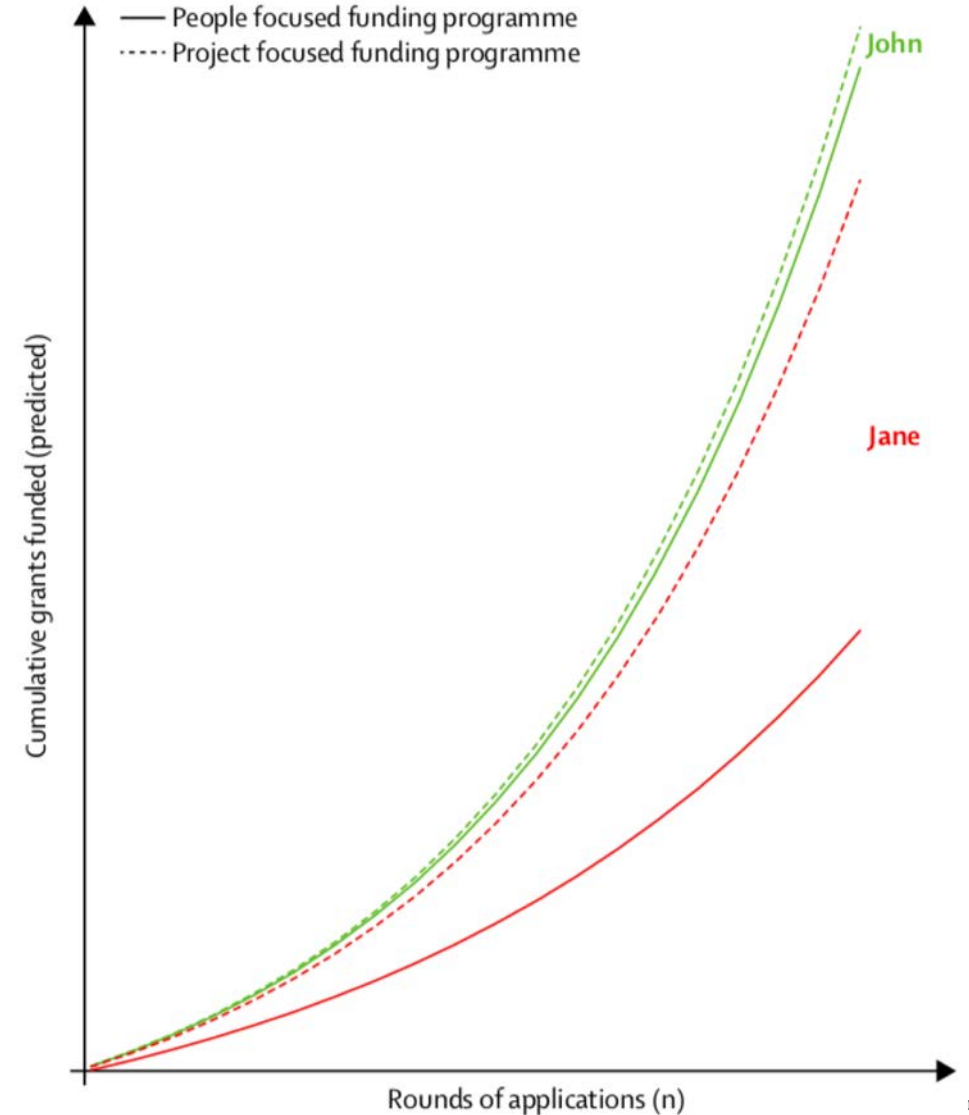
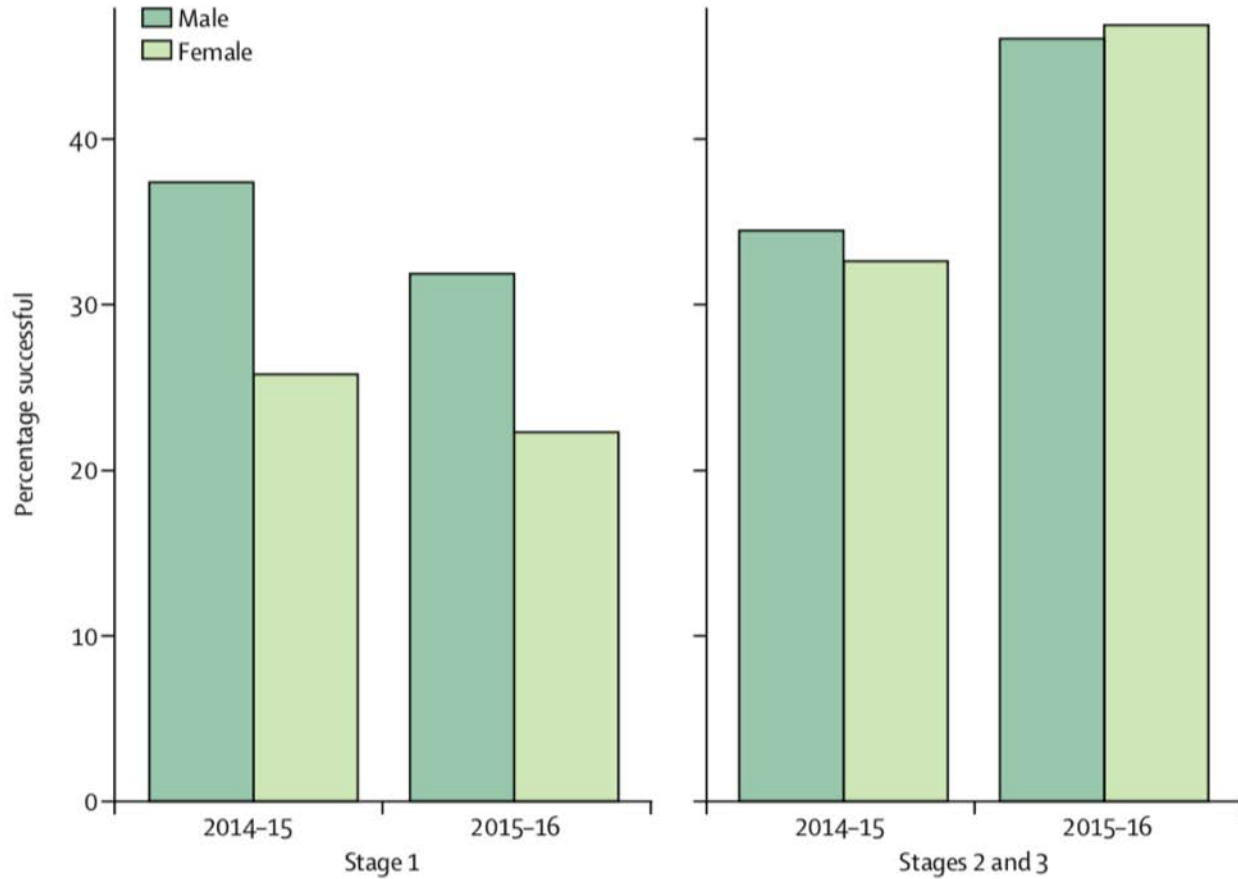


Changes implemented  
in 2014

2016



# A Case from Canadian Institutes of Health



Reference: Witteman, H. O. et al., The Lancet (2019) and Raymond, J. L. et al., The Lancet (2019)

# A Case from the Hubble Telescope

The Telescope Allocation Review committee for the *Hubble Space Telescope* recently adopted anonymous peer review.

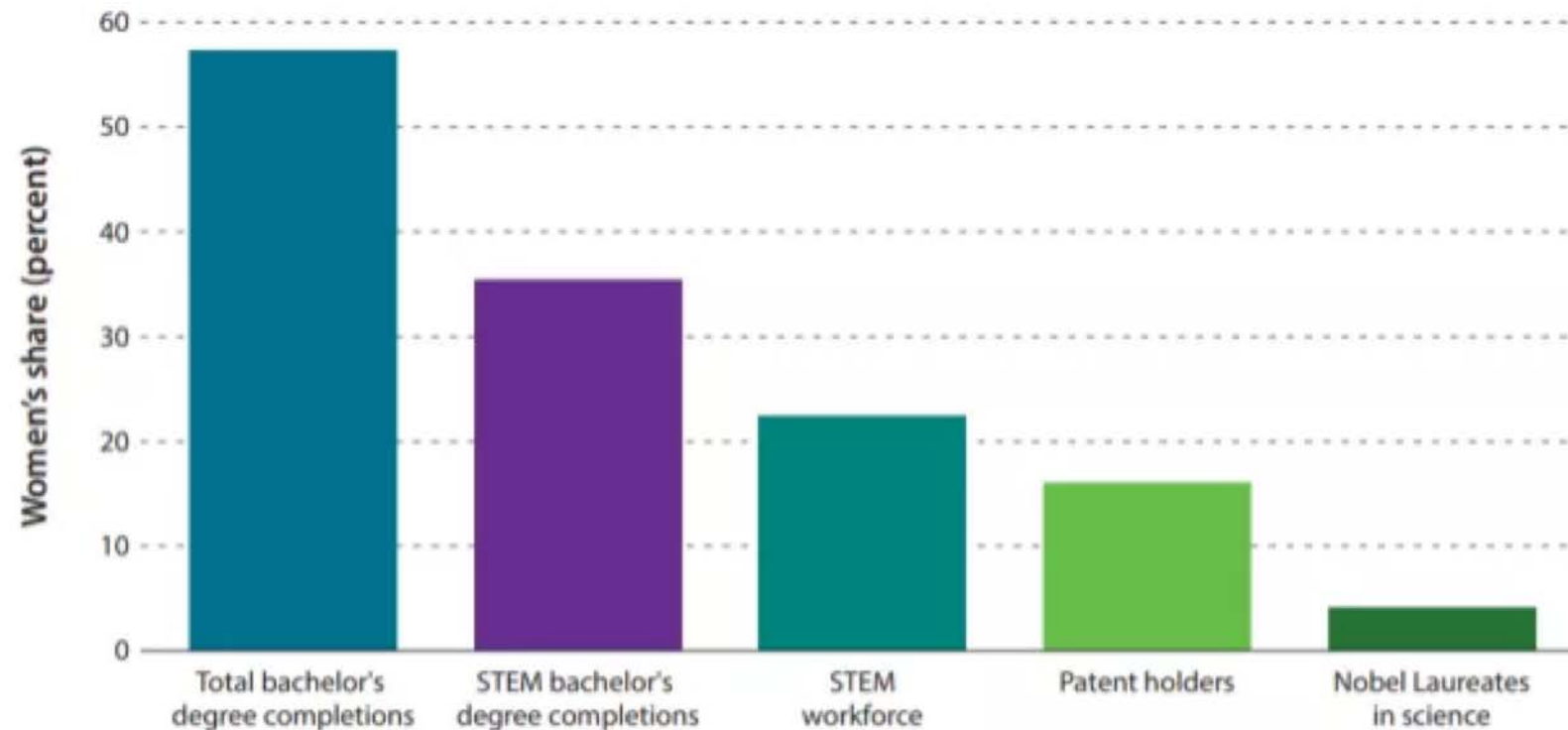
Before anonymous review: 13% (6/46) of proposals submitted by female PIs were approved and 24% (29/121) of proposals submitted by male PIs were approved.

After anonymous review: 8.7% (12/138) of proposals submitted by female PIs were approved and 8.0% (28/351) of proposals submitted by male PIs were approved.

This reverses the trend seen in the past 15 cycles!

# Women are Underrepresented Throughout the Innovation Pipeline

Share of Women, by Selected STEM and Innovation Measures



Source: Current Population Survey 2016; NCES 2016; National Women's Business Council 2012; Nobelprize.org 2017.

Note: Bachelor's degree completion data are for 2014–15, workforce data are for 2016, patent grant data are for 2010, and Nobel Prize data are for 2000–16.

# Actionable Strategies

What can you do?

- See something, say something
  - How do you intervene constructively?
- Share and use WiSDM + similar initiatives
- The KI is a diverse community - meet your neighbors!
- Avoid gendered language in recommendation letters



# Avoiding gender bias in reference writing

Got a great student? Planning to write a super letter of reference?  
Don't fall into these common traps based on unconscious gender bias.

## Mention research & publications

Letters of reference for men are 4x more likely to mention publications and twice as likely to have multiple references to research. Make sure you put these critical accomplishments in every letter!

## Don't stop now!

On average, letters for men are 16% longer than letters for women and letters for women are 2.5x as likely to make a minimal assurance ('she can do the job') rather than a ringing endorsement ('she is the best for the job').

## Emphasize accomplishments, not effort

Letters for reference for men are more likely to emphasize accomplishments ('his research', 'his skills', or 'his career') while letters for women are 50% more likely to include 'grind-stone' adjectives that describe effort. 'Hard-working' associates with effort, but not ability.

## We all share bias

It is important to remember that unconscious gender bias isn't a male problem. Research shows that women are just as susceptible to these common pitfalls as men. This is a problem for all of us - let's solve it together!

brought to you by:



Research from Trix, F & Psenka, C. Exploring the color of glass: Letters of recommendation for female and male medical faculty. *Discourse & Society*, 2003; and Madera, JM, Hebl, MR, & Martin, RC. Gender and letters of Recommendation for Academia: Agent and Communal Differences. *Journal of Applied Psychology*, 2009.

## Keep it professional

Letters of reference for women are 7x more likely to mention personal life - something that is almost always irrelevant for the application. Also make sure you use formal titles and surnames for both men and women.

## Stay away from stereotypes

Although they describe positive traits, adjectives like 'caring', 'compassionate', and 'helpful' are used more frequently in letters for women and can evoke gender stereotypes which can hurt a candidate. And be careful not to invoke these stereotypes directly ('she is not emotional').

## Be careful raising doubt

We all want to write honest letters, but negative or irrelevant comments, such as 'challenging personality' or 'I have confidence that she will become better than average' are twice as common in letters for female applicants. Don't add doubt unless it is strictly necessary!

### Adjectives to avoid: Adjectives to include:

caring	successful
compassionate	excellent
hard-working	accomplished
conscientious	outstanding
dependable	skilled
diligent	knowledgeable
dedicated	insightful
tactful	resourceful
interpersonal	confident
warm	ambitious
helpful	independent
	intellectual

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# Discussion Questions

What do you think our community can do to build a more inclusive KI?

Have you seen an initiative in other institute that can be implemented here?