Implicit-Bias Education

NIH's Scientific Approach to Inclusive Excellence

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NIH Chief Officer for Scientific Workforce Diversity

NHGRI Tenure-Track Search Committee Meeting | October 23, 2019

National Institutes of Health
Office of the Director
Scientific Workforce Diversity

NIH's Scientific Approach to Inclusive Excellence: Implicit Bias Education

Presentation Outline

- Why diversity and inclusion matters
- Scientific workforce diversity data
  - National, NIH
- NIH institutional approaches toward inclusive excellence
  - Implicit-bias mitigation
  - NIH Equity Committee
  - Distinguished Scholars Program
  - Trans-NIH searches

Implicit bias educational module objectives:

1. Increase your awareness of implicit, or unconscious, bias.

2. Provide you with bias-prevention strategies to ensure objectivity and fairness in review and hiring.

Why Diversity Matters
Capitalizing on the Opportunity

Excellence, Creativity, Innovation

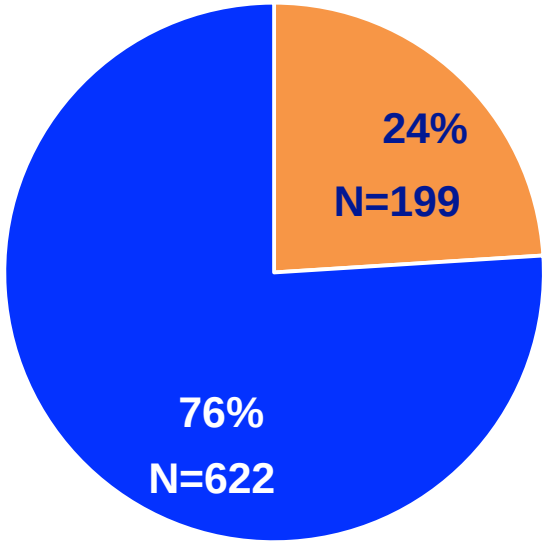
Broadening Scope of Inquiry: Health Disparities

Changing Demographics: Types of Diversity

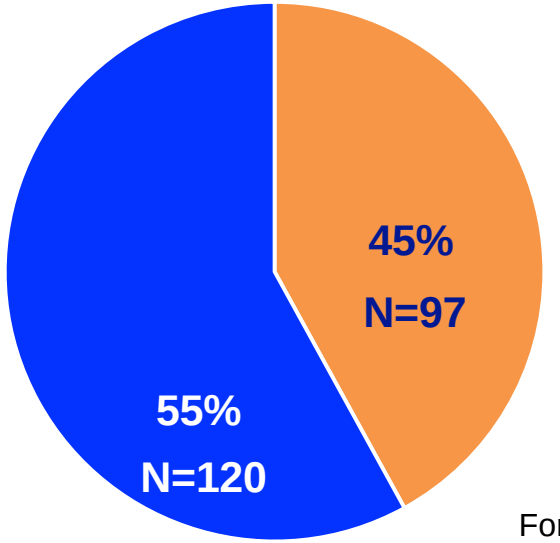
Global Research Preeminence

NIH Intramural Tenure Track & Tenured Investigators End-FY19 (Total 1,038)

Tenured Gender

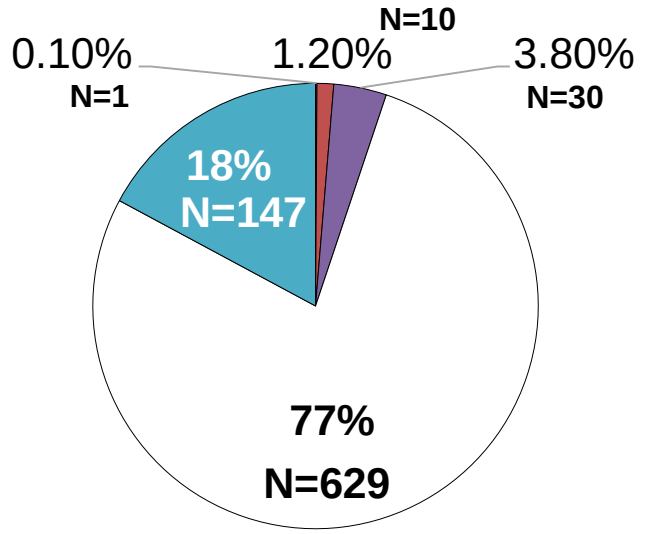


Tenure-Track Gender



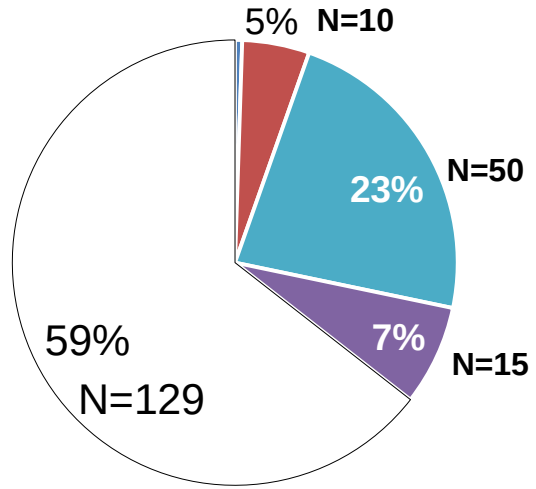
Tenured Race/Ethnicity

URG = 5.1%



Tenure-Track Race/Ethnicity

URG = 12.2%



Foreign nationals: 0.2% of Tenured and 6% Tenure Track

Women in NIH IRP (Oct 2018)

Tenure-Track Women

October 2018 Investigator			
IC	Female	Total	%
NIDCD	2	2	100.0%
NLM	1	1	100.0%
NIEHS	9	11	81.8%
NIDCR	3	4	75.0%
NINR	2	3	66.7%
NCCIH	2	3	66.7%
NIMHD	2	3	66.7%
NCI/DCEG	10	18	55.6%
NIAID	6	11	54.5%
CC	2	4	50.0%
NINDS	4	8	50.0%
NICHD	5	11	45.5%
NIA	2	5	40.0%
NCI/CCR	23	63	36.5%
NHLBI	4	13	30.8%
NIDDK	3	12	25.0%
NIAAA	1	5	20.0%
NIDA	1	6	16.7%
NIAMS	1	6	16.7%
NIMH	1	8	12.5%
CIT	0	0	0.0%
NEI	0	4	0.0%
NHGRI	0	3	0.0%
NIBIB	0	3	0.0%

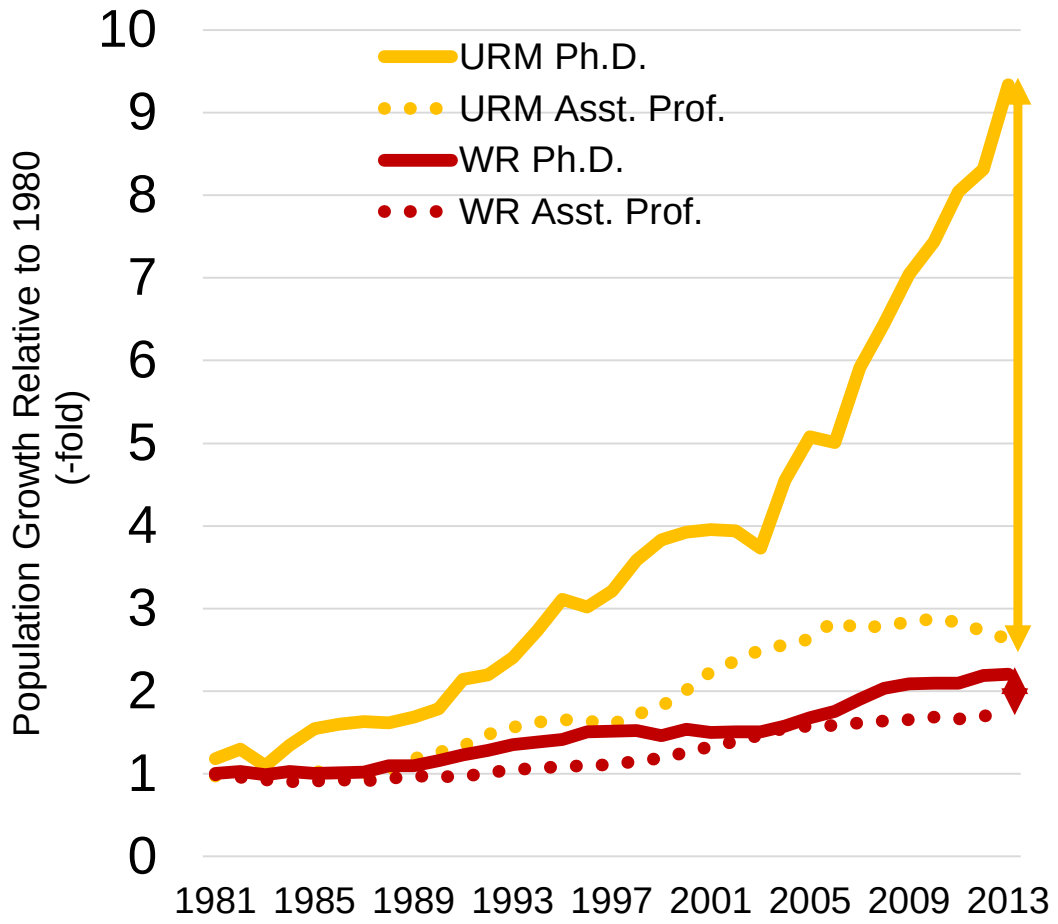
*National Average for Female Tenure-Track Professors: 40%
Source: https://www.aamc.org/data/facultyroster/reports/486050/usmsf17.html

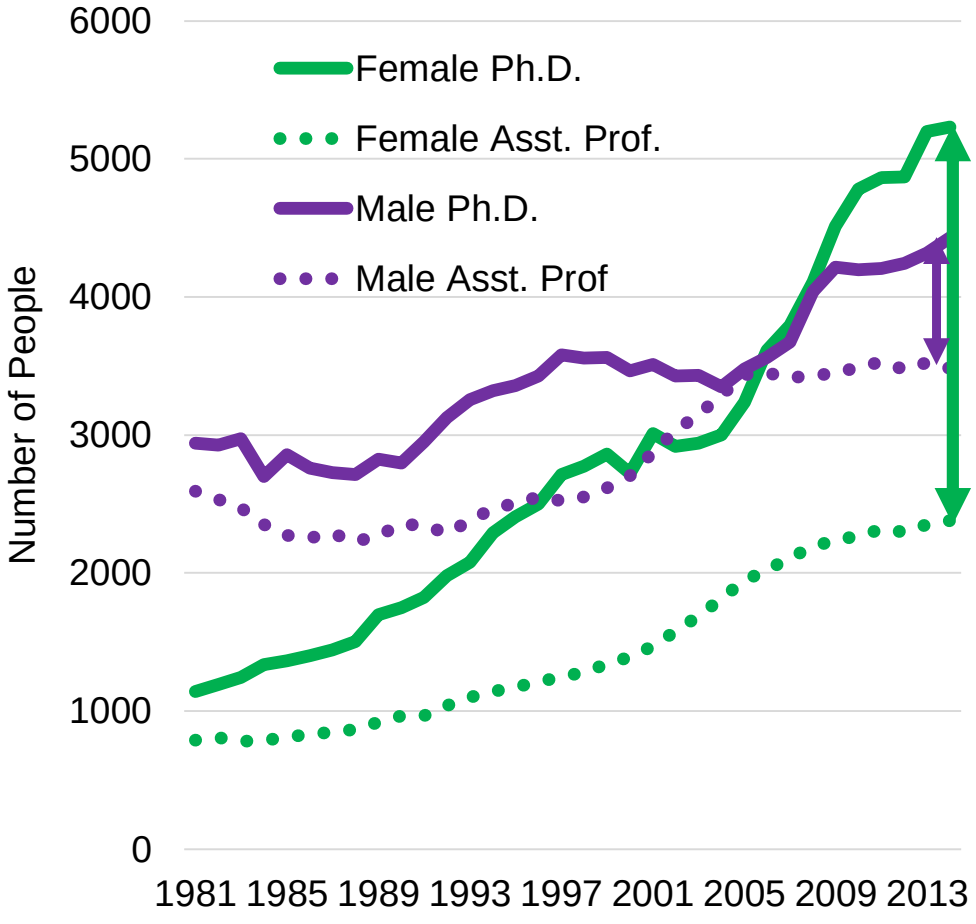
Tenured Women

October 2018 Senior Investigator			
IC	Female	Total	%
NCCIH	1	1	100.0%
NCI/DCEG	23	53	43.4%
NHGRI	7	21	33.3%
NIMH	12	37	32.4%
NIDCR	6	20	30.0%
NIA	8	30	26.7%
NIEHS	10	40	25.0%
NIAMS	2	8	25.0%
NICHD	16	65	24.6%
CC	5	21	23.8%
NIAAA	3	13	23.1%
NIAID	25	110	22.7%
NHLBI	12	53	22.6%
NCI/CCR	35	169	20.7%
NIDA	4	20	20.0%
NIDCD	2	10	20.0%
NIDDK	15	77	19.5%
NEI	3	19	15.8%
NINDS	5	34	14.7%
NLM	1	11	9.1%
CIT	0	1	0.0%
NIBIB	0	3	0.0%
NIMHD	0	0	0.0%
NINR	0	0	0.0%

*National Average for Female Tenured Professors: 24%
Source: https://www.aamc.org/data/facultyroster/reports/486050/usmsf17.html

Talent Pool Exist for URM and Women Scientists





Gibbs, K. D., et al. (2016). *Decoupling the minority PhD talent pool and assistant professor hiring in the medical school basic science departments in the U.S.*

Implicit Bias Perpetuates Lack of Inclusive Climate

- Feeling of isolation, lack a sense of belonging
- “Minority tax” – mentoring, serving on minority committees
- Sexual or ra
- Worries of fulfilling stereotypic expectations
- Hyper vigilant of errors and failures as they are in the “spotlight” and being scrutinized more

Implicit bias is a contributing factor

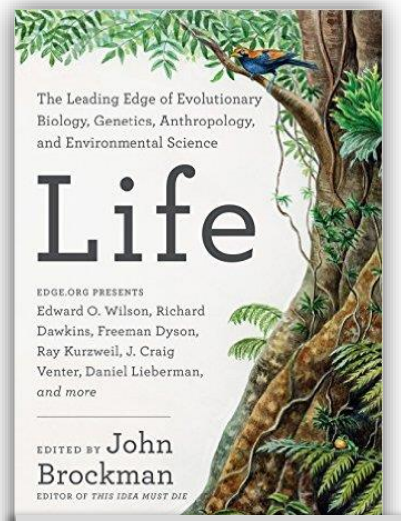
Effects of Implicit Bias
Why It Matters

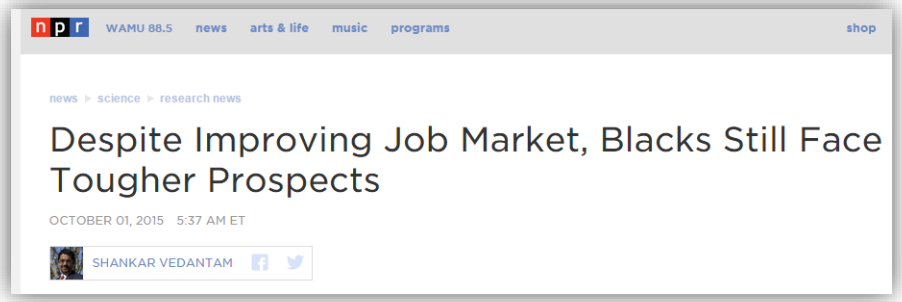
"While most faculty and scientists believe that they are fair and unbiased, numerous well-designed studies published in leading peer-reviewed journals show that gender bias in sciences and medicine is widespread and persistent today in both faculty and students."

- Scientific workforce diversity
  - Hiring, promotion, grants, tenure
- Peer review and grant proposal success
- Student and trainees grading
- Respect, salaries, institutional culture
- Patient care and research subjects

Rachel Roper; Microbiology and Molecular Biology Reviews; 2019

Bias is Pervasive in Science and Beyond





"Black name applicants in our study received about 14 percent lower call-back rates than otherwise identical white applicants."

Recommendation letters for men:
Longer;
More references to CV, publications,

Rooted in Stereotypes and Begins Early

men are "strong, big, real, great or fastest"

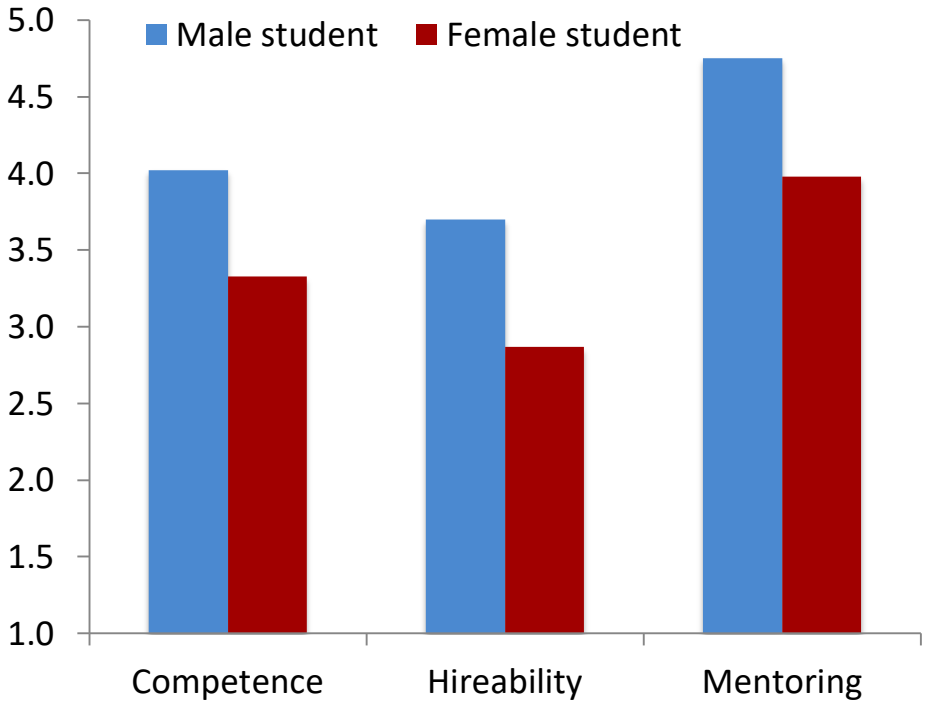
Shorter;
More "doubt raisers" (hedges, faint praise, and irrelevancies);
More references to personal life

" … she became the third new mum to retain Olympic gold" … "asked how she cares for her skin and how training affects her hair."

"It's amazing how much she's accomplished."

Evaluations in Academic Science

A nationwide sample of biology, chemistry, and physics professors (n=127) evaluated application materials of an undergraduate science student (female or male) for a lab manager position.

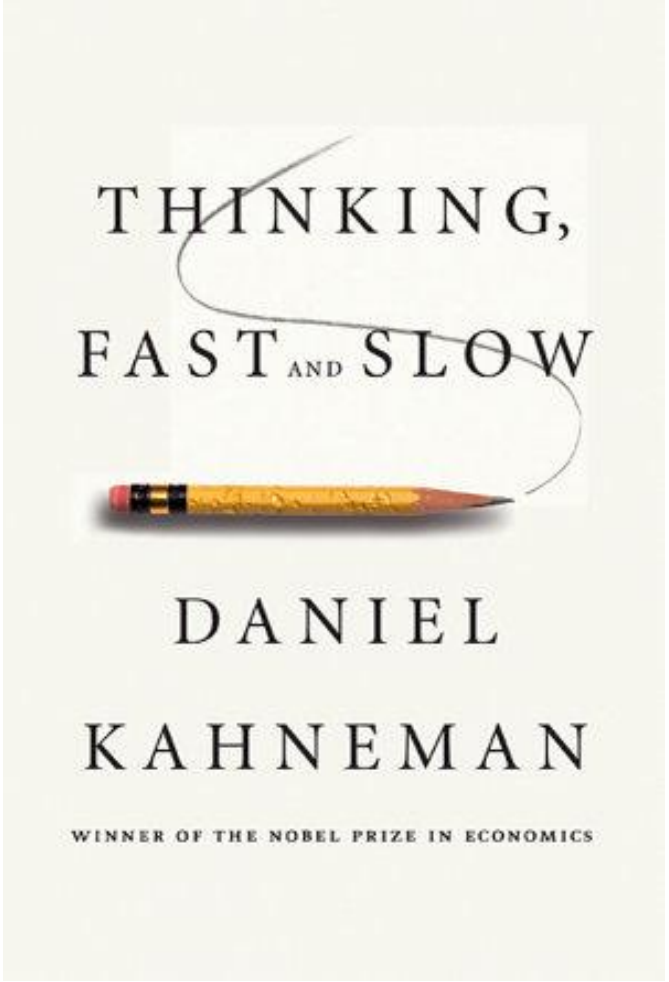


1. **Both** male and female faculty participants rated the female student as:
   - Less competent
   - Less hireable
   - Offered lower salary ($3.7K)
   - Less mentoring

2. Even though the female was rated more likeable

Moss-Racusin CA, Dovidio JF, Brescoll VL, Graham MJ, Handelsman J. (2012) PNAS

The Science Behind Implicit Bias



Daniel Kahneman - Nobel Prize-winning psychologist: “mental shortcuts” lead to errors caused by:

- Overweighing evidence
- Ignoring data/information
- Only recalling certain aspects of information to inform a judgment

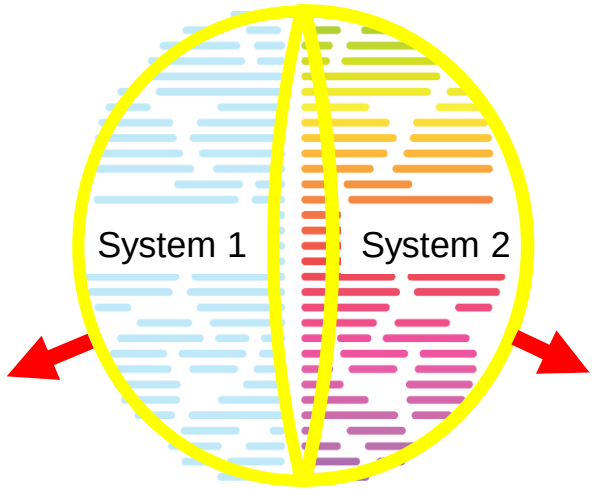
Brain Mechanisms of Cognitive Bias

Dual-system models of the human brain

Automatic, fast, and unconscious

Generate intuitions, impressions, or automatic thoughts

Become more dominant in decision making due to cognitive busyness, distraction, time pressure, positive mood



Controlled, slow, and conscious thinking

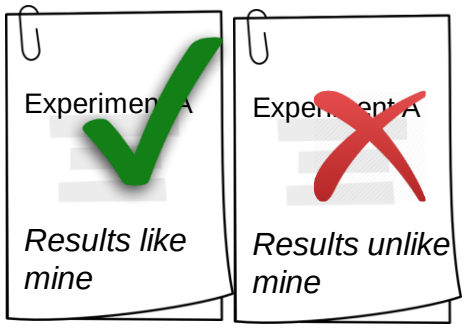
Enhanced when decision involves an important object or personal relevance and when decision-maker is held accountable

Cognitive biases have practical (efficiency) implications in clinical judgment, entrepreneurship, finance, and management

Kahneman & Tversky 1996, Kahneman, 2011, Samson & Voyer, 2012, 2014

Cognitive Biases that Affect Scientific Decisions

Confirmation bias



Reviewers were strongly biased against manuscripts that reported results contrary to their theoretical perspective

Mahoney, M.J. Cogn Ther Res, 1977

In-group bias

Men were more successful than women (manuscript acceptance) when the reviewers were all male.

Murray et al., 2018

Halo (Matthew) effect

Among equally talented scientists, early funding success creates and perpetuates a cumulative advantage over time.

Bol et al., PNAS 2018;115:4887-4890.

Group think

Study section discussion increased preexisting differences between study sections in their evaluation of the same grant proposals

Pier EL et al., Res Eval. 2017;26(1):1-14.

Debiasing: How to Reduce Cognitive Biases in Yourself and in Others

Research suggests that cognitive debiasing does work in some cases, and proper training and interventions can help reduce certain biases*

- Raise awareness (Devine et al. 2017) **
- Broaden images of success (Gocłowska et. al, 2013) ***
- Consistency in judgment and evaluation criteria
- Avoid ambiguity and time pressure
- Practice speaking up when bias perceived

* Lutz Kaufmann et al., Journal of Business Logistics. 2009

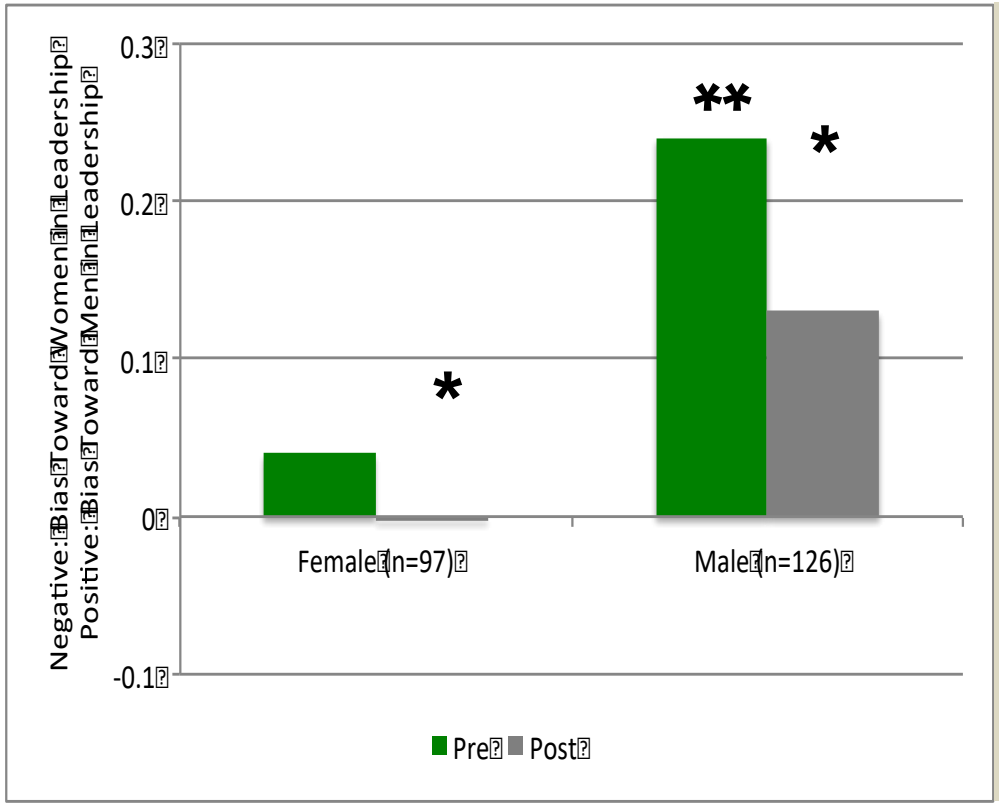
** A Gender Bias Habit-Breaking Intervention Led to Increased Hiring of Female Faculty in STEMM Departments.

*** Counter-stereotypic thinking decreases stereotyping and increases creative ideas

Academic Medicine, Vol. 91, No. 8 / August 2016

Reducing Implicit Gender Leadership Bias in Academic Medicine With an Educational Intervention

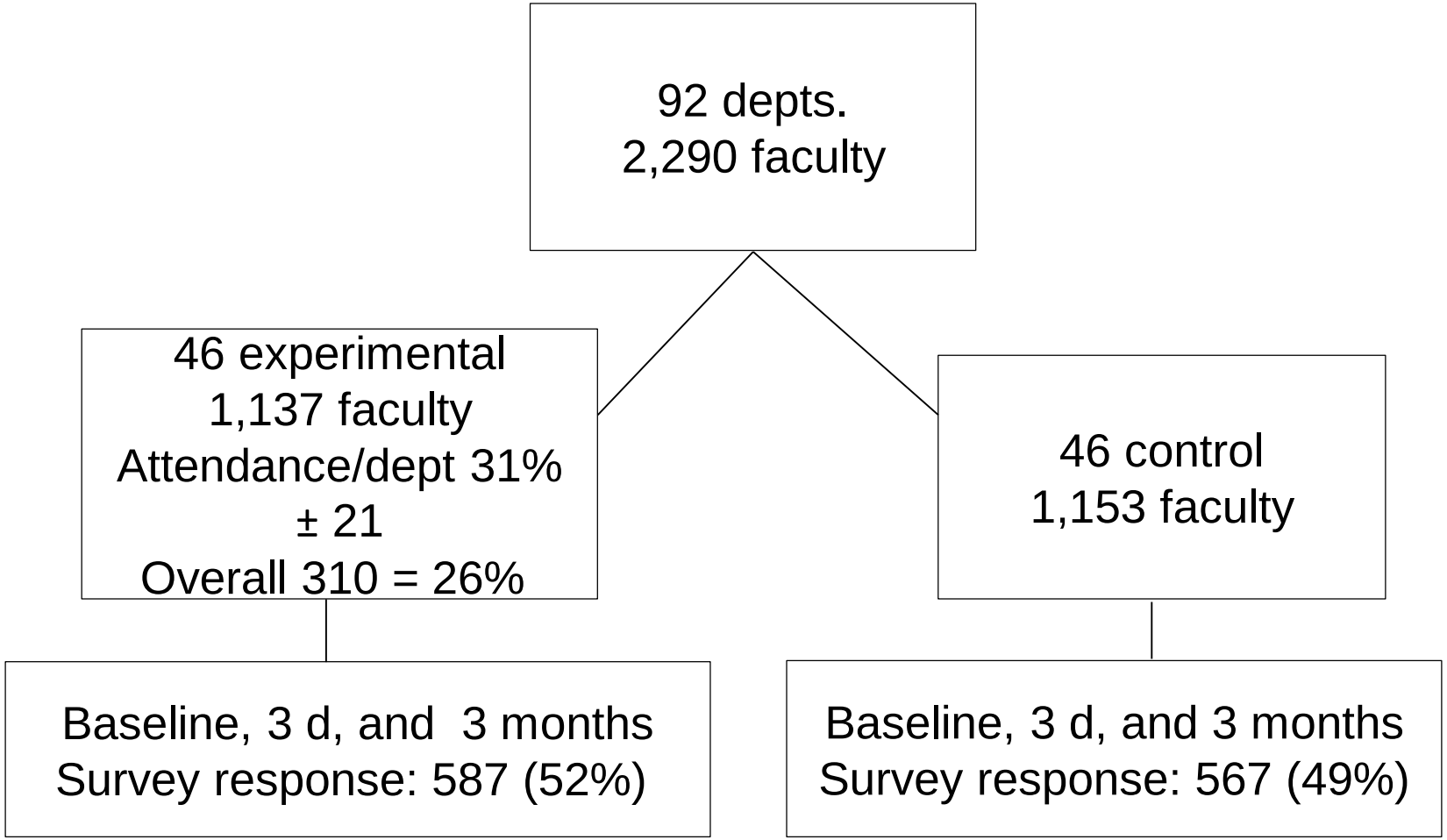
Sabine Girod, MD, DDS, PhD, Magali Fassiotto, PhD, Daisy Grewal, PhD, Manwai Candy Ku, PhD, Natarajan Sriram, PhD, Brian A. Nosek, PhD, and Hannah Valantine, MD



Results of Intervention:

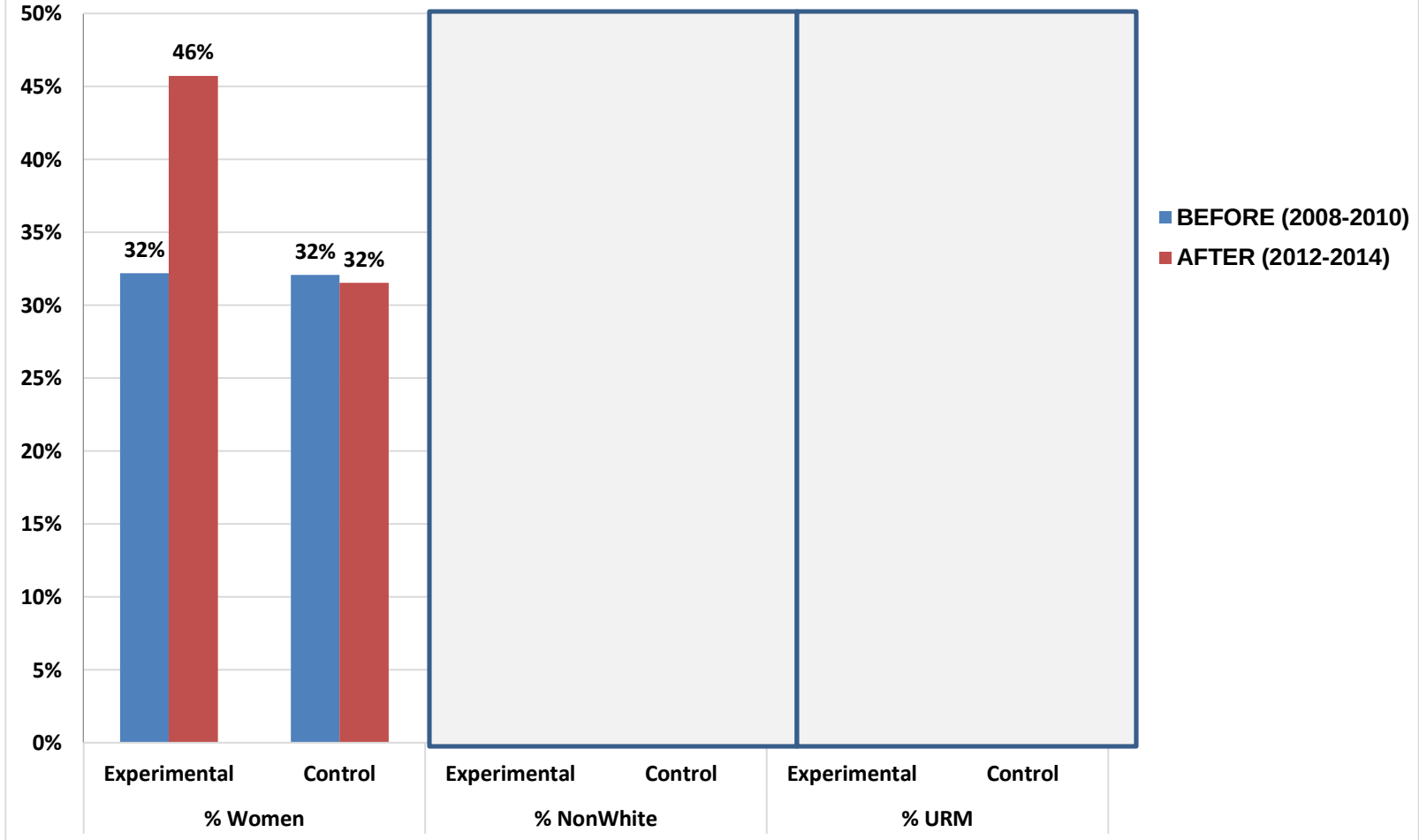
- Changed perception of implicit bias in males and females
- Reduced implicit bias about leadership and men

Stereotype-based Bias is a Remediable Habit: Long-Term Individual and Institutional Behavioral Change



Carnes et al. Acad Med 90 (2): 221-230, 2015

Diversity of New Faculty Hires, Experimental vs. Control Departments in Bias-Literacy Workshop Study



Devine et al., J Exp Soc Psychol 73:211-215, 2017

Guidelines for Blocking Bias
Stanford Center for the Advancement of Women's Leadership

Criteria, Clarity, Consistency

- *Clarify* what *criteria* are most important BEFORE evaluation
- Be *consistent* in applying the criteria
- Use and stick to the same set of criteria for every person under consideration
- If the benefit of the doubt is given to one person, make sure that it is given to ALL
- Being aware of shifting standards
- Pause and ask questions

Bowles, Babcock, McGinn, 2005; Heilman & Haynes, 2005 Steinpreis, Anders & Ritzke, 1999

Bias Blocker:
Broaden Images of Success

Overcome similarity or in-group bias.

- Check if you are giving more credit to investigators who are similar to you (e.g., attended similar training program or institution)

Recognize that everyone needs work-life balance.

- Recognize that BOTH male and female investigators may or may not have parental or caregiving responsibilities.
- Unless there is clear evidence, non-professional responsibilities are irrelevant to performance evaluation.

Ashburn-Nardo, L., Voils, C. I., & Monteith, M. J. (2001). Implicit associations as the seeds of intergroup bias: … *Journal of Personality and Social Psychology, 81*(5), 789-799.
Ashburn-Nardo (2017). Parenthood as a moral imperative? … Sex Roles, 76(5-6), 393-401.
Correll, Benard & Paik (2007) Getting a job: is there a motherhood penalty? *American Journal of Sociology, 112,* 1297-1339.

"Bias Interrupters"

What you should do and say in the spur of the moment (in real-time)

Joan Williams, JD. Distinguished Professor of Law, UC Hastings Foundation Chair and Director of the Center for WorkLife Law

Bias Interrupters
Determine Where Biases Exist and Speak Up

- Prove-it-again!

Women, people of color: more evidence required

Interrupter: “Why are we changing the criteria?

- Tightrope

He’s “assertive,” she’s “aggressive”

Interrupter: “Would we be saying the same thing if s/he was a woman/man?”

- Maternal wall

“I didn’t think you’d want that job, with two kids and all”

Interrupter: “She takes care of important matters when needed”

- Tug-of-war

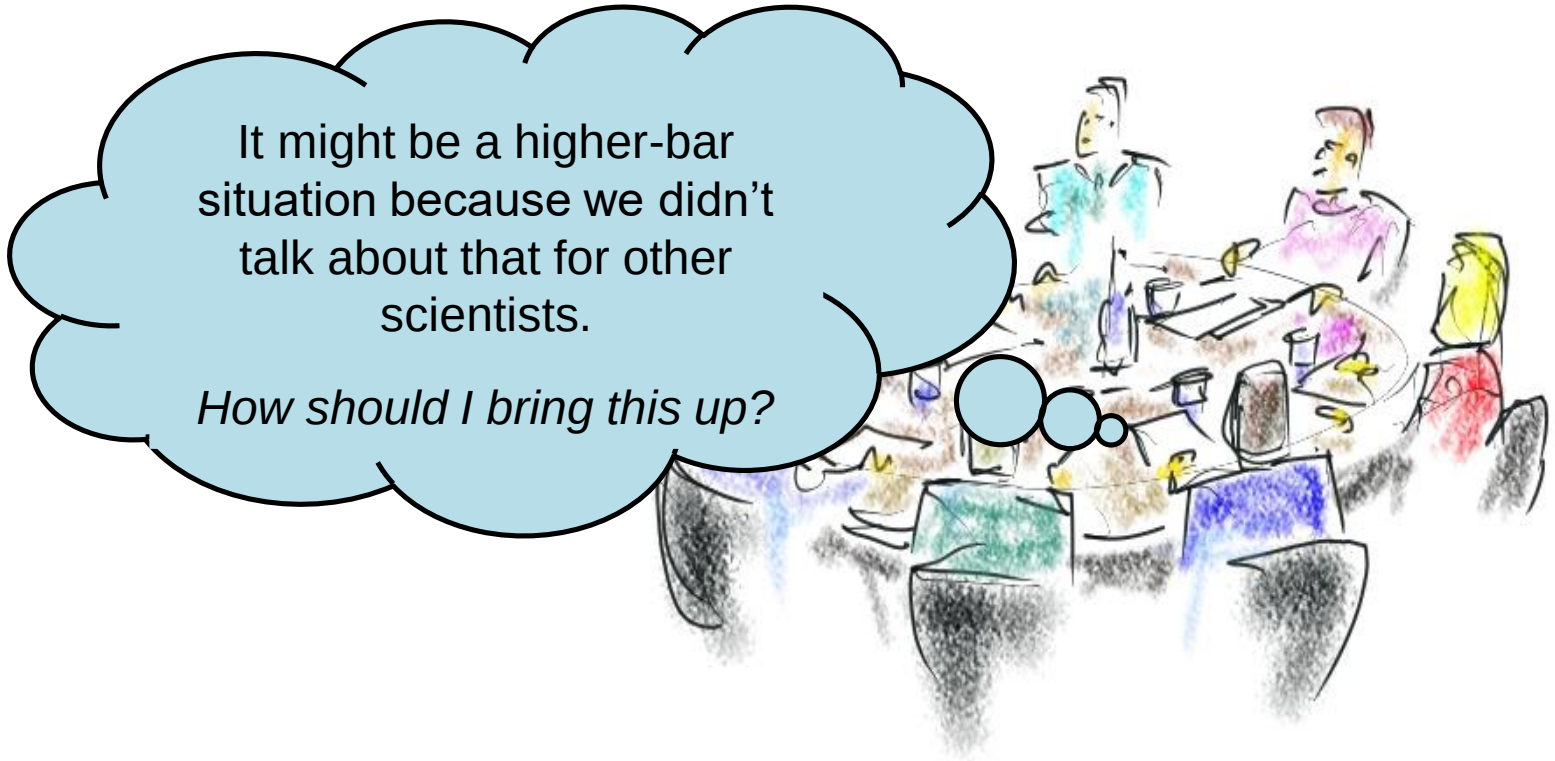
“She’s too feminine,” or “She’s too masculine”

Interrupter: There are lots of ways to be a man or a woman

In Real Life

Imagine this situation…

A committee is evaluating the significance of a scientist's research program. Committee member Y gave a mediocre score while Committee member X gave her a high score.



Committee Member Y: "Even though her methods are rigorous, I don't think her results have given us any conclusions regarding the problem."

Bias Interrupter 1:

“Is providing conclusive results an important criterion for research significance?”

Bias Interrupter 2:

“While conclusive results would be great, I think we agreed that rigorous methodology and approach is the most important.”

Best Practices to Enhance Faculty Diversity

Taking Bias Out of the Hiring Process

- Use tools to identify candidates from diverse backgrounds
- Recruitment begins before position available
- Job descriptions might influence who apply
- Identify female and minority candidates
- Implicit-bias education

- Diverse perspectives, background: *Committee*
- Criteria before applicant evaluation
- Adequate time for evaluation: *Avoid stereotyping*
- Articulate the reasons for decisions
- Structured interviews