

Unconscious Bias: How it Works and How to Counter It

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Outline

- **Case studies and data**

- Some studies showing gender/racial bias in hiring and evaluation
- One key mechanism: Shifting criteria

- **What you can do**

- Bare minimum: legality & fairness
- Beyond the minimum: making an effort to counteract biases

Most Americans are broadly committed to the ideal that individuals should be judged based on their merits, not based on their group identity.

Implicit (or Unconscious) Bias

- **Everyone** has implicit bias:
 - A preference for groups (positive and negative)
 - Often operating outside of our awareness
 - Based on stereotypes and attitudes that we're taught
 - They tend to develop early in life
 - And strengthen over time
- We rely on these preferences/biases more when under time pressure or in ambiguous situations (Valian 1998; Gladwell 2005)

Implicit (or Unconscious) Bias

- **Everyone** has implicit bias:
 - Both men and women hold biases around gender
 - Both white people and people of color hold biases around race
 - These biases are widely culturally shared
 - Biases can be subtle but systemic
 - Often conflict with consciously held or “explicit” attitudes

Unconscious Bias

- Evaluation of CVs:
 - White names favored over African-American names for interview callback (3:2)
 - Bias was *bigger* for high quality CVs

Bertrand & Mullainathan, American Economic Review, 2004
- Resumes in academic hiring:
 - “Brian” preferred over “Karen” (2:1)

Steinpreis, Anders, & Ritzke, Sex Roles, 1999
- Post-doc fellowship applications:
 - Women had to be 2.5 times more productive to rate equally in scientific competence as the average male.

Wenneras & Wold, Nature, 1997
- Hiring of Women:
 - Screened symphony auditions increased probability of women advancing from preliminary rounds by 50%

Goldin and Rouse, American Economic Review, 2000
- Letters of Recommendation:
 - Letters for women are shorter, provide “minimal assurance” (more doubts raised)
 - Women faculty described as caring, refreshing, diligent; male faculty praised for research brilliance and career achievements.

Trix and Psenka, Discourse & Society, 2003

Bias in Evaluation

- Implicit bias plays multiple roles in decisions about academic hiring and promotion:
 - 1) Discipline-based assumptions about who is brilliant are often linked to gender and race
 - 2) Personal biases may affect our assessments
 - 3) Materials from external evaluators – teaching evaluations, recommendation letters, grants – may be biased
 - 4) Self reports of accomplishments may be biased (Reuben et al. 2014, PNAS)

Science Faculty Gender Bias 2012

- Student applicants for laboratory manager position, random male/female name, identical CV
- Sent to science faculty (biology, chemistry, physics) (n=127) from research intensive universities

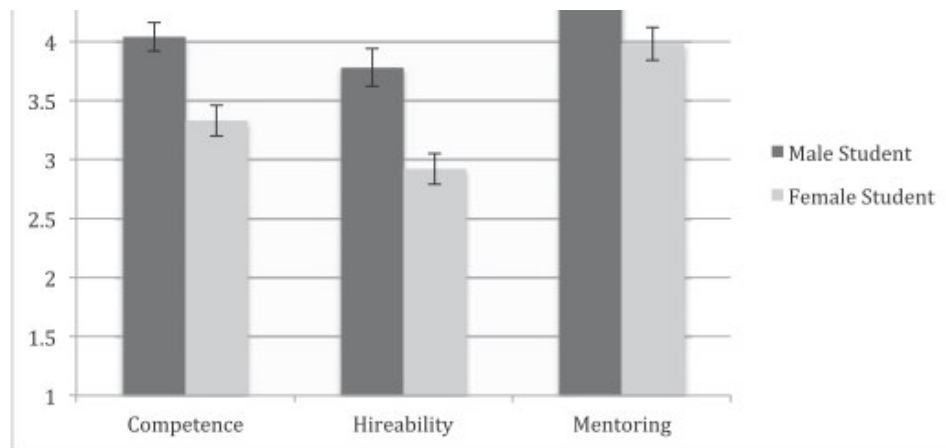


Fig. 1. Competence, hireability, and mentoring by student gender condition (collapsed across faculty gender). All student gender differences are significant

also offered a higher salary

- Gender of faculty participants did not affect responses
 - Men/women faculty equally likely to exhibit bias against female students

Bias in Teaching Evaluations

- 2 instructors did on-line course: 1 male, 1 female
- Students divided into 4 groups:
 - Female/Male instructor X Female/Male identity

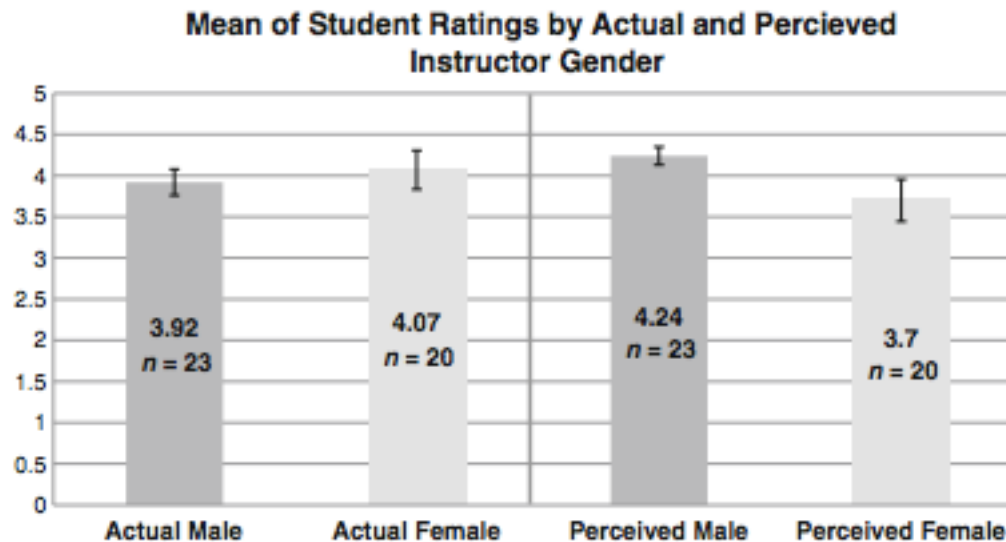


Figure 1 Comparison of the mean of student ratings across actual instructor gender (left two columns) and perceived instructor gender (right two columns). The difference between the right two columns is significant to the $p < 0.10$ level.

MacNeill, Driscoll, Hunt, *Innovative Higher Education*, December 2014

Gender and Self Citations

- Men are more likely than women to cite their own work
- Using database of 1.6 million papers, found that men are more than 50% more likely on average to self-cite:

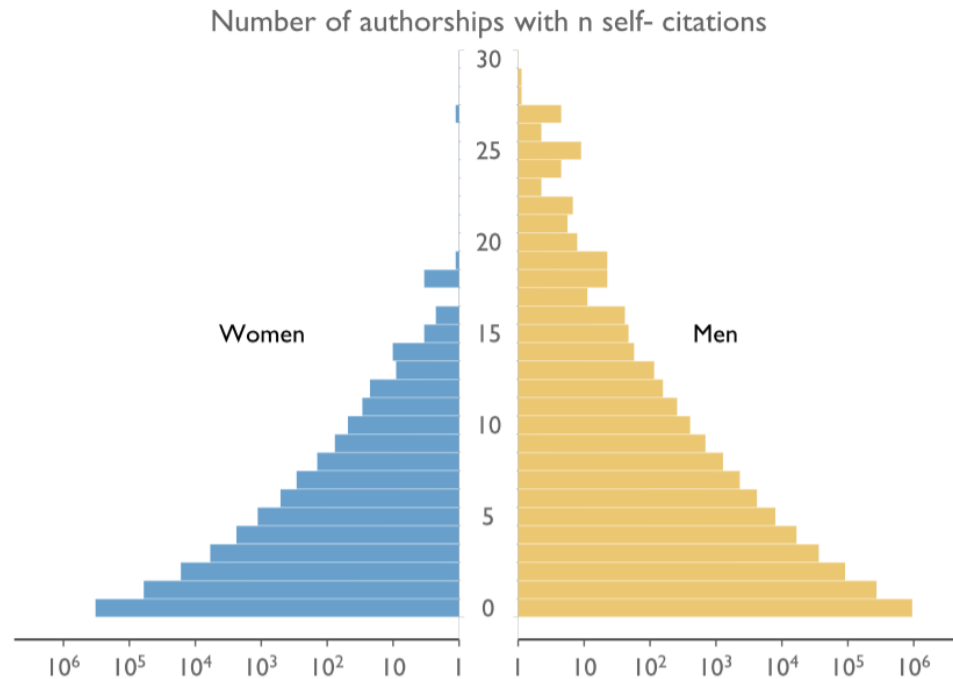


Figure 1. Number of authorship instances where specified number of self-citations occurs, by gender. Each bar's length is equal to the log number of observations of n self-citations.

Faculty Response to Prospective Graduate Students

- Emails sent to more than 6,500 faculty members, across a range of disciplines (incl. physical sciences)
- From a (fake) prospective graduate student, asking to meet with them next week for a 10 minute discussion
- Identical emails were sent with only the names changed - both gender and ethnicity varied
- Faculty response was significantly higher for white male names than women or URM names
- I.e., “Brad Anderson” got significantly more responses than “Keisha Thomas”, “Juanita Martinez”, or “Mei Chen”
- Gap was highest for Asian women names
- Interestingly, the gap was smaller at public universities than private universities

Level of Belief in Studies

- Interesting study recently in PNAS on level of belief in these studies that report on unconscious bias in men and women in STEM and non-STEM faculty vs general public
- Participants read abstracts of papers that reported (or altered version that did not find) unconscious bias in a STEM context
- Found that men generally view this research less favorably than women, and the difference was strongest among male STEM faculty (was non-existent among non-STEM faculty)
- “This finding is problematic because broadening the participation of underrepresented people in STEM, including women, necessarily requires a widespread willingness (particularly by those in the majority) to acknowledge that bias exists before transformation is possible.”

Handley, Brown, Moss-Racusin & Smith, *PNAS*, vol 112, no 43, 2015

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Constructed Criteria

Each subject sees two *non-identical* CVs for a specific job
There are two dimensions, e.g., experience and education

Educated Applicant (EDU):

- Well educated

But:

- Lacking in experience

Experienced Applicant (EXP):

- Highly experienced

But:

- Poorly educated

Subject asked: which one do you prefer? In an ideal world, we expect to see:

- 65% prefer EDU, when haven't seen names on CVs
- 65% prefer EDU, when see EDU = male, EXP = female
- 65% prefer EDU, when see EDU = female, EXP = male

Doesn't actually matter what these numbers are
Just matters that they are the same

Constructed Criteria: Experience vs. Education

- Subjects = 93 male undergraduates
- Job = construction company manager
- Educated vs. experienced candidates

76% prefer EDU, when haven't seen names on CVs

75% prefer EDU, when EDU = male, EXP = female

43% prefer EDU, when EDU = female, EXP = male

Education is more important than experience except when the female candidate is the one who is educated

M.I. Norton, J.A. Vandello, J.M. Darley "Casuistry and Social Category Bias," J. of Personality and Social Psychology, 2004

Candidates for Police Chief

73 undergraduates saw written descriptions of two applicants:

Streetwise applicant:

- Tough
- Worked in rough areas
- Well liked by fellow officers
- Good physical shape

But:

- Poorly educated
- Lacking administrative skills

Formally educated applicant:

- Well schooled
- Experienced in administration
- Politically connected
- Media savvy

But:

- Not liked by fellow officers
- Little street experience

Educated characteristics rated as more important when the male applicants possessed them

E.L. Uhlmann and G.L. Cohen, "Constructed Criteria: Redefining Merit to Justify Discrimination," *Psychological Science*, 2005

Technical Competence vs. Social Skills

- Subjects = 428 students
- Job = computer lab manager
- Videotapes of scripted interviews
 - Technical competence
 - Interpersonal & social skills
- Rate skills, rate hireability

**Technical competence is more important than interpersonal skills
except when the female candidate is the technically competent one**

J.E. Phelan, C.A. Moss-Racusin, L.A. Rudman, "Competent yet out in the cold: Shifting Criteria for hiring reflect backlash toward agentic women," *Psychology of Women Quarterly*, 2008

Candidates for Women's Studies Professor

Academic:

- Prestigious university
- Scholarly articles
- National conference

But:

- Does little for women's causes

Activist:

- Public advocacy
- Volunteerism

But:

- Attended 2nd tier school
- Few publications

Activist characteristics rated as more important when the female candidate possessed them

→ Hiring criteria are also constructed to exclude men from traditionally female jobs

Summary: Constructing Criteria

- Many studies have demonstrated a source of discrimination: definitions of merit designed to fit the qualifications of applicants from favored groups
- “Bias in the construction of job criteria allows evaluators both to discriminate and to maintain a personal illusion of objectivity.”

Does this happen in academia?

- Some people say “we’re scientists... we’re objective, not subject to these biases”
- In fact, in several of these studies, people who claim they’re objective discriminate *more*
- Reminding people about objectivity
 - Sometimes causes people to discriminate *more*
- Non-sexist credentialing
 - Providing people opportunity to affirm their non-sexist identity (e.g., by disagreeing with blatantly sexist statements) leads them to discriminate against women *more*

Monin & Miller, *Journal of Personality and Social Psychology*, 2001.

Self-objectivity priming

- Subjects = 65 adult men
- Participants primed with a sense of personal objectivity
- Ostensibly as part of another study
- Score 1-10 agreement with statements such as:
 - In most situations, I try to do what seems reasonable and logical
- Hiring scenario: Factory Manager applicant had either
 - technical proficiency
 - strong interpersonal skills
- Subjects favored male candidates
- Self-objectivity primed subjects were *more* discriminatory

E.L. Uhlmann and G.L. Cohen, "I think it, therefore it's true: Effects of self-perceived objectivity on hiring discrimination" *Organizational Behavior and Human Decision Processes*, 2007

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Don't Ask Illegal Questions

- State and federal laws make discrimination based on certain protected categories illegal
- Off-limits to ask any question aimed at getting the candidate to reveal:
 - National origin
 - Citizenship
 - Age
 - Marital status
 - Disabilities
 - Arrest record
 - Military discharge status
 - Race
 - Gender
 - Pregnancy status
- Examples:
 - Are you married?
 - Do you have a significant other?
 - Do you have children?
 - Are you planning to have children?
 - How long have you been working?
 - When did you graduate from high school?

Why?

- Academic women are more likely to be partnered with other academics than academic men are
- Disadvantages that affect two-career academic couples have a disproportionate impact on women
- Search committee chair should say to ALL candidates (male and female) the following:
 - If you have a partner and you'd like to discuss job opportunities for your partner, you can have a confidential discussion with [X].

[X] could be someone in your department or the chair

Schema Example: Parental Status in Hiring



When evaluating equally qualified same-gender job applicants...

Mothers were...

- rated as **less** competent and **less** committed to paid work than nonmothers.
- offered **lower** starting salaries than nonmothers.

Fathers were...

- rated as **more** committed to paid work than nonfathers.
- offered **higher** starting salaries than nonfathers.

Illegal Questions: What if candidate says...

- What if the candidate volunteers some information about marital status, kids, etc?
 - You can then discuss it
 - But still don't share the information with others
 - It tends to hurt women and minorities

Beyond Faculty Hiring

- **Whenever you are evaluating a candidate or applicant, biases may come into play**
 - graduate student admissions
 - postdoctoral fellowship applications
 - writing recommendation letters
 - grant review panels
 - award committees
 - faculty promotions
 - leadership positions

Pre-commitment

- Back to the Police Chief study
- Subjects = 117 visitors to a local beach/town fair
- **“Commitment condition”**: Half the subjects had to rate the importance of police chief streetwise/educated characteristics **before** seeing the applicant file (and gender)
- **Results: Commitment intervention *eliminated* gender discrimination**
 - Having committed to unambiguous criteria, subjects don’t re-define merit to the benefit of specific candidates

Faculty Hiring

- Faculty candidates evaluated on many dimensions
 - **Productivity**
 - e.g., number of papers, discoveries, other products...
 - **Quality**
 - e.g., journal impact factor, # citations, ...
 - **Communication skills**
 - e.g., job talk, 1-on-1 meetings
 - **Research fit to departmental needs**
 - **Potential for teaching and mentoring**
 - **Other...**

Use Rubrics in Evaluating Candidates

- Search committees should construct criteria before seeing the applicant files:
 - Criteria to be used
 - Weight or range to be attached to each
- For example:
 - Productivity score 0-10
 - Quality score 0-10
 - Communication skills score 0-5
 - Research area score 0-5

Sample Rubric from U. Michigan (STRIDE)

Please indicate which of the following are true for you (check all that apply):

- Read candidate's CV
 - Read candidate's scholarship
 - Read candidate's letters of recommendation
 - Attended candidate's job talk
 - Met with candidate
 - Attended lunch or dinner with candidate
 - Other (please explain):
-
-

Please rate the candidate on each of the following:

	excellent	good	neutral	fair	poor	can't judge
Potential for (evidence of) scholarly impact						
Potential for (evidence of) research productivity						
Potential for (evidence of) research funding						
Potential for (evidence of) collaboration						
Fit with department's priorities						
Ability to make positive contribution to department's climate						
Potential (demonstrated ability) to attract and supervise diverse graduate students						
Potential (demonstrated ability) to teach and supervise diverse undergraduates						
Potential (demonstrated ability) to be a conscientious university community member						
Potential (demonstrated ability) to mentor diverse students						

Use Rubrics

- Do the same for graduate admissions, fellowship applications, grant review panels, faculty promotions!
 - Criteria to be used
 - Weight to be attached to each
- For example:
 - graduate admissions: research experience, grades, test scores, personal statement, recommendation letters
 - fellowship applications: research experience, research impact, proposed research, recommendation letters
 - grant review panels: proposed impact, publication record, level of innovation, impact on society
 - faculty promotions: publication record, citations, teaching scores, mentoring, grants

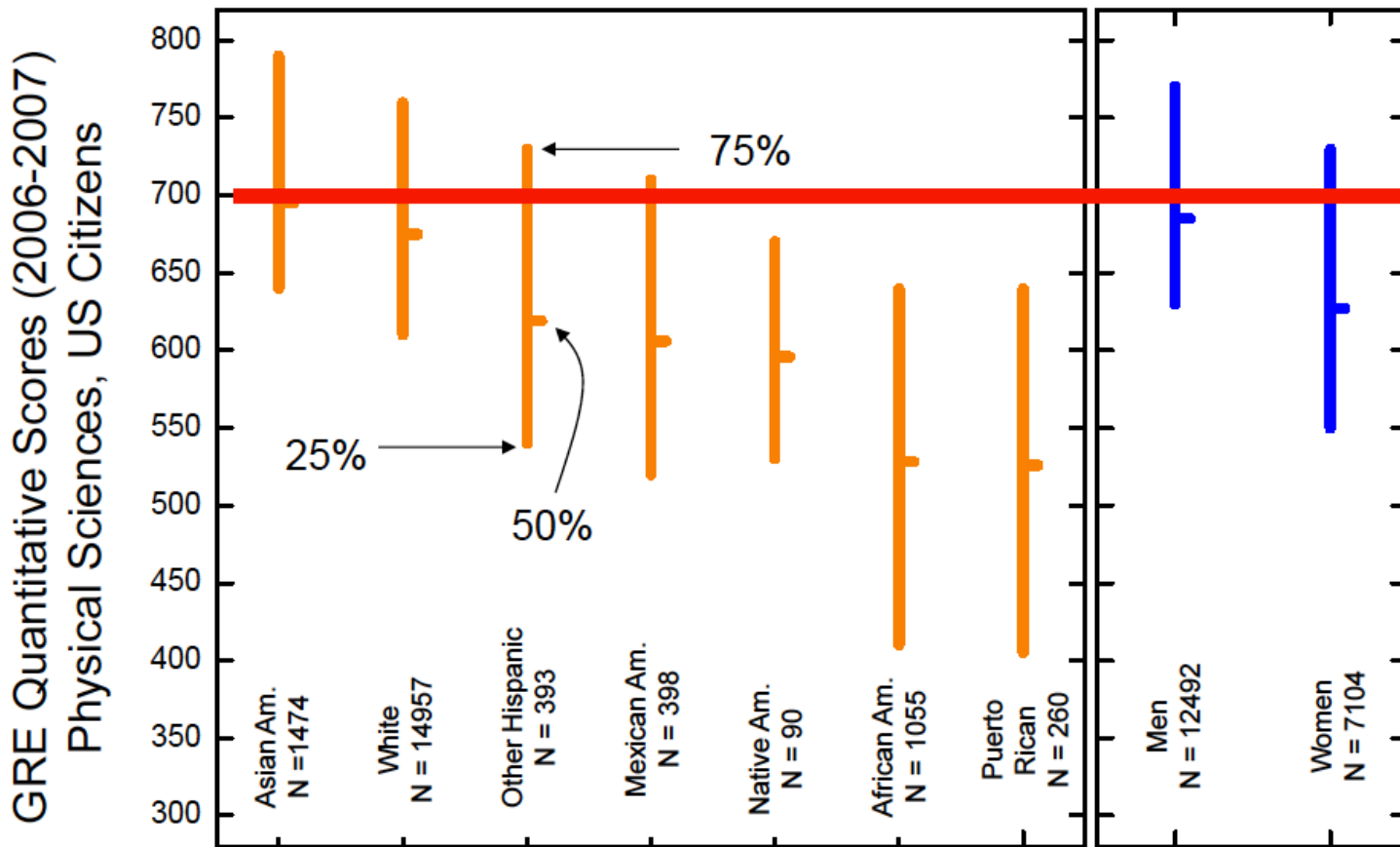
Study on Interruptions During Job Talks

- There is an on-going study by UCSD faculty in Engineering and Sociology to quantify interruptions during faculty jobs talks
- **Analyzing 140 video recordings of jobs talks: 91 men, 49 women**
- Studying different departments at a university with a low % of women and at a university with a high % of women
- Matched men and women by seniority (# years/PhD)
- Results so far:
 - Women receive more interruptions and more total questions overall than men
 - Both men and women are interrupted less when they are more experienced
 - University with fewer women faculty asks a lot more questions than the university with more women faculty

Be aware of interrupting and asking a lot of questions during job talks!

GRE Scores and Bias

- Women and URM have lower average scores on the GRE exam, due to stereotype threat (ie, book *Whistling Vivaldi*)



GRE Scores and Bias

ETS (Educational Testing Service), which administers the GRE, says in their publication “Factors That Can Influence Performance on the GRE General Test” 2006-2007:

1. *Test scores should always be used along with other sources of information such as course grades, letters of recommendation, personal statements, samples of academic work, or professional experience.*

No single measure, including the GRE General Test, assesses every discipline-related skill necessary for success in graduate work. Nor do the GRE Tests assess some factors important to academic and career success, such as motivation, creativity, and interpersonal skills. Therefore, all available pertinent information about an applicant should be considered in making admissions and funding decisions.

2. *A cut-off score should not be used as the sole criterion for denying admission.*

Because a breadth of information is relevant to judging success in graduate education, the GRE Board believes it is inadvisable to reject or accept an applicant solely on the basis of GRE scores. Differences across population groups on various measures also suggest caution in utilizing a single score for screening purposes.

Writing Recommendation Letters

- After you write a recommendation letter, re-read it with an eye towards unconscious bias
 - do you mention their personality? likability? helpfulness?
 - do you mention if they are married or have kids?
 - do you use “power” words like “leader”, “vision”, “breakthrough”?
 - do you talk about teaching and mentoring potential equally for everyone?
 - do you give a similar amount of detail / depth for everyone?
 - do you raise doubts about their abilities or promise?

Faculty Promotions

- Dean of Biology at UCLA had department chairs make a list each year of all of the faculty going up for promotion and the departmental recommendation
- Just by listing everyone together and looking at the recommendations, chairs started to self-correct biases
- Instead of only treating each promotion individually, look at the aggregate for trends
 - can do this in graduate admissions, grant review panels, etc.
 - look at the ranked list with an eye towards gender and ethnicity to make sure there aren't glaring biases (ie, MIT study)
 - on SOC for conferences, check invited speaker list

What to do & not do

- Evaluation bias is minimized if you interview more than one woman or under-represented minority candidate
- Use rubrics for evaluation
- Ask for specific feedback about candidates
 - Don't ask for generic feedback, general impressions
 - Implicit bias less likely when people focus on particular issues of performance
- Avoid premature ranking / digging in
 - Prematurely stating position, then sticking to it regardless of new information
- Avoid momentum of the group

Techniques to De-bias Your Search

- Replace your self-image as an objective person with recognition that you are subject to the influence of bias and assumptions
- Increase diversity of search committee with faculty with a demonstrated diversity record
- Increase diversity in the applicant pool – define the field broadly, reach out to women and URM and ask them to apply
- Develop well-defined evaluation criteria beforehand
- Spend sufficient time evaluating each applicant

Techniques to De-bias Your Search

- Be able to defend decision using criteria and evidence
- Engage in counter-stereotype imaging - take time to consciously think about successful, highly competent women and minority members in your department, university, and discipline
- Take the Harvard Implicit Bias test:
<https://implicit.harvard.edu/implicit>

Be Aware When Reading Applications

- Recommendation letters may be (likely are) biased
 - Longer for men, more detailed, more power words, raise fewer doubts
- Research statements the applicants write may be (likely are) biased
 - It's easier for white/men to tout their own work
- White/men may be more likely to have been given awards, have their work acknowledged
- White/men may be more likely to have been given leadership positions

Final Thoughts

- **Substantial body of research shows that hiring decisions are biased, *unconsciously*, against women and URM**s
- Be proactive to broaden the applicant pool
- Don't shift or construct criteria to favor the white males
 - Commit to criteria in advance, use rubrics
- No illegal questions
- Limit interruptions /questions during job talks
- Avoid subjective discussions
- Be aware of biases when reading files

Ideal: Individuals should be judged on their merits, not based on their group identity.