Understanding and Minimizing Unconscious Bias to Improve Department Climate

Eve Fine, PhD
Anna Kaatz, PhD
About WISELI:
- Research institute at UW-Madison
- Mission: Advancing and promoting women in academic Science, Technology, Engineering, Mathematics and Medicine (STEMM) – focus on faculty.
- Broader goals: fostering a diverse faculty

About Center for Women’s Health Research:
- Improve health of women and racial/ethnic minorities by training a diverse cadre of future academic leaders in women’s and minority health
- Conduct research on sex/gender and race/ethnicity differences
- Advance women and racial/ethnic minorities in academic leadership

Funding: National Science Foundation: #012366 and #0619979; NIH: R01 GM088477, R01 GM111002, R25 GM083252
Why do you think it is important to have a diverse faculty and student body in science and engineering; to have better representation of women and minorities in science?
Why diversity?

- Diverse working groups are more productive, creative, and innovative than homogeneous groups (Herring 2009; Page 2007; van Knippenberg & Michaela 2007; Chang et al., 2003).

- Diverse groups engage in a higher level of critical analysis than do homogeneous groups (Sommers 2006; Antonio 2004; Nemeth 1986, 1995).

- Diverse scholars and professionals can invigorate and expand disciplines and fields (Schiebinger et al. 2013; Catalyst, 2013).

- Mentors and role models for all (Nat. Acad. Sci. 2007).

- Fairness and equity (Nat. Acad. Sci. 2007).

Women in Science & Engineering Leadership Institute
University of Wisconsin-Madison

Center for Women’s Health Research
University of Wisconsin-Madison
The problem

Women as a percentage of all doctoral degree recipients, by major field group: 1966–2010

SOURCE: National Science Foundation/National Center for Science and Engineering Statistics (NSF/NCSES), Survey of Earned Doctorates.
The Problem

Women PhDs as a percentage of all faculty: 2014

% of Women

PhD Asst. Prof. Assoc. Prof. Full Prof.

The easy answers have proven inadequate

<table>
<thead>
<tr>
<th>“Pipeline” problem</th>
<th>Cohort studies show proportion of female PhD does not increase proportion of females in faculty ranks at expected rates (AAMC, 2014; NSF 2010, 2014).</th>
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</thead>
<tbody>
<tr>
<td>Women are less interested or less committed</td>
<td>Male and female faculty express comparable commitment and interest in career advancement (Broaddus &amp; Feigel, Chest, 1994; Wright et al. Acad Med, 2003; Shollen et al., Acad Med, 2009; Jagsi et al., 2009, 2011).</td>
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Why haven’t we solved this already?

- Title IX (the Education Amendment) in 1972.
- Multiple calls for gender equity for > 40 years.
- National Academy of Sciences concluded that major barriers were:
  - **Not** too few women enter most fields (pipeline argument).
  - **Not** that women scientists are less competent or committed to their careers (women’s deficit argument).
  - Assumptions and stereotypes about gender operate in personal interactions, evaluative processes, and departmental cultures to subtly yet systematically impede women’s career advancement in academic medicine, science, and engineering.
Solutions? Commitment vs. Results

- Despite broad commitment to the goal of diversity, why are results are less than satisfactory?
  - Influence of unconscious bias and assumptions
  - Department and campus climate
Influence of Unconscious Bias and Assumptions
Group exercise

➢ What traits or behaviors do you think most people associate with being male or “masculine”?

➢ What traits or behaviors do you think most people associate with being female or “feminine”?
Group exercise

- What traits do you associate with being a scientist?
Bias in evaluation of science competence

Female
- Emotional
- Dependent
- Supportive
- Kind
- Warm

Incongruent

Scientist
- Logical
- Independent
- Analytical
- Rational
- Leader

Male
- Logical
- Independent
- Analytical
- Rational
- Leader

Congruent

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Bias in evaluation of science competence

Female
- Dependent
- Emotional

Male
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- Analytical
- Independent
Impact of stereotype-based gender bias

Stereotypes lead reviewers to make assumptions that women lack competence, so they may:

- Doubt women’s ability (Trix and Psenka, 2003; Heilman, 2007).
- Require more proof (i.e., more accomplishments) to confirm competence (Biernat, 1997, 2012; Heilman 2004, 2007; Kaatz, 2015).
- Attribute women’s accomplishments to others or devaluation of women’s accomplishments (Heilman, 2007).
Impact of stereotype-based gender bias

- **Hiring**
  - Letters of recommendation for women science and med school faculty are shorter, have more references to personal life, and contain fewer “outstanding” descriptors (Trix & Psenka, Discourse & Soc, 2003; Schmader et al., 2007).
  - Women faculty more likely assigned “institutional housekeeping” (Bird et al., NSWA Journal, 2004; Shollen et al., Acad Med, 2009).
  - Women faculty offered fewer opportunities for advancement (Wright et al, 2003).

- **Funding**
  - Women physicians and scientists who submit R01 proposals to NIH are significantly less likely than men to be funded. And text analysis of grant critiques suggests that women may be held to higher standards than men to earn fundable application scores (Ley & Hamilton Science, 2008; Pohlhaus et al., 2011; NIH, 2015; Kaatz et al., 2015).

- **Publishing**
  - When the gender of the author is known, women are less likely to have their publications accepted (Budden et al, Trends Ecol Evol, 2008).

- **Controlled experiments**
  - “Goldberg” designs indicate that work performed by women rated of lower quality than the work performed by men regardless of gender of rater (Steinpreis, et al., 1999; Isaac et al, Acad Med 2009; Moss-Racusin et al., 2012).
Bias starts early


- 127 Faculty from Biology, Chemistry and Physics departments participated.
- Evaluated an application randomly assigned a male or female name for:
  - Competence, hireability, likeability, starting salary, and willingness to provide mentoring.

**Results:**
Male applicant rated significantly more competent and hirable than female applicant and was granted a higher starting salary and offered more mentoring.
What is “gender equity”?

- Gender equity in an academic institution means that men and women enjoy equal opportunities for education, employment, success, advancement, and satisfaction.
Influence of Department Climate
What is climate?

- Behaviors within a workplace or learning environment, ranging from subtle to cumulative to dramatic, that can influence whether an individual feels personally safe, listened to, valued, and treated fairly and with respect.
  UW-Madison Campus Climate Network Group, 2002

- The atmosphere or ambience of an organization as perceived by its members. An organization's climate is reflected in its structures, policies, and practices; the demographics of its membership; the attitudes and values of its members and leaders; and the quality of personal interactions.
  UW-Madison Committee on Women in the University, 2002
Why focus on climate?

- Individuals experience climate in their immediate workplace – the department, research center, or laboratory
- Perceptions about climate and belonging are key determinants for satisfaction and retention
- Numerous surveys show that women and members of underrepresented groups experience a more negative climate than do men and members of majority groups.
- Improving climate is critical for the retention and advancement of women and members of underrepresented groups.

Rosser, 2004; Ryan et al., 2012; Trower, 2005, 2014.
For more see: http://wiseli.engr.wisc.edu/climate/BrochureRefs2015.pdf - #3
In my department the overall climate is ... 

Response choices included: “Very negative (1),” “Negative (2),” “Mediocre (3),” “Positive (4),” and “Very positive (5).” Respondents could also choose “Don’t know.”

* Indicates significant difference at p<0.05

Results from the UW-Madison Faculty Worklife Survey, 2012
The climate for women in my dept. is ...

Results from the UW-Madison Faculty Worklife Survey, 2012

Faculty categories

Response choices included: “Very negative (1),” “Negative (2),” “Mediocre (3),” “Positive (4),” and “Very positive (5).” Respondents could also choose “Don’t know.”

* Indicates significant difference at p<0.05
The climate for faculty of color in my dept. is ...

Results from the UW-Madison Faculty Worklife Survey, 2012

Faculty categories

- Faculty of Color: 3.48 *
- Majority Faculty: 3.96

Response choices included: “Very negative (1),” “Negative (2),” “Mediocre (3),” “Positive (4),” and “Very positive (5).” Respondents could also choose “Don’t know.”

* Indicates significant difference at p<0.05
How much harder to you have to work to be perceived as a legitimate scholar?

Results from the UW-Madison Faculty Worklife Survey, 2012

Response choices included: “Not at all (1),” “A little (2),” “Somewhat (3),” “Very (4),” and “Extremely (5).” Respondents could also choose “Don’t know.”
* Indicates significant difference at p<0.05
Climate workshops for dept. chairs

- Since 2004, over 45 UW-Madison departments have participated (some more than once)
- Over 3000 individuals have completed the department survey of workplace climate
  - Faculty
  - Staff (academic staff and university staff)
  - Graduate Students
  - Postdocs
Climate workshops for dept. chairs

No major differences between “overall” climate experienced by various groups:

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean Rating</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Staff</td>
<td>3.61</td>
<td>401</td>
</tr>
<tr>
<td>Academic Staff</td>
<td>3.75</td>
<td>685</td>
</tr>
<tr>
<td>Faculty</td>
<td>3.73</td>
<td>917</td>
</tr>
<tr>
<td>Post docs</td>
<td>3.98</td>
<td>97</td>
</tr>
<tr>
<td>Graduate Students</td>
<td>3.80</td>
<td>1140</td>
</tr>
<tr>
<td>Other</td>
<td>3.15</td>
<td>26</td>
</tr>
<tr>
<td>All</td>
<td>3.74</td>
<td>3240</td>
</tr>
</tbody>
</table>

1=Very negative; 2=Negative; 3=Mediocre; 4=Positive; 5=Very positive
Climate workshops for dept. chairs

- Common Themes emerging from survey data:
  - Lack of respect, consideration, politeness
  - Under-appreciated
  - Lack of trust in decision-makers; insufficient influence or role in departmental decision making
  - Sense of isolation (despite physical presence of others)
  - Differences among people are not valued
  - Subtle or overt forms of harassment or discrimination
1. How might unconscious biases influence department/campus climate?
2. What can we do to minimize bias and improve climate?
Selected manifestations of bias

- Competency Bias
- Stereotype Threat
- Ambient Belonging
- Microaggressions
Competency bias and evaluation

- 6,548 university faculty members received an emailed request from a prospective graduate student to meet briefly to discuss shared research interests and research opportunities.

- Name of the student signaled gender and race/ethnicity (male or female and Caucasian, African American, Hispanic, Indian, or Chinese).

- Two conditions:
  - To meet today
  - To meet the next week

Competency bias and evaluation

- Measured the following:
  - Whether faculty members responded to the email
  - Whether the request to meet was accepted
- Compared responses to requests by gender and race/ethnicity
- Compared responses to requests to meet on the same day or one week later

Hypothesis

For requests to meet on the same day:
No influence of bias/assumptions – response would be based on availability

For request to meet one week later:
Negative stereotypes/assumptions about women and minorities would influence faculty members’ assessments about the desireability of a meeting.
Women and minorities would receive few positive responses than Causasian men.

Competency bias and evaluation

- No significant difference in responses or acceptances for request to meet on same day.
- Caucasian males received significantly more responses and acceptances for requests to meet a week later.

Stereotype Threat

_Fear_ of being judged on the basis of a group stereotype; or of confirming a negative group stereotype. Triggered when comments or environmental cues make group membership salient.

Claude Steele and colleagues, many articles.
Multiple studies on stereotype threat

- Equally and highly qualified men and women taking a difficult math test – under two conditions: informed that the test typically showed gender difference or that it did not produce gender differences.


- Asian women taking a difficult mathematics test – primed to think about their ethnic identity vs. primed to think about their gender identify.


- White men students at Stanford U. with high scores on the math SAT took a challenging math test under two conditions – primed with information Asian students perform better than White students on tests of math ability vs. no priming.

Undergraduate students, non-declared major

Entered room in two conditions:
- Stereotypical computer science objects
- Non-stereotypical objects

Filled out a career assessment questionnaire – included measuring level of interest in taking a course or majoring in computer science

Classroom Environments

Stereotypical room

Cheryan, Plaut, Davies & Steele, Journal of Personality & Social Psychology, 2009
Classroom Environments

Non-stereotypical room

Nature poster

Neutral books

Water bottles

Cherven, Plaut, Davies & Steele, Journal of Personality & Social Psychology, 2009

Images used with permission of Dr. Sapna Cherven
Environment influences women’s interest in CS


Images used with permission of Dr. Sapna Cheryan
Environment influences women’s interest in CS

Interaction: $F(1, 35) = 10.22, p < .01$


Images used with permission of Dr. Sapna Cheryan
Microaggressions

“... brief and commonplace daily verbal, behavioral, or environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative ... slights and insults toward the target person or group.”

Derald Wing Sue,

*Microaggressions in Everyday Life (2010)*

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Microaggressions

- **Microassaults**
  Conscious or deliberate; meant to attack, hurt or insult; usually expressed when:
  - Anonymity is assured
  - In presence of like-minded people assumed to share similar attitudes/beliefs
  - Loss of control (anger, frustration, intoxication)

- **Microinsults**
  Interpersonal or environmental communications that convey stereotypes, rudeness, insensitivity. Can demean a person’s race, gender, sexual orientation, heritage, or identity

- **Microinvalidations**
  Communications or environmental clues that exclude, negate, nullify the psychological thoughts, feelings, experiences of individuals or groups

Derald Wing Sue, 2010
## Microaggressions

<table>
<thead>
<tr>
<th>Comment</th>
<th>Message Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Where are you from?”; “Where were you born?”; “You speak good English”</td>
<td>You are not American</td>
</tr>
<tr>
<td>“There is only one race, the human race” “When I look at you, I don’t see color”</td>
<td>Denying a person of color’s racial/ethnic experiences</td>
</tr>
<tr>
<td>“You are a credit to your race” “You are so articulate”</td>
<td>It is unusual for someone of your race to be intelligent</td>
</tr>
<tr>
<td>“I treat everyone equally”</td>
<td>I am incapable of being biased</td>
</tr>
<tr>
<td>“Wow – how did you become so good at math” (or physics, or science) – said to a woman</td>
<td>Women aren’t usually good in these fields.</td>
</tr>
<tr>
<td>Referring to an assertive woman as a “bitch”</td>
<td>Women should be passive and subservient</td>
</tr>
<tr>
<td>Use of the pronoun “he” to refer to all people</td>
<td>Male experience is universal</td>
</tr>
</tbody>
</table>

Derald Wing Sue, 2010
Microaggressions - examples

“I notice a difference in the way my female TA is treated by her students vs. my male TA. She has to work harder to prove herself.”

“Women’s accomplishments are overlooked. It is routine for my department to tell women that they are not ready for promotion.”

“Sometimes women seminar speakers will get asked intentionally difficult questions by an emeritus professor. We’ve learned to let speakers know about it.”

Study of Faculty Worklife, UW-Madison, 2012
“In the last 12 months, have you personally experienced or witnessed unconscious or implicit bias at UW-Madison? If yes, please describe ...
Microaggressions - examples

“Use of ‘what my wife does’ by a senior male faculty member to explain his stance on a situation with a young female scientist.”

“I have heard a faculty member refer to graduate students as ‘girls.’ I remarked that this language was not appropriate.”

“After working very hard to recruit an assistant professor, I made the case to the department and they accused me of ‘having a crush on him.’”

Study of Faculty Worklife, UW-Madison, 2012
“In the last 12 months, have you personally experienced or witnessed unconscious or implicit bias at UW-Madison? If yes, please describe ...
“If the problem is unconscious and unintentional, What can I do about it?”

“The vast majority of people try to overcome their stereotypic preconceptions.”

6 STRATEGIES to Minimize Implicit Bias

- Question your own objectivity
- Stereotype replacement
- Counter-stereotypic imaging
- Individuating
- Perspective-taking
- Increasing opportunities for contact
Minimizing bias and assumptions

Question your own objectivity

- Replace your self-image as an objective person with recognition and acceptance that you are subject to the influence of bias and assumptions
- Reflect on your own judgments and interactions and assess whether bias/assumptions played a role


Stereotype Replacement

- Recognize stereotypical portrayals in society or your environment
- Challenge the fairness of the judgment or portrayal and replace it with a non-stereotypical response
Minimizing bias and assumptions

Counter-Stereotype Imaging

- Regulate your responses/judgments by imagining counter-stereotype examples

- Recognize or increase the visibility of counter-stereotype examples in your domain.
  - Eg: Photographs on walls in classrooms and hallways – do they reflect diversity; Examples used in text books and classrooms – do they reflect the diverse interests of students.
  - Departmental seminars/conferences – are invited speakers from diverse groups within the field.
  - Leadership positions within the department; Committee assignments
  - Awards & recognition
Minimizing bias and assumptions

- Individuate (instead of generalizing)
  - Obtain more information on specific qualifications, record of performance, personality, and other attributes of an individual before making assumptions/judgments.

- Practice making situational attributions rather than dispositional attributions
  (E.g.: She had to leave the meeting early, because she has a presentation to deliver vs. she had to leave because she’s a mother and has to pick her children up from school.)
Minimizing bias and assumptions

- Perspective Taking – recognize and respect the perspectives of others
  - Adopt the perspective (in the first-person) of a member of a stigmatized group

  *For example, imagine what it would be like to...*
  - Have your abilities repeatedly called into question
  - Not be offered opportunities because of assumptions about what fields you will like
  - Not receive the same rewards and recognitions as similarly deserving peers
Minimizing bias and assumptions

- Increase opportunities for contact with members of underrepresented groups
  - Greet and engage professionally with members of underrepresented groups presenting at or attending academic conferences
  - Pursue opportunities for collaboration
  - Engage in outreach work with minority communities
  - Mentor and advocate for students and colleagues from underrepresented groups.
6 STRATEGIES to Minimize Implicit Bias

- Question your own objectivity
- Stereotype replacement
- Counter-stereotypic imaging
- Individuating
- Perspective-taking
- Increasing opportunities for contact
Creating a welcoming & inclusive department climate

- Treat all individuals with respect, consideration, and politeness
  - Establish a policy, standards, or expectations for interpersonal interactions
  - Promote these by personal example
- Hold department members accountable for violations
- Actively promote an inclusive community, do so by example
- Recognize and value the work of department members
- Communicate openly, honestly, and effectively
Creating a welcoming & inclusive department climate

- Promote professional development for faculty, staff, and students
- Encourage balance between work and family or personal responsibilities
- Respond to illegal behaviors and complaints about demeaning, sexualizing, or condescending language and behavior
Creating a welcoming & inclusive department climate

- Not necessarily easy
- Awareness, motivation, effort and a sustained commitment are essential
  - Expect that you may slip up
  - Stay committed
- Strategies we provided are powerful tools to combat implicit biases and improve climate
CONCLUSION

“The fact that automatic and frequently unconscious processes are in play reduces blame but not responsibility.”

van Ryn et al. (2011)
What traits do you associate with being a leader?
Bias in Evaluation of Leadership/Competence

“Think-manager-think-male phenomenon”

Prescriptive Gender Norms

- **Men**
  - Strong
  - Decisive
  - Assertive
  - Tough
  - Authoritative
  - Independent

- **Women**
  - Nurturing
  - Warm
  - Nice
  - Supportive
  - Understanding
  - Sympathetic

“Leader”
Leadership is a sex segregated occupation

- **Locally:**
  - Women = 53% UW students.
  - Women = 5 deans out of 13 schools/colleges (includes nursing and human ecology which was home economics).

- **Nationally:**
  - Women = 51% population, never had a woman president.
  - 4.6% of CEOs of fortune 500 companies are women.
  - 50% women physicians in pediatrics since 1980, but only 10% department chairs are women.
Women experience double bias

- Stereotypes disadvantage women from being seen as competent in male dominated fields like medicine, science and engineering.
- Stereotypes disadvantage them from being seen as competent leaders.
  - Pursuit of leadership in medicine, science and engineering positions them to face a double bias.
Evaluation of leadership competence

- Bias is pervasive.

- Experimental Evidence: Students seated around a table – Who is the leader?
  
  Porter & Geis 1981, 1983
  Jackson, Engstrom & Emmers-Sommer, 2007
FEMALE

\[ X^2 = 35.36, \; p < 0.001 \]