Breaking the Bias Habit

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Acknowledgements

• NIH: K07 AG00744; T32 AG00265; R01 GM088477; DP4 GM096822; R01 GM111002; GM096822-01 and GM114002-01; R35 GM122557

• NSF: ADVANCE Institutional Transformation Award 0213666; Partnership for Adaptation, Implementation, and Dissemination SBE-0619979

• UW-Madison Department of Medicine, School of Medicine and Public Health, College of Engineering, School of Education and Office of the Vice Chancellor for Research and Graduate Education
Women are underrepresented in leadership in academic science & medicine

AAMC, 2017-2019; Survey of Earned Doctorates 2016

Women = 51% U.S. population

<table>
<thead>
<tr>
<th>Category</th>
<th>% Women</th>
<th>% Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>All MD Degrees</td>
<td>47</td>
<td>56</td>
</tr>
<tr>
<td>Bio PhDs</td>
<td>56</td>
<td>44</td>
</tr>
<tr>
<td>Residents</td>
<td>44</td>
<td>46</td>
</tr>
<tr>
<td>Assistant Professors</td>
<td>46</td>
<td>37</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>37</td>
<td>24</td>
</tr>
<tr>
<td>Professors</td>
<td>24</td>
<td>18</td>
</tr>
</tbody>
</table>

AAMC, 2017-2019; Survey of Earned Doctorates 2016
Racial & ethnic minorities are underrepresented at all career stages

AAMC, 2017-2019; Survey of Earned Doctorates 2016

URM = 36% U.S. population
Asians are relatively underrepresented in leadership in academic medicine

According to the AAMC, 2017-2019 Survey of Earned Doctorates 2016, the representation of Asians in leadership roles is significantly lower compared to their representation in the general U.S. population. The graph illustrates the percentage of Asians in various roles, with the corresponding percentage of White/URM/Unknown individuals.

- **All MD Degrees**: 21% Asians, 70% White/URM/Unknown
- **Bio PhDs**: 11% Asians, 20% White/URM/Unknown
- **Residents**: 22% Asians, 40% White/URM/Unknown
- **Assistant Professors**: 21% Asians, 40% White/URM/Unknown
- **Associate Professors**: 17% Asians, 40% White/URM/Unknown
- **Professors**: 11% Asians, 40% White/URM/Unknown
- **Chairs**: 7% Asians, 40% White/URM/Unknown

Asians constitute 6% of the U.S. population, indicating a significant disparity in representation in leadership roles compared to their demographic share.
Do we care?

• Diverse groups are more productive, creative, innovative, and engage in higher levels of critical analysis (Phillips, 2014; Kets & Sandroni, 2015; Page, 2017; and more)
  – E.g., publish more articles in higher impact journals (Freeman & Huang, 2014, 2015)

• Diverse perspectives yield new approaches to teaching, research, and mentorship (Morrison & Grbic, 2015; Woolley et al., 2010, Umbach, 2006; Xie et al., 2011; Nielsen et al., 2017; and more)

• White medical students at schools with diverse student bodies feel better prepared to care for non-White patients (Saha et al., 2008)

• Decreases health disparities (Levine & Ambady, 2013; Louis Sullivan Commission, 2004; Smedley et al., 2003; Smedley et al., 2004)
Assumptions about groups of people lead two kinds of inter-group bias

1. Explicit, consciously endorsed, personal beliefs
   • Decreasing
2. Implicit processes based on mere existence of cultural stereotypes
   • Still highly prevalent –
     https://implicit.harvard.edu/implicit/demo/takeatest.html
   • Strong predictor of behavior in some settings, even if at odds with personal beliefs
   • Functions as a habit

Habits of mind usually serve us well but they can lead to errors and interfere with our conscious intentions.
“Stroop Effect” and the color naming task

<table>
<thead>
<tr>
<th>Compatible Trial</th>
<th>Incompatible/Interference Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED</td>
<td>RED</td>
</tr>
<tr>
<td>BLACK</td>
<td>BLACK</td>
</tr>
<tr>
<td>BROWN</td>
<td>BROWN</td>
</tr>
<tr>
<td>GREEN</td>
<td>GREEN</td>
</tr>
<tr>
<td>YELLOW</td>
<td>YELLOW</td>
</tr>
<tr>
<td>BLUE</td>
<td>BLUE</td>
</tr>
</tbody>
</table>

Stroop, *Journal of Experimental Psychology* 1935
Habits of mind distort perceptions

- 450 word recorded essay read by Standard American English speaker
- Random assignment to photo
- All participants hear the same recording

Perceived accent ($p<.001$)

- White photo: 2.8
- Asian photo: 3.8

Rubin, 1992; Kang & Rubin, 2009
We know common stereotypes even if we don’t believe them

<table>
<thead>
<tr>
<th>Men¹</th>
<th>Women¹</th>
<th>White²</th>
<th>Asian²</th>
<th>Black²</th>
<th>Latino²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong</td>
<td>Caring</td>
<td>High status</td>
<td>Intelligent</td>
<td>Ghetto or unrefined</td>
<td>Poor</td>
</tr>
<tr>
<td>Decisive</td>
<td>Nurturing</td>
<td>Rich</td>
<td>Bad drivers</td>
<td>Illegal immigrant</td>
<td>Illegal</td>
</tr>
<tr>
<td>Stubborn</td>
<td>Family-oriented</td>
<td>Intelligent</td>
<td>Good at math</td>
<td>Uneducated</td>
<td>Uneducated</td>
</tr>
<tr>
<td>Competitive</td>
<td>Emotional</td>
<td>Arrogant</td>
<td>Nerdy</td>
<td>Athletic</td>
<td>Family-oriented</td>
</tr>
<tr>
<td>Ambitious</td>
<td>Supportive</td>
<td>Privileged</td>
<td>Shy</td>
<td>Loud</td>
<td>Lazy</td>
</tr>
<tr>
<td>Risk-taking</td>
<td>Sympathetic</td>
<td>Blonde</td>
<td>Skinny</td>
<td>Gangsters</td>
<td>Day laborer</td>
</tr>
<tr>
<td>Assertive</td>
<td>Nice</td>
<td>Racist</td>
<td>Educated</td>
<td>Poor</td>
<td>Unintelligent</td>
</tr>
<tr>
<td>Logical</td>
<td>Helpful</td>
<td>All-American</td>
<td>Quiet</td>
<td>Have an attitude</td>
<td>Loud</td>
</tr>
<tr>
<td>Authoritative</td>
<td>Dependent</td>
<td>Ignorant</td>
<td>Unintelligent</td>
<td>Unintelligent</td>
<td>Gangsters</td>
</tr>
<tr>
<td>Independent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1Carli et al., 2016, Eagly and Sczesny, 2009, Bem, 1974; ²Ghavami and Peplau, 2013
Things to know about stereotypes

• They persist in the face of disconfirming data

• A trivial piece of information makes the entire content of a stereotype pop to mind and filters all subsequent information

• Just knowing them (even if we don’t believe them) can influence interpretation of objective data

• Depending on the situation, they create stereotype-advantaged or stereotype-disadvantaged groups
Implicit Gender-Science Stereotypes

Nosek BA, Banaji MR & Greenwald AG, 2006  
http://implicit.harvard.edu/
Gender and Leadership IAT Scores

Male Respondents
(n=359)

Female Respondents
(n=315)

Gender and Leadership IAT Scores
Bias is a habit that can be broken
Breaking the bias habit takes *more than good intentions*

- Awareness
- Motivation
- Self-efficacy
- Positive outcome expectations
- Deliberate practice

Cluster randomized trial of gender bias habit-reducing intervention

92 STEMM depts.
2,290 faculty

46 experimental
1,137 faculty
Attendance/dept 31% ± 21
Overall 310 = 26%

46 control
1,153 faculty

Baseline, 3 d & 3 months
Survey response: 587 (52%)

Baseline, 3 d & 3 months
Survey response: 567 (49%)

Personal bias reduction strategies

- Stereotype Replacement
- Counter-Stereotypic Imaging
- Individuating
- Perspective-Taking
- Increase Opportunities for Contact


- Plus 2 that DON’T work:
  - Stereotype Suppression
  - Too Strong a Belief in One’s Personal Objectivity


Differences Between Experimental and Control Departments Compared With Difference at Baseline
(IAT in D-scores; others on 7-point Likert scales)

N = 92 departments; 1154 faculty (50.4% response rate)
IAT= Implicit Association Test (standardized D-score)
*P < 0.05; models adjusted for faculty gender and rank
‡ P < 0.05 for action at 3 months when comparing only experimental depts with ≥25% attendance
Notes:
N=92 departments; 671 faculty respondents for response rate between 48% (2010) and 43% (2012).
* Indicates statistically significant difference between experimental and control departments compared with differences at baseline, at $p<.05$.
** Significant only for departments in which 25% or more of the faculty attended the workshop, $p<.05$.
Diversity of New Faculty Hires, Experimental vs. Control Departments in Bias Literacy Workshop Study

Targeting individual faculty had institutional impact

**Institutional Outcomes:**
Gender parity among new hires, greater retention of male faculty

**Department Climate:**
Improved feelings of fit, feeling valued, raising personal issues

**Individual Behaviors:**
Increased motivation, self-efficacy, and action
Future Directions
Does this approach work beyond one institution and beyond gender bias?
R35 GM122557

Bias Reduction in Internal Medicine (BRIM)

• Cluster randomized study of 3-hour bias habit-reducing workshop
• 20 departments of Medicine
• Divisions randomly assigned to receive workshop early (Group 1) or later (Group 2)
• Outcome measures: self-reported equity-promoting behaviors, perceptions of department climate, burnout
• Targeted completion 2022
Summary & Conclusions

• Group stereotypes affect our attitudes, behaviors, and judgments -- *even when we don’t want them to and even when we are unaware of it happening*

• These group stereotypes have real effects on individuals in selecting and persisting in careers in science and medicine -- *especially as they rise toward leadership*

• The bias habit can be broken -- *but it takes more than good intentions*

• When STEMM faculty broke the gender bias habit – *department climate improved for everyone, more women faculty were hired, and more male faculty retained*