Breaking the Bias Habit: A Cluster Randomized Controlled Study of an Educational Intervention in STEMM Departments

Molly Carnes, MD, MS
Professor, Departments of Medicine, Psychiatry, and Industrial & Systems Engineering
University of Wisconsin-Madison

Copyright © 2015 by WISELI and the Board of Regents of the University of Wisconsin System
Bias Literacy Workshop: Project Team

Molly Carnes, MD, MS
Professor
Director, Center for Women’s Health Research
Co-Director, Women in Science & Engineering Leadership Institute (WISELI)

Patricia Devine, PhD
Professor
Chair, Department of Psychology

Cecilia Ford, PhD
Professor
Departments of English and Sociology

Jennifer Sheridan, PhD
Associate Scientist
Executive/Research Director, Women in Science & Engineering Leadership Institute (WISELI)

Linda Baier Manwell, MS
Epidemiologist, Center for Women’s Health Research
National Training Coordinator, Women’s Health Primary Care, Veteran’s Health Administration

Angela Byars-Winston, PhD
Associate Professor, Department of Medicine
Associate Scientist, Center for Women’s Health Research

Eve Fine, PhD
Associate Researcher
Women in Science & Engineering Leadership Institute (WISELI)

Wairimu Magua, MS
PhD Program
Industrial and Systems Engineering

Patrick Forscher, MA
PhD Program
Department of Psychology

Carol Isaac, PhD
Faculty Associate
University of Florida-Gainesville

Anna Kaatz, MA, MPH, PhD
Research Associate, Center for Women’s Health Research
Research Supported by:

- NIH R01 GM088477
- University of Wisconsin-Madison Department of Medicine, College of Engineering, and Provost’s Office

Copyright © 2015 by WISELI and the Board of Regents of the University of Wisconsin System
**Premise:**
1. The mere existence of gender stereotypes leads to unintentional and unwitting bias in judgment and decision-making.
2. These “implicit biases” occur as *habits of mind* even in those who personally disavow prejudice.
3. If they are habits, they should be remediable.
Stroop Color Naming Task

Compatible Trials

- RED
- BLACK
- BROWN
- GREEN
- YELLOW
- BLUE

Incompatible (interference) Trials

- RED
- BLACK
- BROWN
- GREEN
- YELLOW
- BLUE
Why do we approach gender bias as a habit?

- Neutral - avoids blaming or shaming
- Familiar metaphor – who hasn’t tried to break a habit?
- Habits can be broken
- Instills a sense of optimism regarding individual change and institutional transformation
Breaking a habit takes more than good intentions

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

Breaking the bias habit in academic science, medicine & engineering

- Cluster Randomized Controlled Study
- 92 departments (2290 faculty) – 46 pairs
  - General discipline, School/College, size
  - Randomly allocated to experimental or wait list control
- Intervention = 2.5 hour workshop
  - Attendance/dept = 31%, SD =21
  - Overall 301 attended/1137 invited = 26%
- Measures (50.4% response rate)
  - Implicit Association Test (gender and leadership)
  - Motivation to engage in gender bias reduction
  - Gender equity self-efficacy
  - Gender equity outcome expectations
  - Self-reported gender equity action

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

Gender and Leadership IAT Scores

Copyright © 2015 by WISELI and the Board of Regents of the University of Wisconsin System
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 departments with at least 25% attendance
Does changing behavior of faculty affect departmental culture?

Study of Faculty Worklife:

• Faculty surveyed baseline and after completion of interventions; 41%, 43% response (N=671 responded both times)

• Experimental vs. control improvements in:
  • Research valued (P=0.024)
  • “Fit” in department (P=0.019)
  • Comfort raising personal/family issues that conflict with department activities (P=0.025)

Summary & Conclusions

1. Male and female STEMM faculty demonstrated implicit pro-male leadership bias to the same degree

2. Gender bias did appear to act as remediable a habit

3. Breaking the gender bias habit improved department climate for everyone