Faculty Evaluation: How Implicit Bias Can Derail Departmental Goals
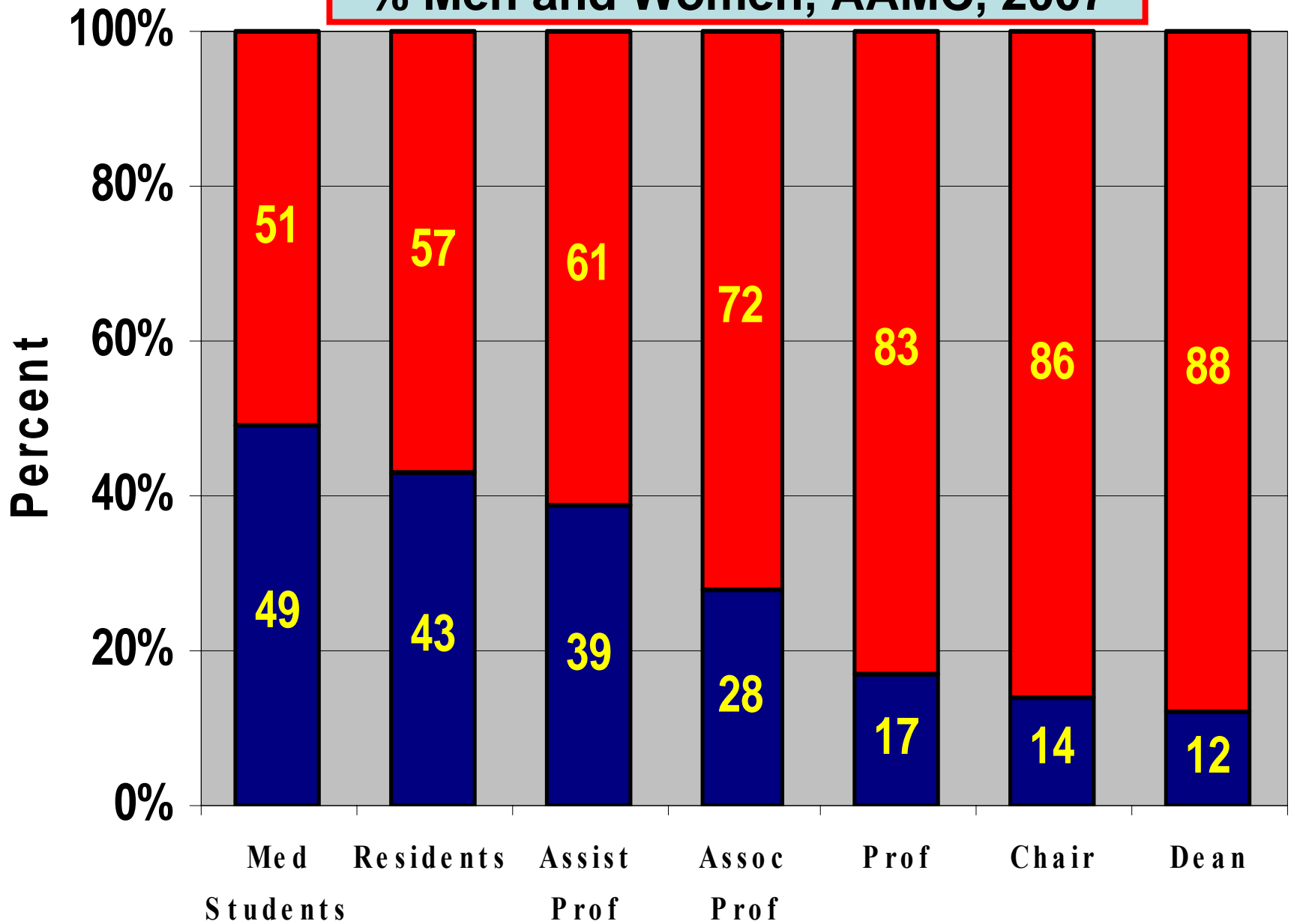
University of Pittsburgh
April 27, 2009

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Objectives

- Frame issue on gender and academic medicine

- Illustrate how implicit assumptions about gender can lead to cognitive distortions in evaluation

- Describe a workshop for hiring committees

- Strategies for "breaking the prejudice habit"

% Men and Women, AAMC, 2007

Departmental Goals

- To strive for a just and egalitarian meritocracy that rewards faculty equitably
- To recruit and retain an excellent and diverse faculty
- To ensure that all faculty members have equal opportunity to advance

Consistent story in field and experimental studies over several decades –

- Women and the work performed by women receive lower evaluations than men and the work performed by men – even if the work is *identical* – multiple studies: e.g. Heilman, 2004; Wenneras and Wold, 1997; Steinpreis, 1999

- Sex of the evaluator makes no difference – i.e. *both* men and women give women lower evaluations – nearly universal

- Women are particularly disadvantaged at evaluation points advancing to high authority positions, especially elite leadership positions – multiple studies; e.g. Sczesny et al., 2006

- Women, but not men, who self-promote receive lower evaluations – Several studies; e.g. Rudman, 1998

- Those who think they have no biases provide the most biased evaluations – Uhlmann and Cohen, 2005

We all have gender biases (conscious or unconscious) that would be predicted to disadvantage departments in recruitment and advancement of women

Prescriptive Gender Norms

DESCRIPTIVE: How men and women actually behave

PRESCRIPTIVE: Assumptions about the way men and women in the abstract "ought" to behave:

- <u>Women</u>: Nurturing, nice, supportive, helpful, sympathetic, dependent = *Communal*
- <u>Men</u>: Decisive, inventive, strong, forceful, independent, willing to take risks = *Agentic*
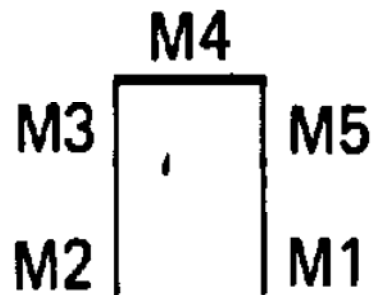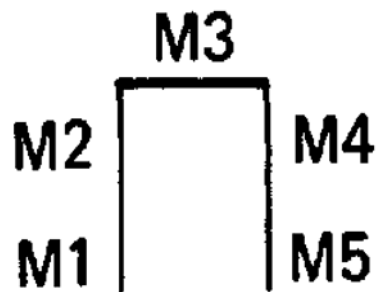
RELEVANT POINTS:

- <u>Leaders, scientists, professors</u>: Decisive, inventive, strong, independent
- <u>Social penalties</u> for violating prescriptive gender assumptions
- <u>Implicit gender biases</u> are easily and automatically activated and once activated readily applied

Evaluation of Leadership/Competence

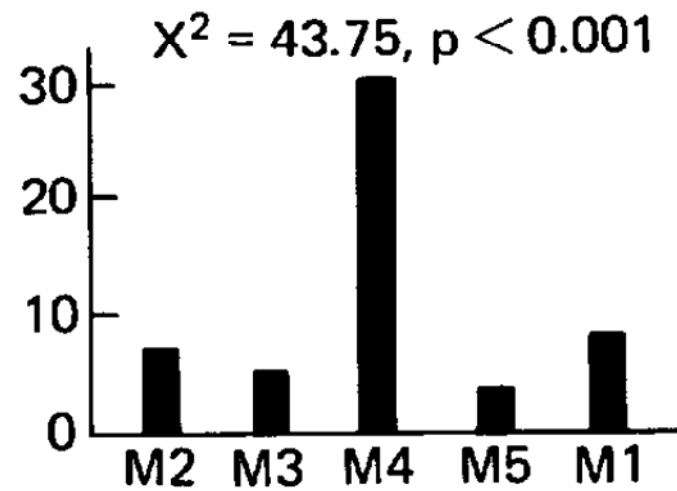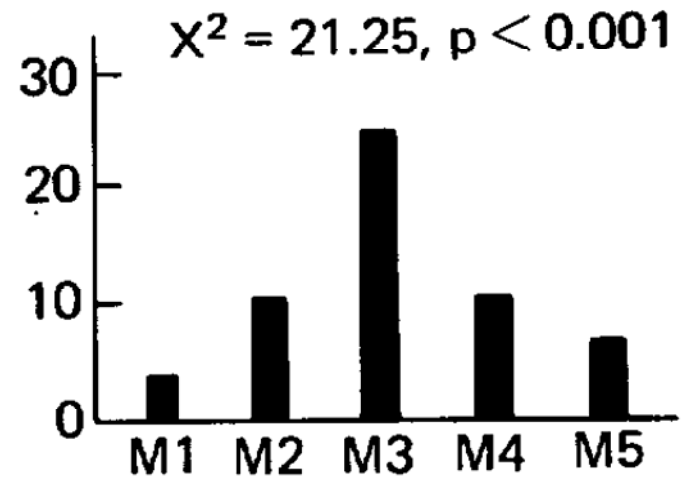- Students seated around a table – Who is the leader?
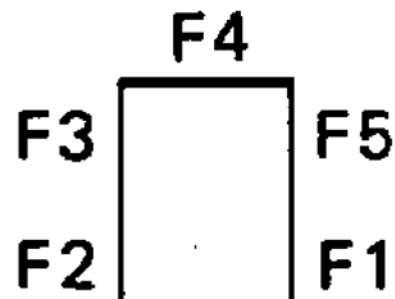
Porter & Geis 1981

MALE

M3
M2   M4
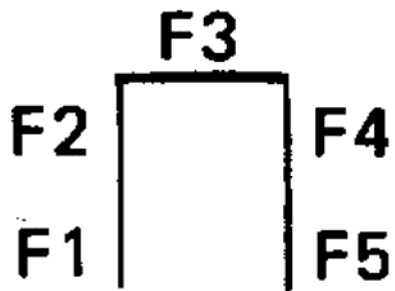M1   M5

M4
M3   M5
M2   M1

MALE

$X^2 = 21.25$, p $<$ 0.001

SAME-SEX STIMULUS GROUPS

M1 M2 M3 M4 M5

$X^2 = 43.75$, p $<$ 0.001

M2 M3 M4 M5 M1

FEMALE

F3
F2   F4
F1   F5

F4
F3   F5
F2   F1

FEMALE

$X^2 = 35.36, p < 0.001$

F1   F2   F3   F4   F5

$X^2 = 35.36, p < 0.001$

F2   F3   F4   F5   F1
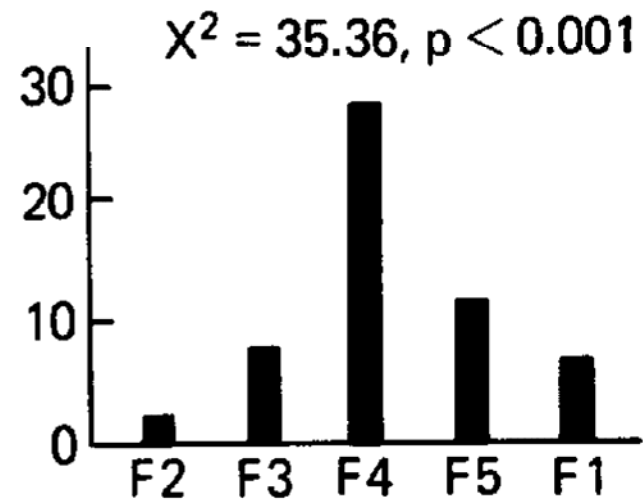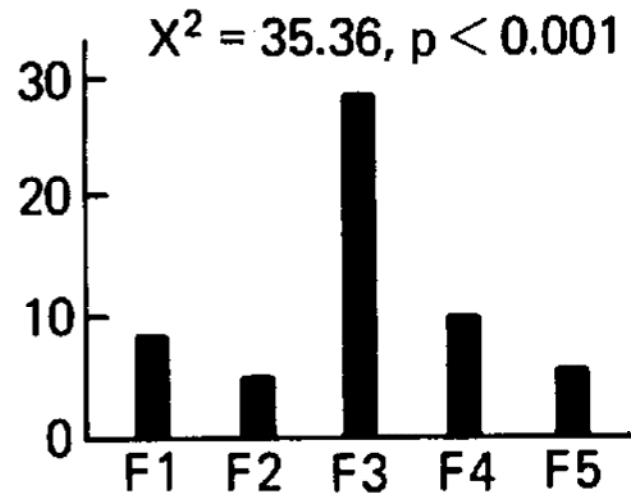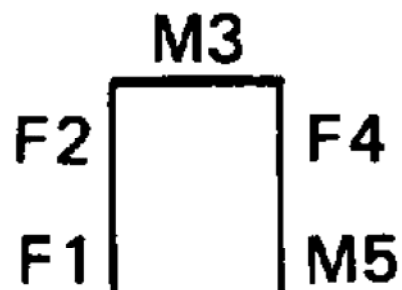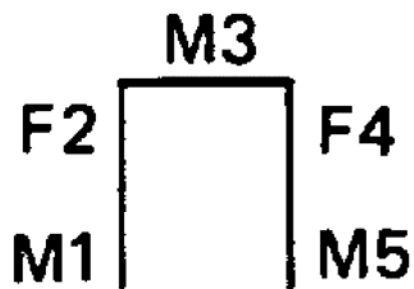
$X^2 = 39.45$, $p < 0.001$
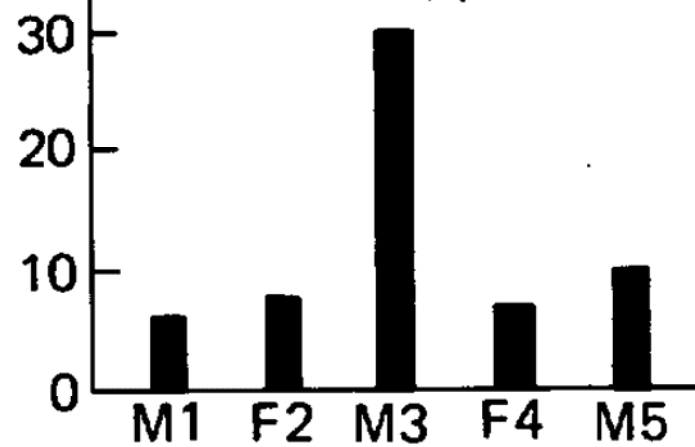
$X^2 = 31.50$, $p < 0.001$

How might these implicit biases affect evaluation?

- Letters of recommendation
- Manuscript reviews
- Receiving scientific awards

Letters of Recommendation

- 312 letters of rec for medical faculty hired at large U.S. medical school
- Letters for women vs men:
  - Shorter
  - 15% vs 6% of *minimal assurance*
  - 10% vs 5% with *gender terms* (e.g. "intelligent young lady"; "insightful woman")
  - 24% vs 12% *doubt raisers*
  - *Stereotypic adjectives*: "Compassionate", "related well…" vs "successful", "accomplished"
  - 34% vs 23% *grindstone adjectives*
  - Fewer *standout adjectives* ("outstanding" "excellent")

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Double-blind review increases %women-authored publications

- Behavioral Ecology (BE) – initiated double-blind review in 2001
- Online data base 1997-2000 vs 2002-2005
  - Gender of 1st author by author name: F, M, UKN
- 1st-authored pubs
  - Women ↑ 8% (3x the increase in F PhDs)
  - Men ↓ 8%
- Behavioral Ecology and Sociobiology (BSE) – similar
  - No change
- 4 journals in ecology with comparable impact factor with single-blind review – no change
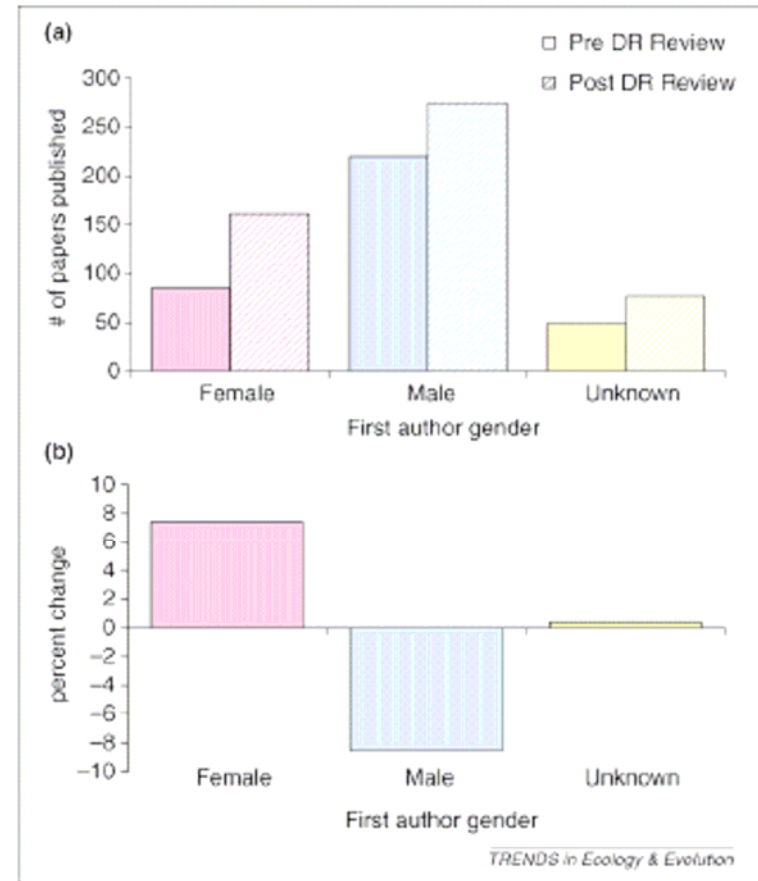
Figure 1. Papers published in Behavioral Ecology by first-author gender. (a) Total number of papers published in BE in the four years before and after the implementation of a double-blind review policy in 2001. (b) Percentage change in author representation.

Budden et al., TRENDS in Ecol and Evol 23:4,2007

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Gender Priming: "Priming" an individual with words, pictures, or media images that align with gender stereotypes promotes gender bias in subsequent behavior

Semantic priming activates unconscious gender stereotypes

- Unrelated exercise: unjumble sentences where actions reflect *dependent*, *aggressive* or *neutral* behaviors; e.g.:
    - P alone cannot manage a
    - M at shouts others of
    - R read book by the

- "Reading comprehension" experiment with Donna or Donald engaging in dependent or aggressive behaviors

- Rated target on series of traits (Likert, 1-10)

Banaji et al., J Pers Soc Psychol, 65:272 1993

- Gender of evaluator made no difference
- Gender of target determined influence of semantic priming:
  - <u>Neutral primes</u> – Donna and Donald same
  - <u>Dependent primes</u> – only Donna more dependent
  - <u>Aggressive primes</u> – only Donald more aggressive

NIH Director's Pioneer Awards

- All 9 went to men in the first round (2004)
- In subsequent rounds, women received:
  - 2005 = 43%
  - 2006 = 31%
  - 2007 = 33%
  - 2008 = 25%

Were women doing better science after 2004?

2004	≥ 2005
Characteristics of target scientist and research	
Risk-taking emphasized: • "exceptional minds willing and able to explore ideas that were considered risky" • "take…risks" • "aggressive risk-taking" • "high risk/high impact research" • "take intellectual risks" • URL includes "highrisk"	Emphasis on risk removed: • "pioneering approaches" • "potential to produce an unusually high impact" • "ideas that have the potential for high impact" • "highly innovative" • URL no longer includes "risk"
Description of recommendations from outside consultants	
Technological advances highlighted as desirable: • "support the people and projects that will produce tomorrow's conceptual and technological breakthroughs"	Mention of technological breakthroughs removed; human health added: • "encourage highly innovative biomedical research with great potential to lead to significant advances in human health."

Semantic priming and tenure criteria?

- 25 top research academic medical centers
- Tenure criteria from websites
- Scanned for "Leader"
- Also scanned for other Bem Sex Role Inventory male, female, neutral words
- Slopes of regressions for annual % faculty tenured women x 7 years
- "Leader" = OR 6.0 (1.02, 35.37) for slope below median compared to those without

Marchant, Bhattacharya, Carnes. J Woman's Health, 2007

UW-Madison WISELI:

Searching for Excellence and Diversity – Workshops for faculty search committees

Teach faculty how to run effective searches

Active learning

Principles of adult education

Tenets favoring diffusion of innovation and institutional change

Introduce research on biases and assumptions

Present evidence-based strategies
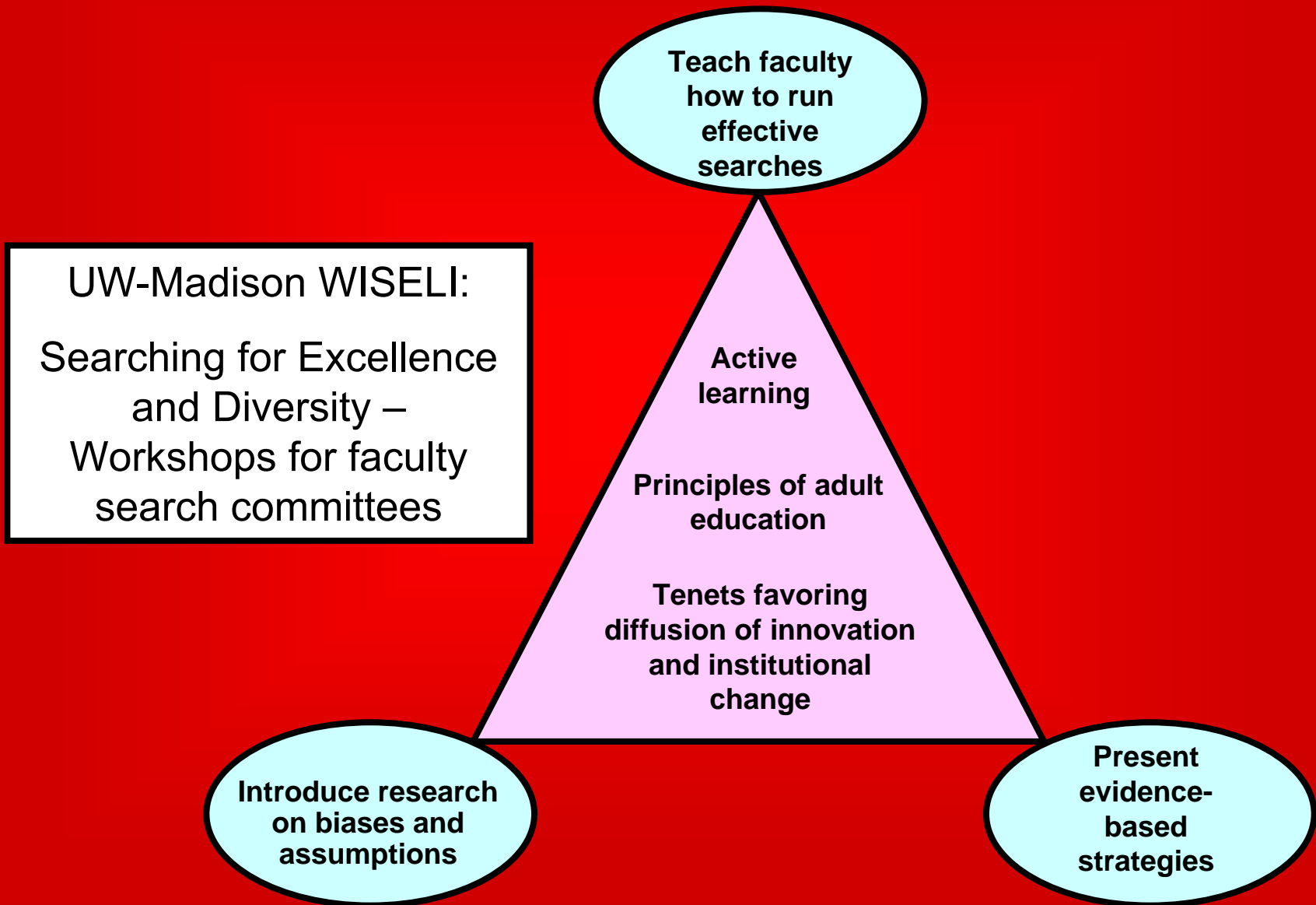
Five elements of a successful search

1. Run an effective and efficient search committee
2. Actively recruit an excellent and diverse pool of candidates
3. Raise awareness of unconscious assumptions and their influence on evaluation of candidates
4. Ensure a fair and through review of candidates
5. Develop and implement an effective interview process

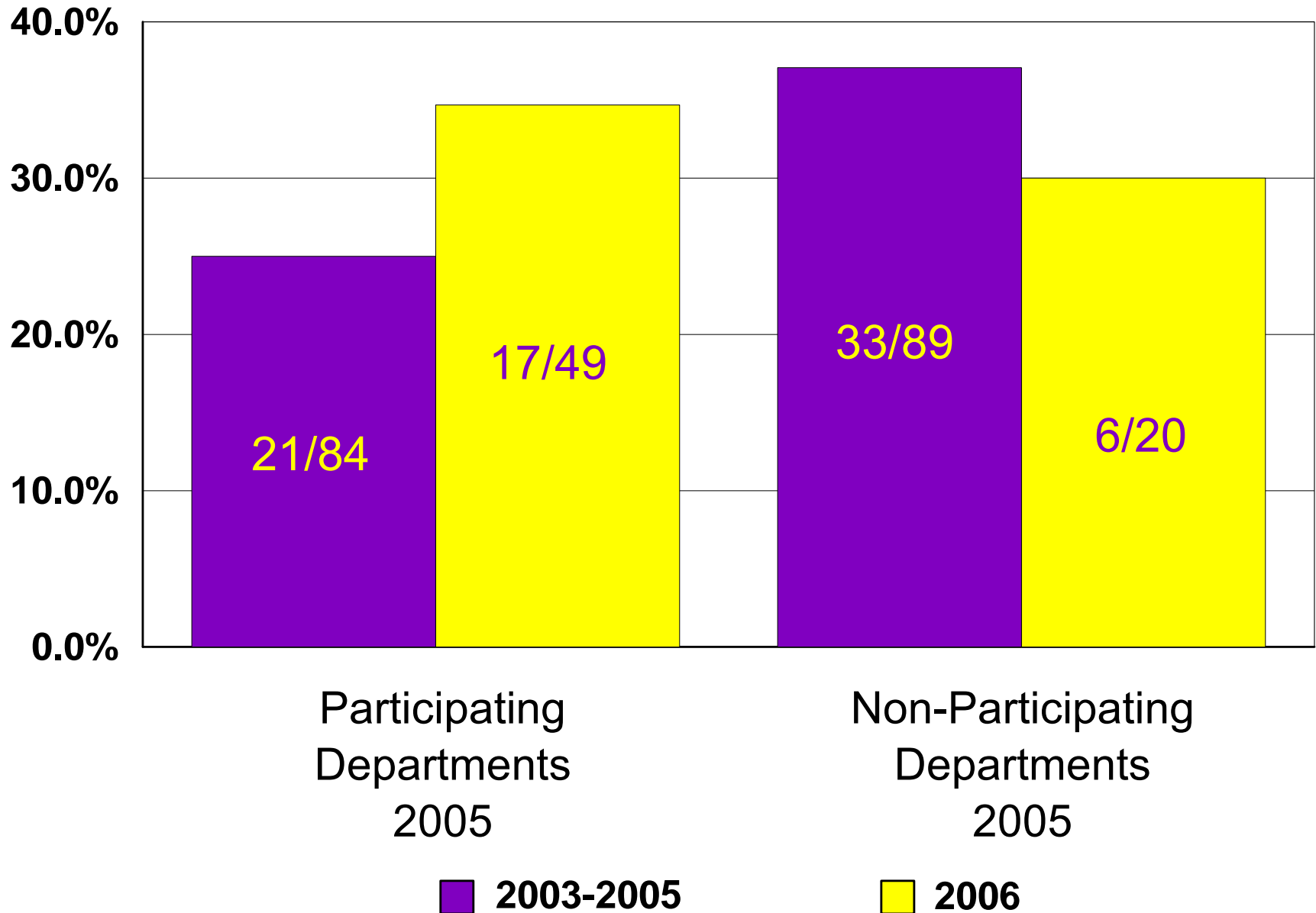# Taking an Evidence-Based Approach:
Interventions in at least one randomized, controlled study that mitigate bias in evaluation

Intervention	Example of study
Reduced time pressure and cognitive distraction during evaluation	Martell RF. J Applied Soc Psychol, 21:1939-60, 1991
Presence of a member of the social category being evaluated	Lowery et al. J Pers Soc Psych 81:842, 2001
At least 25% women in the pool being evaluated	Heilman ME. Organ Behav Hum Perf 1980; 26: 386-395, 1980
Instruction to try to avoid prejudice in evaluation	Blair IV, Banaji MR. J Pers Soc Psychol 70:1142-1163, 1996
Establishing the value of credentials before any applicant is seen to avoid "redefining" merit	Uhlmann and Cohen, Amer Psychol Assoc 16:474-480, 2005
Use an inclusion selection strategy rather than an exclusion strategy whenever possible	Hugenberg et al., J Pers Soc Psychol 91:1020-31, 2006

Percent Female, New Tenure-Track Faculty
Biological & Physical Sciences

Chart showing "Percent Female, New Tenure-Track Faculty" for Biological & Physical Sciences.

Y-axis: 0.0% to 40.0% in 10.0% increments.

Participating Departments 2005:
- 2003-2005: 21/84 (~25%)
- 2006: 17/49 (~35%)

Non-Participating Departments 2005:
- 2003-2005: 33/89 (~37%)
- 2006: 6/20 (~30%)

Legend:
- 2003-2005 (purple)
- 2006 (yellow)

New Hires' Satisfaction* With the Hiring Process
Biological & Physical Sciences

Percent Agree Strongly

70.0%
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%

Participating Departments

29/53
28/45

Non-Participating Departments

39/58
19/44
*

■ **New Hires 2000-2002 (2003 Survey)**
□ **New Hires 2003-2005 (2006 Survey)**
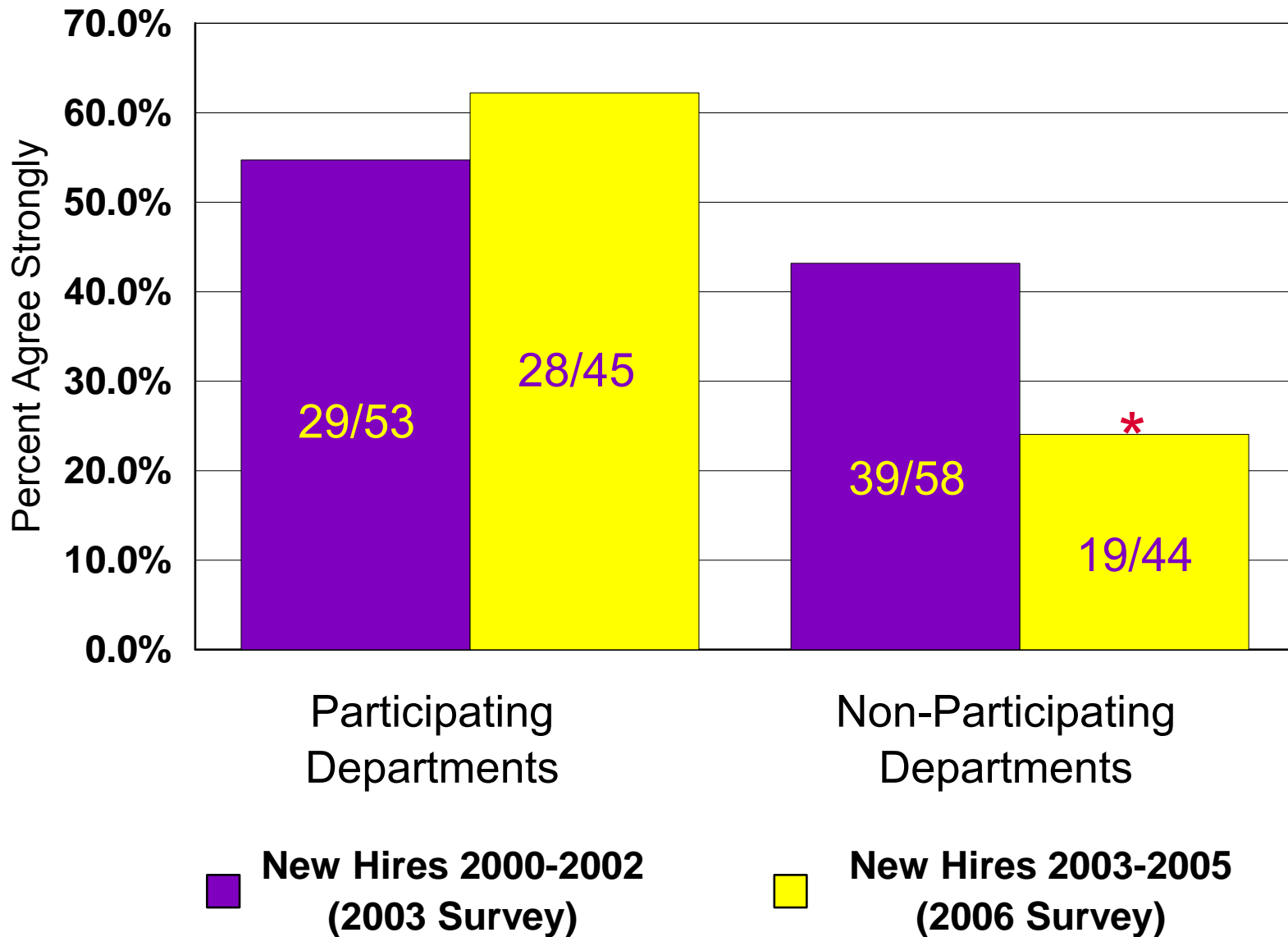
* Agree Strongly to the item "I was satisfied with the hiring process overall."

Effect of Hiring Workshop Participation on Department Climate

"The Climate for Women in My Department is Good"

% Agree or Strongly Agree

80%
60%
40%
20%
0%

N = 68

N = 758

2003
2006

Hiring Participation

No Participation
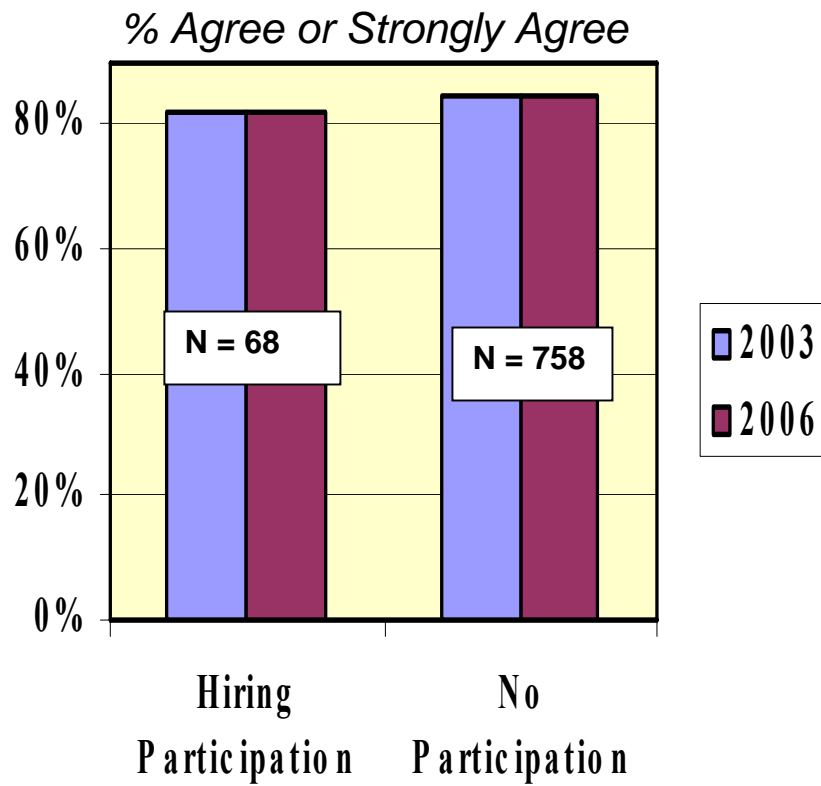
"The Climate for Faculty of Color in My Department is Good"

% Agree or Strongly Agree

100%
80%
60%
40%
20%
0%

*

N = 68

N = 758

2003
2006

*P=.05

Hiring Participation

No Participation
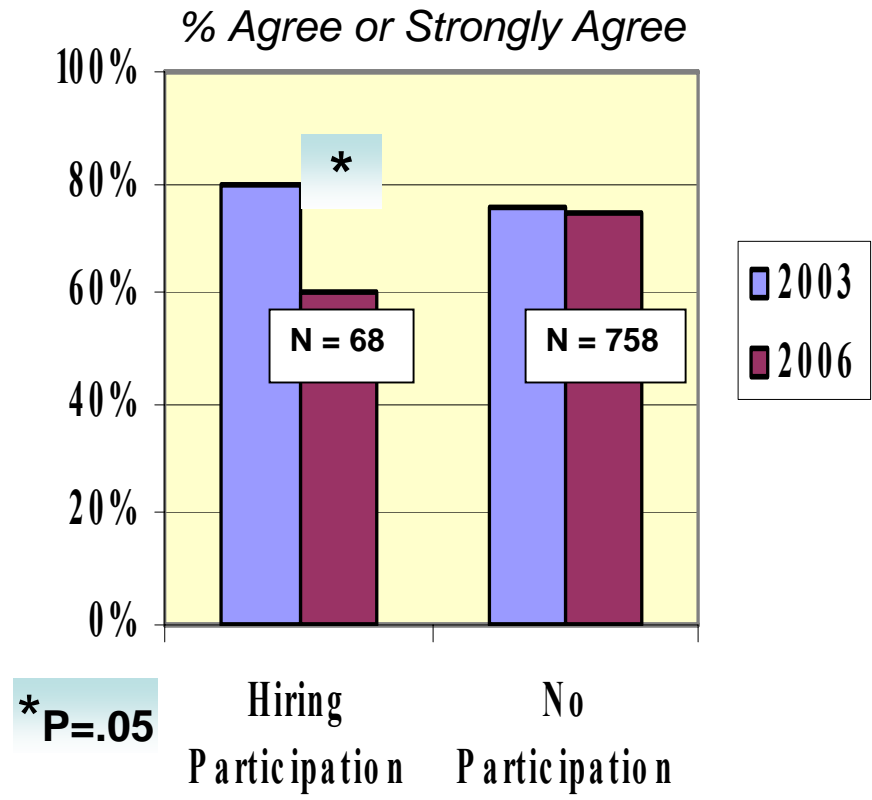
Percent Women Faculty, by Division
University of Wisconsin-Madison

Legend: Physical Sciences, Biological Sciences
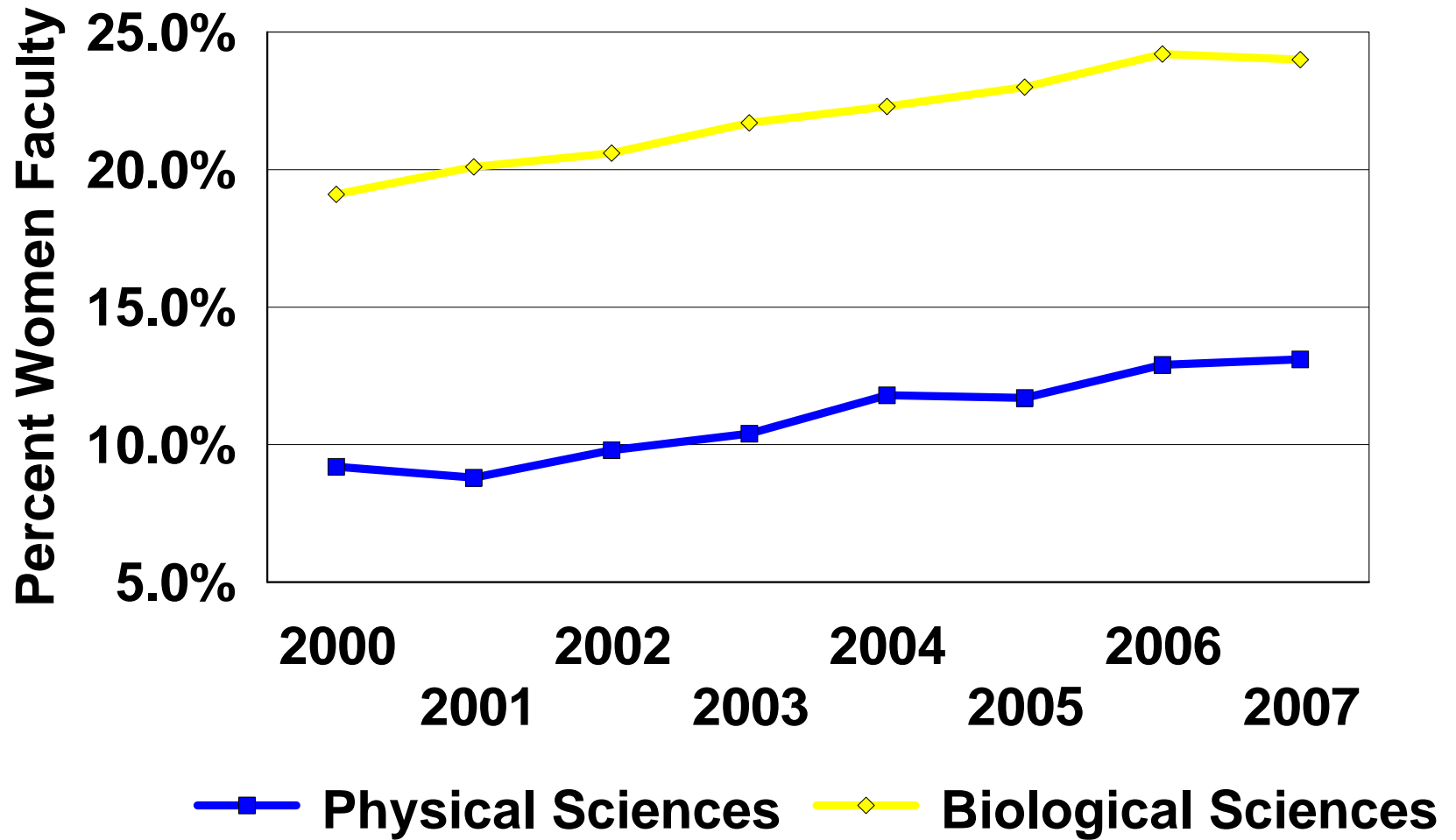
Women as Percentage of Named Professorship Recipients

Bar chart showing "% Women" on the vertical axis (0% to 25%) and years on the horizontal axis (2000 to 2007). The percentage increases each year: 2000 ≈ 13.5%, 2001 ≈ 14.5%, 2002 ≈ 15.3%, 2003 ≈ 15.7%, 2004 ≈ 17.5%, 2005 ≈ 18.7%, 2006 ≈ 20%, 2007 ≈ 21%.
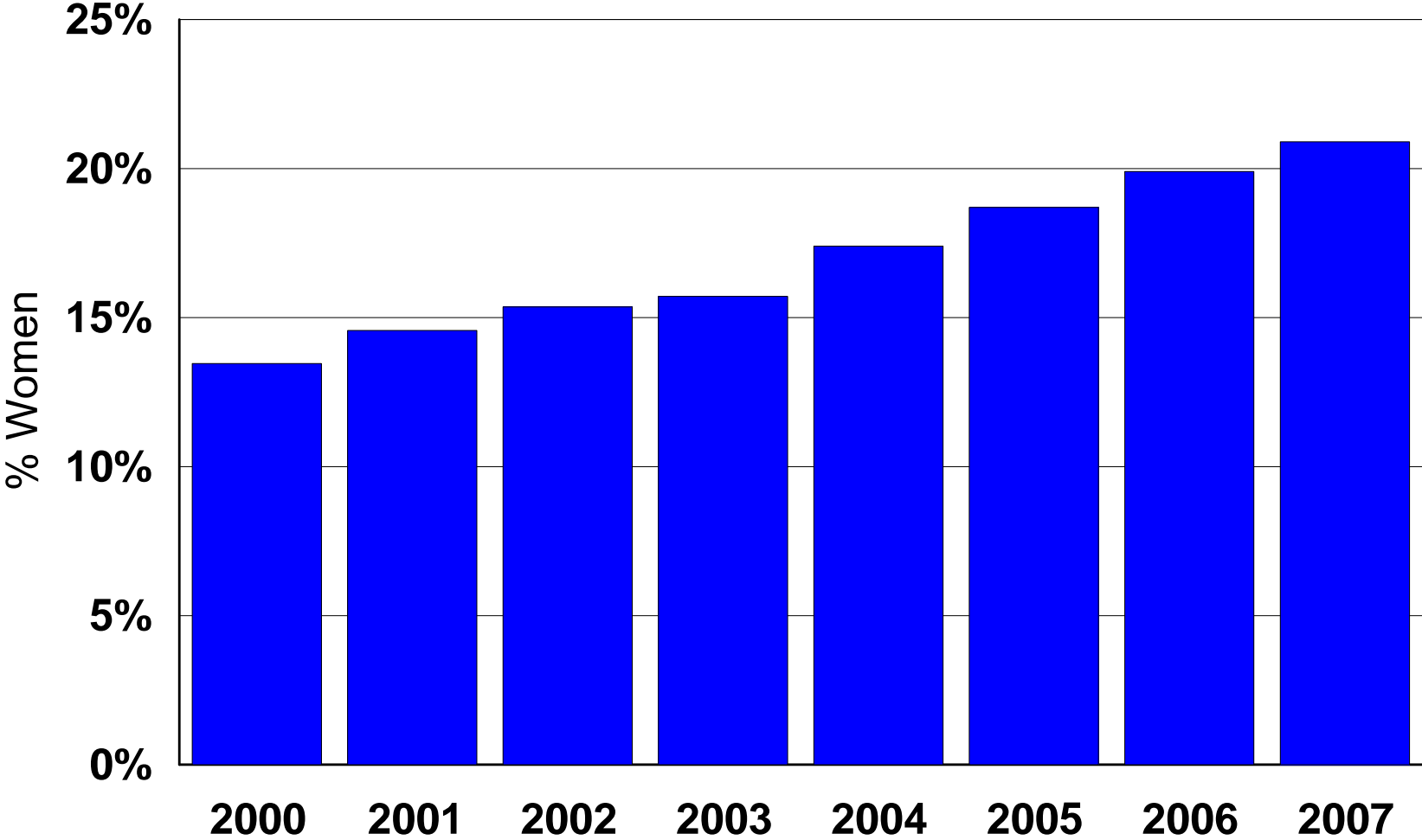
% Women Department Chairs
Biological & Physical Sciences
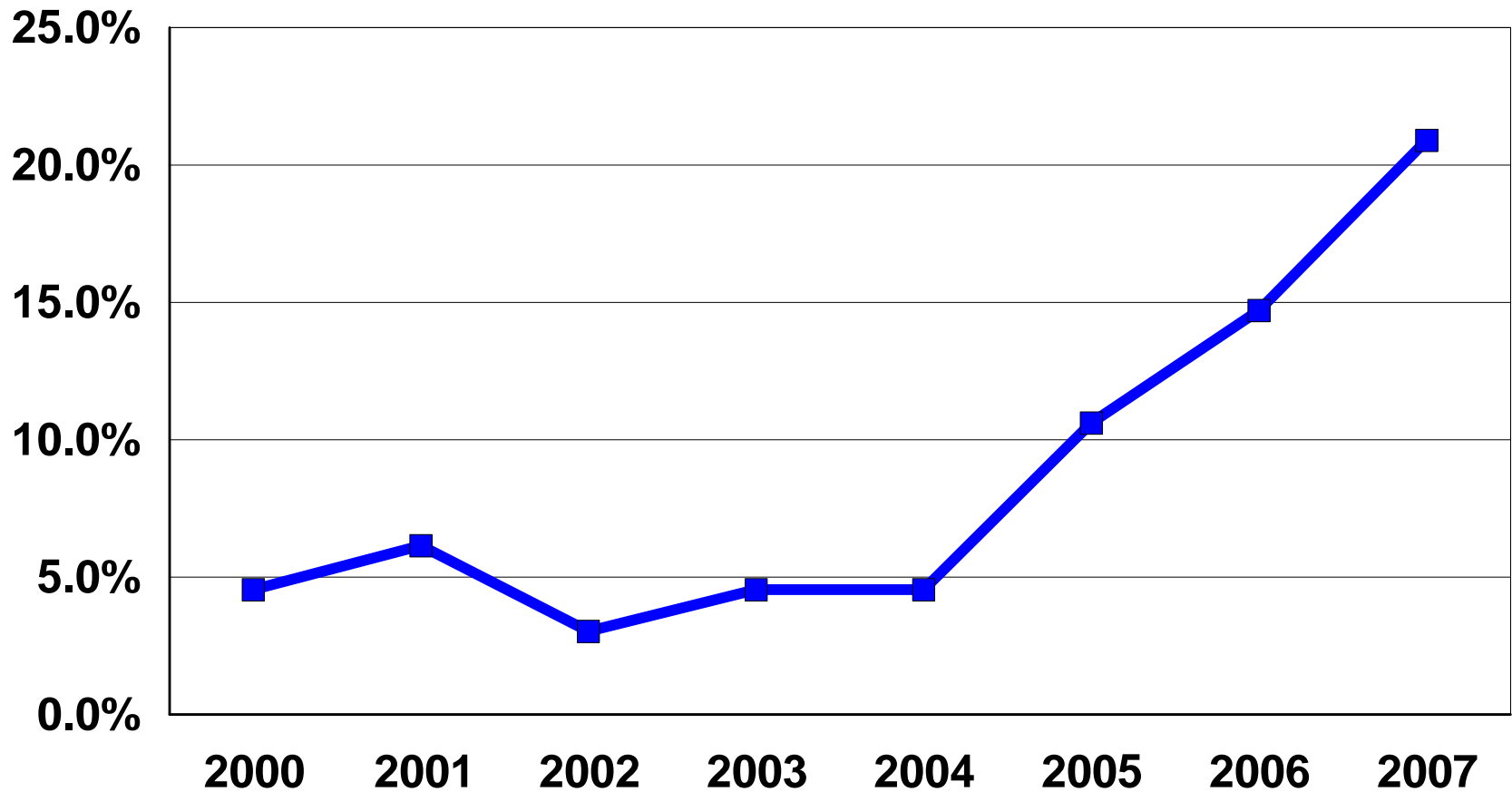
Old Framework = Prejudice is bad so if I think or act with bias, I am a bad person

New Framework = Prejudiced thoughts and actions are bad habits that we all have

Adult Learning

Cont. Prof. Dev

Science Education

Counseling Psychology

Health Behavior

Behavioral Change
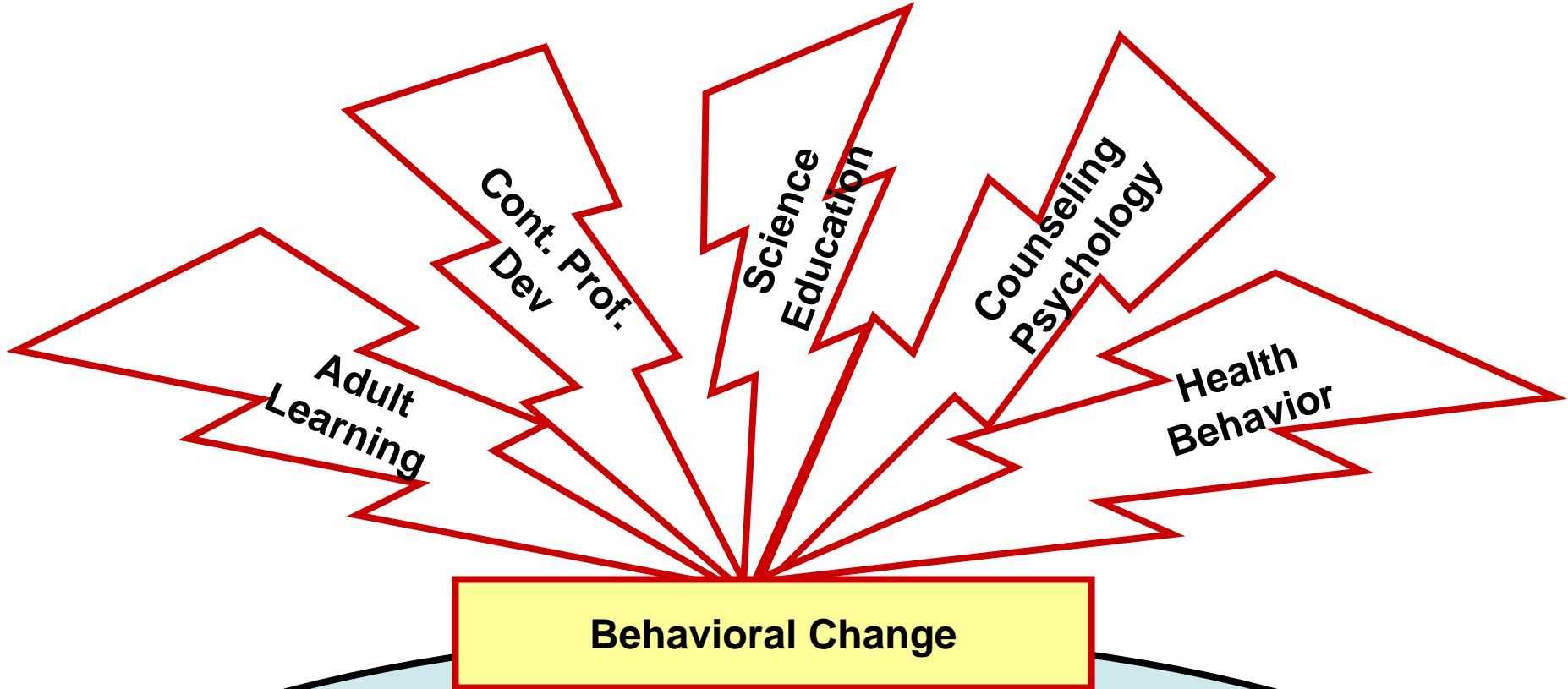
- **Motivation** – person has to *want* to change
- **Self-efficacy** – person must have self-perceived ability to act in new way
- **Positive outcome expectations** – person must believe that his/her new actions will result in desired outcome
- **Deliberate practice**

Promote Self-Efficacy for Reducing Gender Biased Habits

Six Strategies for
Self-Regulation of Gender Biased Behavior

Strategy that does not work

- **Stereotype Suppression** e.g. Monteith et al.,1998; Galinsky & Moskowitz, 2000
  - Banish stereotypes from one's mind (i.e. gender or race "blind")
  - Rebound effects

1. Personal Stereotype Replacement

- ✓ Recognize the stereotype
  - *e.g. Women faculty less interested in leadership opportunities*
- ✓ Label it
  - *e.g Prescriptive gender norms*
- ✓ Identify precipitating factors
  - *e.g. Priming with gender congruent information*
- ✓ Replace with non-stereotypic response
  - *e.g. I know many successful women leaders*
  - *e.g. I know that training and experience rather than sex are the main determinants of leader competence*

2. Societal Stereotype Replacement

- ✓ Recognize the stereotype in society
  - *e.g. Portrayal of girls as poor at math or men as unable to do housework*

- ✓ Label the characterization as stereotypical
  - *e.g. Prescriptive gender norms*

- ✓ Challenge the fairness of the portrayal and replace with an egalitarian portrayal
  - *e.g. Research does not support a difference in math performance once the number of math courses taken are controlled for*

3. Counter-stereotype Imaging

- ✓ Recognize stereotypic response
- ✓ Label the cognitive processes at work
  - *e.g. Violation of prescriptive gender norms for women leaders; redefining merit*
- ✓ Help regulate response by imagining a counter-stereotype woman in detail
  - *e.g. Imagine an astronaut, engineer, CEO who is also a woman OR specific positive CS individuals you know*

4. Individuating (instead of generalizing)

- ✓ Avoid making a snap decision based on general impression or sense of "fit"

  - *e.g. Make gender less salient than being a scientist, physician, or program developer*

- ✓ Obtain more information on specific qualifications, past experiences, etc. before making a decision

  - *"I always think of Joe or Henry when these opportunities arise, but an open application process might bring in fresh ideas and involve more women"*

5. Perspective-taking

✓ Adopt perspective (in the first person) of member of the stigmatized group

- *e.g. Imagine what it would be like to*
  - *Have your abilities called into question*
  - *Viewed as less committed to your career than colleagues with similar training and effort*
  - *Forced to ward off unwanted sexual advances at professional meetings*

6. Increasing Opportunities for Contact

✓ Seek out opportunities for greater interaction with high authority women, women of color, and women with disabilities

- *e.g. Meet with women in high authority positions to discuss research, ideas, visions*
- *e.g. In compiling membership for key committees or speakers lists ensure that women (from diverse groups) are represented*

Personal Bias Reduction Strategies

- Personal Stereotype Replacement
- Societal Replacement of Stereotypes
- Counter-stereotypic Imaging
- Individuating
- Perspective-taking
- Increase Opportunities for Contact

As in changing any habitual behavior, practice, practice, practice…..

Conclusion/Summary

- Implicit assumptions about gender lead to cognitive distortions that impede departments in achieving their egalitarian goals

- The subtlety of these distortions allows gender bias against women to enter decision-making processes without being overt

- Individuals and institutions can break the prejudice habit to overcome implicit biases with
    - awareness
    - motivation
    - self-efficacy (use of 6 strategies)
    - positive outcome expectations
    - practice

Questions?