



W I S E L I

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

Project to Assess Climate in Engineering (PACE)

Selected results from UW-Madison



PACE Study

- Motivation

- “The goal is to identify and address university climate issues to improve retention for all undergraduate engineering students”
 - Special emphasis on women and under-represented minority students
 - Provides benchmarking with other “peer” universities



PACE Study

- PI is Suzanne Brainard at the University of Washington
- 24 Engineering schools participated
 - University of Wisconsin-Madison and University of Washington participated on a pilot basis—student survey only
- Funded by Alfred P. Sloan Foundation and The Engineering Information Foundation



PACE Survey Content

- **Academic experiences**
 - Satisfaction with teaching
 - Satisfaction with professors
 - Satisfaction with TAs
 - Satisfaction with resources
- **Interpersonal experiences**
 - Interactions among students
 - Participation in student organizations
 - Experiences based solely on gender or race/ethnicity
- **Intrapersonal experiences**
 - Confidence
 - Career goals
- **Perceptions of Engineering**
- **Experiences of Transfer Students**



Response Rates

- Overall response rate: 36.3%
 - Women over-represented
 - Most non-white racial/ethnic groups under-represented
 - Freshmen over-represented/Seniors and super-seniors over-represented
- N=1,082

Table 1. Characteristics of PACE Sample, UW-Madison

	<u>PACE Respondents</u>	<u>All CoE Students</u>
Gender		
Female	24.4%	17.5%
Male	75.6%	82.5%
Race/Ethnicity		
African American/Black	1.3%	1.8%
American Indian/Alaska Native/Native	1.1%	0.7%
Hawaiian/Pacific Islander		
Asian American/Asian	3.8%	6.3%
Hispanic/Latino	1.6%	2.4%
White/Caucasian	75.5%	78.5%
Other/Unknown	11.9%	3.2%
International Student	4.8%	7.2%
<i>Targeted Minority</i>	<i>4.8%</i>	<i>6.4%</i>
Rank		
Freshman	23.3%	10.4%
Sophomore	22.9%	21.9%
Junior	21.3%	24.8%
Senior+	32.4%	41.0%
Mean GPA	2.83	3.11
High GPA*	37.0%	27.5%
Transfer Student	10.9%	11.3%
Student Works	58.5%	Unknown
Financial Need	14.9%	Unknown
CoE Student Organization	40.2%	Unknown

* A High GPA is defined as 3.5 or higher.



Analysis

- Analysis variables:
 - Gender, Race/Ethnicity, Class Year, GPA, Transfer Status, Financial Need/Student Works, CoE Student Organization Membership
- Within-CoE comparisons
 - T-tests, differences between means
 - $p < .05$ for significance
 - Open-ended responses to highlight significant findings
- CoE vs. peer institutions
 - Purdue University, University of Michigan, Pennsylvania State University
 - Response rates are 33%, 35%, and 23%
 - Only means reported. Differences between peers and UW-Madison are considered “significant” if a ± 0.2 difference in means was reported for at least two of the schools (in the same direction)

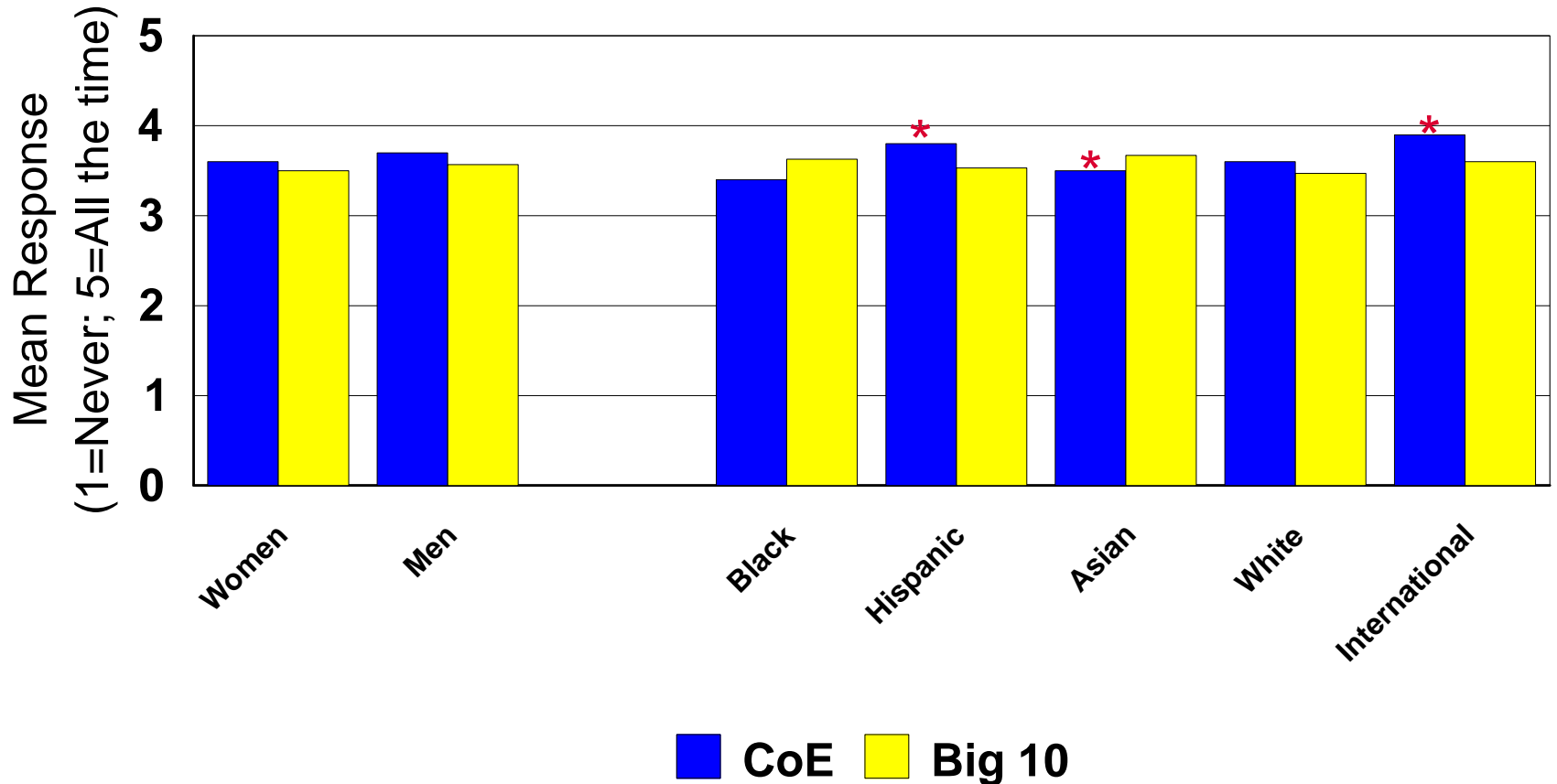
Three Major Findings



(Non-)Finding #1

- Women students in CoE do not feel marginalized in lab groups
 - Asian students do, however

How often is lab work divided equally among lab group?



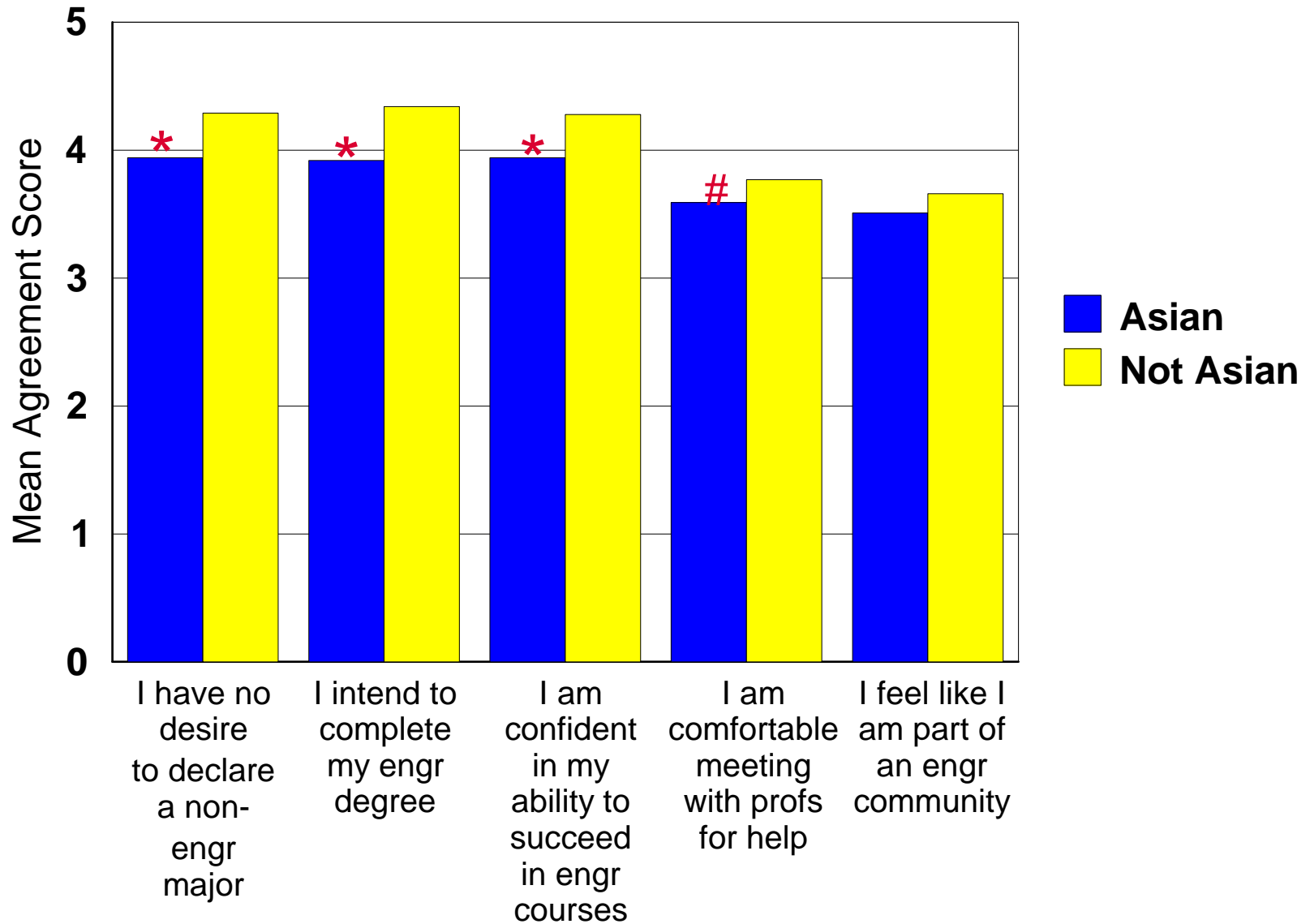
* CoE significantly different from Big-10 peers (see text)



Finding #2

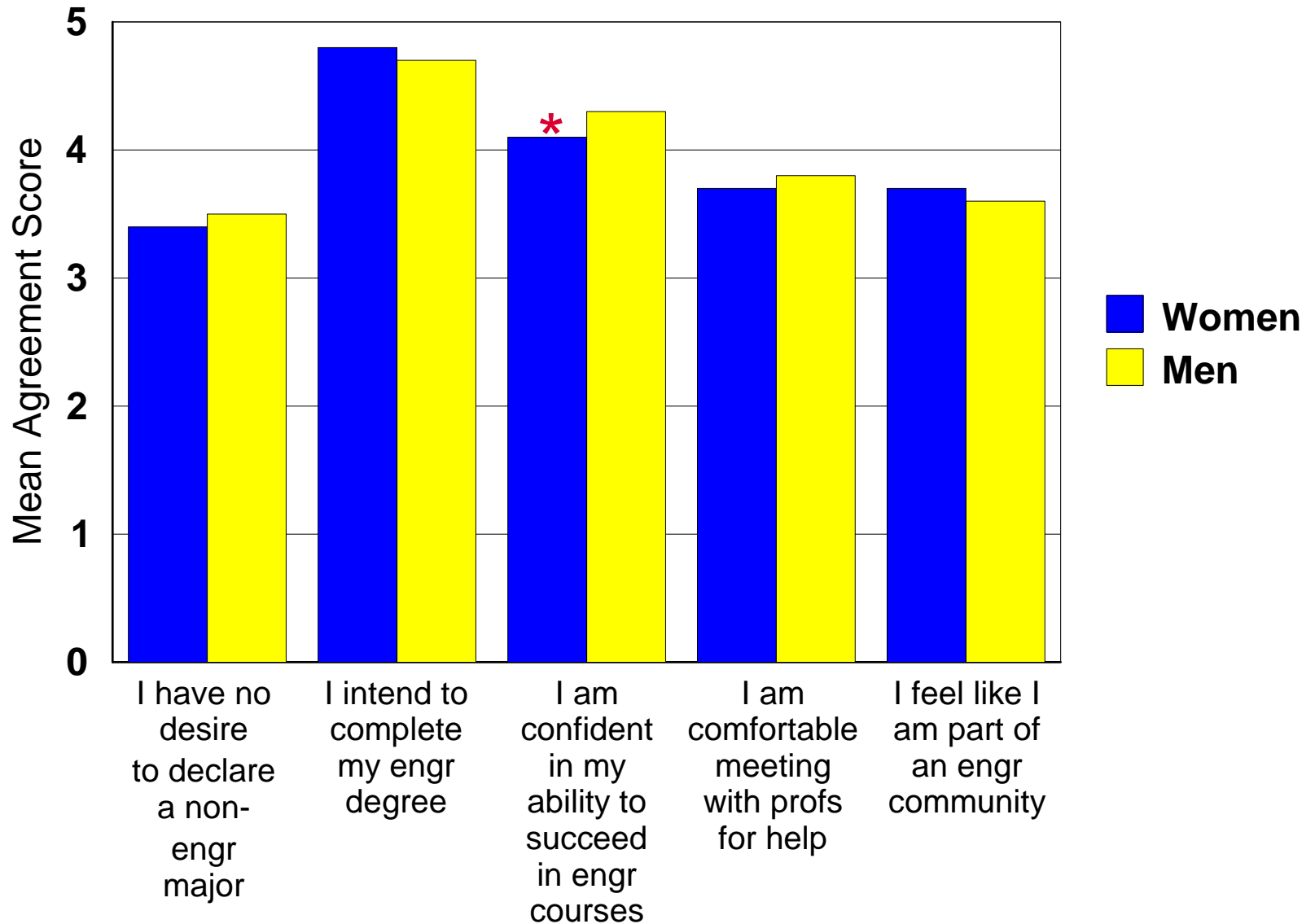
- Asian students (all ethnicities) have consistently lower satisfaction with their CoE experiences

Satisfaction of Asian Students in the CoE: Selected PACE Items



* Significant difference $p < .05$; # marginal significance $p < .10$.

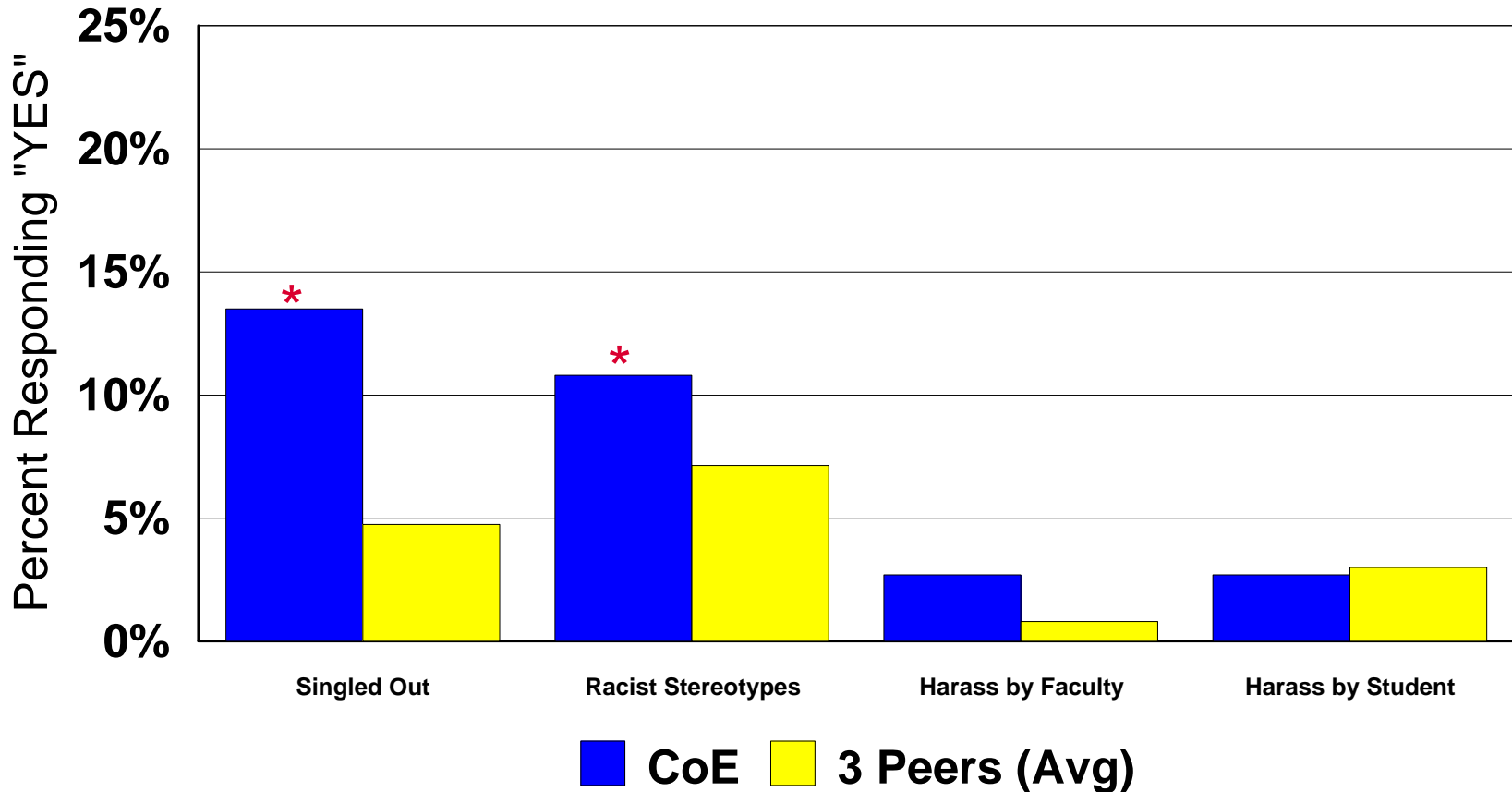
Satisfaction of Women Students in the CoE: Selected PACE Items



* Significant difference $p < .05$.

Singled Out Due To Race/Ethnicity

Asian students only



* CoE significantly different from Big-10 peers (see text)

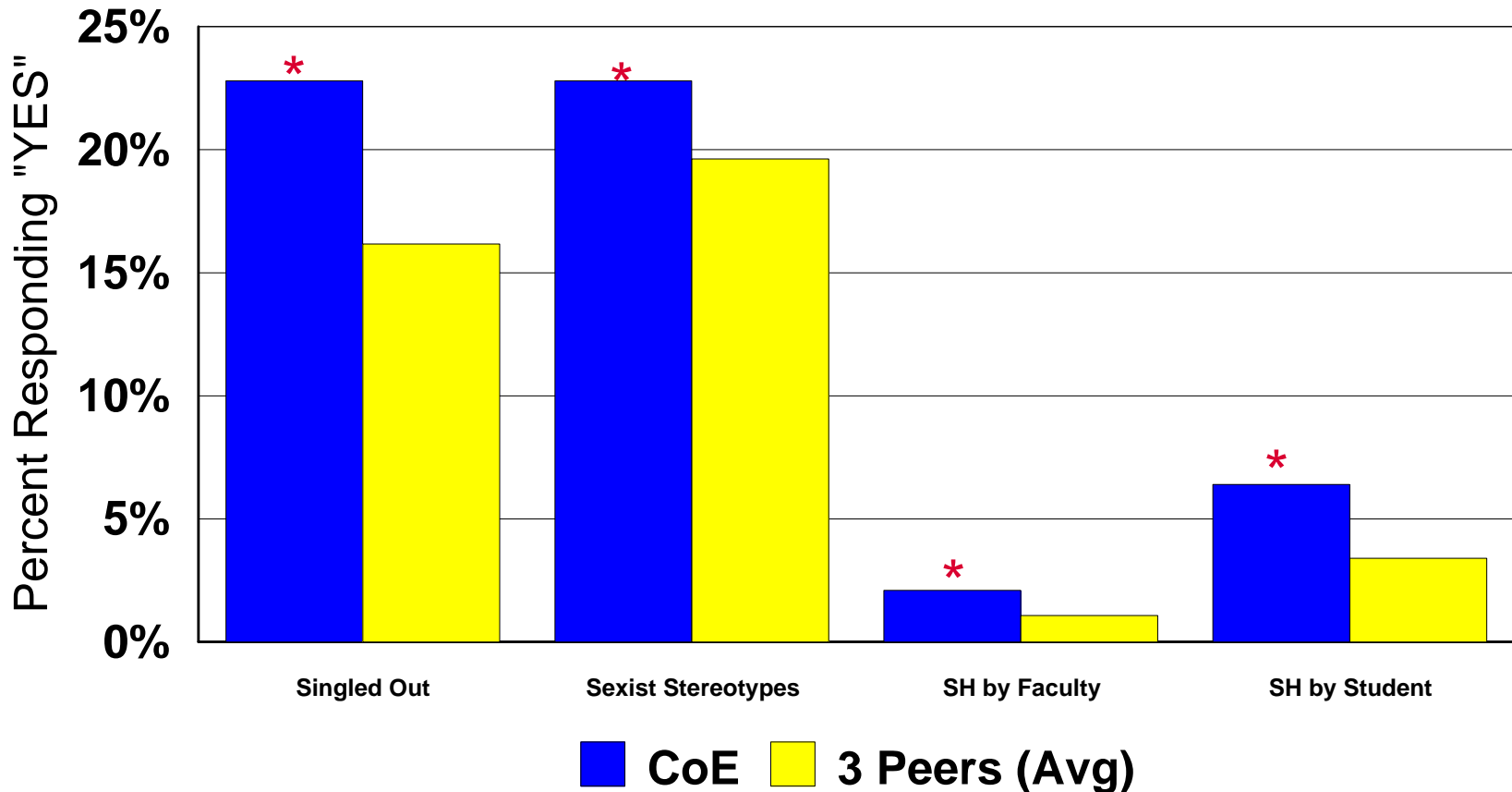


Finding #3

- Women CoE students report very high levels of experiencing differential treatment based on gender compared to women in Big-10 peer schools

Singled Out Due To Gender

Women respondents only



* CoE significantly different from Big-10 peers (see text)

NOTE: SH=sexually harassed



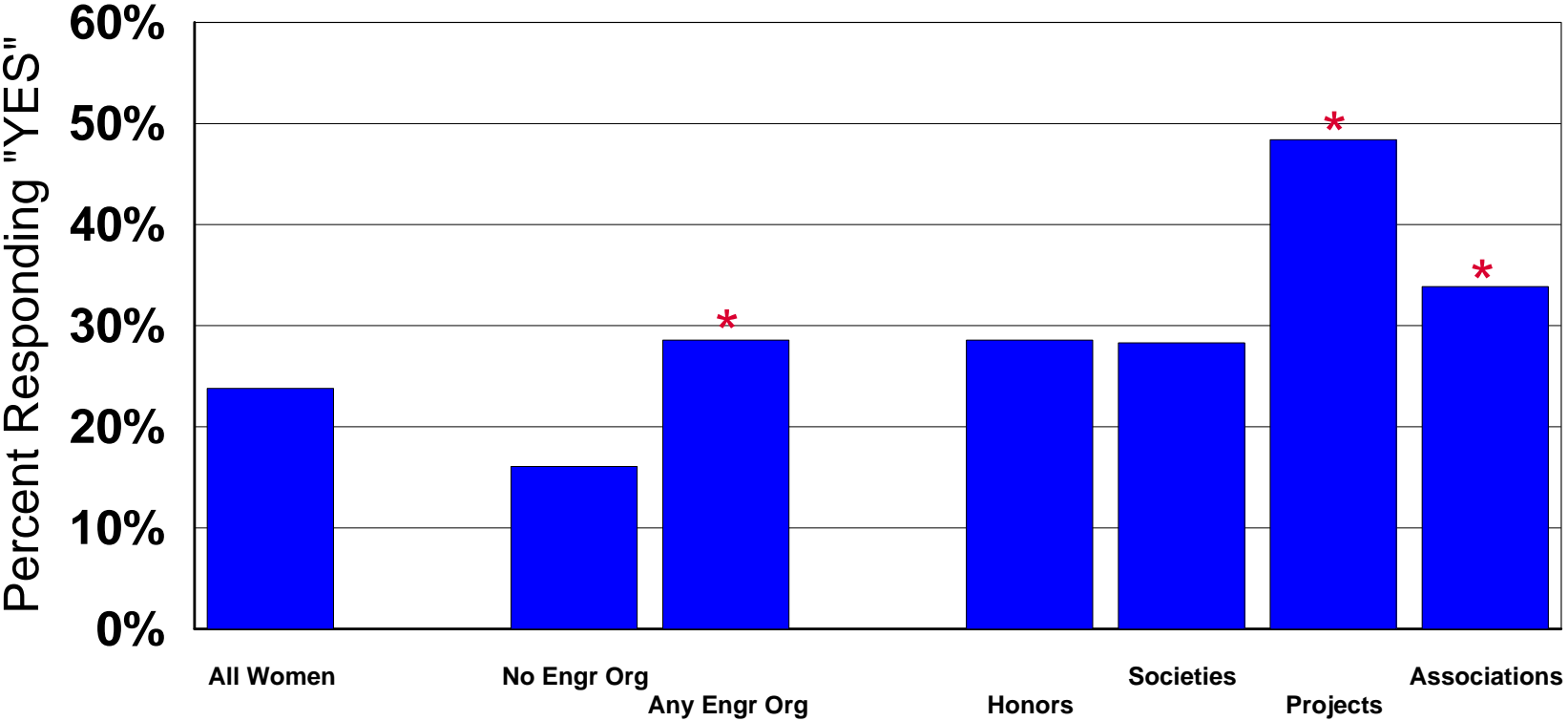
Finding #3:

- Even the men notice:

*“I think it’s very commonplace for Engineering students to joke about women, and how few of them there are in Engineering. The jokes seem harmless to us (men), but I’m sure their [sic] not to those few women actually in the field.”
(RID=243)*

Singled Out Unfairly Due To Gender

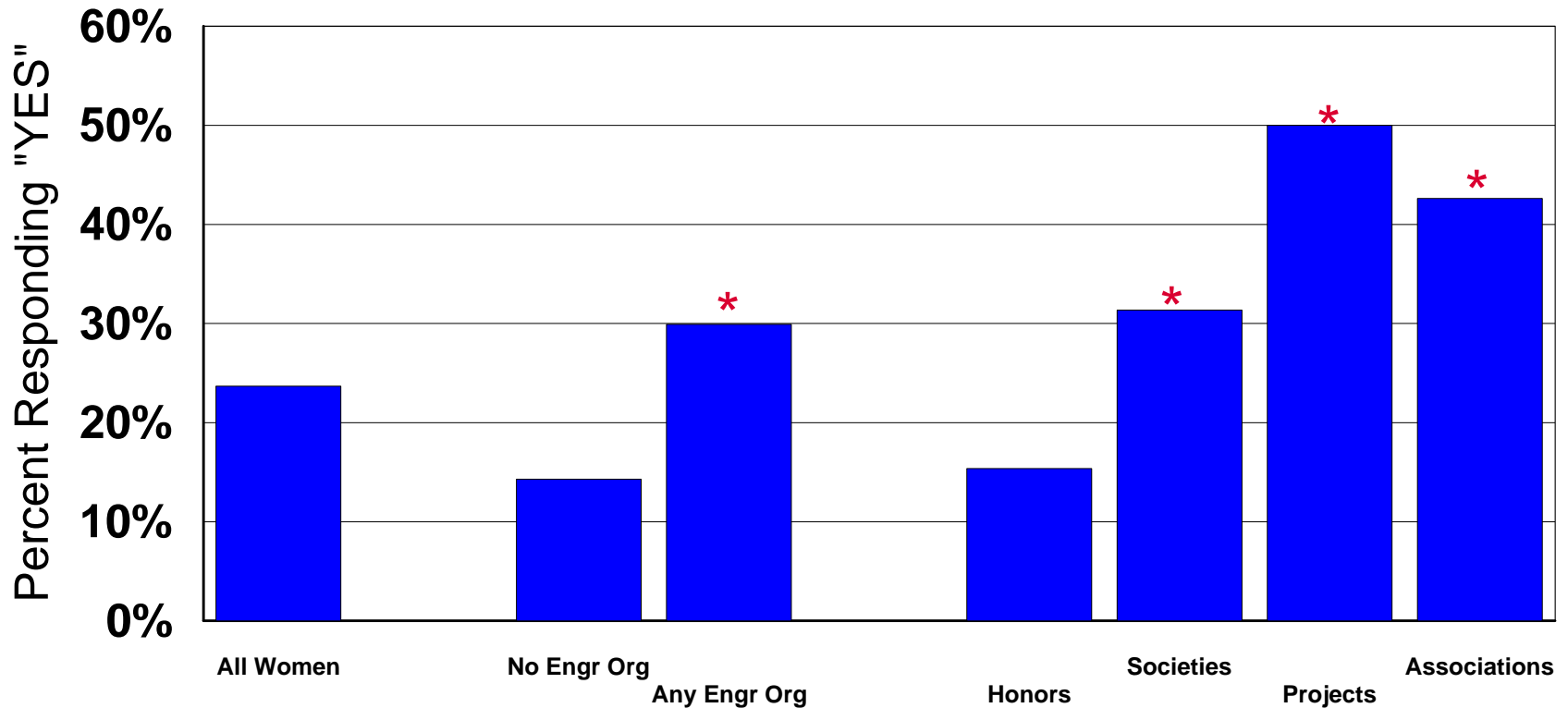
Women respondents only



* Significant difference $p < .05$

Faculty Express Stereotypes About Men and Women

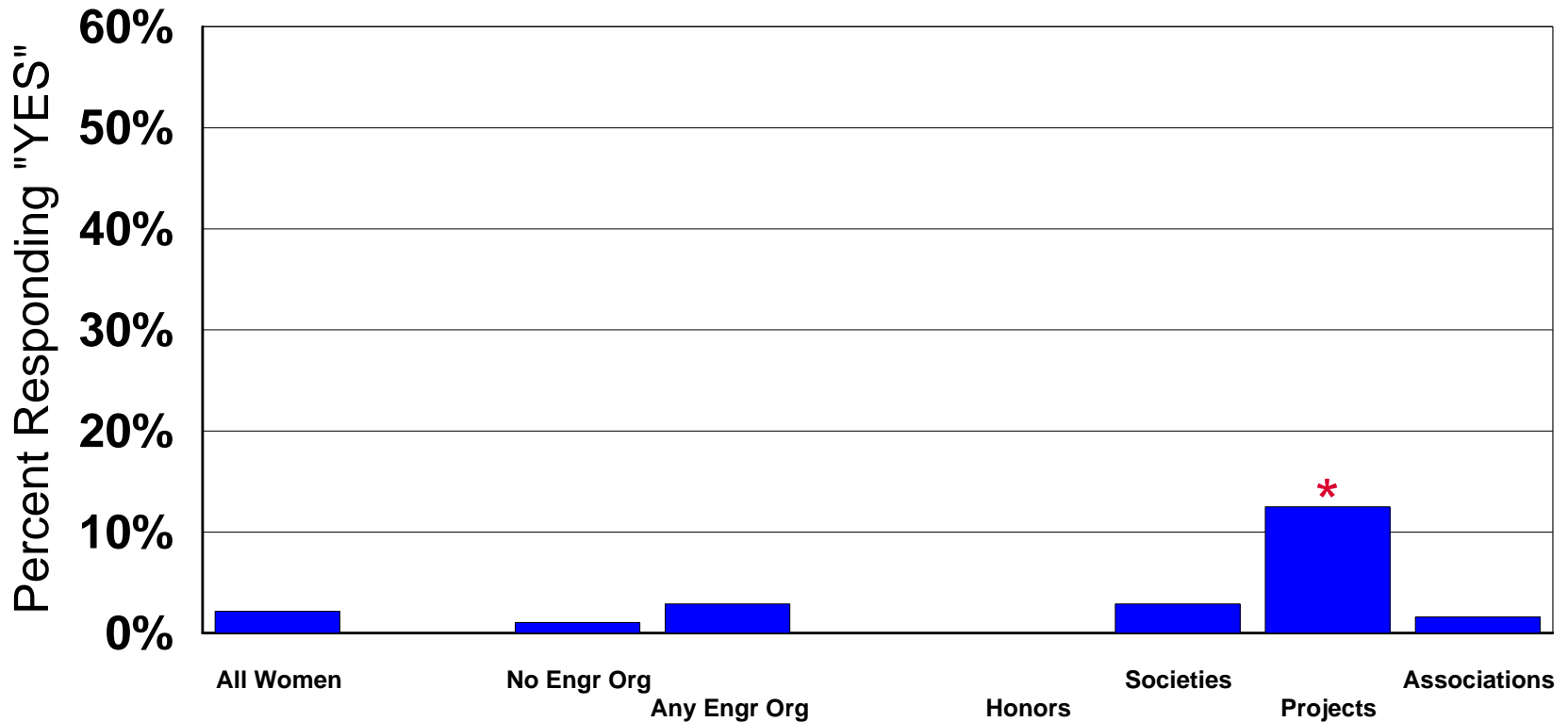
Women respondents only



* Significant difference $p < .05$

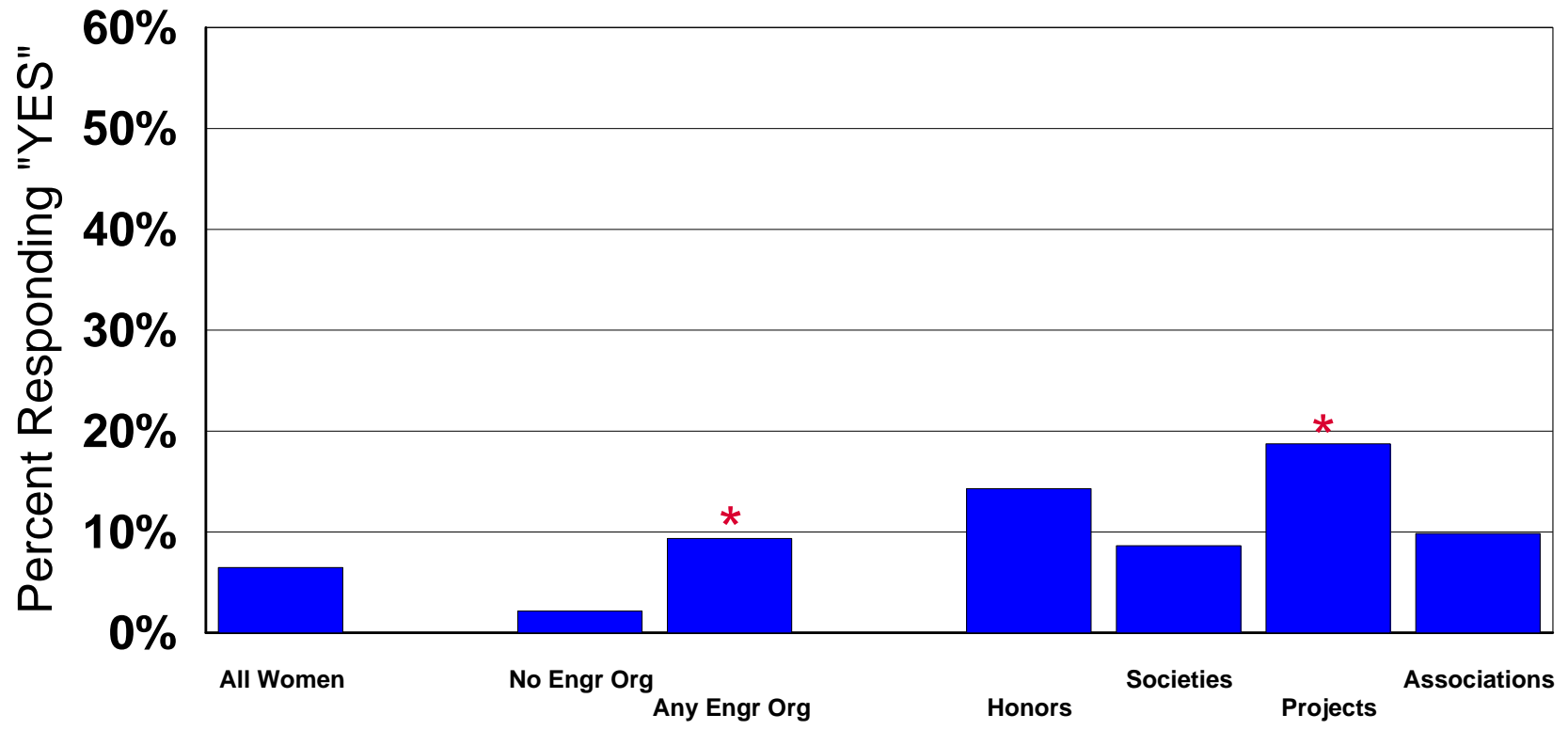
Sexually Harassed by a Faculty Member

Women respondents only



* Significant difference $p < .05$

Sexually Harassed by a Student Women respondents only



* Significant difference $p < .05$



Recommended actions

- Some sort of harassment training for student leaders of Engineering student groups
- More faculty oversight of activities within student orgs
- Education of faculty, staff regarding singling out of Asian students (“model minority”?)
- More inclusion of Asian students within the Engineering community—student groups, representation in Diversity Affairs Office, etc.?



W I S E L I

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