

Being a Mentor and Being Mentored

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What is mentoring?

Think of a good mentoring experience you have had and identify the salient features.

What is mentoring?

Using one's own experience to guide another person through an experience that requires personal and intellectual growth

Roles of Mentors

- Mentors serve a critical role in recruiting and retaining students in the sciences
- You need mentoring every step of the way through your career
- You will serve as a mentor
 - To other members of your lab
 - To members of other people's research groups
 - To your advisor
- In any job you attain in science, mentoring will define your success and the human legacy you leave behind

Case Studies

- For each case,
 - Summarize
 - Identify the mentoring issues
 - How might each person have behaved differently to achieve a different outcome?

Case Study #1

A graduate student mentor was frustrated because her undergraduate student was not running successful experiments. While the undergraduate had great enthusiasm for the project, each experiment failed because of some sloppy error—forgetting to pH the gel buffer, forgetting to add a reagent to a reaction, or forgetting to turn down the voltage on a gel box. After a month of discussions, and careful attempts to teach the student habits that would compensate for his forgetfulness, the mentor was ready to give up. She spoke with her advisor and asked for advice, hoping that she could fix the problem and start getting useful data from her undergraduate. The adviser offered to work with the undergraduate mentee. When the undergraduate walked into his office, the faculty member said, “I hear you’re a slob in the lab. You gotta clean up your act if we’re going to get any data out of you.” Seeing the crushed and humiliated look on the undergraduate’s face, he quickly added, “I’m a slob too—that’s why I’m in here pushing papers around and not in the lab doing the hard stuff like you guys!”

Case Study #2

Last summer I worked with a fantastic undergraduate mentee. She was very intelligent and generated a fair amount of data directly relevant to my thesis project. I think that she had a positive summer research experience, but there are a few questions that still linger in my mind. This particular mentee was an African-American woman from a small town. I always wondered how she felt on a big urban campus. I also wondered how she felt about being the only African-American woman in our lab. In fact, she was the only African-American woman in our entire department that summer. I wanted to ask her how she felt, but I worried that it might be insensitive or politically incorrect to do so. I never asked. I still wonder how she felt and how those feelings may have affected her experience.

Case Study #3

Yale Daily News recently reported that a Professor of Near Eastern Languages and Civilizations was suspended for one year. The Professor engaged in an affair with a student who was first his undergraduate, then graduate student, and was then hired as an Assistant Professor in his department (he chaired the search committee that hired her). Until his suspension, he served as Chair of the department and until last year, he was married (to someone else). The affair was well known in the department and created discomfort and tension for the many graduate students. A few years ago, a number of graduate students complained about the department climate, but were ostensibly told by a Dean that they would have to file a formal complaint, which would make their names public. The students chose to do nothing and, until this year, the University was silent on the subject.

Good mentoring requires thoughtful application of a few principles

1. Listen before you talk
2. Remember that your mentee is not you
3. Ask yourself questions:
 - What does my mentee need?
 - What does my mentee want me to do?
 - What is my mentee's state of mind?
 - What does my mentee want to accomplish?
 - What experience or resources do I have that might help?
 - Are my actions legal and consistent with my institution's policies?

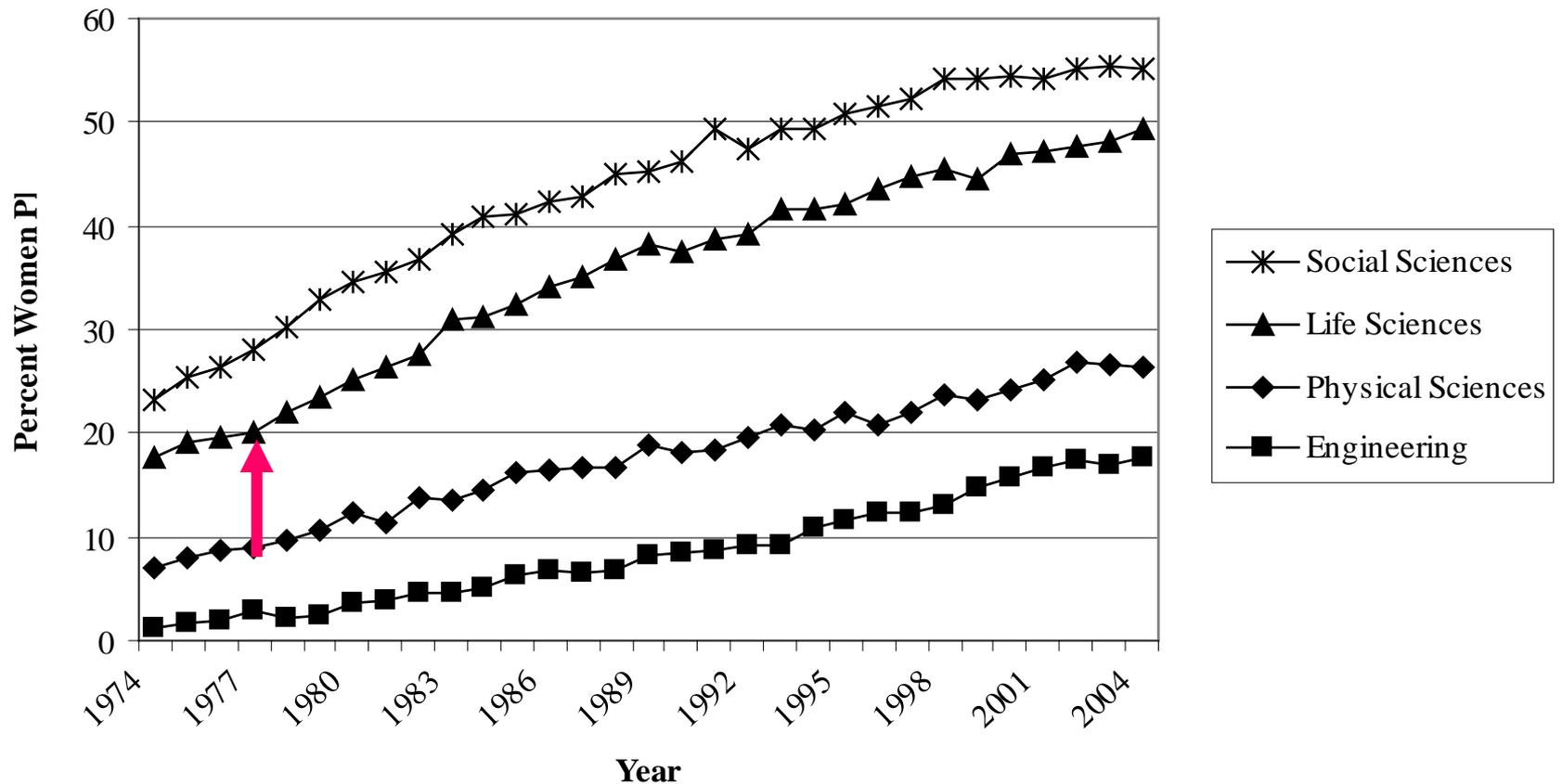
Complications in Mentoring

Is science a meritocracy?

(people and their work advance based on quality alone)

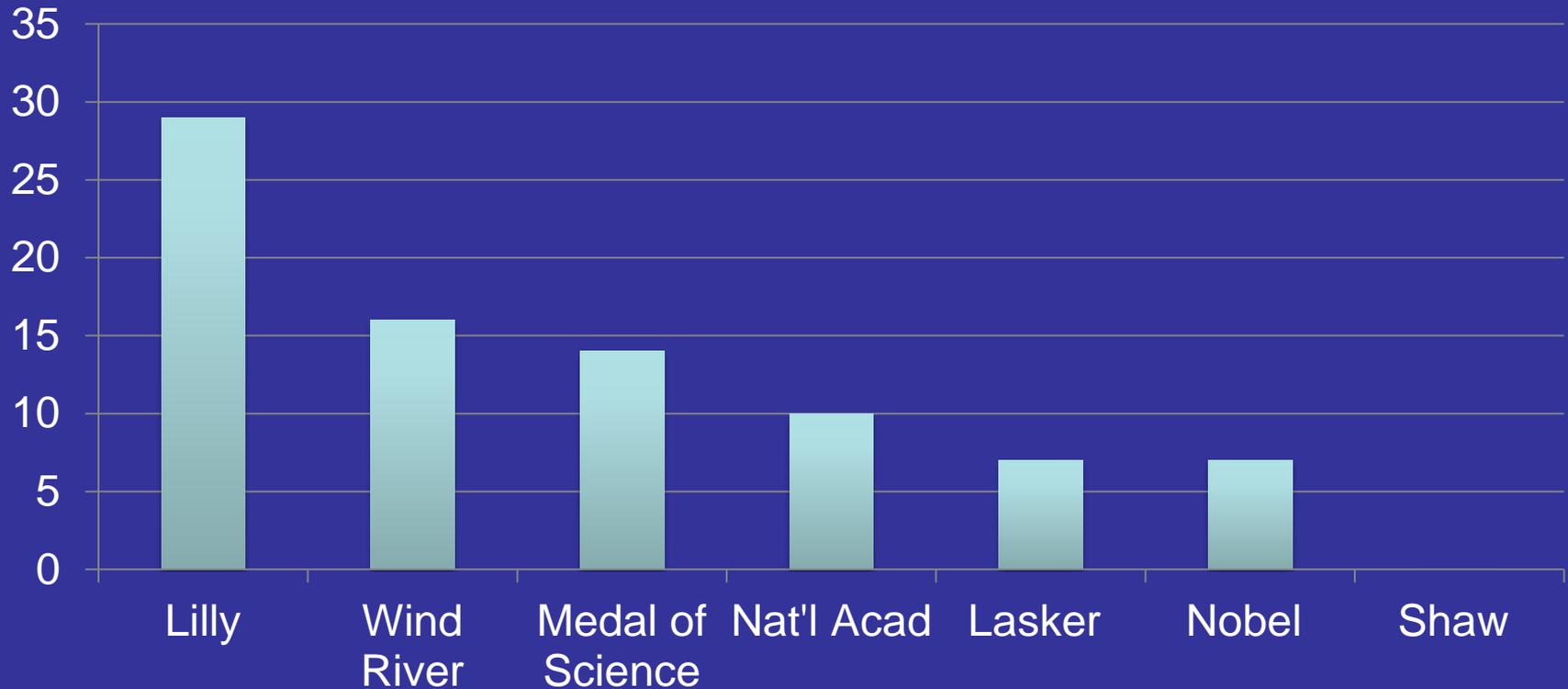
Is there bias toward some
groups in science?

More women are earning science and engineering doctorates



Is academic science a meritocracy?

**% of Awards to Women
(end of 2010)**



Swedish Postdoc Fellowship Study

- Noted that few women received postdoctoral fellowships from the Swedish government
- Obtained the “competence scores” – ratings candidates by panelists
- Analyzed as a function of “total impact” of publications (# pubs weighted by journal impact factor)

*Wenneras and Wold, 1997. Nature
387:341.*

Swedish Postdoc Fellowship Study

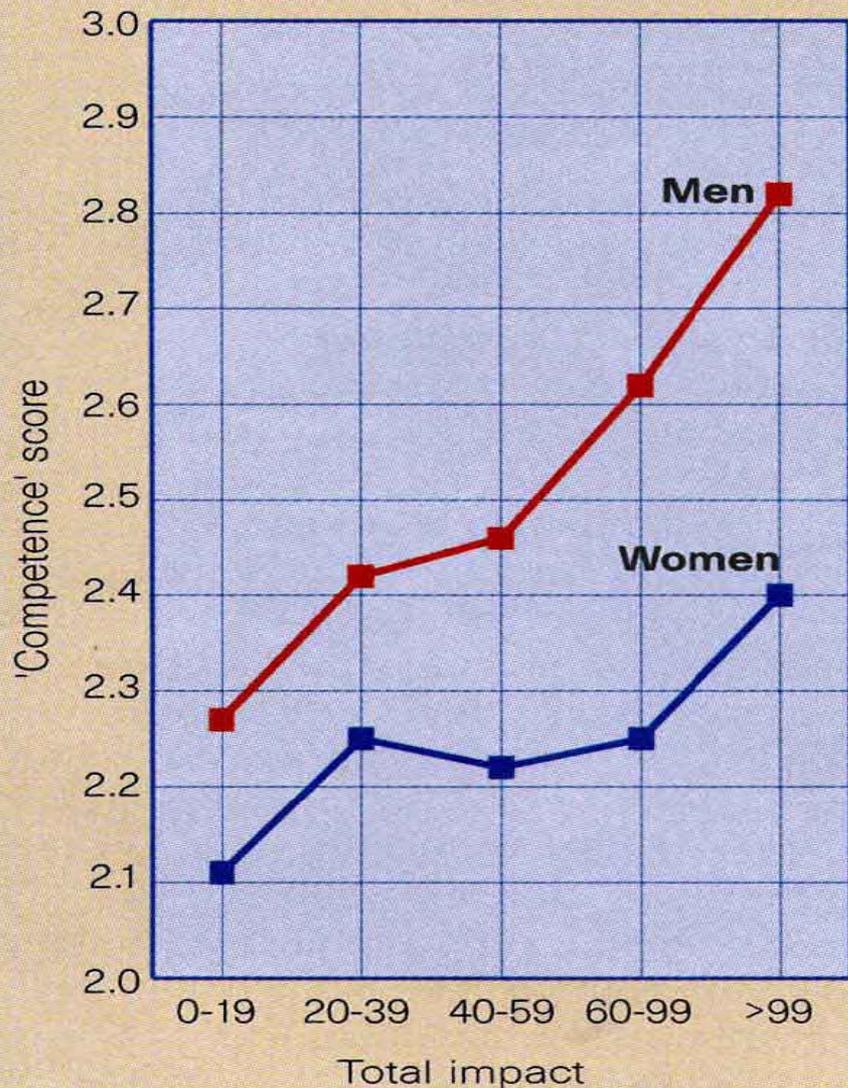
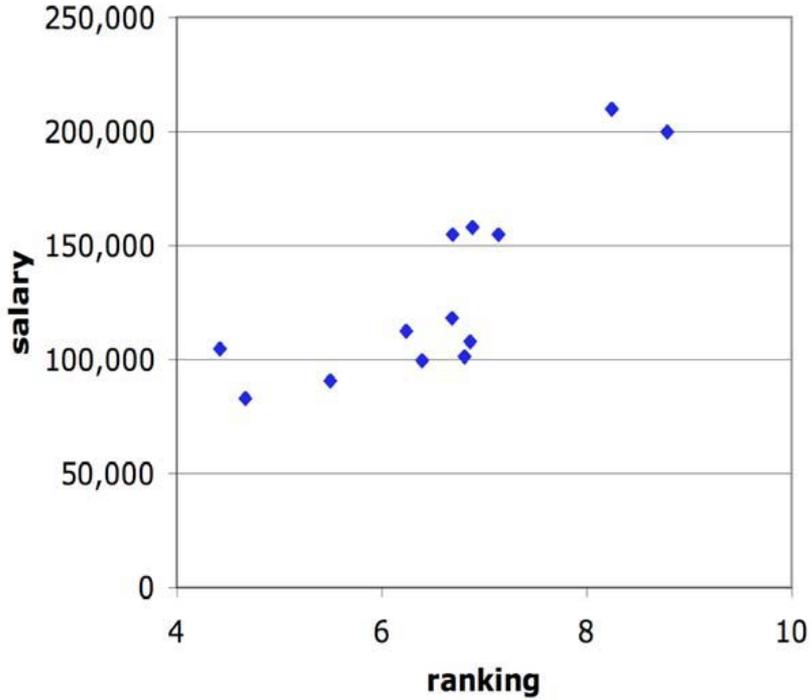


Figure 1 The mean competence score given to male (red squares) and female (blue squares) applicants by the MRC reviewers as a function of their scientific productivity, measured as total impact. One impact point equals one paper published in a journal with an impact factor of 1. (See text for further explanation.)

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05-06 salary VS ranking

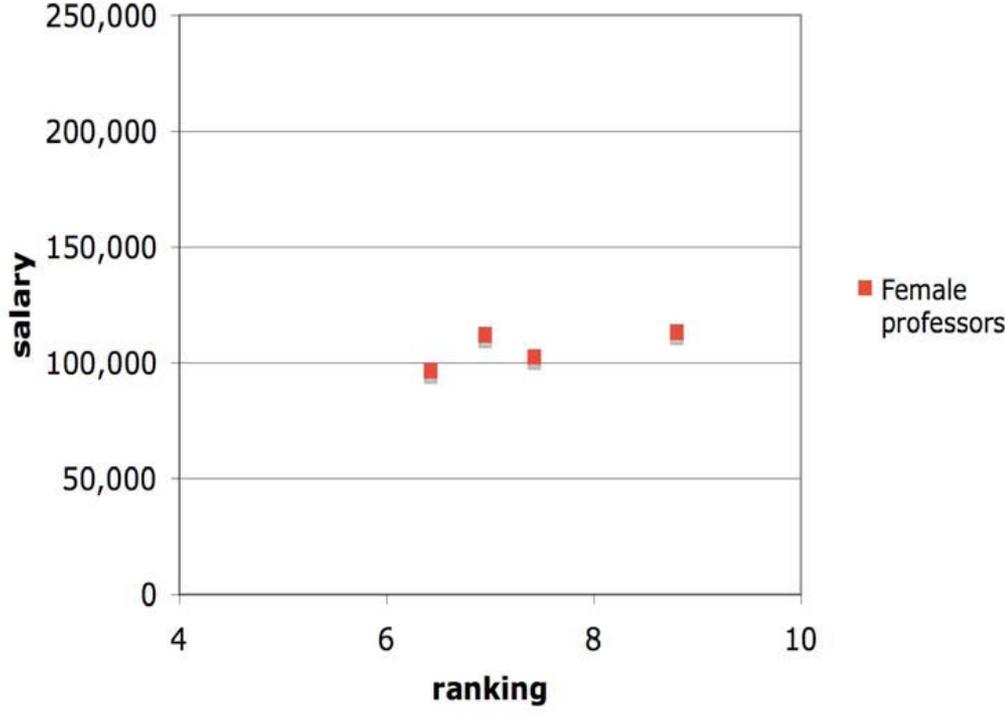


Male professors

A department at a major research university had outside evaluators rate each of its faculty members

University of X
Department of
Molecular Genetics
and Microbiology
2008

05-06 salary VS ranking



Female professors

Approaches to Study

- **Observations and correlations**
 - Clinical observations
 - Epidemiological studies
 - Not experimental, often tiny samples
- **Model systems (animal studies)**
 - Clean design -- randomized controlled
 - Typically undergraduate subjects
- **“Real life” studies**
 - Hard to achieve clean design, sufficient sample
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Research on Bias

- Reviewers rate candidate's verbal skills based on text
- Rated skills **lower** if they were told
 - an **African American** wrote the text than if a they were told a white person wrote it
 - a **man** wrote it than when told a woman wrote it

Hiring Studies

Randomized and controlled

Identical applications assigned male or female name – each evaluator sees only one version with either the male or female name on it

Evaluators review credentials of applicant and decide whether to hire or not

- Substantially more likely to hire a given applicant if there is a man's name on application
- **Same result over 40 years even though explicit or conscious bias has diminished**

A substantial body of evidence establishes that most people—men and women—hold implicit biases.

Decades of cognitive psychology research shows that....

- **most of us intend to be fair**
- **conscious bias has decreased over the last 30 years**
- **most of us carry unconscious prejudices that influence our evaluations of people and their work**
- **Unconscious bias has not diminished over the last 30 years**

Research on Bias

- In every study, significant effect of gender or race of person evaluated
- NO significant effect of gender or race of person doing the evaluation



Reactions to Evidence of Bias

Dismissal

- “Women and minorities are just too sensitive”
- “It’s not like that here, probably it’s like that (in Sweden; in the Midwest; at Harvard; at Yale; in the Economics Department.....)”
- “What’s the standard deviation in line 4 of Table 3 of the 1988 study?”



Our claim of objectivity

- “We’re scientists – we evaluate the data dispassionately
- “We only hire the best”
- “I know it when I see it”
- **“We’re trained to be objective, so the bias studies don’t apply to us”**



Are Scientists Like
Everyone Else?

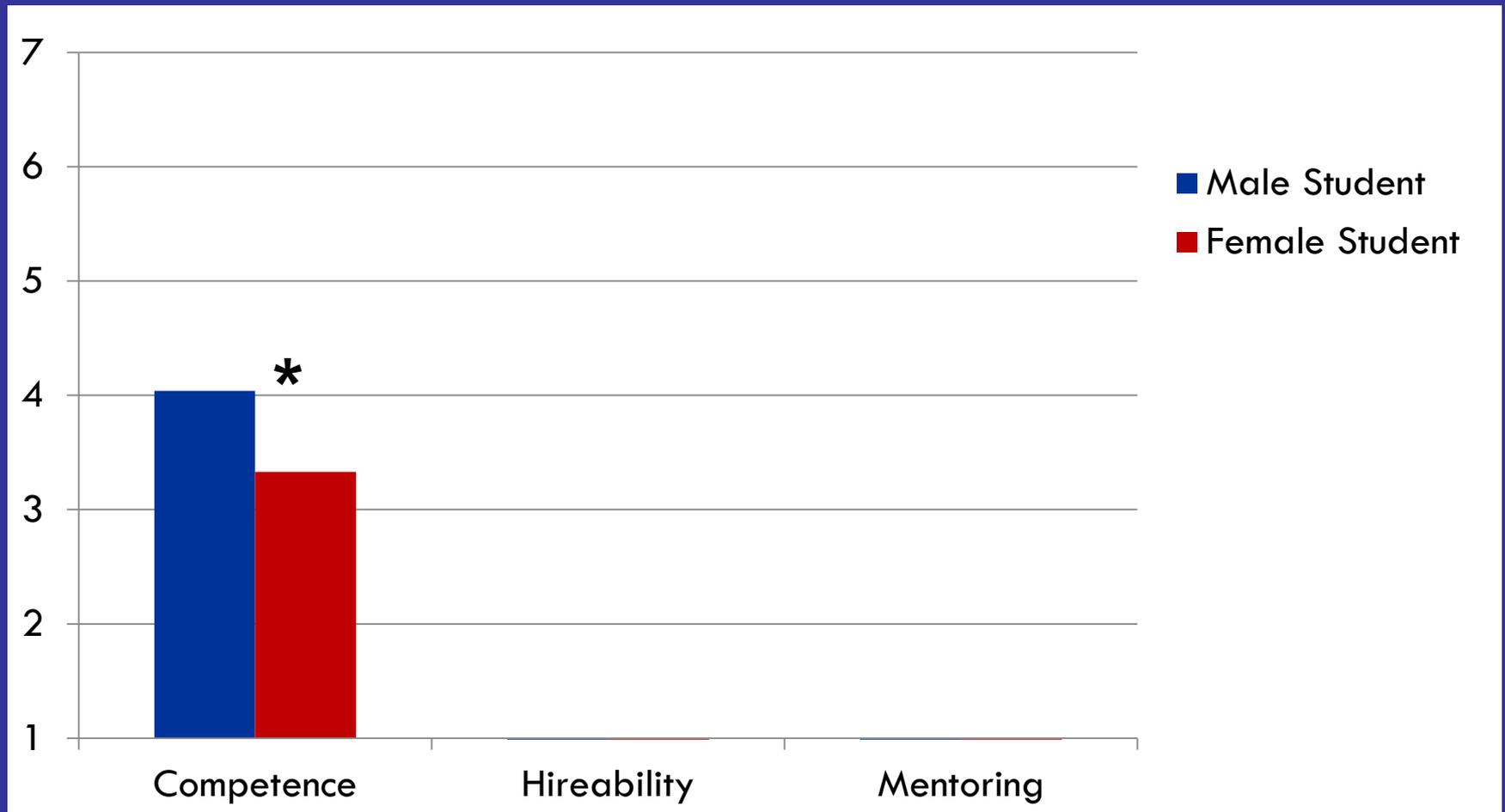
Our study of scientists

- 127 biologists, chemists, and physicists
- Six top research universities
- Sent participants a student description
- Randomly assigned name “Jennifer” or “John”
- Questions about student
 - Hire as lab manager?
 - Competent?
 - Provide mentoring?
 - Salary?

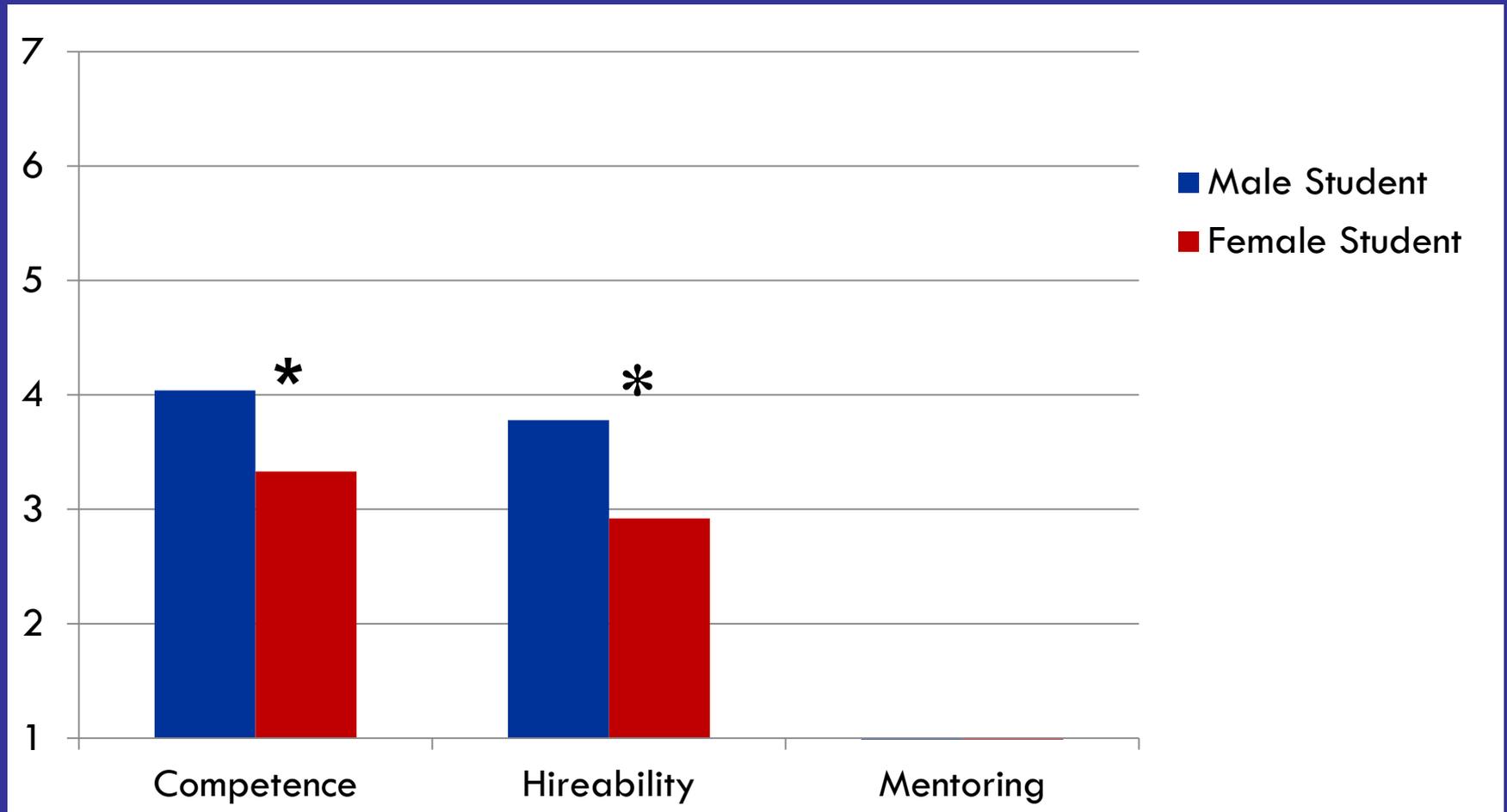
H1: Student Target Gender Differences



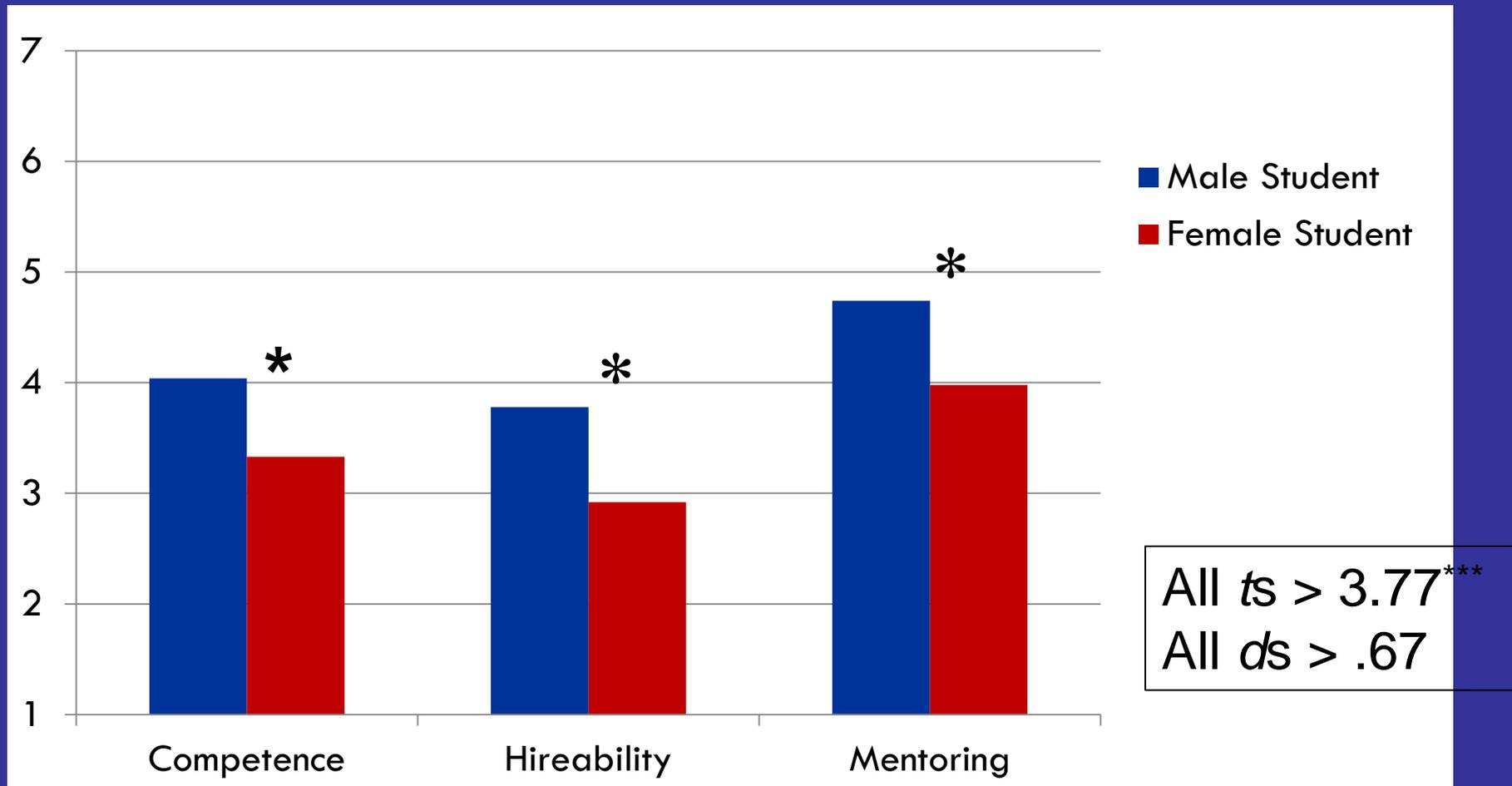
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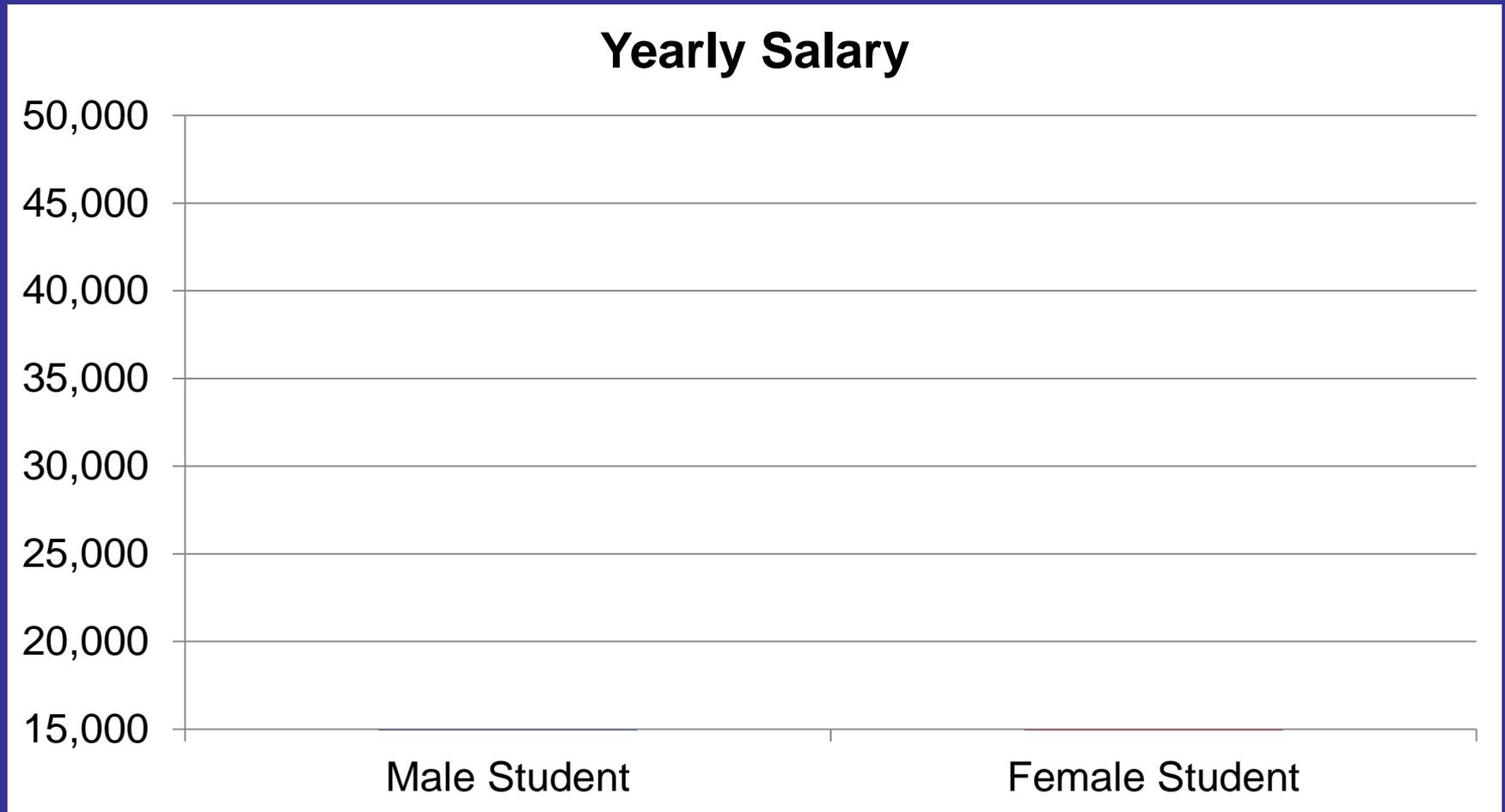
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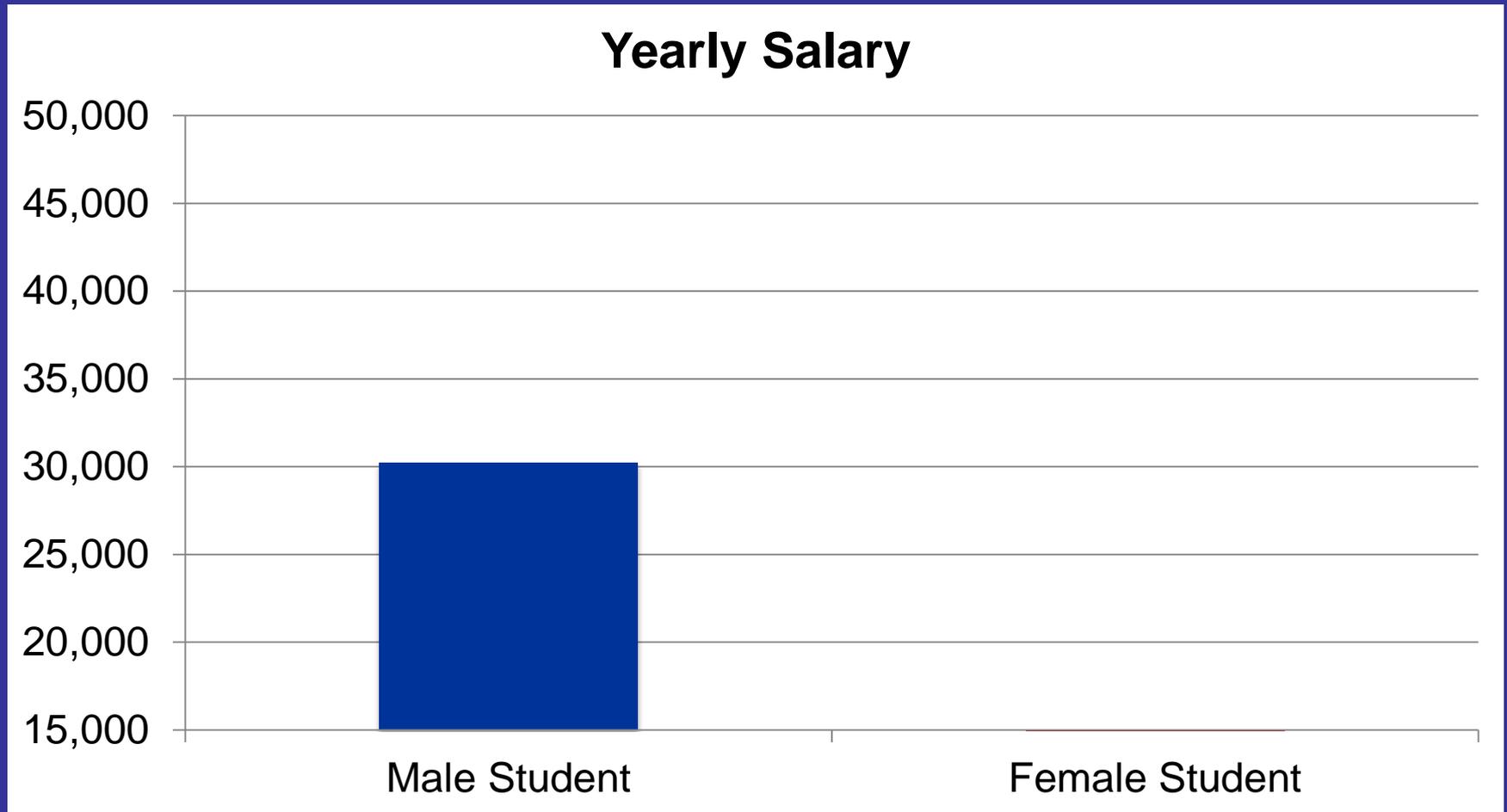
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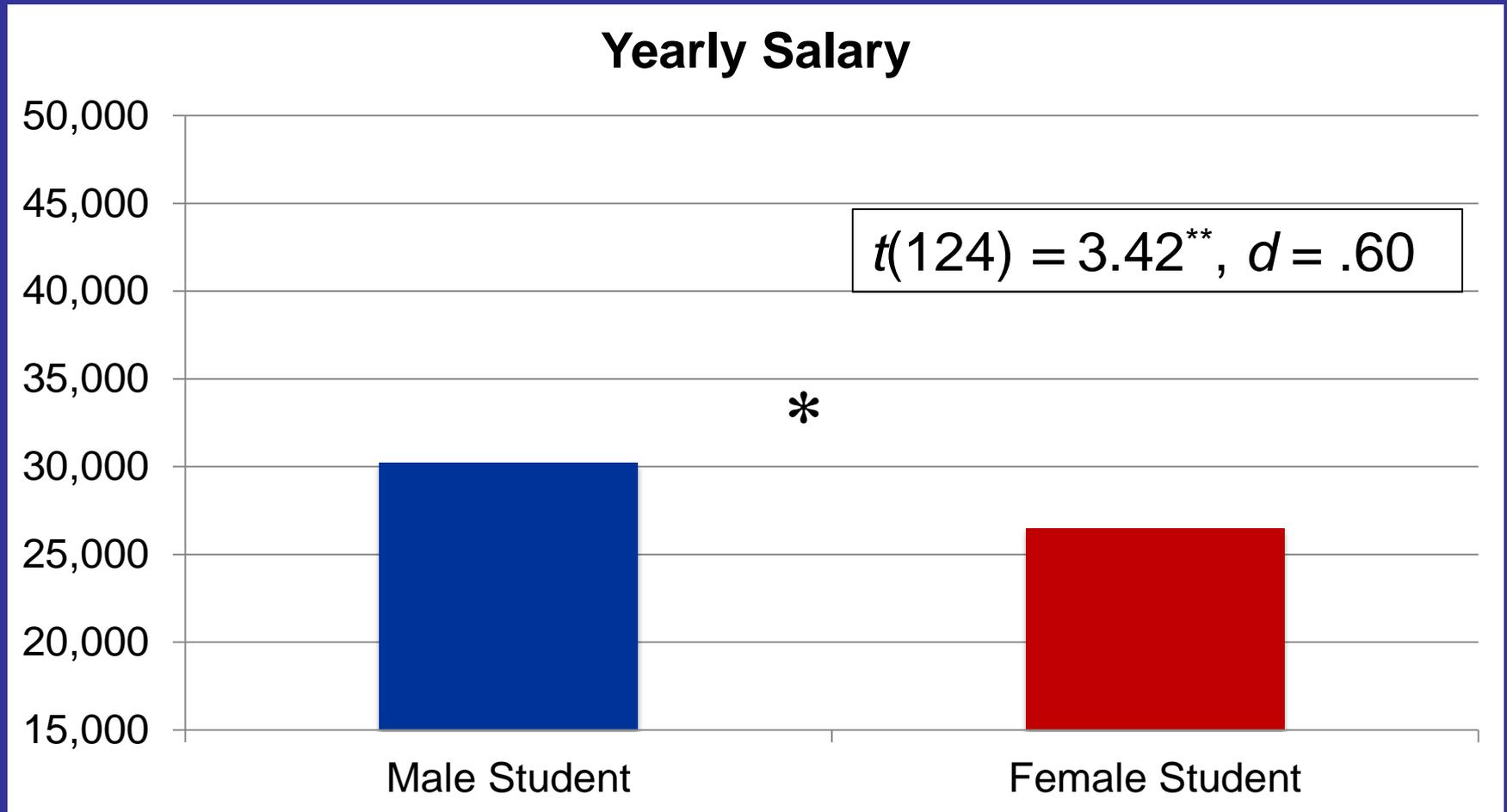
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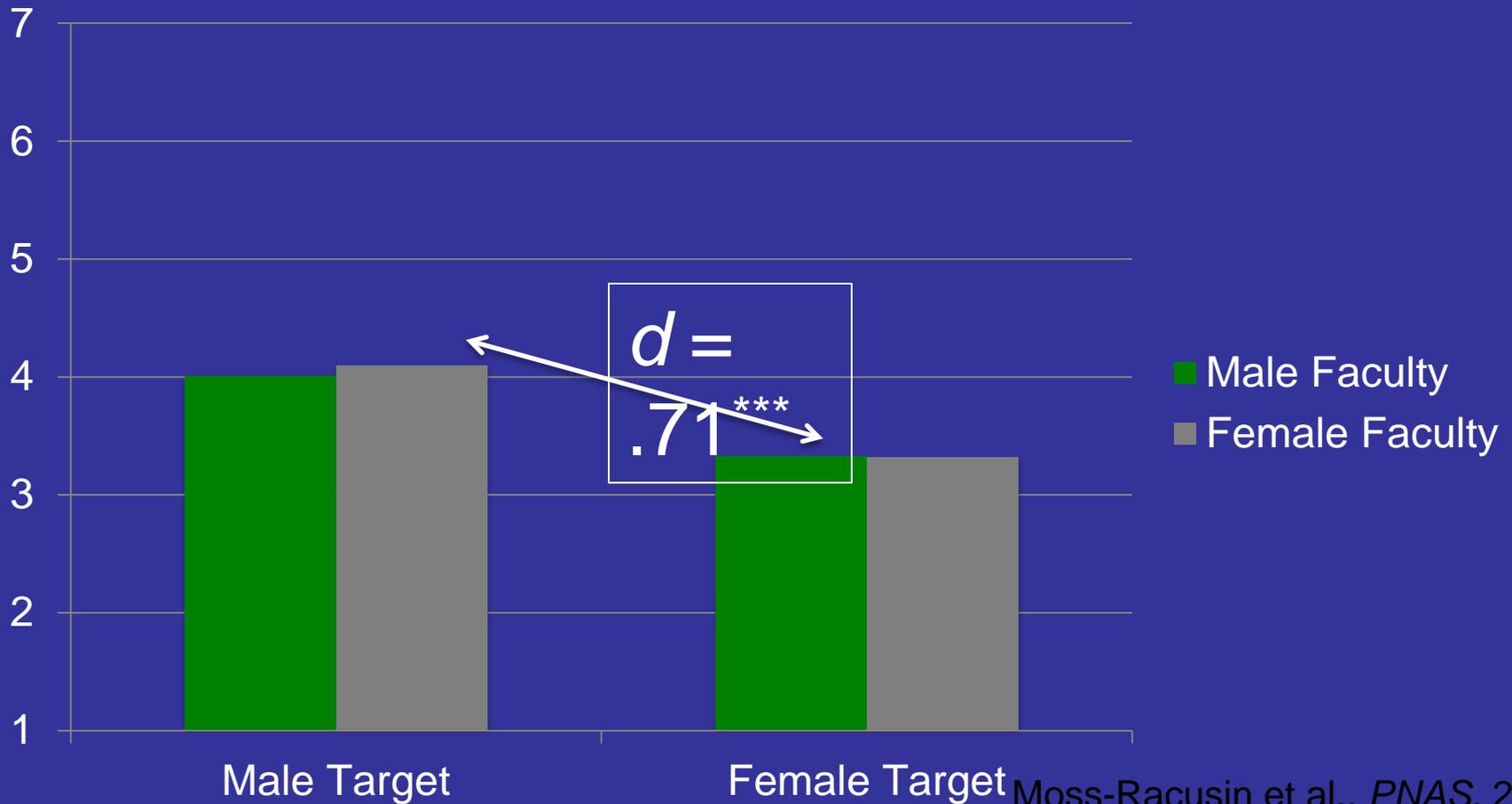


H1: Student Target Gender Differences



H2: No Evidence of Faculty Gender Differences

Competence



How might biases like these
enter into our mentoring of
others or how we are
mentored?

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 - What is my mentee's state of mind?
 - What does my mentee want to accomplish?
 - What experience or resources do I have that might help?
 - Are my actions legal and consistent with my institution's policies?
 - **Is bias influencing my response to my mentee?**
(how would I respond if the mentee were.....)

Thanks to...

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