

# **Wise Interventions: Increasing Belonging and Fostering Growth**

Greg Walton

Stanford University

<http://www.stanford.edu/~gwalton>





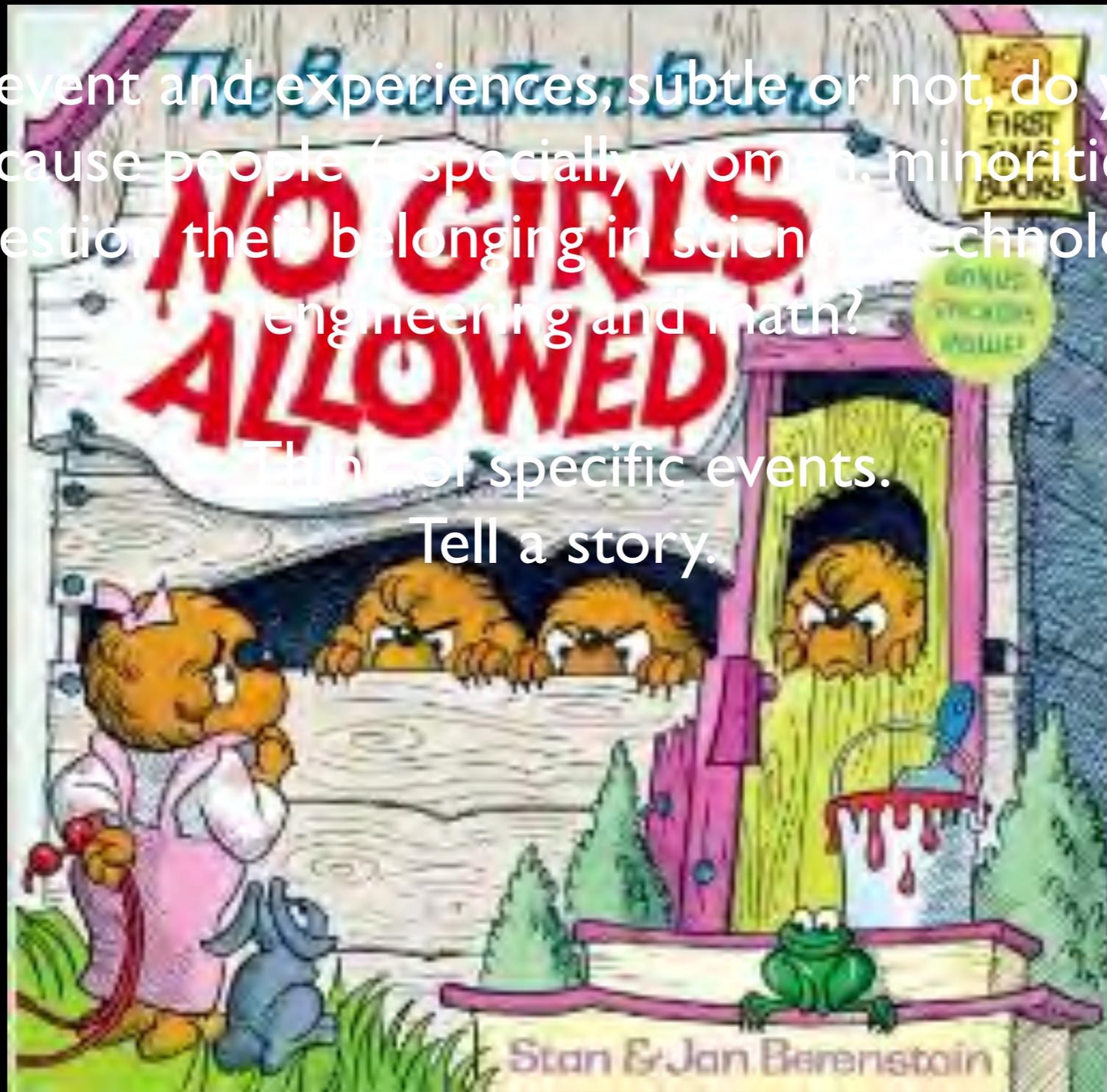
# Social Identity Threat

- When people enter settings in which they are negatively stereotyped, they wonder:
  - *Will people treat me with respect or view me as a stereotype?*
  - *If I perform poorly, will they think the stereotype is true?*
  - *Can I belong and succeed here?*
- A consequence: Vigilance in social perception

What event and experiences, subtle or not, do you see that cause people (especially women, minorities) to question their belonging in science, technology, engineering and math?

Think of specific events.

Tell a story.

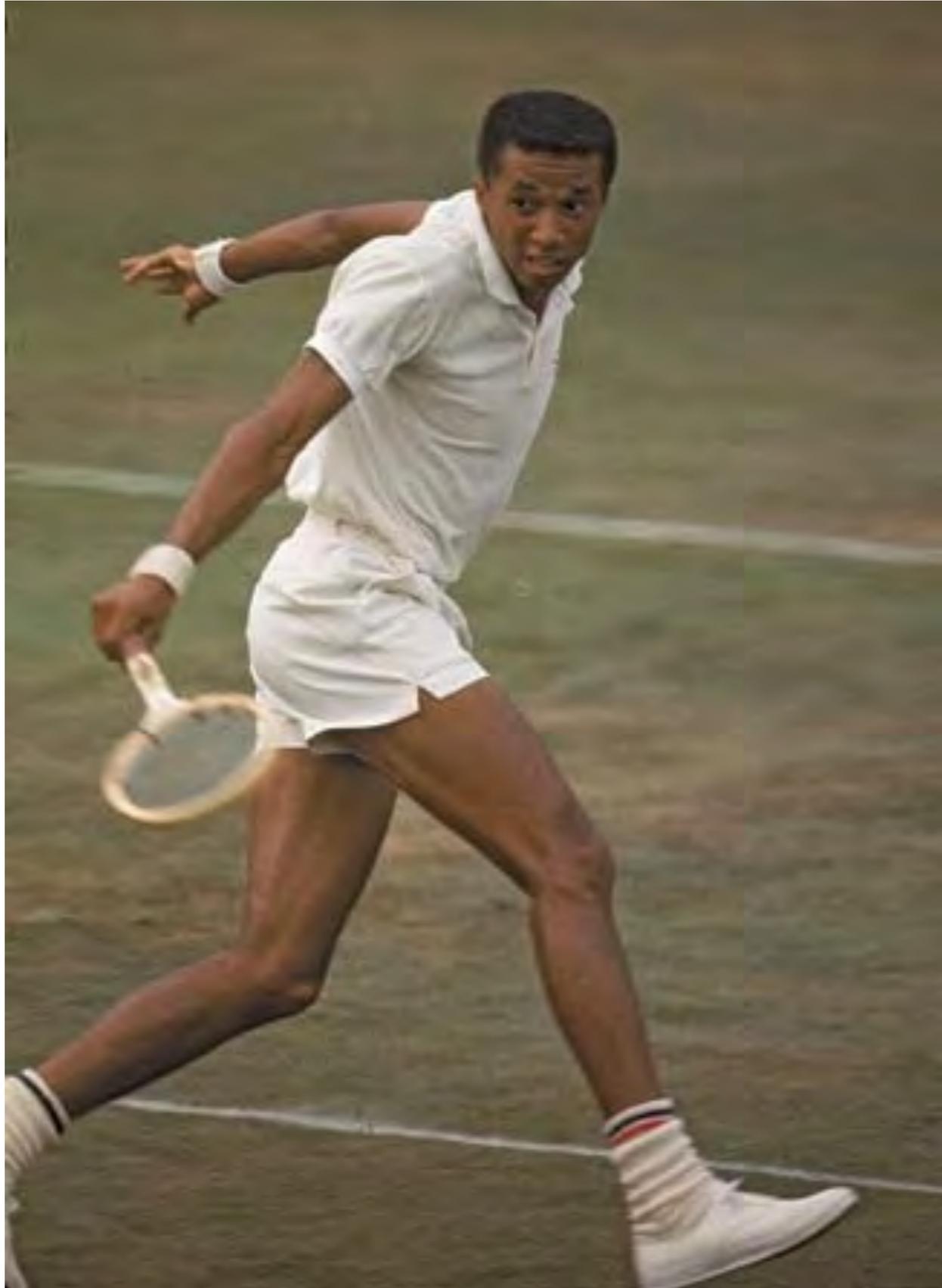


# Part I: Setting the Stage



# “I Count”





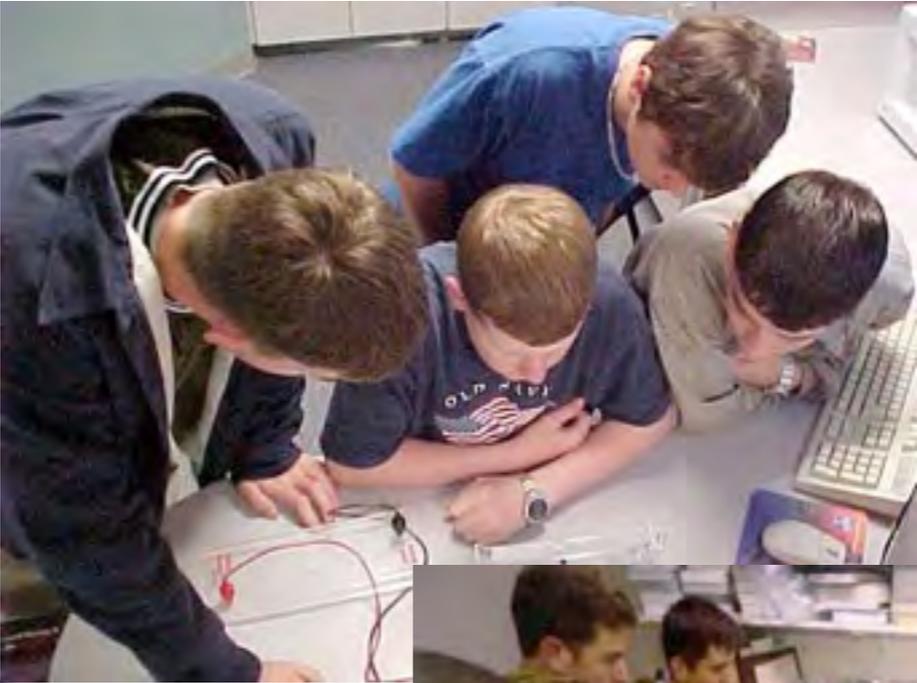
**“Like many other Blacks, when I find myself in a new public situation, I will count.”**

**-Arthur Ashe**

# Summer Conference Video



Mary Murphy  
Indiana



*It made an enormous difference [for me when Justice Ginsburg joined the Court]. When I'd arrived there had been a large amount of media attention to the selection of a woman and then to see what that woman did, under all circumstances... And the minute Justice Ginsberg came to the court, we were nine justices. It wasn't seven and then "the women." We became nine. And it was a great relief to me.*

**Justice O'Connor (2003)**



**Justice Sandra Day O'Connor**

**What's on the Wall?**

# What's on the Wall?



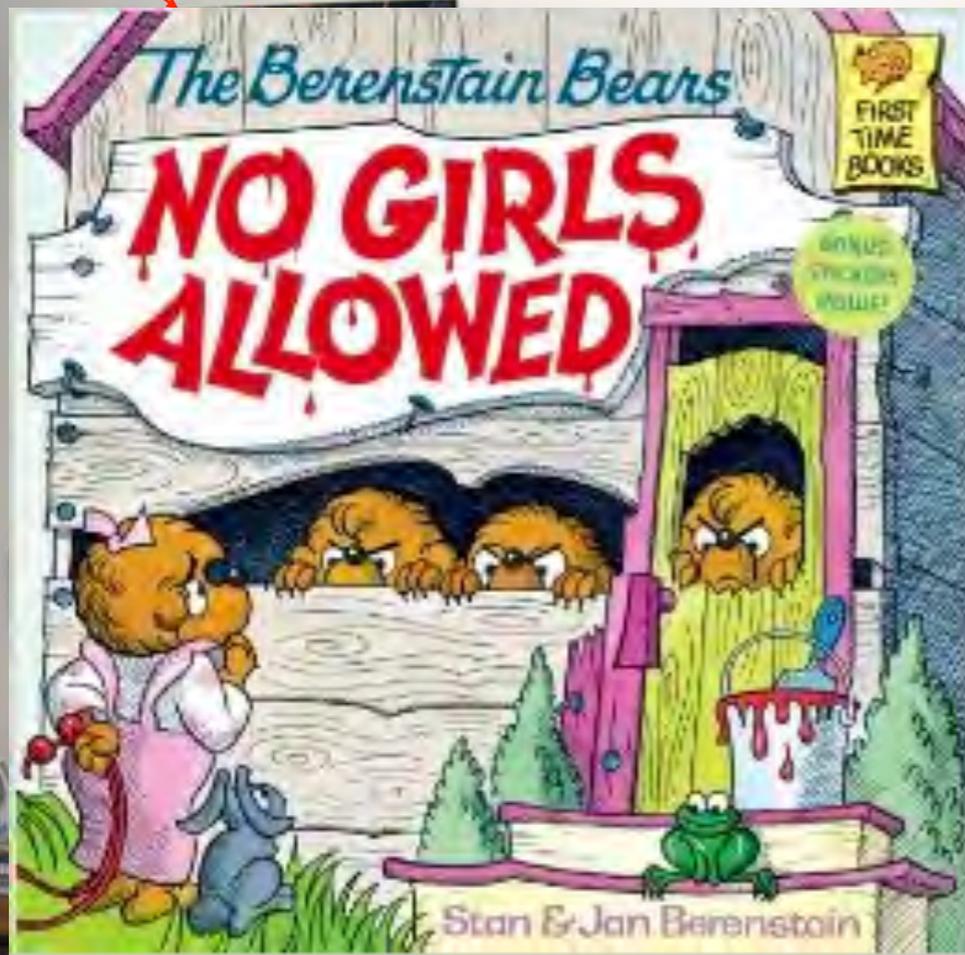
Sapna Cheryan  
U-Washington

## Stereotypical Room

Star Trek poster

## Non-Stereotypical Room

Nature poster



Sci Fi books

Coke cans



Neutral books

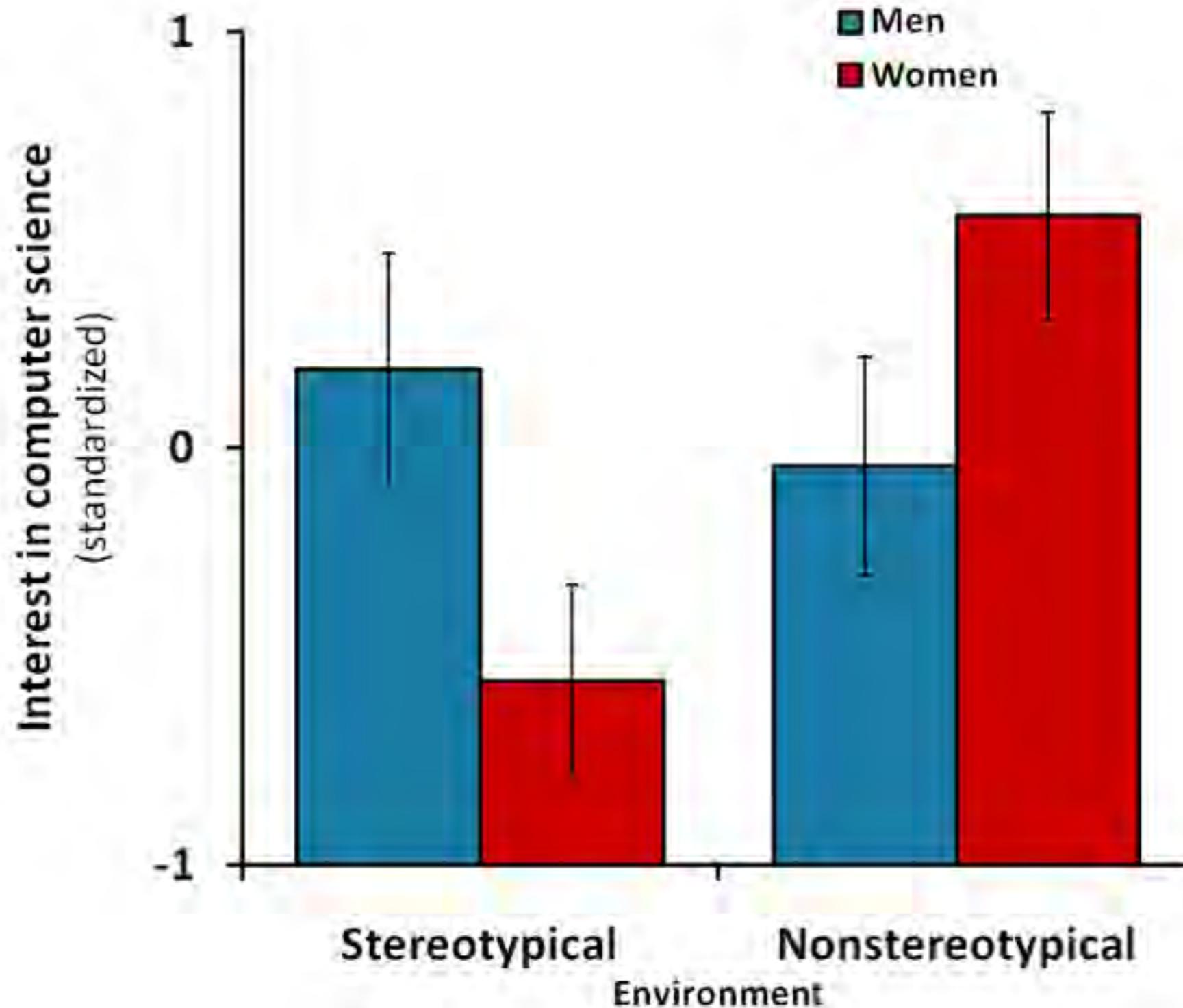
Water bottles

# Interest in Computer Science

(Cheryan et al., 2009)



Sapna Cheryan  
U-Washington



# **Institutional Growth Mindset**

Maybe I  
don't  
belong here



Maybe I'm  
not smart  
enough

# **Mindsets About Intelligence**

**Fixed Mindset:** Talent is a fixed trait

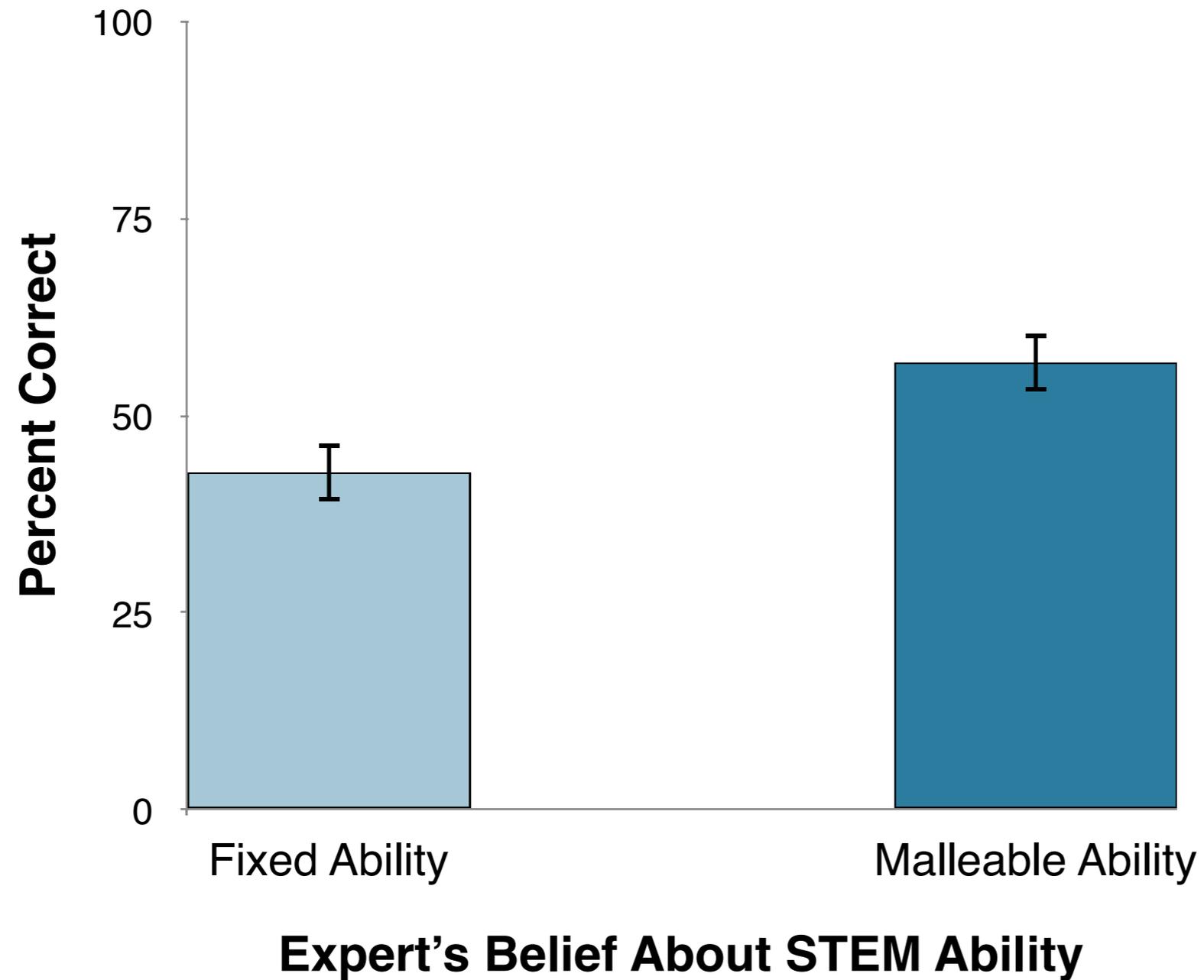
**Growth Mindset:** Talent is a malleable quality; a potential that can be developed

# Institutional Mindset



He thinks women just don't have it...

# Math Performance



Mary Murphy  
Indiana



# Experiences in STEM and non-STEM Classes

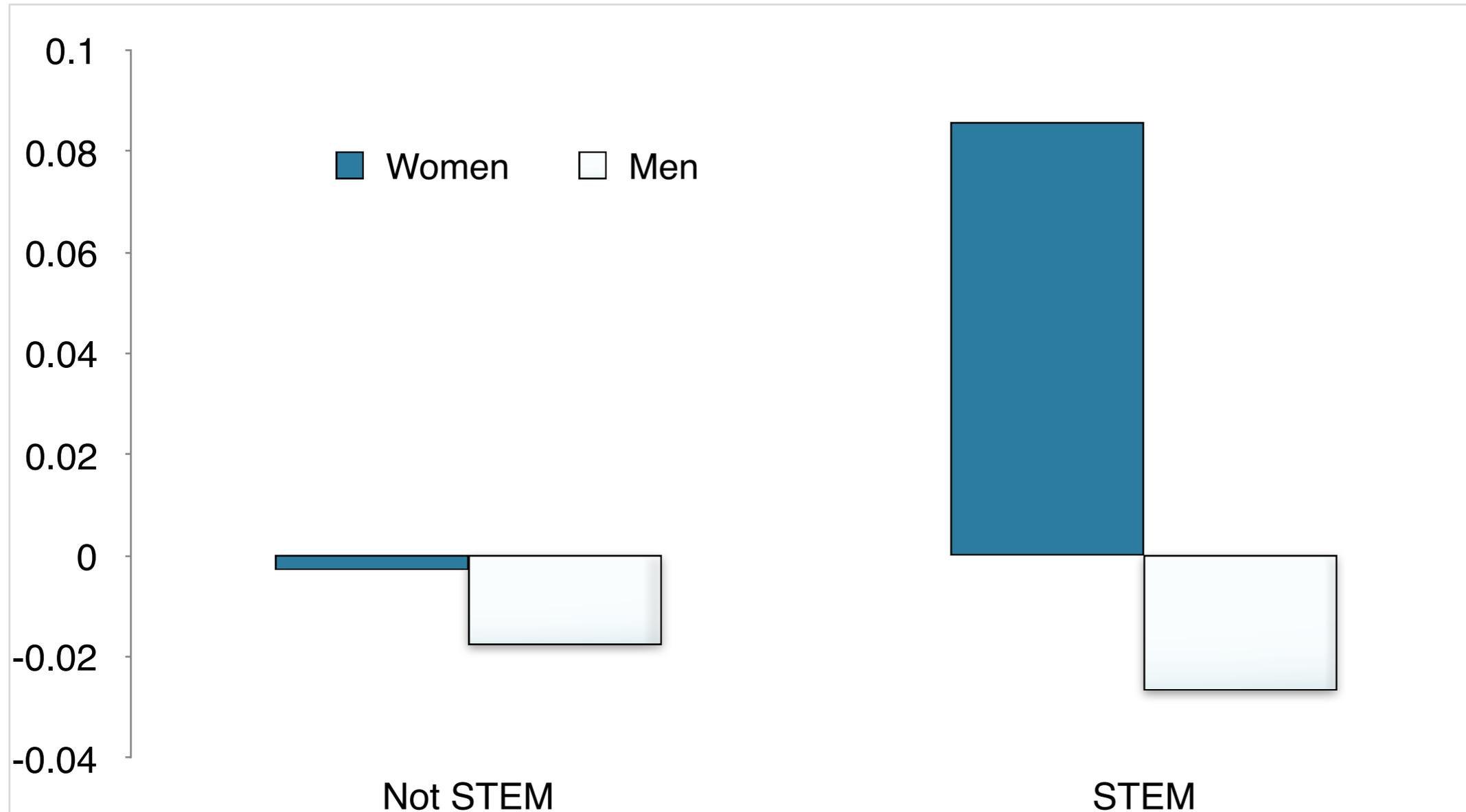
- Freshman and sophomores, interested in STEM, all undeclared in 3 university contexts
  - All women's college
  - STEM-focused polytechnic university
  - A large urban public university
- Surveyed after every (STEM and non-STEM) class for 2 weeks
- Perceived professor mindset
  - E.g., *The Professor or TA in this class seems to believe that some students are smart, while others are not*

# Identity Threat in STEM

Interpersonal concerns, belonging (r), negative affect, cognitive depletion, imposter, self-esteem (r)



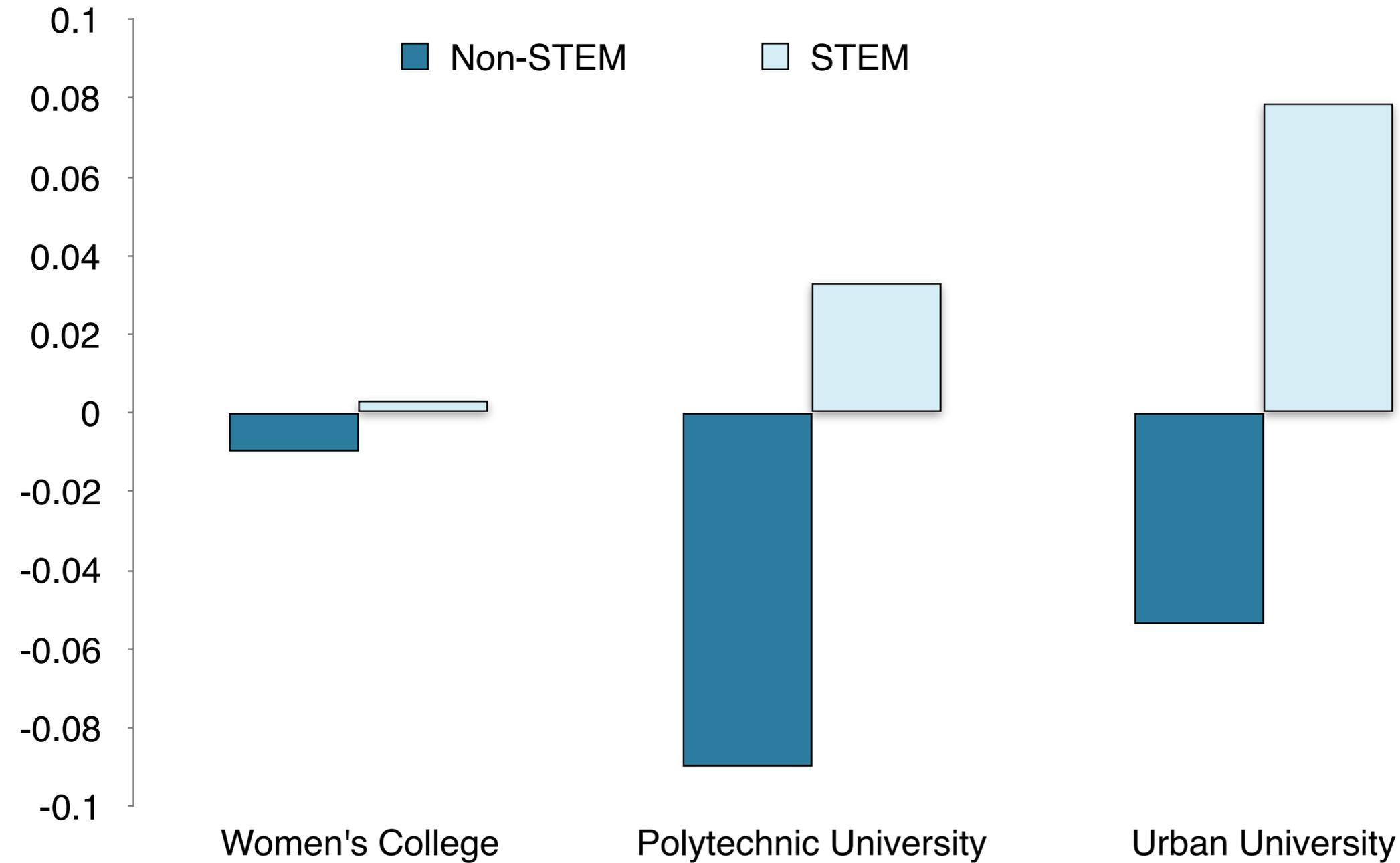
Mary Murphy  
Indiana



# Women's Identity Threat by Institution Type



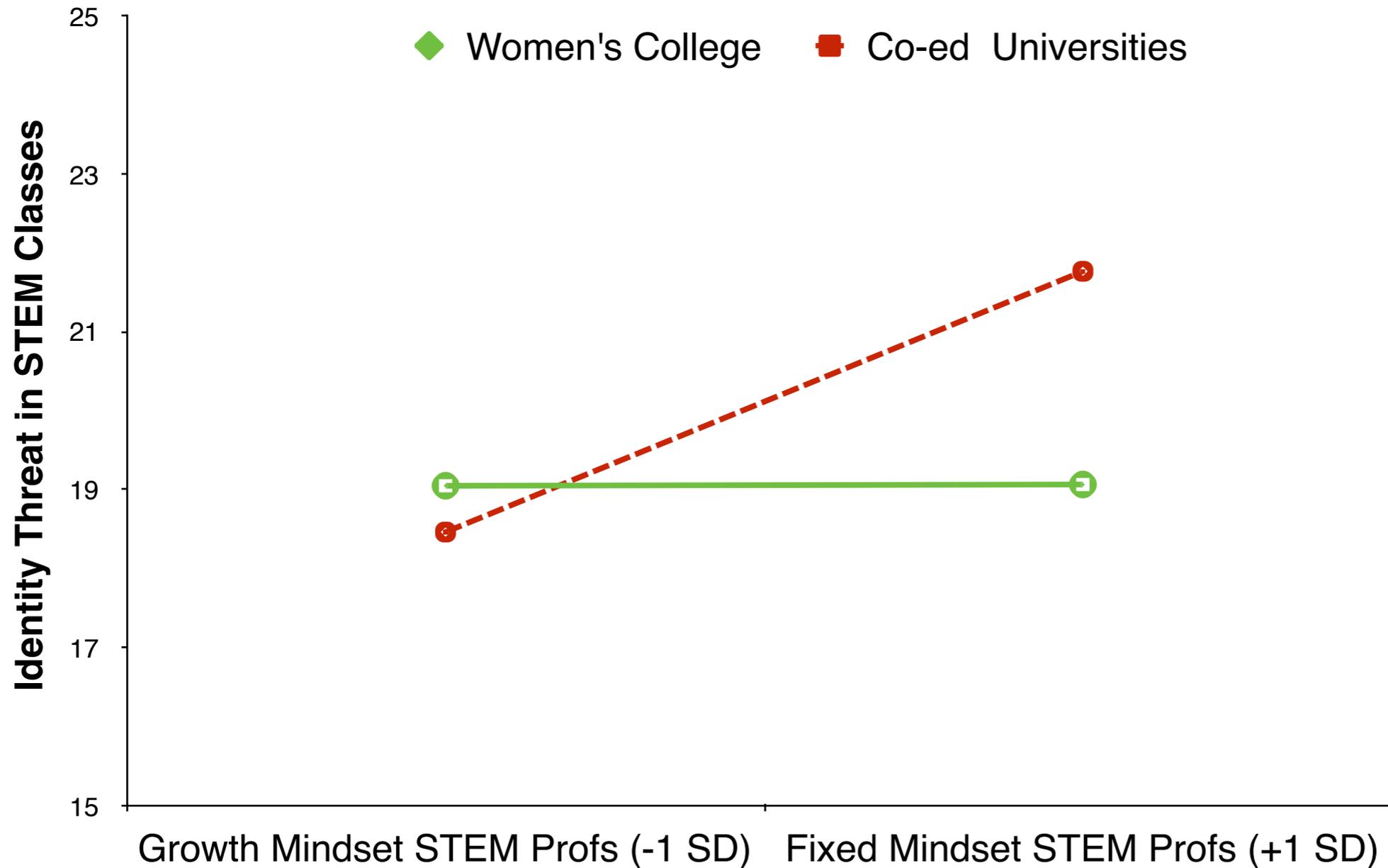
Mary Murphy  
Indiana



# Women's Identity Threat in STEM by Professor Mindset



Mary Murphy  
Indiana



How Can We Change a  
Culture of **Genius**?

# Part 2: Personal Interactions



*Every time I walk into a classroom like that [advanced graduate level Math class], I think 'Ok, I know at the end of the quarter I'm going to get an A or B in the class—but making it through the class, showing them what I've got...dealing with what they expect...that I'm not just a girl—that's going to be the hard part.'*

*-3rd year female graduate student in Math at Stanford*

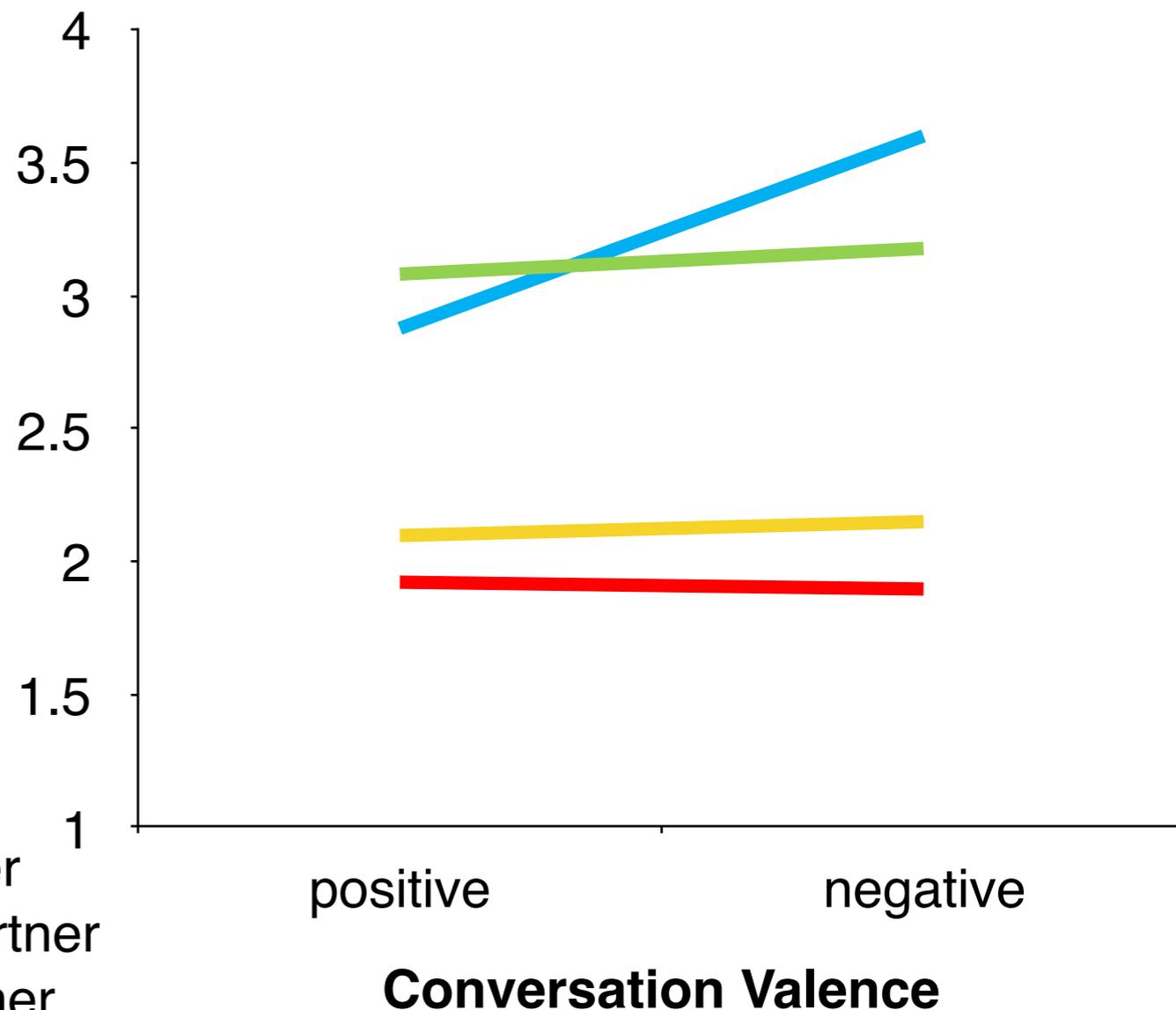
# What Predicts Social Identity Threat?



Will Hall  
University of  
British Columbia

- Conversation partner:  
Man or woman?
  - Conversation valence:  
Positive or negative?
    - Made me feel: *competent, free to exchange opinions and ideas, respected, accepted, authentic...*
- Man, with male conversation partner
  - Man, with female conversation partner
  - Woman, with female conversation partner
  - Woman, with male conversation partner

Daily Social Identity Threat



# **Part 3: How Can You Create a Culture of Belonging and Growth?**

# **1. Improving Interactions With Peers**

# Interactions that Convey Respect as a Work Partner



Lauren Aguilar  
Stanford University

- Men and women told would take an evaluative math test (creates social identity threat)
- “Randomly assigned” to write or receive a tip (participant always received)
- Completed practice problems
- Received a (not applicable) tip
- Took test

# Working-Together Manipulation

## Control Condition

*Told would write a tip for or receive a tip from the “tip bank” which has tips from past participants. Always received the tip.*

## Working-Together Condition

*Told would write a tip for or receive a tip from the “other participant.” Always received the tip.*

Tip # 29; Authored by Participant #167

I find this helpful:

It is sometimes faster to plug in numbers (a bunch of different numbers like positive numbers, negative numbers, zero) rather than trying to solve the equation

Tip

Hey Sarah,

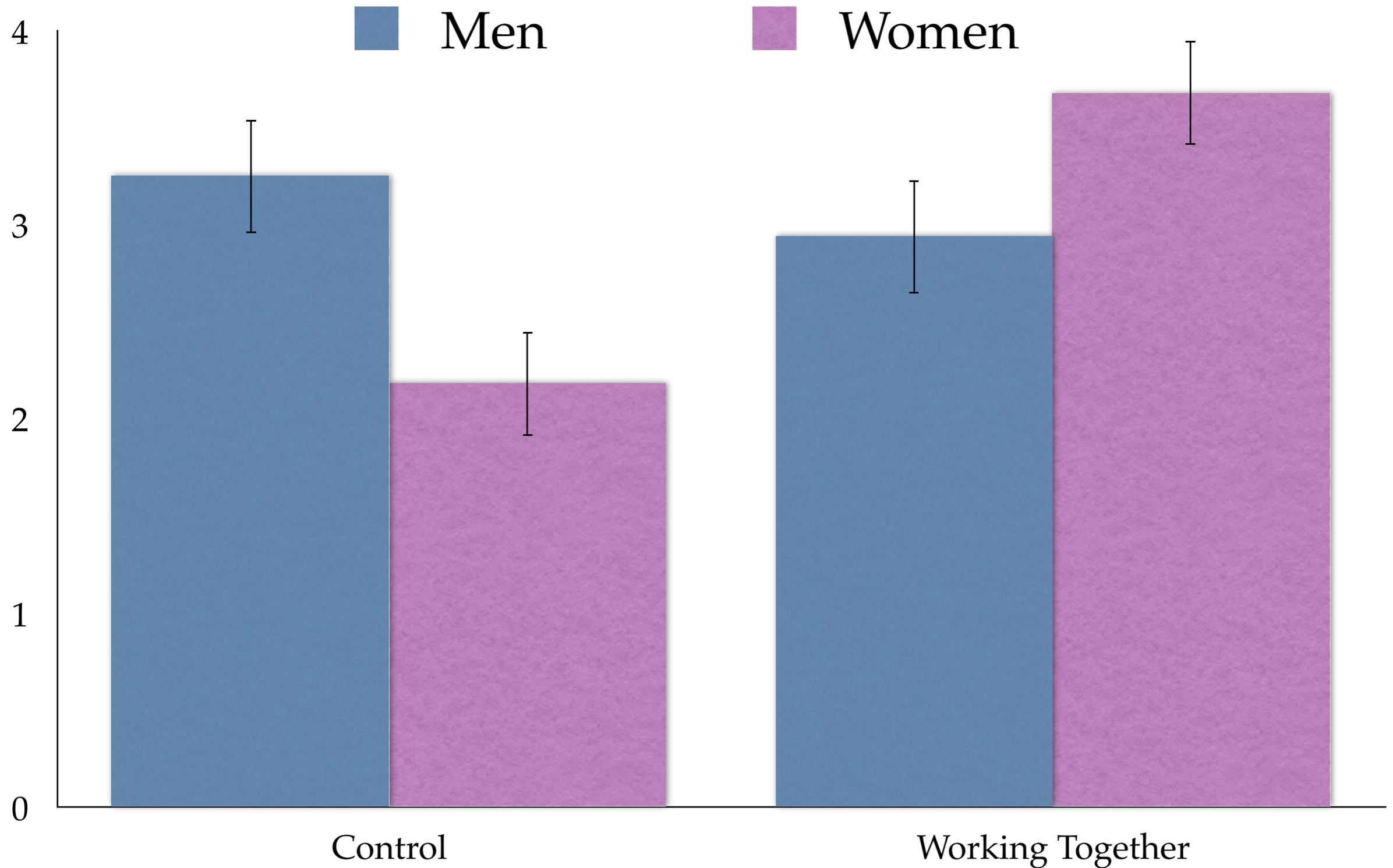
I find this helpful: It is sometimes faster to plug in numbers (a bunch of different numbers like positive numbers, negative numbers, zero) rather than trying to solve the equation.

Hope this helps you too!

-Daniel

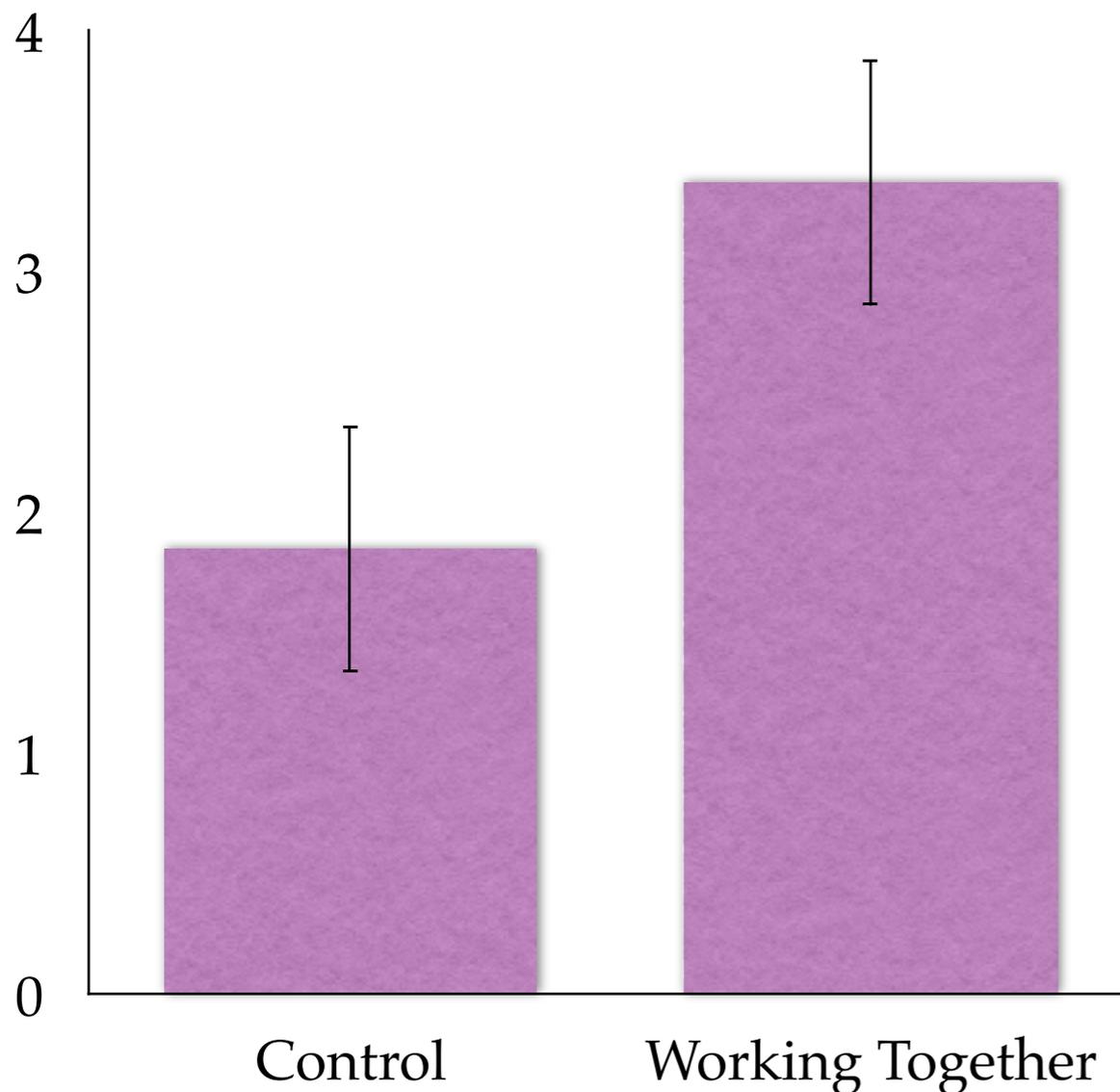
# Math Performance

(Guess-corrected score, controlling for SAT-Math)



# Replication and Extension: How Does He View Me?

Women's Math Performance



- Working together condition
  - Felt like working together more
  - Felt more connected to the man
  - Perceived man to feel more connected to the self

## **2. Improving Interactions Around Critical Feedback**

# MY HERO

7 edits

Dear Mr. Warner Prouty,

My hero is Dr. Martin Luther King JR. My hero has courage to do what he has to, and when he has to do it. He is a testimony to others, and when he was tested he over came it. He went through trials after trials and he did not hold a grudge.

① had the

② had

define hero

met the test

⑤

use past tense for someone no longer living

⑥ had or was courageous

give more detail

First Dr. Martin Luther King JR has courage. He did not have to speak for "his people" but he did it because he cares. King led some civil rights movements in his time. Dr. King also gave a speech in front of 200,000 of his supporters. — where?

give me detail - use the article

Second Dr. Martin Luther King is a testimony to me and others. He is a testimony to me because he did everything he could do to fight for the freedom for him, his family, and others. Now when I look at the simplest things and complain I think of what Dr. King would do.

what do you mean by testimony?

⑦ turn away

freedom to fight from what

good - use this earlier w/ courage maybe

Finally Dr. King is my hero because when he was tested he did not complain instead he over came the worst. Dr. King had many good reasons to quit what he was doing and curse everyone, but he didn't. In the worst of times Dr. King kept his chin up. When King's home was bombed all he said was "We must learn to meet hate with love" Dr. King was a great man and he helped change our world as we know it. say more about the change

say more about the

In conclusion Dr. Martin Luther King JR is my hero because he had courage. He is a testimony to me and to others. Also he over came his troubles when he was tested.

**"I have a dream that little black boys and little black girls will be able to join hands with little white boys and little white girls and walk together as sisters and brothers."**

use this in the essay.



BE SURE YOU USE

abc

VAYAGIF.COM

# Global encouragement "Good job"

My hero is Dr. Martin Luther King JR. My hero has courage to do what he has to and when he has to do it. He is a testimony to others, and when he was tested he over came it. He went through trials after trials and he did not hold a grudge.

First Dr. Martian Luther king JR has courage. He did not have to speak for "his people" but he did it because he cares. King lead some civil rights movements in his time. Dr. King also gave a speech in front of 200, 000 of his supporters.

Second Dr. Martian Luther king is a testimony to me and others. He is a testimony to me because he did everything he could do to fight for the freedom for him, his family, and others. Now when I look at the simplest things and complain I think of what Dr. King would do.

Finally Dr. King is my hero because when he was tested he did not complain instead he over came the worst. Dr. King had many good reasons to quit what he was doing and curse everyone, but he didn't. In the worst of times Dr. King kept his chin up. When King's home was bombed all he said was "We must learn to meet hate with love" Dr. King was a great man and he helped change our world as we know it.

In conclusion Dr. Martian Luther King JR is my hero because he had courage. He is a testimony to me and to others. Also he over came his troubles when he was tested.

"I have a dream that little hands with little white boys and brothers."

# Substantive feedback "Give more detail"

7 edits

1 had the

2 had

define how

3 met the test

5

6 had or was courageous

1 give more detail

where?

what do you mean by testimony?

freedom to fight from what

1 say more about the

7 turn away

say more about the change

use this in

use past tense for someone no longer living

give me detail use the article

good use this earlier w/ courage maybe

# “Wise feedback:”

I'm giving you these comments because I have high standards and I know that you can meet them.



② had  
define how  
to what he has to and  
d he over came it. He  
⑤  
speak for "his  
ements in his time. Dr.  
where?  
/ give more detail  
He is a testimony to  
im, his family, and  
what Dr. King would  
what do you  
mean by  
testimony?  
⑦ turn away  
not complain instead  
ie was doing and curse  
freedom to  
fight from  
what  
/ say more  
about the  
use this in  
the essay.

good -  
use this  
earlier w/  
courage maybe

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In conclusion Dr. Martian Luther King JR is my hero because he had courage. He is a testimony to me and to others. Also he over came his troubles when he was tested.

**"I have a dream that little black boys and little black girls will be able to join hands with little white boys and little white girls and walk together as sisters and brothers."**

# “Placebo:”

I'm giving you these comments so you have feedback on your essay.



7 edits

① had the  
② had  
⑤  
define how  
He has courage to do what he has to and when he was tested he over came it. He judge. ~~met the test~~  
He did not have to speak for "his e civil rights movements in his time. Dr. pporters. — where? give more detail

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⑦ turn away  
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what do you mean by testimony?  
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say more about the change

good - use this earlier w/ courage maybe

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**"I have a dream that little black boys and little black girls will be able to join hands with little white boys and little white girls and walk together as sisters and brothers."**

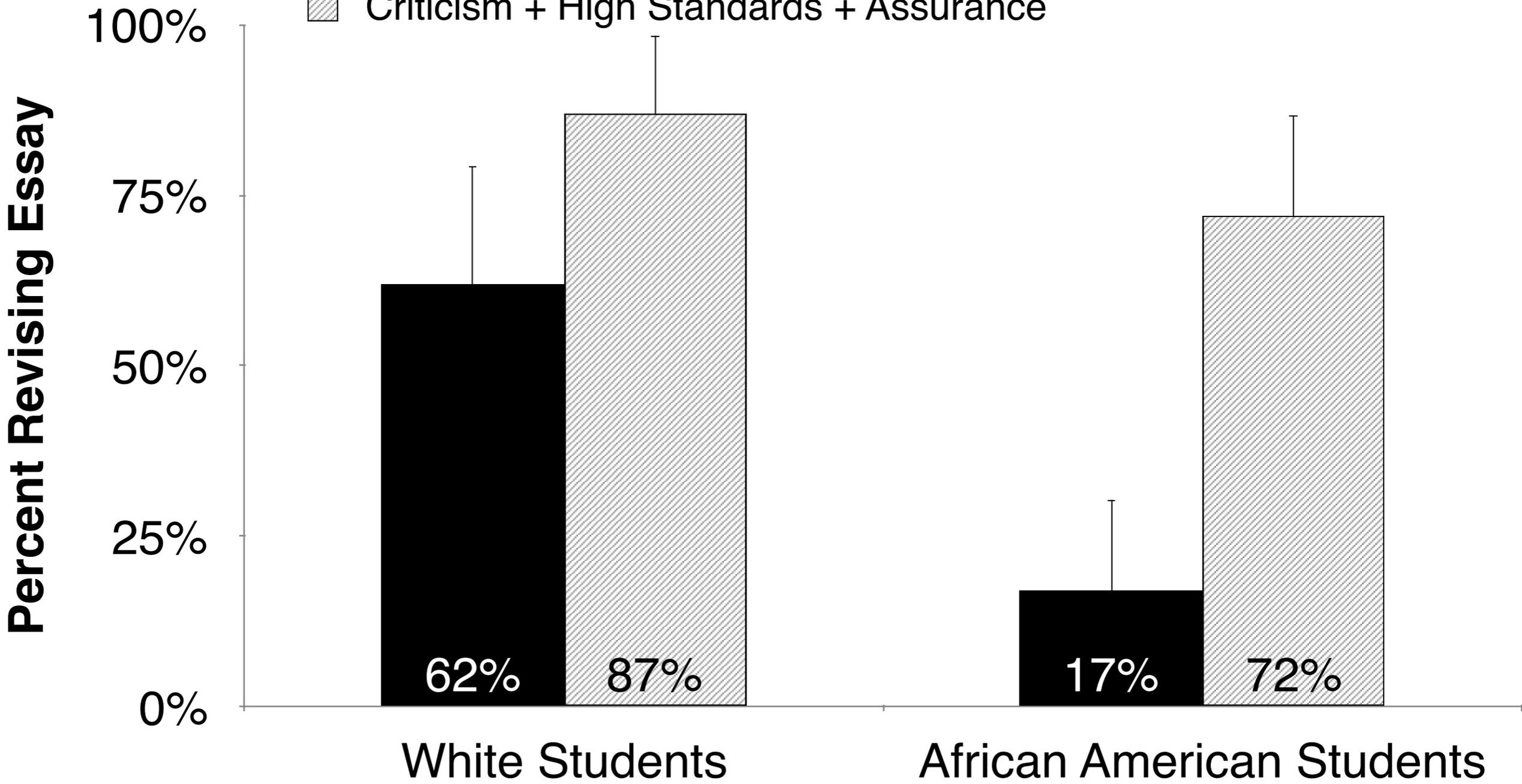
use this in the essay.



David Yeager  
UT-Austin

# Percentage Resubmitting Essays (7th graders)

- Criticism + Placebo
- ▨ Criticism + High Standards + Assurance



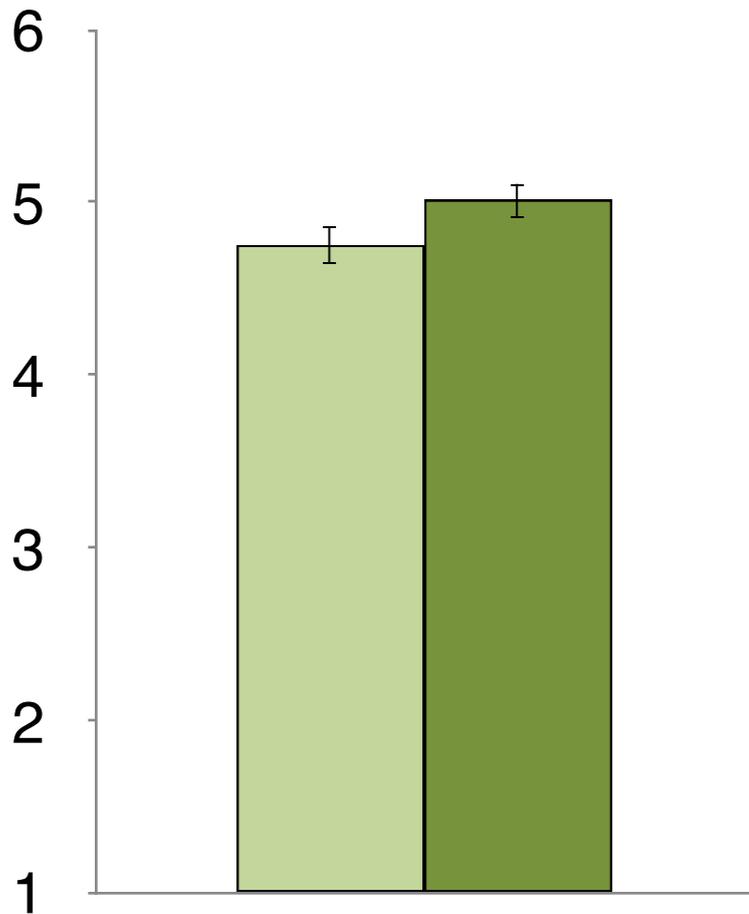
Yeager, Purdie-Vaughns, et al. (2014), *JEP:General*

**The Power of Yet**

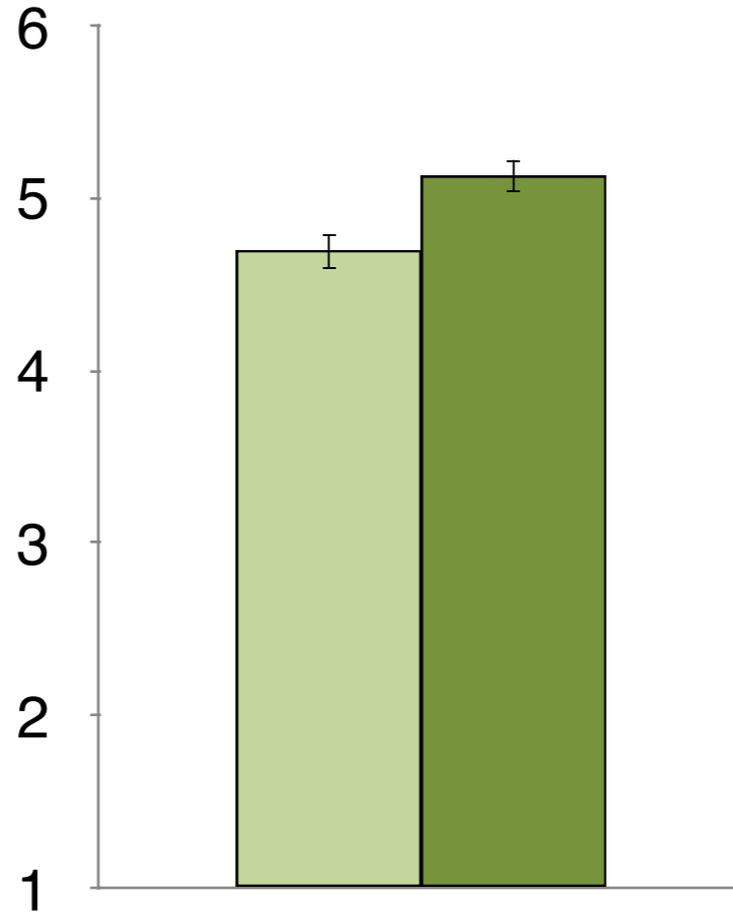
Imagine it's your freshman year of college and you have just submitted your first writing assignment for your PWR course. When you get your paper back from the teacher, it is covered in comments and you see that you got a C. At the top of the paper is written, "You haven't mastered college level writing [...*yet!*]" See my comments throughout for suggested improvements on the final draft."

# Students' Perceptions of the Professor

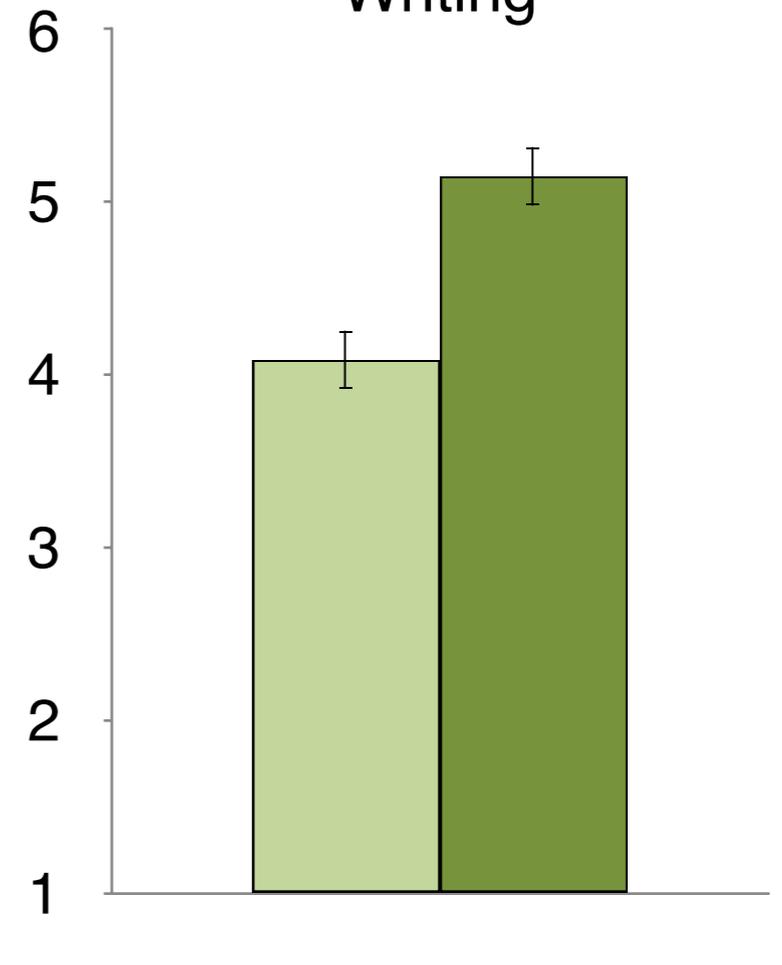
Perception of Professor's Growth Mindset



Perception of Professor's Failure Mindset



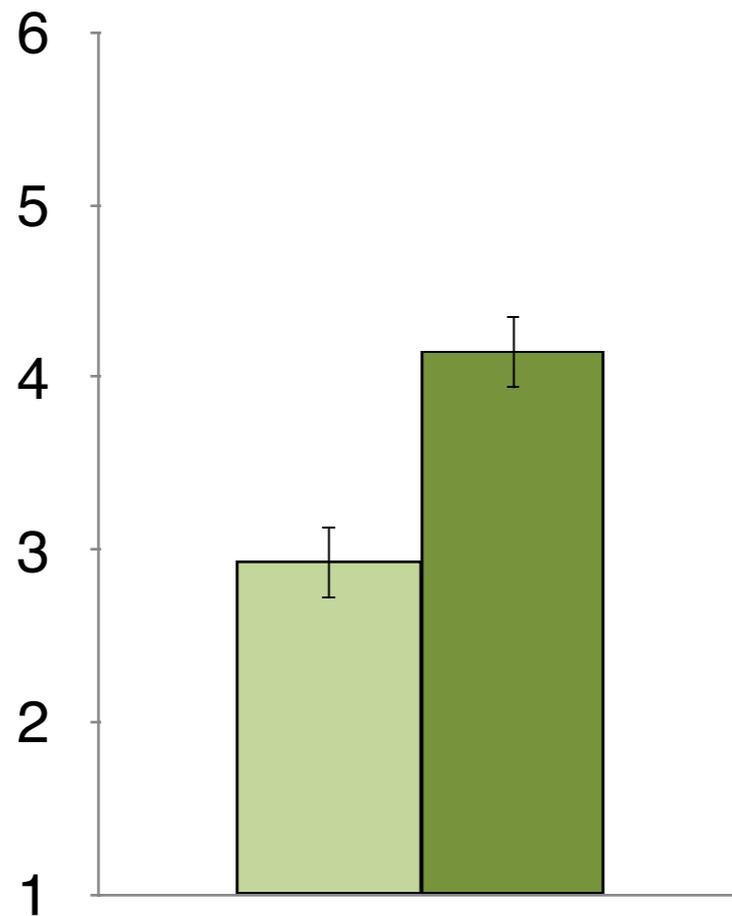
Perception of Professor's Investment in Student's Writing



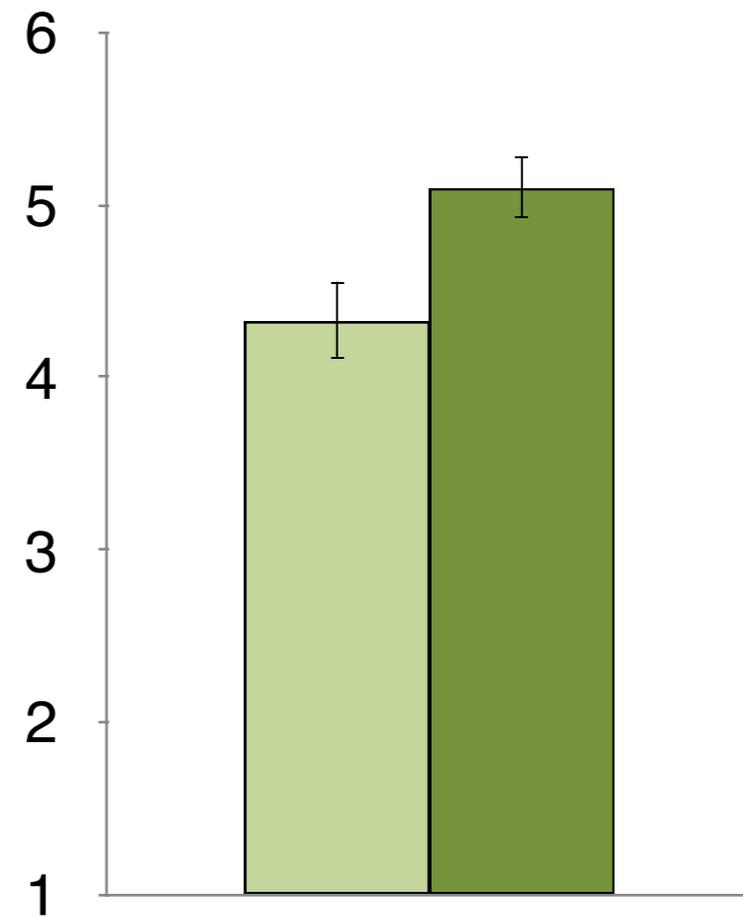
Control Yet

# Responses to Feedback

Feel Encouraged



Feel Motivated to Improve



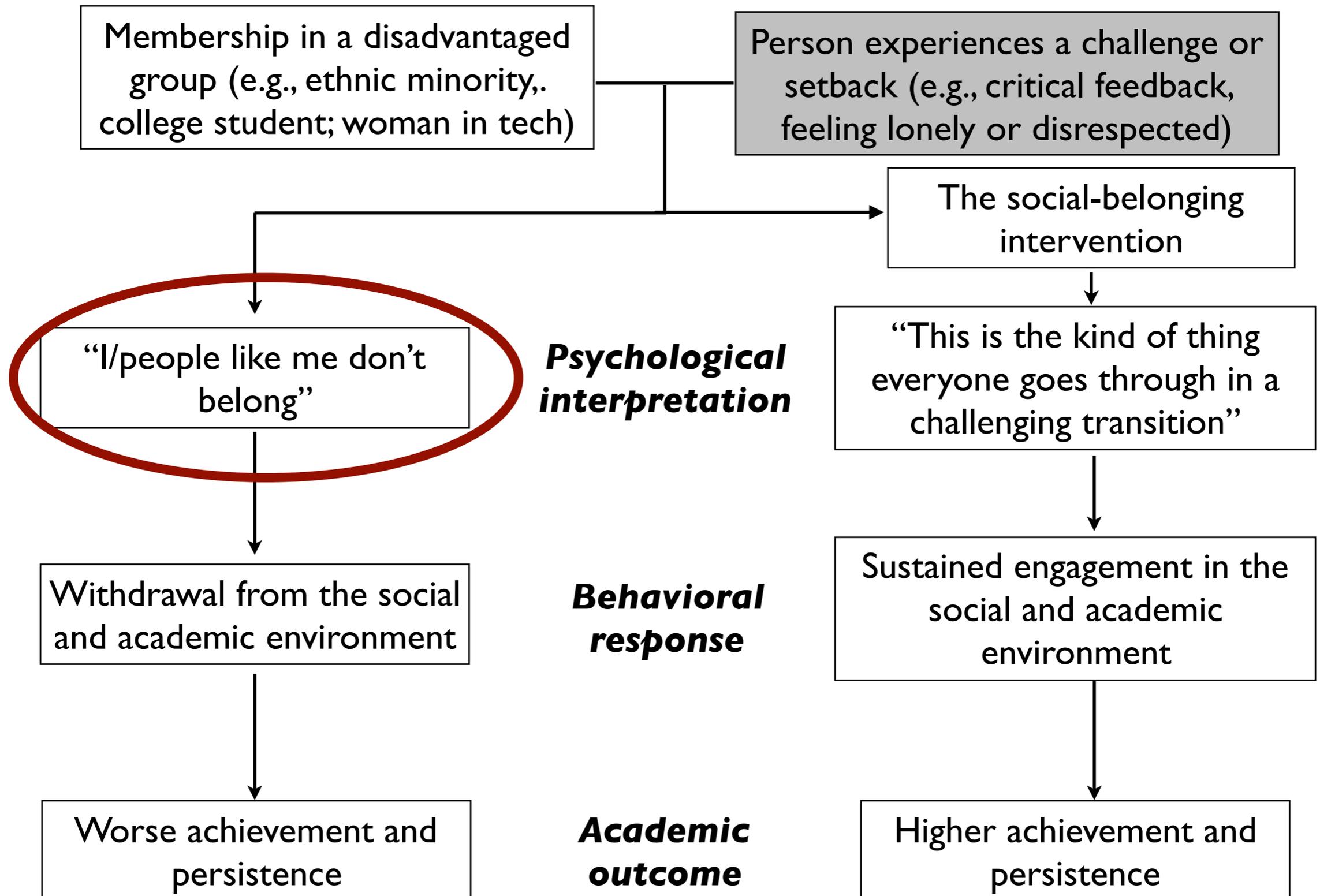
# **3. Convey Messages to Support Belonging**

**“You Belong”**

# **Social-Belonging Interventions**

(Walton & Cohen, 2007, 2011; Walton, Logel, et al., 2015; Yeager, Walton, et al., 2016)

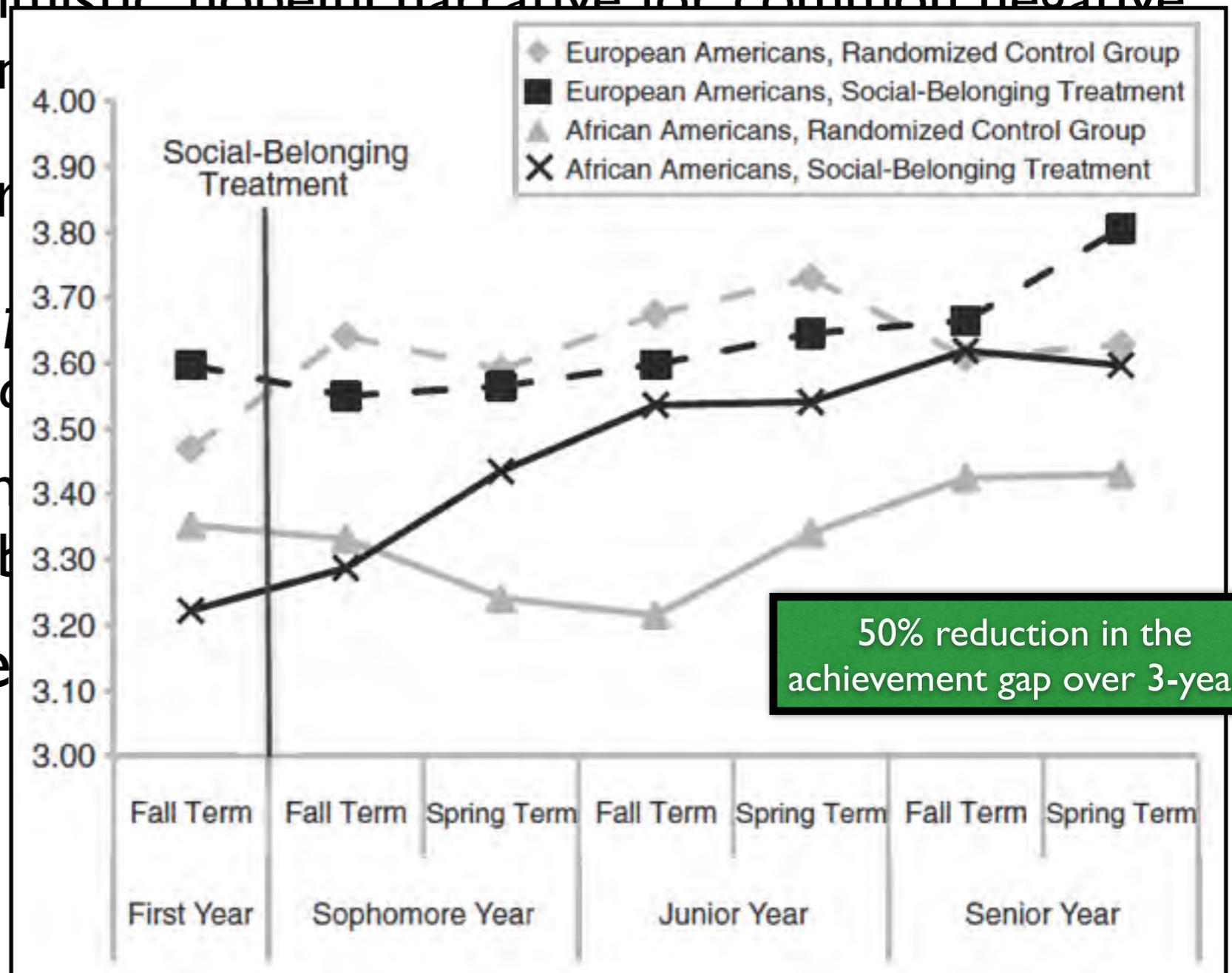
# Worries About Belonging Can Make Themselves True



# The Social Belonging Intervention

(Walton & Cohen, 2011 *Science*)

- Goal
  - Provide a more optimistic, hopeful narrative for common negative social experiences in
- Stories from upper
  - *Everyone worries at time, everyone feels*
- Designed to prevent permanent lack of
- Message reinforcement (Aronson et al., 2002)



# Social Belonging for Women in Engineering

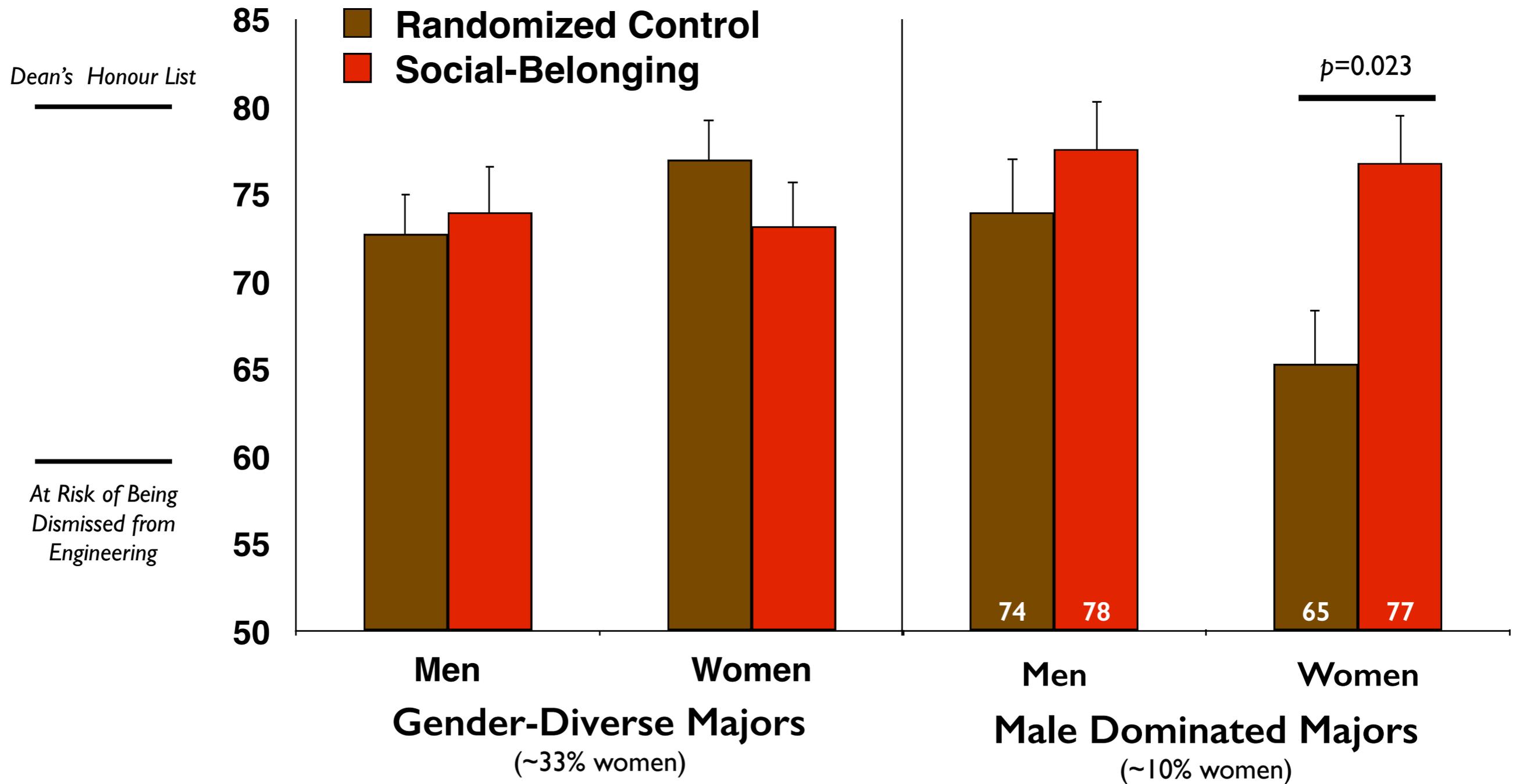


So looking back, my first year was pretty mixed. I mean, socially, it was great...But there was some academic stress. I remember this one class in particular was especially hard. It had really challenging material that I'd never seen before, but deep down...I guess I was excited to learn it. A couple of times when I asked the prof a question, he gave me a really simplistic response, and thinking back now I think he probably just thought I was dumb. But my friends all had the same experience, so we came to the conclusion that well, the prof couldn't really answer questions very well...eventually the whole class learned to just go to the TA and he was great... The class struggled a bit at first, but I ended up learning a lot, and I'm excited to apply the knowledge that I've learned to the real world.

-“Mahesh,” 3B Environmental

# First-Year GPA in Engineering

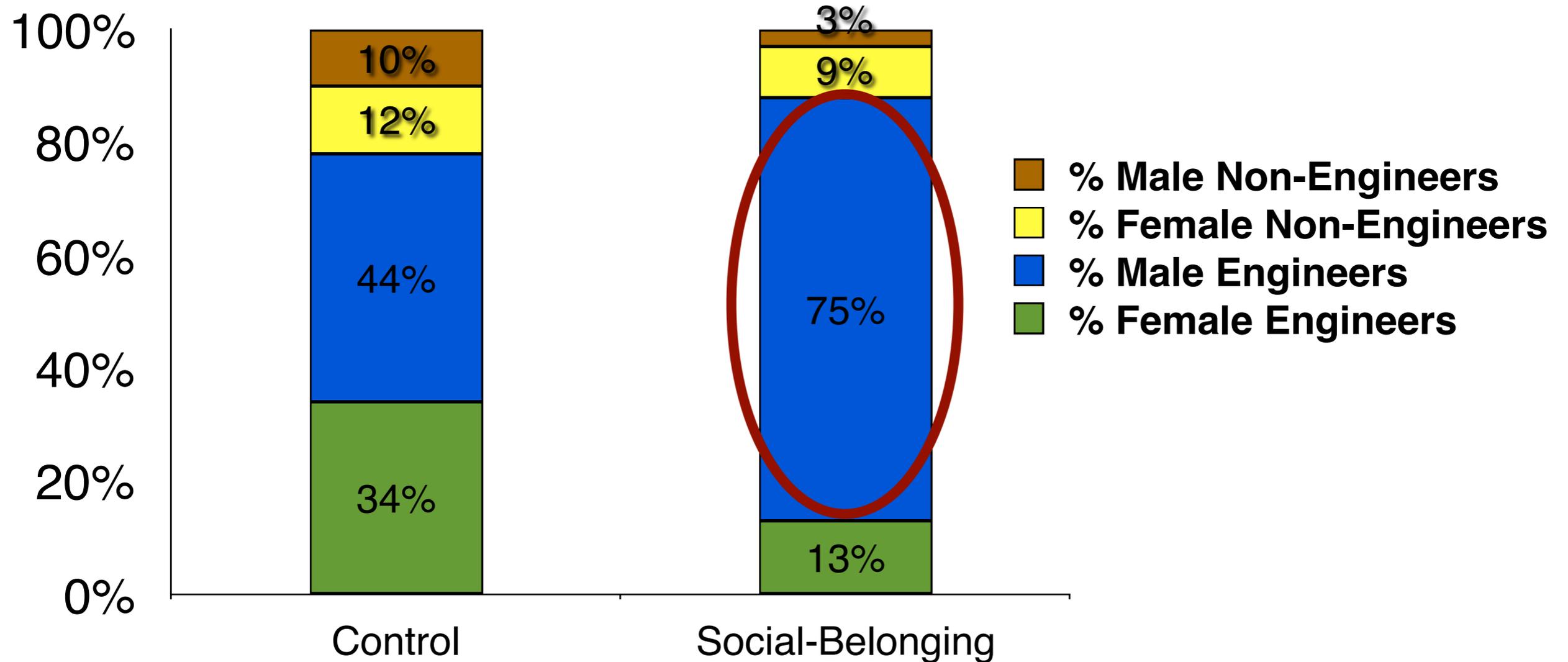
(Controlling for within-major mean)



# Women's Friendship Groups

(controlling for preintervention)

## In Male-Dominated Majors

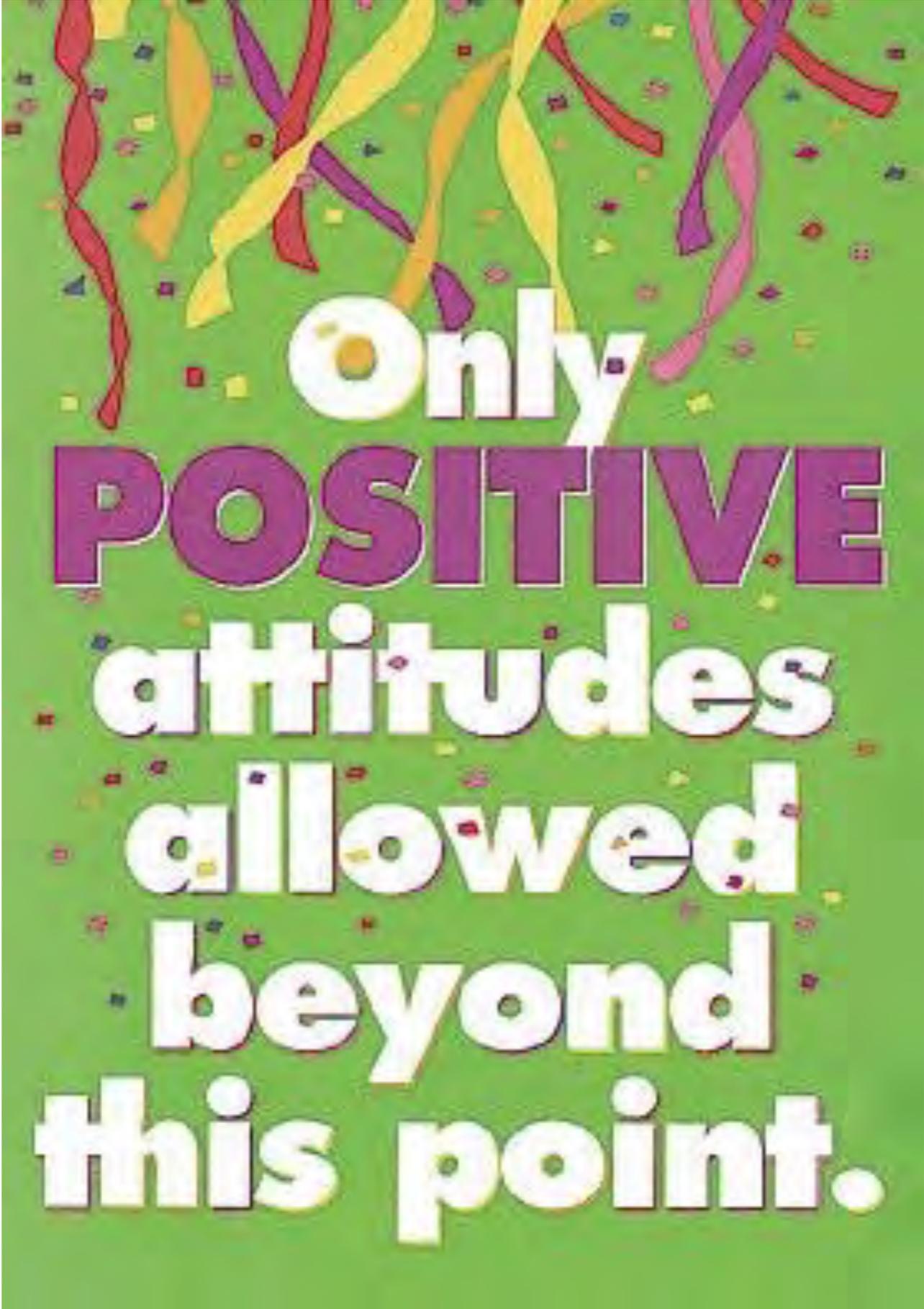


# **4. Create a Growth-Mindset Culture**

**Encouragement**

IF AT FIRST  
YOU DON'T  
SUCCEED,  
TRY, TRY  
AGAIN!

(AMERICAN PROVERB)



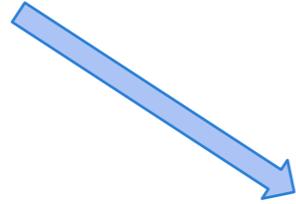
**Only**  
**POSITIVE**  
**attitudes**  
**allowed**  
**beyond**  
**this point.**



# **Growth-Mindset Practices**

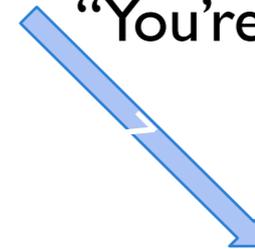
# Where do mindsets come from?

Parent Beliefs  
About Failure



Parent Practices

Growth vs. Fixed Mindset Praise:  
“You worked so hard” vs.  
“You’re so smart”

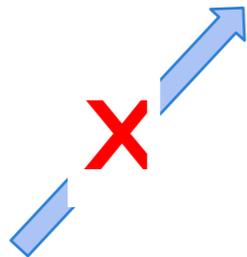


Parent Mindset



Child Intelligence  
Mindset

Failure is enhancing vs. debilitating  
“Failure facilitates (inhibits)  
growth and learning”



# **Growth-Mindset Interventions**

(Aronson et al., 2002; Blackwell et al., 2007; Good et al. 2003; Paunesku et al., 2015; Yeager, Romero et al., 2016; Yeager, Walton et al., 2016)

# Orientation Website

## Contact Us

512-471-3304

[E-mail NSS](#)

[Our Staff](#)

[SSB 3.410](#)

## NSS

[NSS Home](#)

[Bevo Bulletin Guide for New Students](#)

[NSS FAQs](#)

[Resources for New Students](#)

[Resources for Families](#)

## Pre-Orientation Requirements

### Welcome, David Scott Yeager

Please see [this webpage](#) for additional information about freshman orientation including testi

### You must now complete the following requirements

While most of the modules are brief, some will take extra time and attention, so please plan time to complete these requirements, and can reference the materials at any time. You must check in at orientation. You will not be allowed to register for classes until you have complet

### Required Completion

**Stat**

1. How to Prepare for

[Click here](#) to view the video presentation

pendi

# Orientation Website

7. Meningococcal Vaccine Requirement

[Click here](#) to read the Meningococcal Vaccine Requirement information

pendin

8. The "UT Mindset"

Click here to hear about social and academic life at UT from current Sophomores, Juniors and Seniors, and to provide your opinions about the transition to UT. Set aside 30-45 minutes of time to complete this survey carefully and privately before clicking the link. *Please do not press the "back" button in your browser during the "UT Mindset" activity.*

comple

9. University of Texas Honor Code

[Click here](#) to download the University of Texas Honor Code

pendin

## "UT Mindset" Article

As you read the 4-page scientific article below, try to think about how it relates to your life.

**\*\*\*Please read each page slowly and carefully\*\*\***

When you are done reading, we will ask you to remember what you read. So please pay close attention. (and, just to remind you, the "Next" button will appear after you have had time to read carefully)

### **You Can Grow Your Brain**

#### ***New Research Shows the Brain Can Be Developed Like a Muscle***

Many people think of the brain as a mystery. We don't often think about what intelligence is or how it works. And when you do think about what intelligence is, you might think that a person is born either smart, average, or dumb—either "good at school" or not—and stays that way for life.

But new research shows that the brain is more like a muscle—it changes and gets stronger when you use it. Scientists have been able to show just how the brain grows and gets stronger when you learn.

Everyone knows that when you lift weights, your muscles get bigger and you get stronger. A person who can't lift 20 pounds when they start exercising can get strong enough to lift 100 pounds after working out for a long time.

That's because muscles become larger and stronger with exercise. And when you stop exercising, the muscles shrink and you get weaker. That's why people say "Use it or lose it!"

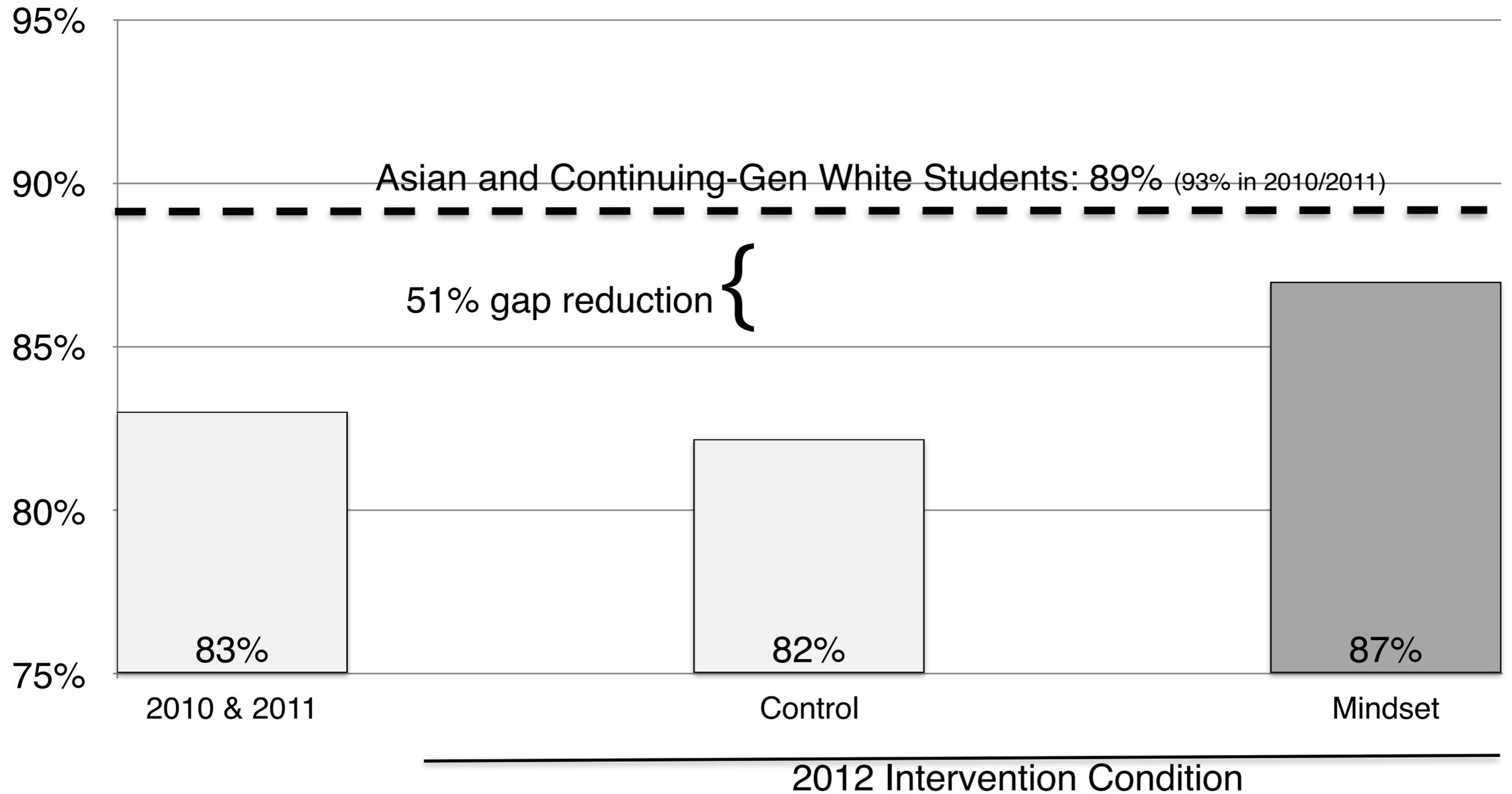
But most people don't know that when they practice and learn new things, parts of their brain change and get larger, a lot like the muscles do. This is true even for adults or older teenagers. So it's not true that some people are stuck being "not smart." You can improve your abilities a lot, as long as you practice and use good strategies.



Inside the outside layer of the brain—called the cortex—are billions of tiny nerve cells, called

# Maintaining Full-Time Enrollment First Semester (12+ Credits)

(N=2,463 African Americans, Latinos, First-Gen. White Students)



What ideas can you implement to promote belonging and growth? How will you do so?

Be specific.

# Changes You Can Make: 15 Hacks for Building Diversity in Tech

(Walton & Murphy, 2015)

## I. Make everyone feel welcome

1. Write job ads that include, not exclude
2. Celebrate diversity—in everyone
3. Talk about growing talent, not finding the (boy) geniuses
4. Take down the Star Trek posters!
5. When hiring and promoting, prioritize diversity and show off that diversity
6. Communicate that tech is not just about me, me, me—it's also about working together and making a difference

## II. Hire the best talent

9. Avoid bias in hiring, part 1: Commit to standards before looking at applicants
10. Avoid bias in hiring, part 2: Think about a series of hires as creating a group
11. Identify hidden talent

## III. Promote mindsets that increase resilience on the job

10. Encourage a “growth mindset” about ability
11. Tell stories to bolster belonging
12. Incorporate personal values at work to help people feel like a whole person, not a stereotype

## IV. Everyday Practices that Help Diverse Teams Succeed

13. Train managers to tell subordinates why they are giving critical feedback
14. Create opportunities for women to work more with other women
15. Encourage employees to share small gestures that convey their respect for and connection to one another

Available at [www.stanford.edu/~gwalton](http://www.stanford.edu/~gwalton)  
(Resources Tab)