

Understanding and Mitigating Stereotype Threat

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Stereotype threat in brief

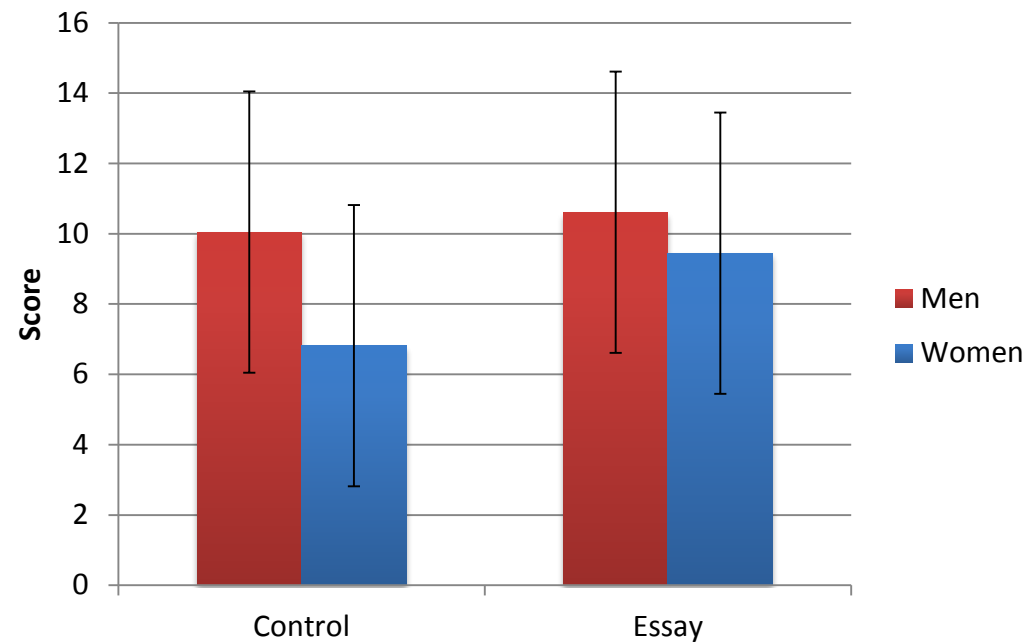
- When a person underperforms, relative to their own ability, at a challenging task because they are aware they belong to a group that is stereotypically expected to underperform
- It does not require overt biases or stereotypes by individuals in the room, but is triggered in an individual when they are aware there is a stereotype about a group with which that person identifies.
- Initial studies indicate it results from portions of the brain being used, **subconsciously**, on tasks concerning the stereotype rather than the task at hand

Research establishing stereotype threat

- White students playing mini-golf underperform if you frame it as a task measuring “athletic ability”
- Black students playing mini-golf underperform if you frame it as a task measuring “sports intelligence”
- Women underperform on a math exam whether or not you remind them of gender, but can be mitigated (“This math exam shows no differences in gender”)
- You can induce a relative stereotype, for example white males will underperform on a math test if you tell them “Asians are better at math”
- Even really young kids (Kindergarten) are aware enough of stereotypes to be affected
 - Bear in mind by the time we see a student they have been subject to stereotype threat throughout their lives

Alleviating stereotype threat: Counter-example

- **Study:** McIntyre, Rusty B., René M. Paulson, and Charles G. Lord. “Alleviating Women’s Mathematics Stereotype Threat through Salience of Group Achievements.” *Journal of Experimental Social Psychology* 39, no. 1 (2003): 83–90.
- **Group:** Undergraduate Students
- **Stereotype:** Women are bad at math
- **Task:** Math test
- **Stereotype Reinforced:** None required
- **Mitigation Used:** Read an essay about successful women



Alleviating stereotype threat: Training

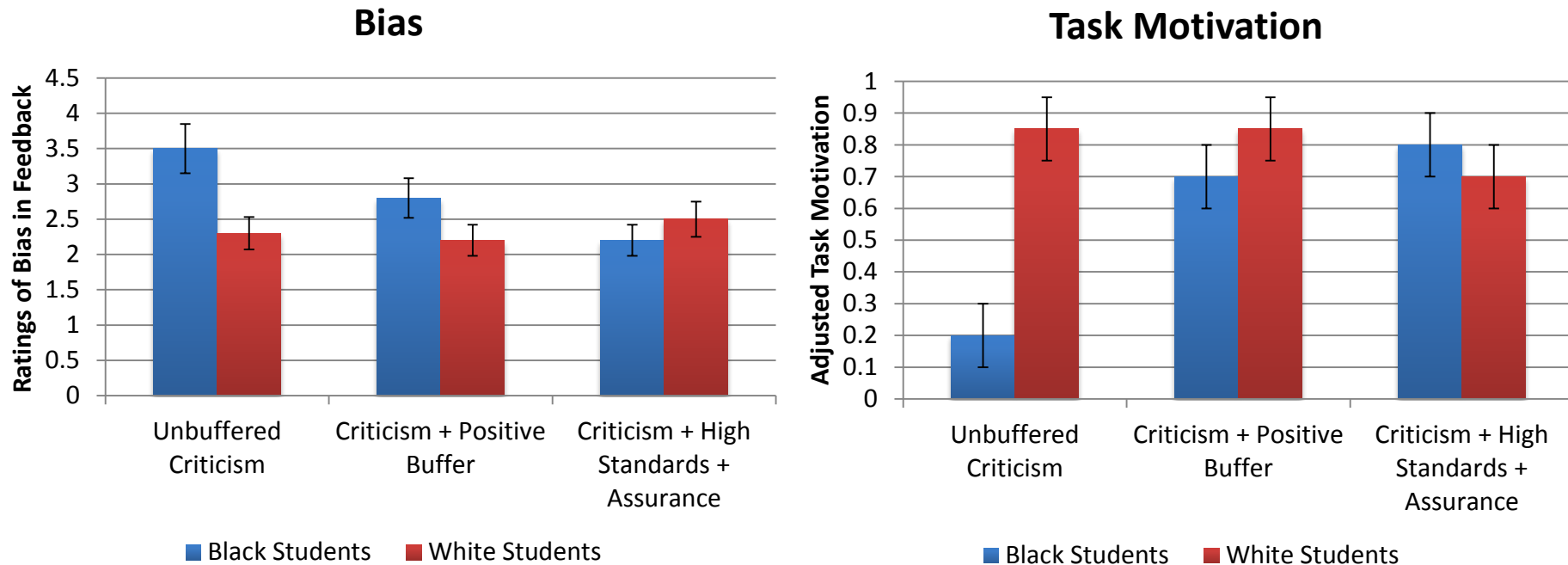
- **Study:** Fullilove, Robert E., and Philip Uri Treisman. “Mathematics Achievement Among African American Undergraduates at the University of California, Berkeley: An Evaluation of the Mathematics Workshop Program.” *The Journal of Negro Education* 59, no. 3 (1990): 463–78.
- **Group:** Undergraduate Berkeley Students
- **Stereotype:** People of color are not good in academics
- **Task:** First year calculus
- **Stereotype Reinforced:** None required
- **Mitigation Used:** Mathematics workshop program (MWP): Training to study in groups and avoid over-efforting

Proportion of African American Students at end of first year calculus

Year of Entry	Earning less than D+		Earning greater than B-	
	Non-MWP Participants	MWP Participants	Non-MWP Participants	MWP Participants
1973-77	33%		22%	
1978-82	40%	3%	16%	54%
1983-84	41%	7%	23%	58%

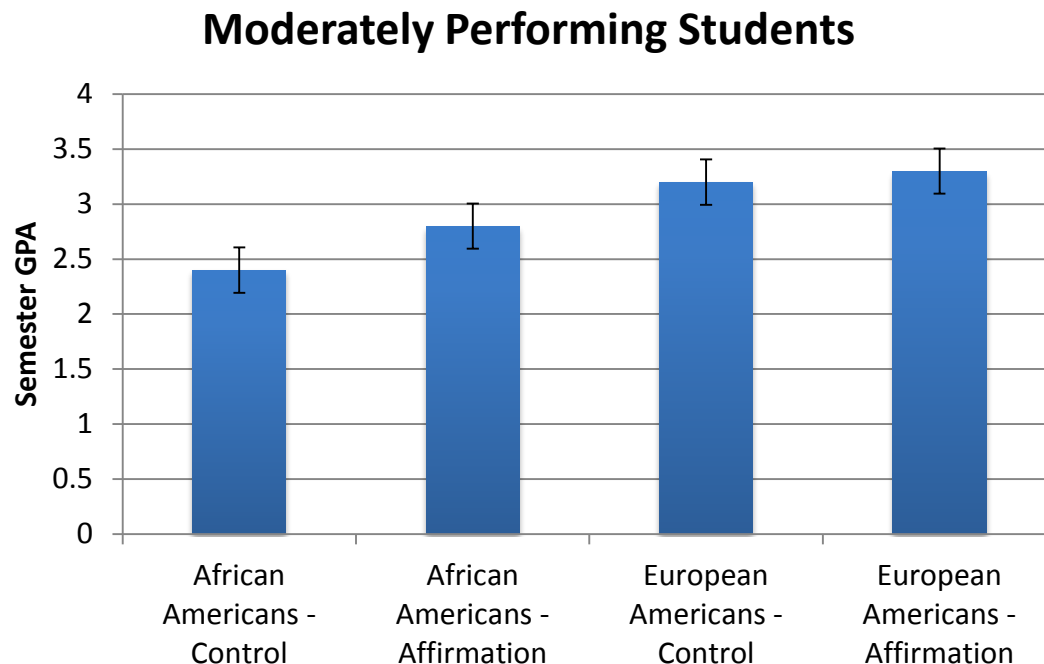
Alleviating stereotype threat: Mentoring

- **Study:** Cohen, Geoffrey L., Claude M. Steele, and Lee D. Ross. “The Mentor’s Dilemma: Providing Critical Feedback Across the Racial Divide.” *Personality and Social Psychology Bulletin* 25 (1999): 1302–18.
- **Group:** Stanford Undergraduates
- **Stereotype:** Black students are not as intelligent
- **Task:** Revise an essay after feedback
- **Stereotype Reinforced:** None required
- **Mitigation Used:** I have high standards and I know you can meet them



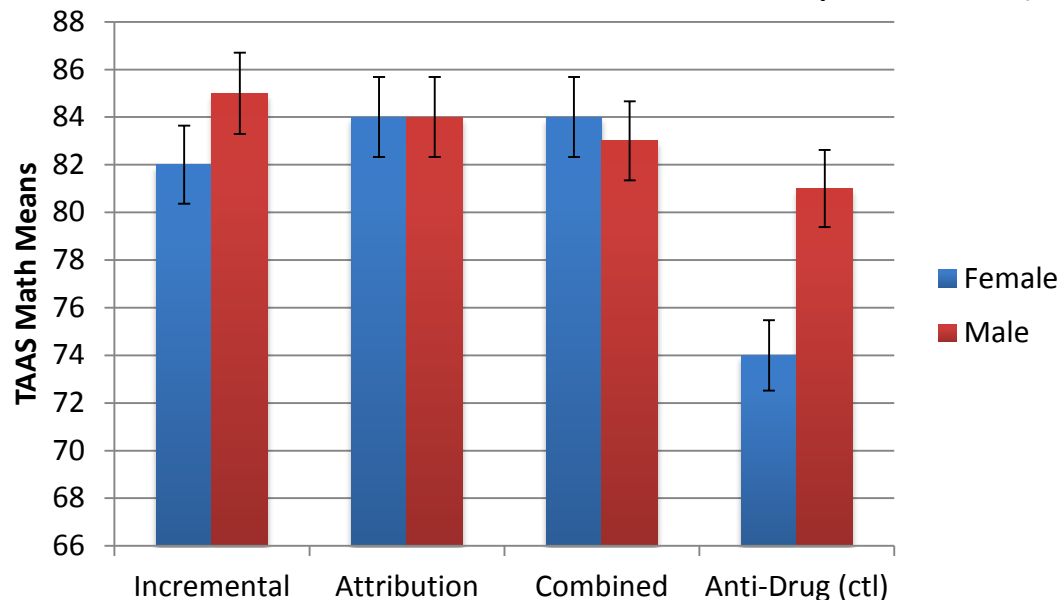
Alleviating stereotype threat: Self-affirmation

- **Study:** Cohen, Geoffrey L., Julio Garcia, Nancy Apfel, and Allison Master. “Reducing the Racial Achievement Gap : A Social-Psychological Intervention.” *Science* 313, no. September (2006): 1307–10.
- **Group:** University students
- **Stereotype:** African Americans are not as intelligent
- **Task:** Semester of college
- **Stereotype Reinforced:** None required
- **Mitigation Used:** One essay affirming values important to person (affirmation of integrity)



Alleviating stereotype threat: Expandability of Intelligence

- **Study:** Good, Catherine, Joshua Aronson, and Michael Inzlicht. “Improving Adolescents’ Standardized Test Performance: An Intervention to Reduce the Effects of Stereotype Threat.” *Journal of Applied Developmental Psychology* 24 (2003): 645–62.
- **Group:** 7th grade students (70% qualify for free lunch)
- **Stereotype:** Girls are not as good at math
- **Task:** Standardized Test performance
- **Stereotype Reinforced:** None required
- **Mitigation Used:** Teach students about the brain and the expandable nature of intelligence (Incremental), or teach them all people experience setbacks when they move to a new environment and share their own experiences (Attribution)



Your Toolkit

- **Counter-example:** Remind them of counter-example to stereotype
- **Training (Work differently):** Work in groups, study differently for a test
- **Mentoring (Mentor to increase trust):** I have high standards and I know you can meet them..., buffer criticism with positive feedback
- **Self-Affirmations:** Reaffirm their values
- **Expandability of Intelligence (Growth Mindset):** Teach about the brain and that intelligence is expandable
- **Belonging or Attribution:** Share a personal story, share someone else's personal story

Example Problem

- You have a talented latino undergraduate, who, based on his performance in your upper-level undergraduate course, you recruited to do research in your lab. You are now having your third conversation with him about making progress on his research project. You don't understand why the first two conversations have failed to bring his performance to a higher level. In your conversations, you are usually very careful to point out what he has been doing really well with and where he needs to improve. How should you structure this next conversation?

Example Solution

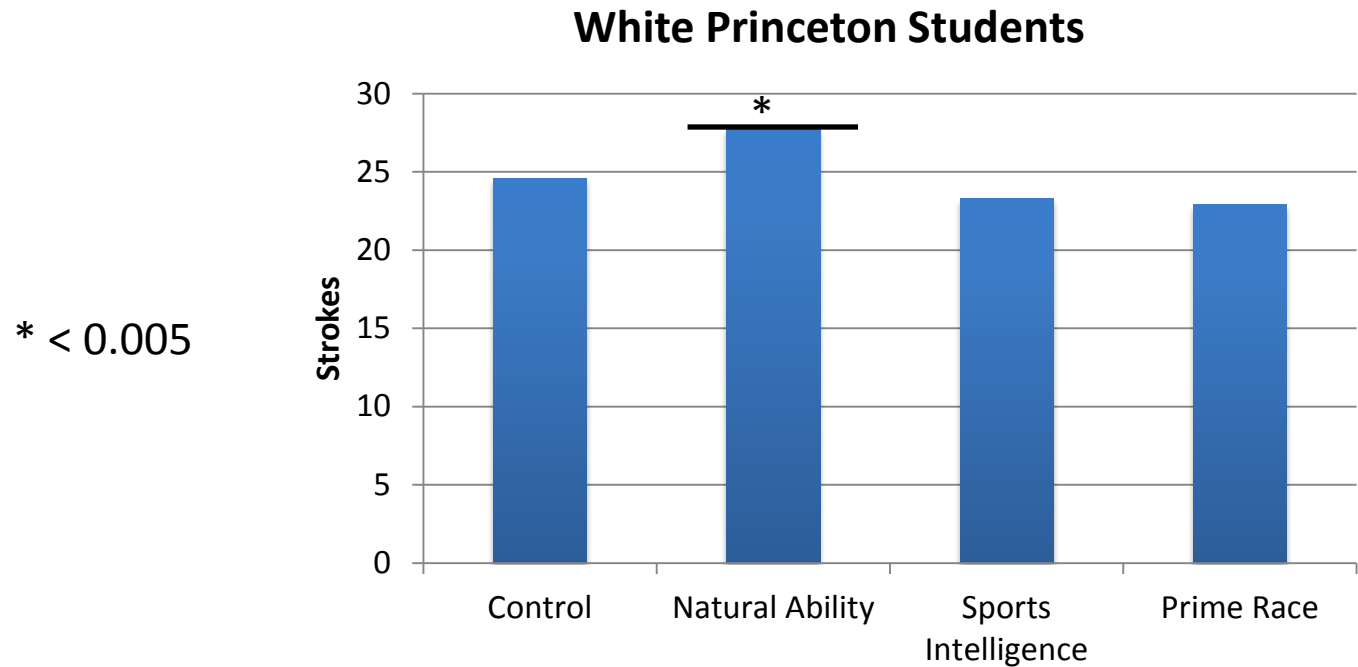
- **Mentoring:** You know, I have really high standards and I recruited you to my lab because I know you are completely able to meet those standards. I noticed that you are working really hard and reading a lot of literature, but I have noticed that you have not done the work that we discussed in our last meeting.
- **Growth Mindset:** “Research presents different challenges than coursework and it can take some time to learn how to approach it.”
- **Work Differently:** “What have you tried and let’s talk about what you can do differently to get past barriers you are experiencing.”
- **Counter example and work differently:** “One video that seriously inspired me to work more effectively and that I ask all of my graduate students to watch can be found here:
<http://www.ibiology.org/ibiomagazine/issue-11/enrique-m-de-la-cruz-how-to-succeed-in-science.html> “

Discussion

1. Create a group of three individuals with the same problem number given on the scenario handout (preferably group with people in other departments)
2. Assign one to be a manager (keep the discussion on task), one a notetaker, and one to be the speaker.
3. Determine three things you could tell the student to help them succeed in an situation where they are likely suffering from stereotype threat.

White students playing golf

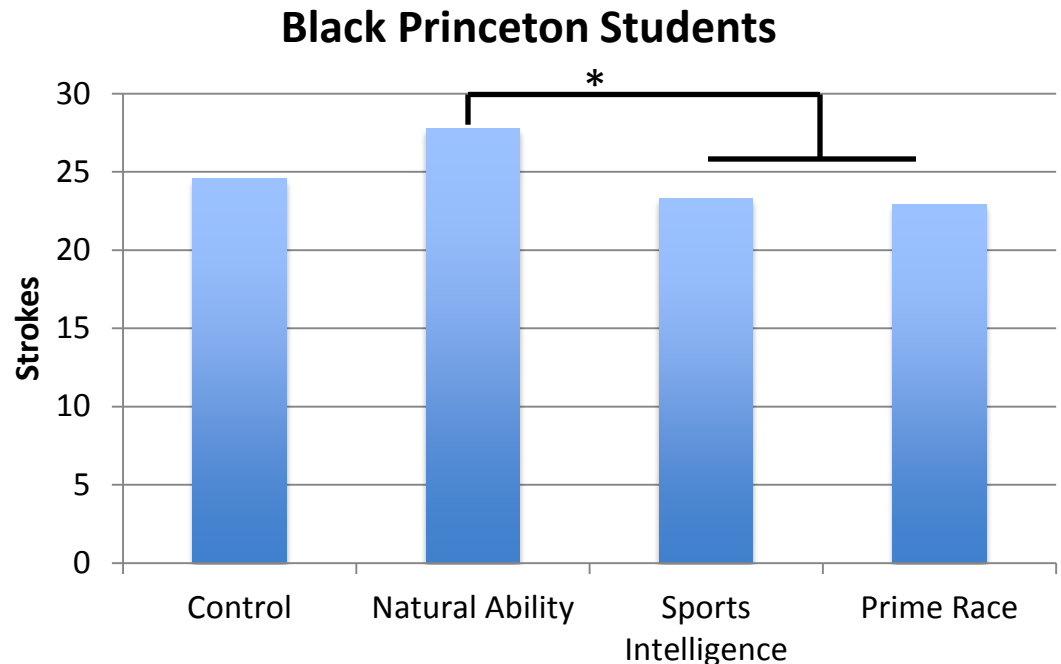
- **Study:** Stone, Jeff, Christian I Lynch, Mike Sjomeling, and John M Darley. “Stereotype Threat Effects on Black and White Athletic Performance.” *Journal of Personality and Social Psychology* 77, no. 6 (1999): 1213–27.
- **Group:** Princeton Undergraduate students
- **Stereotype:** White men are not good at sports
- **Task:** Play 10 holes of mini-golf
- **Stereotype Reinforced:** Task is presented as a measure of natural athletic ability
- **Mitigation Used:** None needed



Black students playing golf

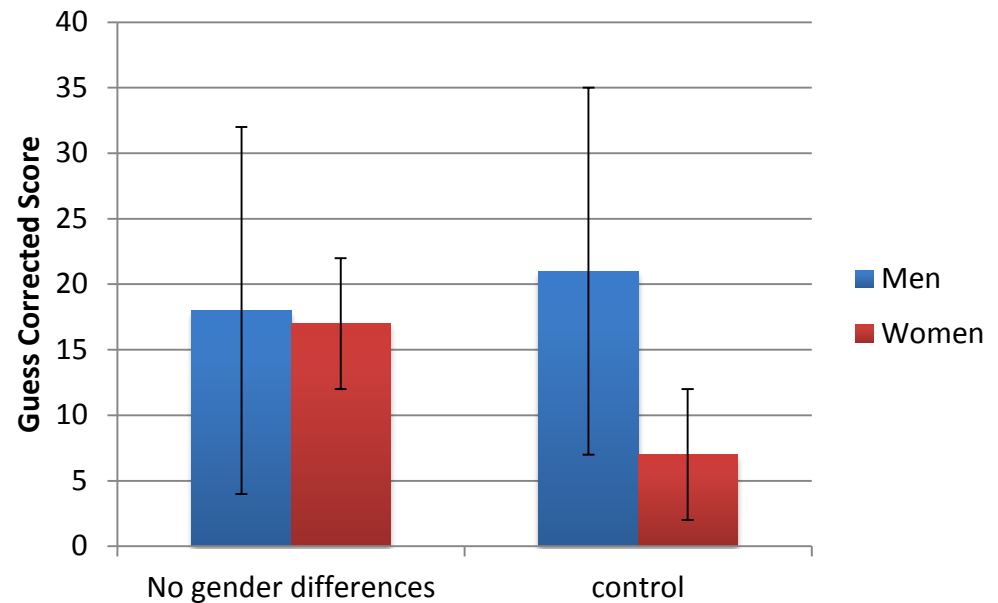
- **Study:** Stone, Jeff, Christian I Lynch, Mike Sjomeling, and John M Darley. “Stereotype Threat Effects on Black and White Athletic Performance.” *Journal of Personality and Social Psychology* 77, no. 6 (1999): 1213–27.
- **Group:** Princeton Undergraduate students
- **Stereotype:** Black men are not intelligent
- **Task:** Play 10 holes of mini-golf
- **Stereotype Reinforced:** a) Task is presented as a measure of ability to think strategically about sports or b) participants are reminded of their race
- **Mitigation Used:** None needed

* < 0.01



Women taking a math test

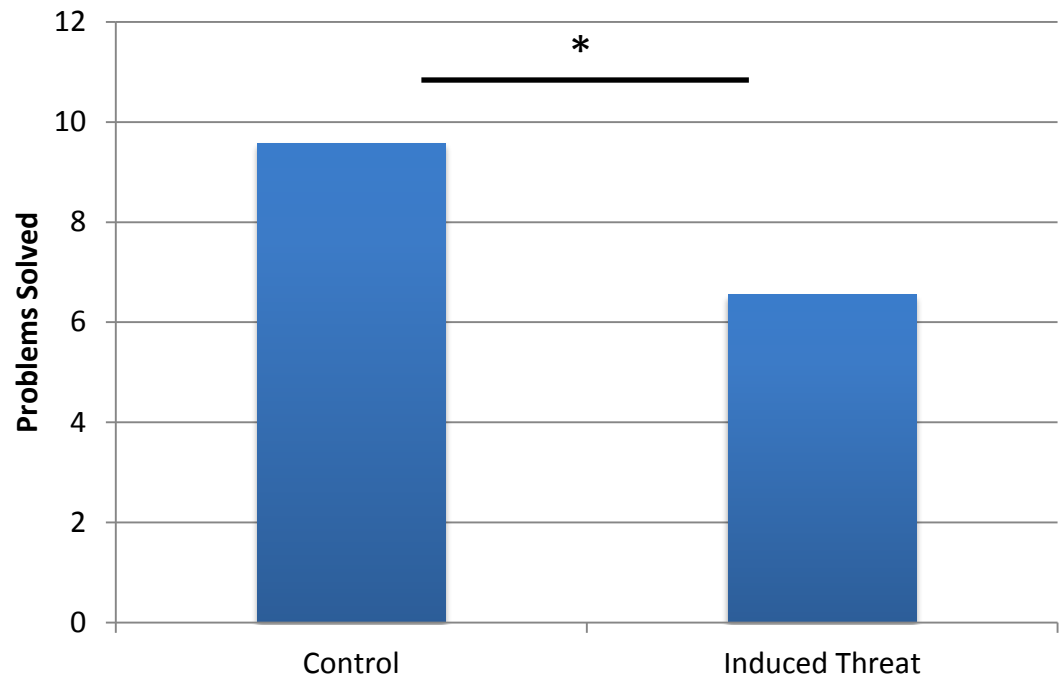
- **Study:** Spencer, Steven J., Claude M. Steele, and Diane M. Quinn. “Stereotype Threat and Women’s Math Performance.” *Journal of Experimental Social Psychology* 35, no. 1 (1999): 4–28.
- **Group:** Michigan undergraduates with B or better in Calc I and > 85% on SAT math section
- **Stereotype:** Women are bad at math
- **Task:** Math test
- **Stereotype Reinforced:** Not reinforced explicitly
- **Mitigation Used:** Tell subjects that on this test, women perform the same as men



Inducing Situational Stereotype Threat

- **Study:** Aronson, Joshua, Michael J Lustina, and Kelli Keough. “When White Men Can’t Do Math: Necessary and Sufficient Factor in Stereotype Threat.” *Journal of Experimental Social Psychology* 35 (1999): 29–46.
- **Group:** White male Stanford undergraduates with high math SAT score
- **Stereotype:** Asians are better at math than white men
- **Task:** Math test
- **Relative stereotype activated:** Presented with materials and idea that Asians are better at math
- **Mitigation Used:** None

* <0.01



Stereotype threat and multiple identities

- **Study:** Ambady, Nalini, Margaret Shih, Amy Kim, and Todd L Pittinsky. “STEREOTYPE SUSCEPTIBILITY IN CHILDREN: Effects of Identity Activation on Quantitative Performance” 12, no. 5 (2001): 385–91.
- **Group:** Asian American girls (K-2, 3-5, Middle School)
- **Stereotypes:** Girls are bad at math, but Asians are good at math
- **Task:** Math test
- **Stereotype Reinforced:** Activate gender identity (color a picture of girl with a doll)
- **Mitigation Used:** Activate ethnic identity (color a picture of two Asian children eating rice with chopsticks)

