INNOCULATING AGAINST STEREOTYPE THREAT

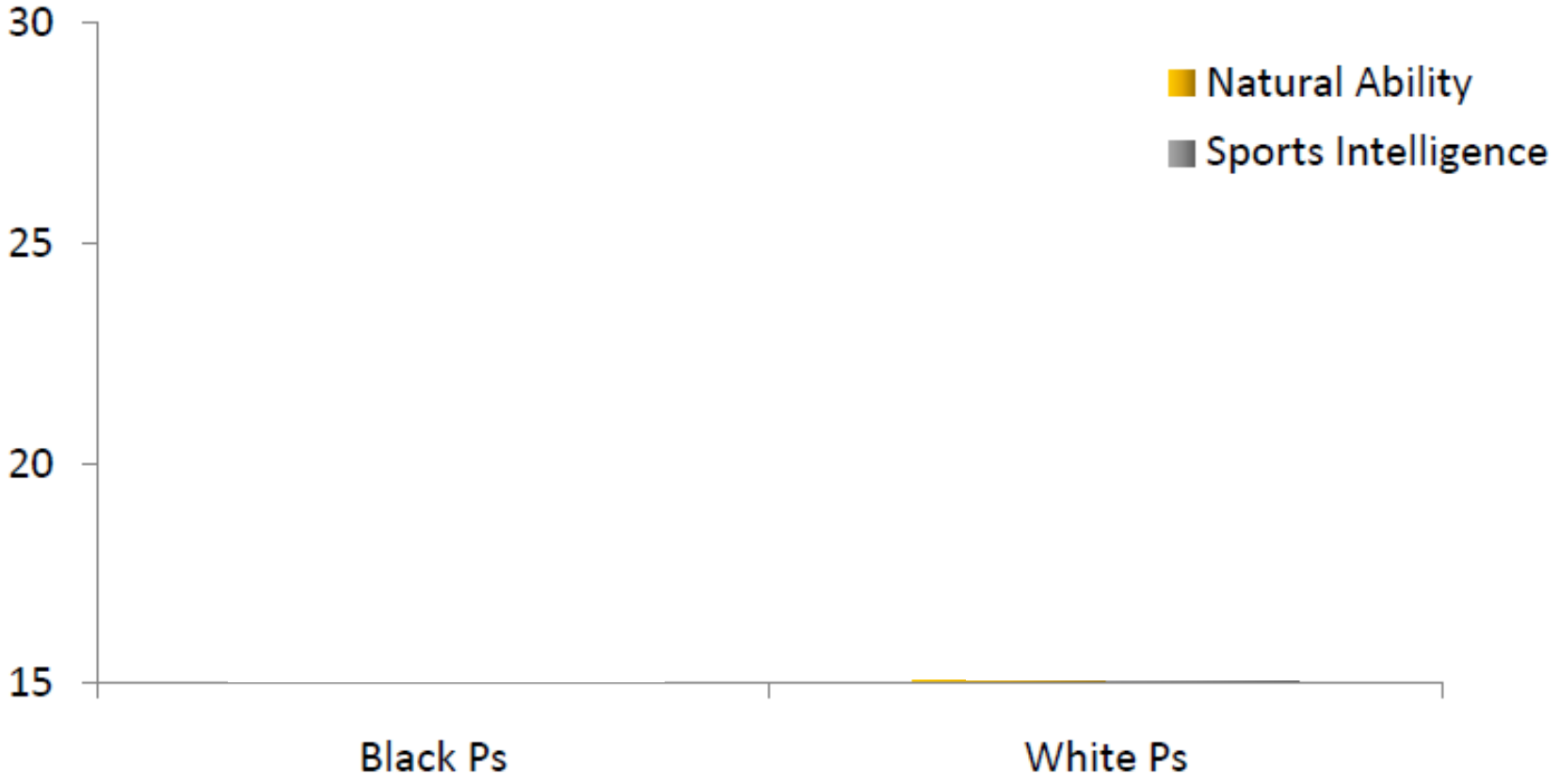
Kelly Hoffman
University of Virginia

“WHITE MEN CAN’T JUMP”

- Black and White Ps played golf
- Condition 1: “this game is diagnostic of natural athletic ability”
- Condition 2: “this game is diagnostic of sports intelligence”
- Outcome measure = number of strokes required to complete the 10-hole golf course

NUMBER OF STROKES

HIGHER NUMBERS = WORSE PERFORMANCE



Stone et al., 1999

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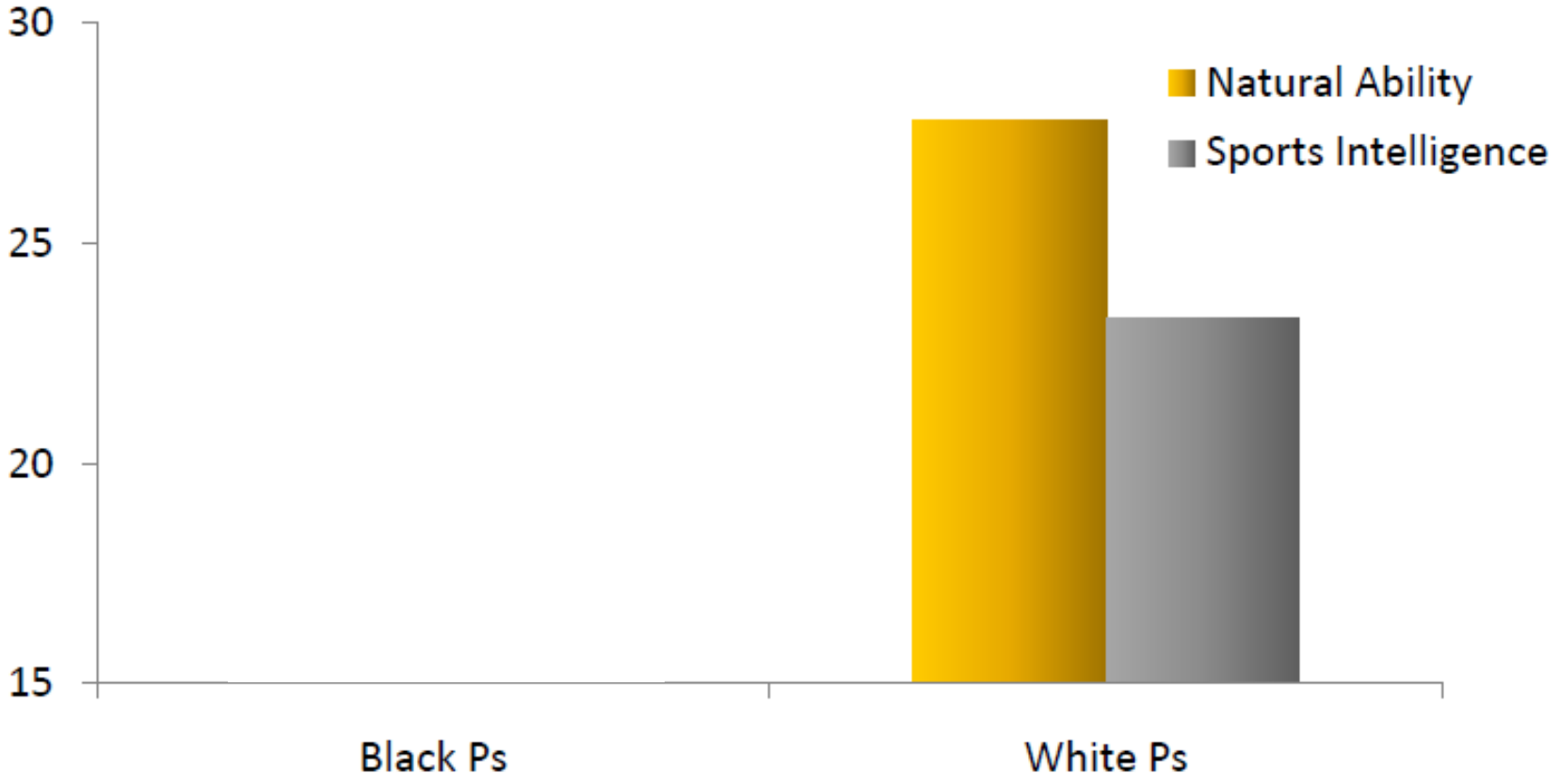

Stone et al., 1999

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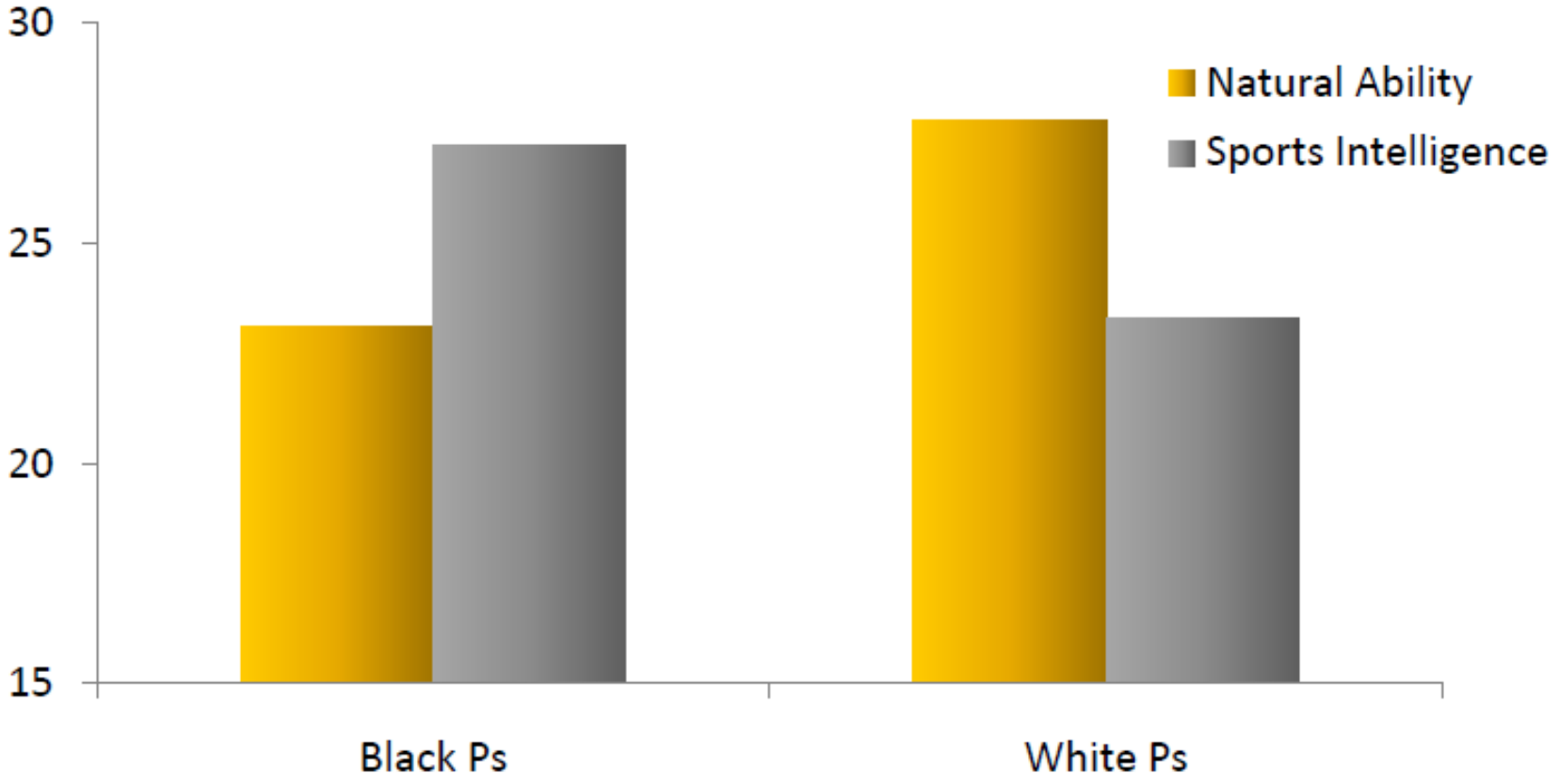


Stone et al., 1999

“BLACK PEOPLE ARE LESS INTELLIGENT”

“WOMEN CAN’T DO MATH”

Anxiety due to a situation in which a negative stereotype about your group could apply

STEREOTYPE THREAT

- Stereotype exists
- Person identifies with group and domain
- Test/task is difficult

STEREOTYPE THREAT

- Stereotype exists

  "women are bad at computer science"

- Person identifies with group and domain

  "I am a woman—I am a computer scientist"

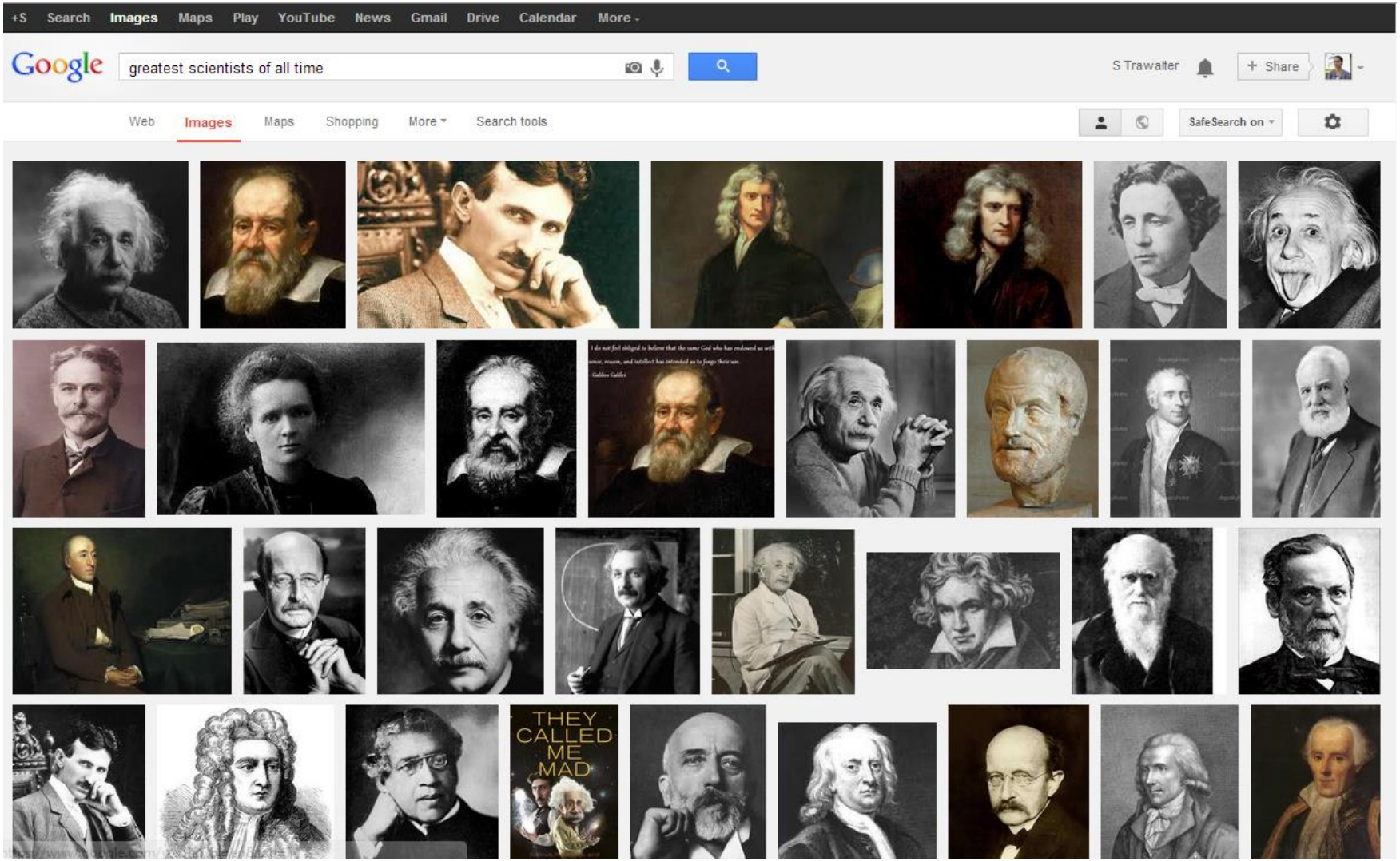
- Test/task is difficult

  "Computer science is difficult"

DECREASING STEREOTYPE THREAT

- Change the stereotype
- Secure identification with group and domain
- Make test challenging, not threatening

SOLUTION 1: CHANGE THE STEREOTYPE



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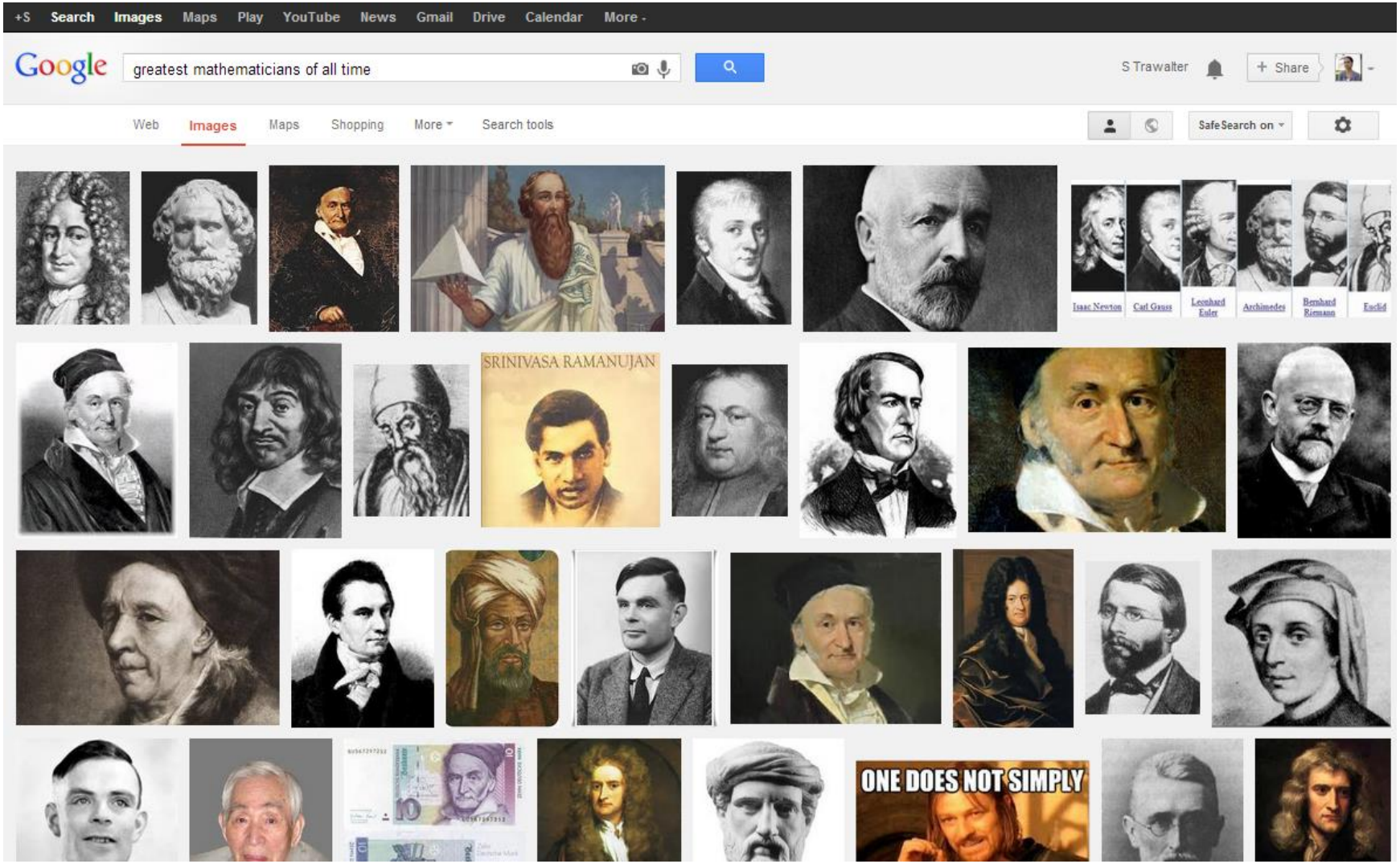

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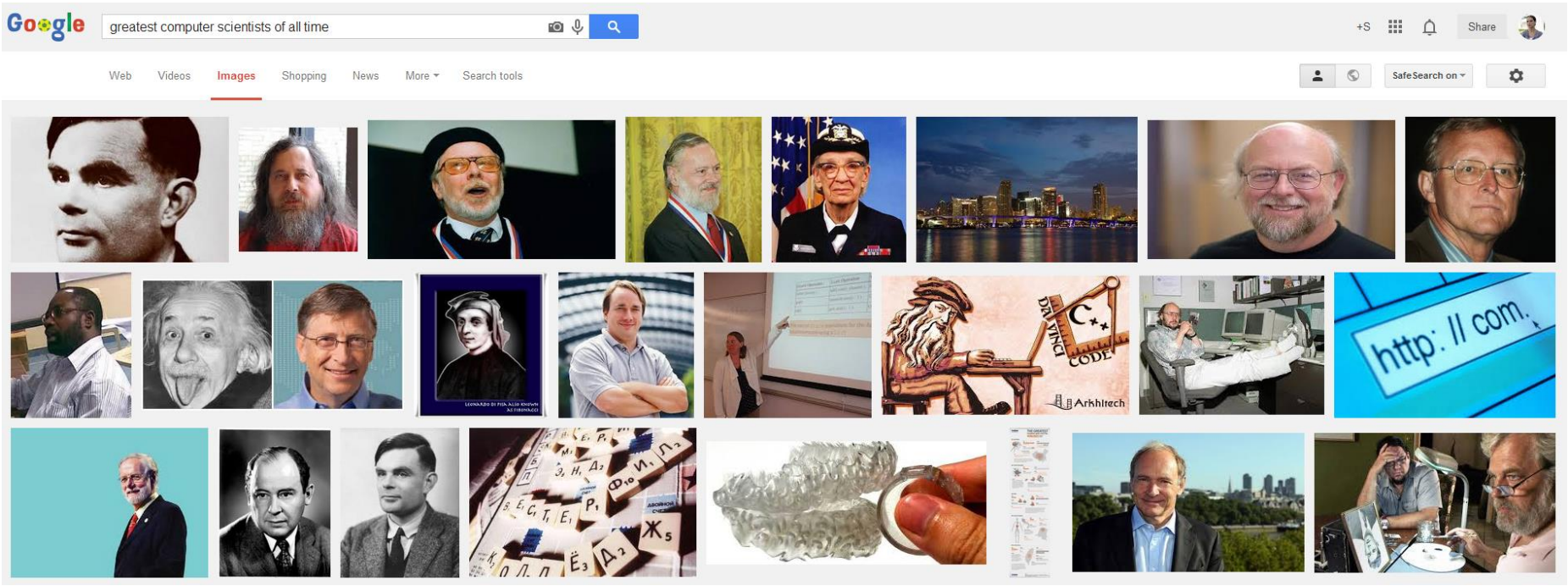
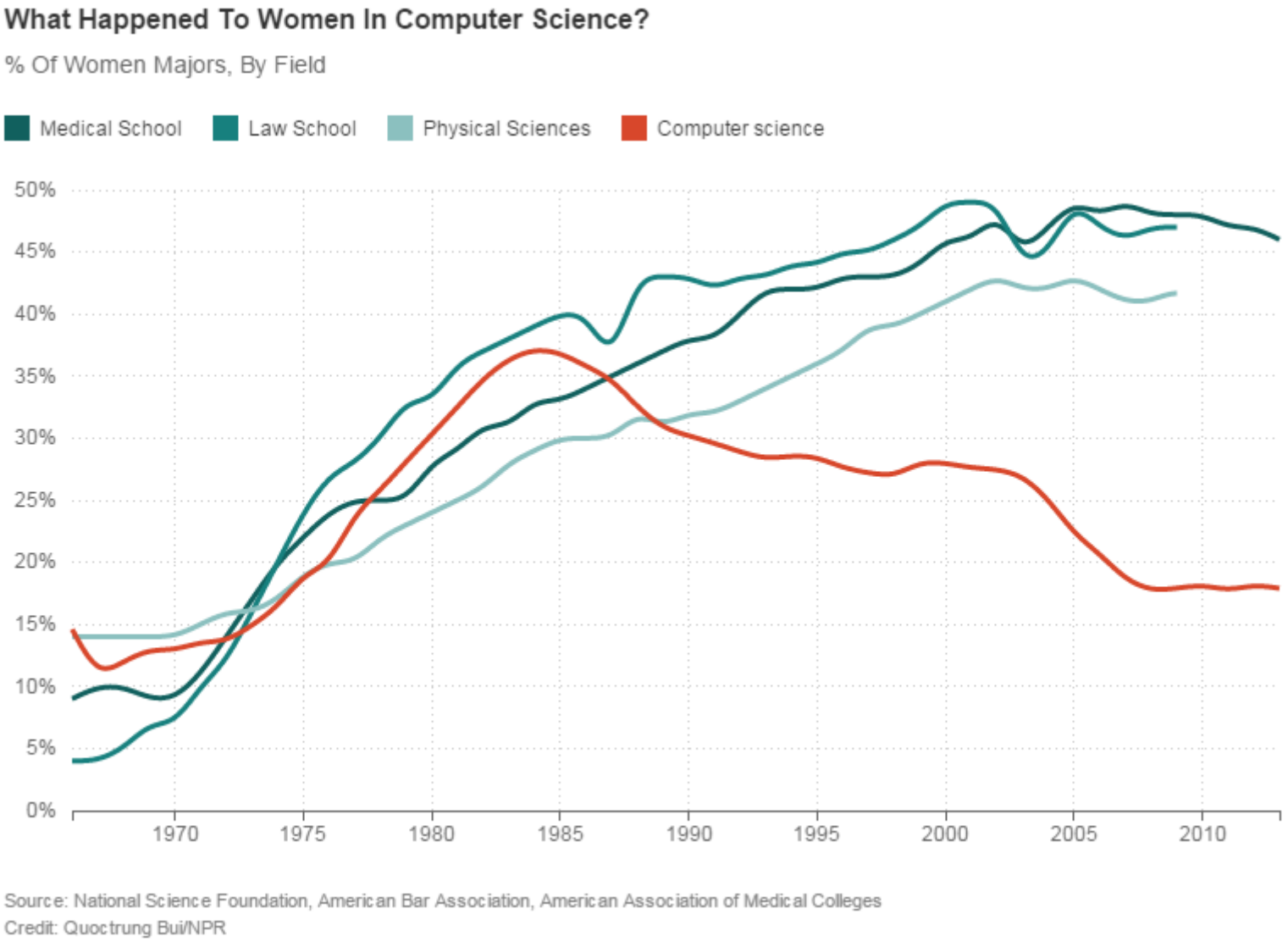


(Under)REPRESENTATION



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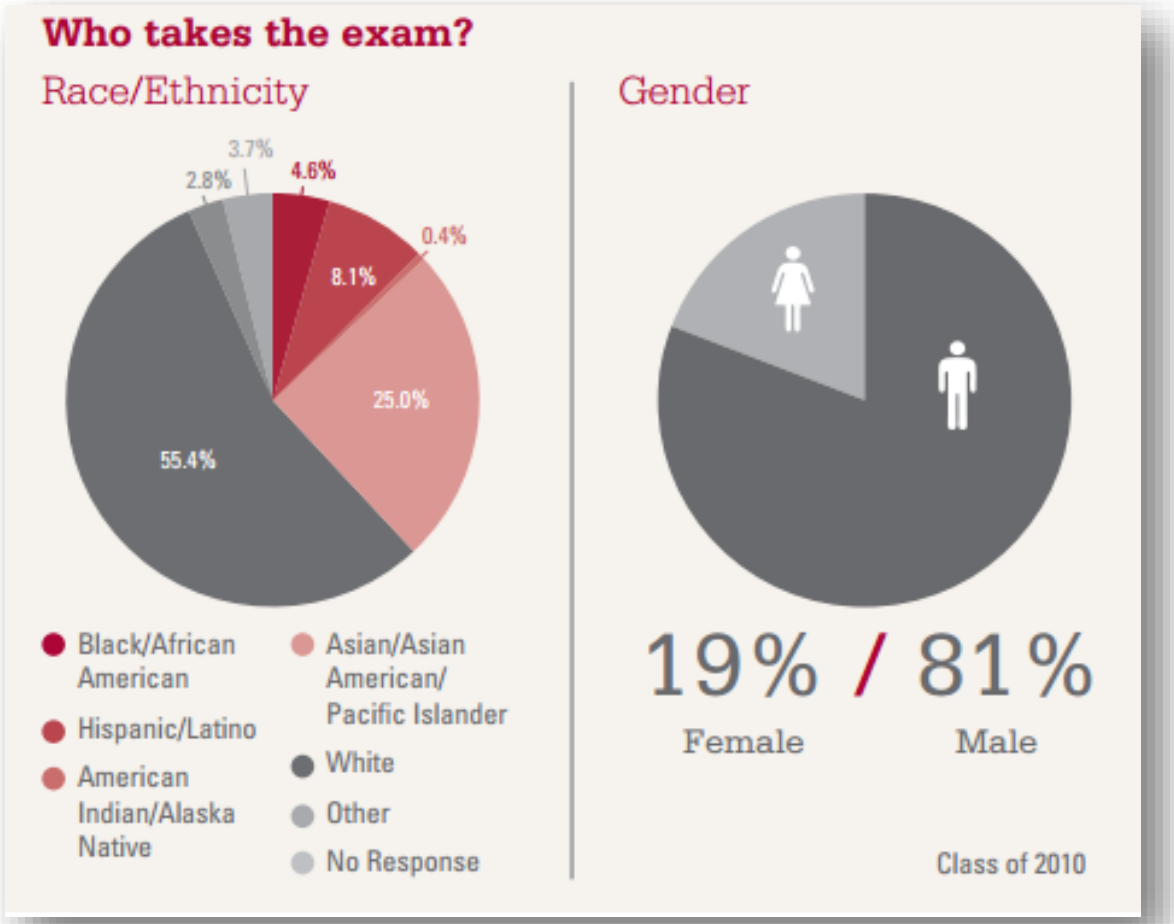

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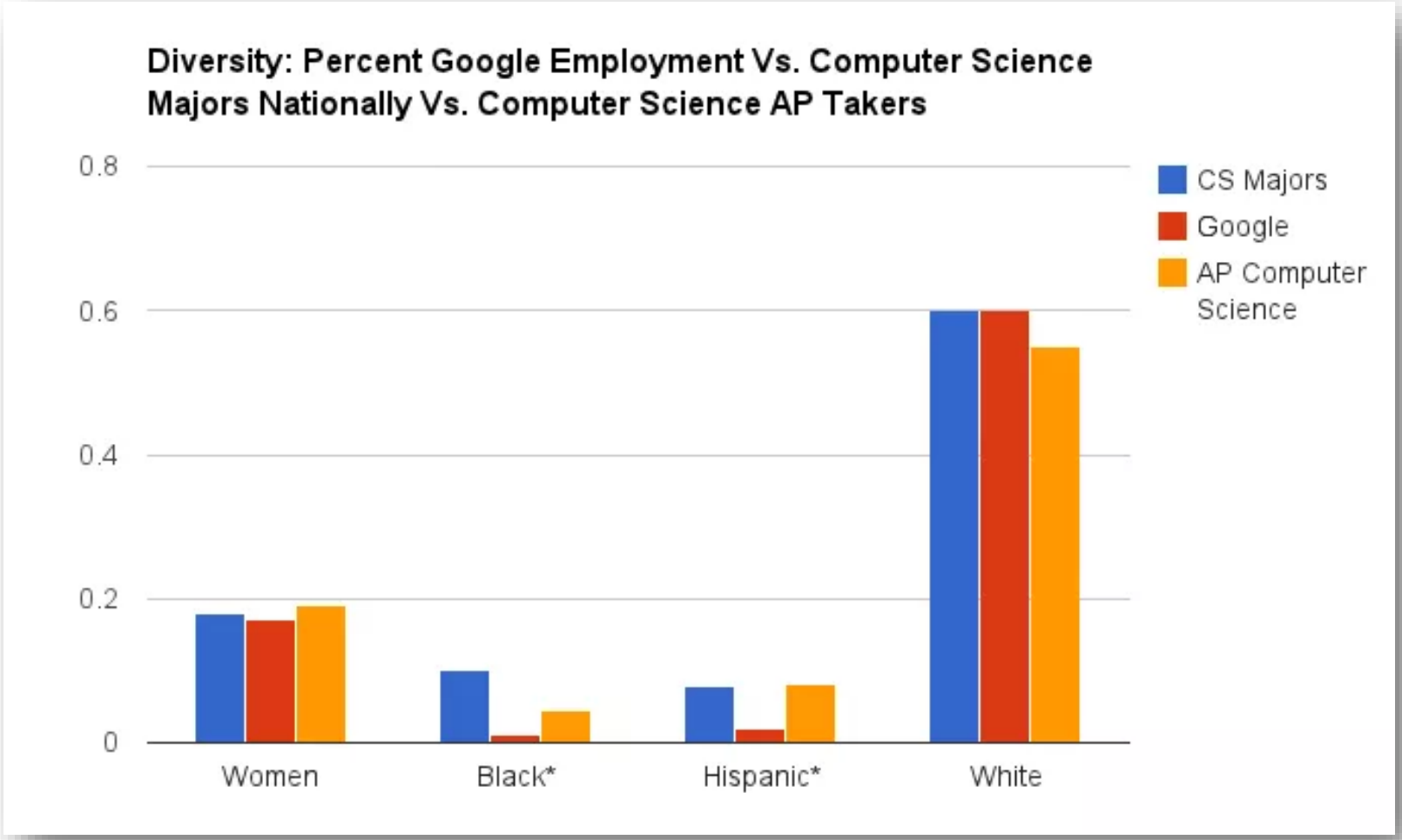

Research Article

Signaling Threat

How Situational Cues Affect Women in Math, Science, and Engineering Settings

Research Article

Signaling Threat

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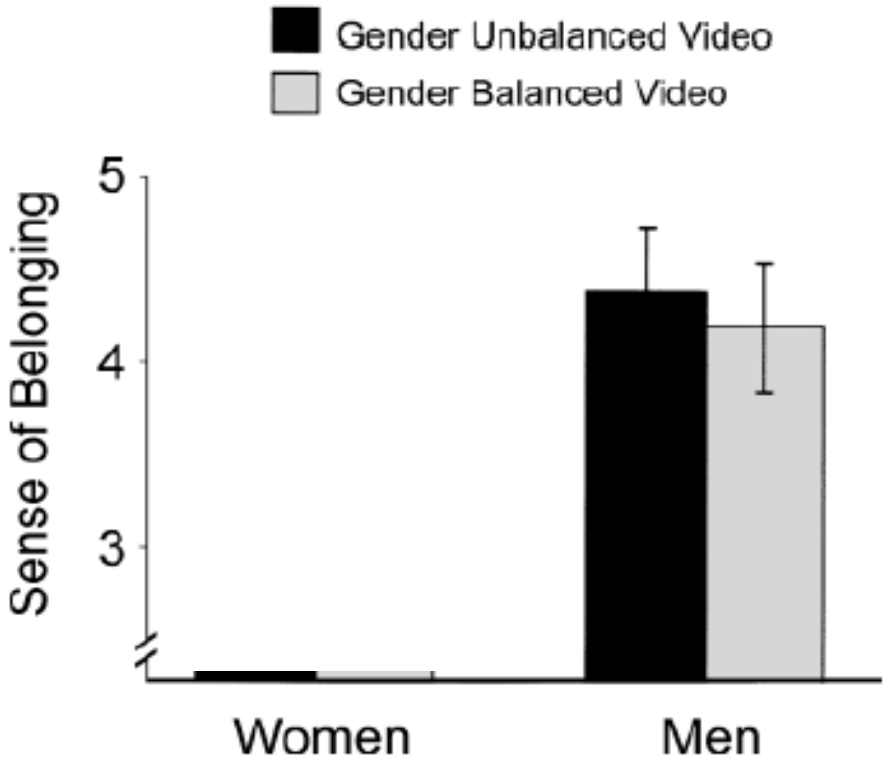


Journal of Educational Psychology
2003, Vol. 95, No. 4, 796–805

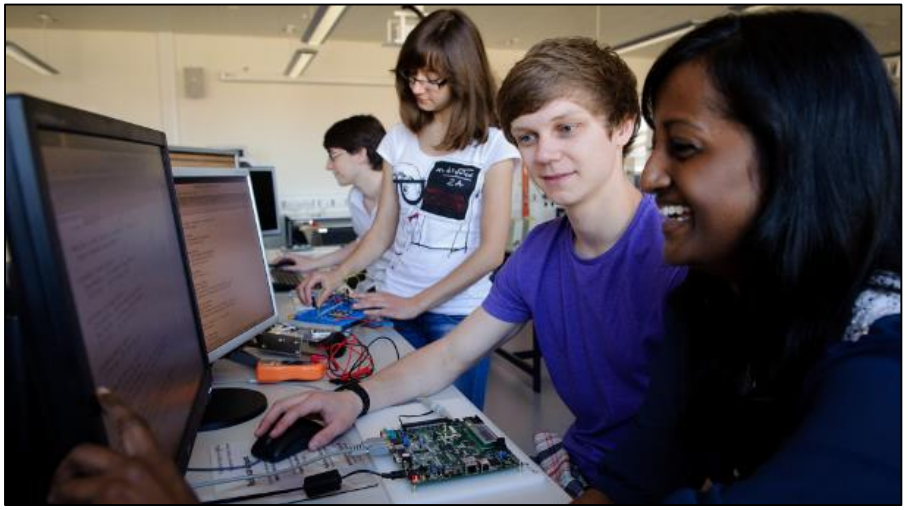
0022-0663/03/$12.00 DOI: 10.1037/0022-0663.95.4.796

Do High-Achieving Female Students Underperform in Private? The Implications of Threatening Environments on Intellectual Processing

Michael Inzlicht
New York University

Talia Ben-Zeev
San Francisco State University

GOAL CONGRUITY



Why do students love computer science? What goals does computer science fulfill?

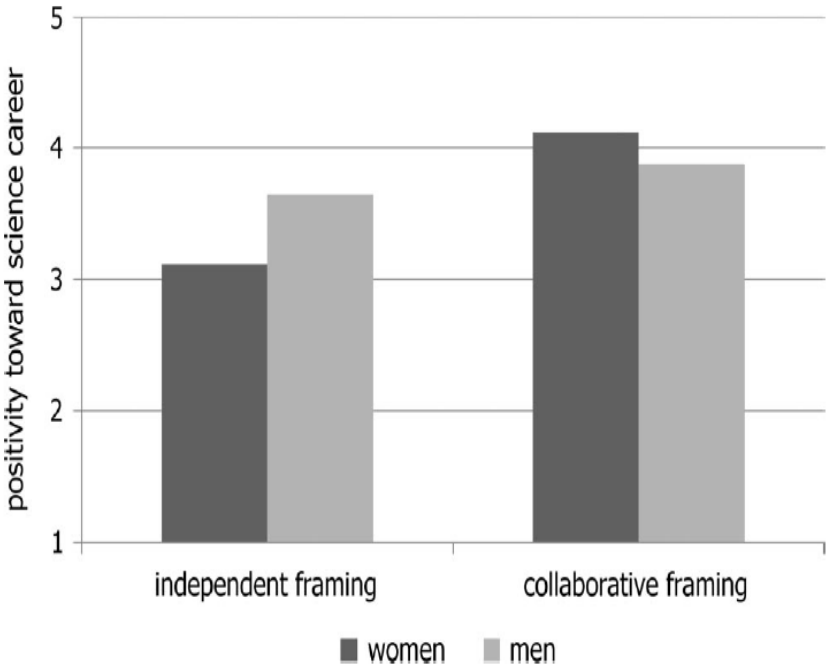
Journal of Personality and Social Psychology
2011, Vol. 101, No. 5, 902–918

0022-3514/11/$12.00 DOI: 10.1037/a0025199

Malleability in Communal Goals and Beliefs Influences Attraction to STEM Careers: Evidence for a Goal Congruity Perspective

<u>Collaborative framing:</u> "Mentor new members of my statistics group in doing data analysis (e.g., powder X-ray diffraction, differential scanning calorimetry, thermal gravimetric analysis)."

<u>Independent framing:</u> "Do data analysis (e.g., powder X-ray diffraction, differential scanning calorimetry, thermal gravimetric analysis) and troubleshoot any problems that come up by myself."



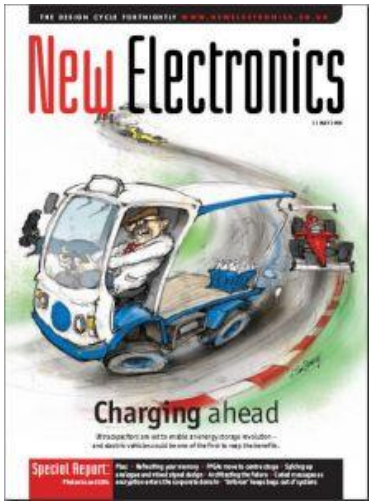
What’s your classroom like?

PHYSICAL CUES

Journal of Personality and Social Psychology
2009, Vol. 97, No. 6, 1045–1060

0022-3514/09/$12.00 DOI: 10.1037/a0016239

Ambient Belonging: How Stereotypical Cues Impact Gender Participation in Computer Science



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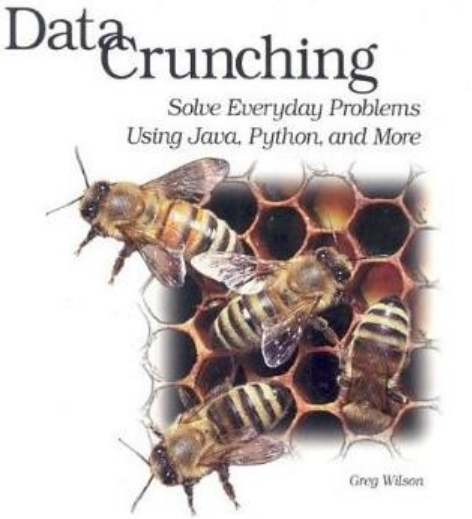
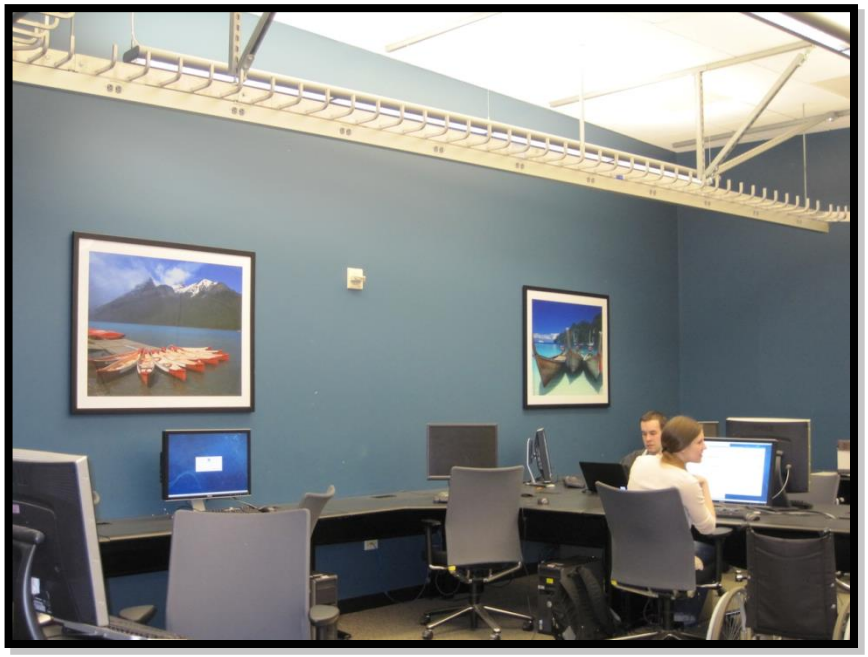
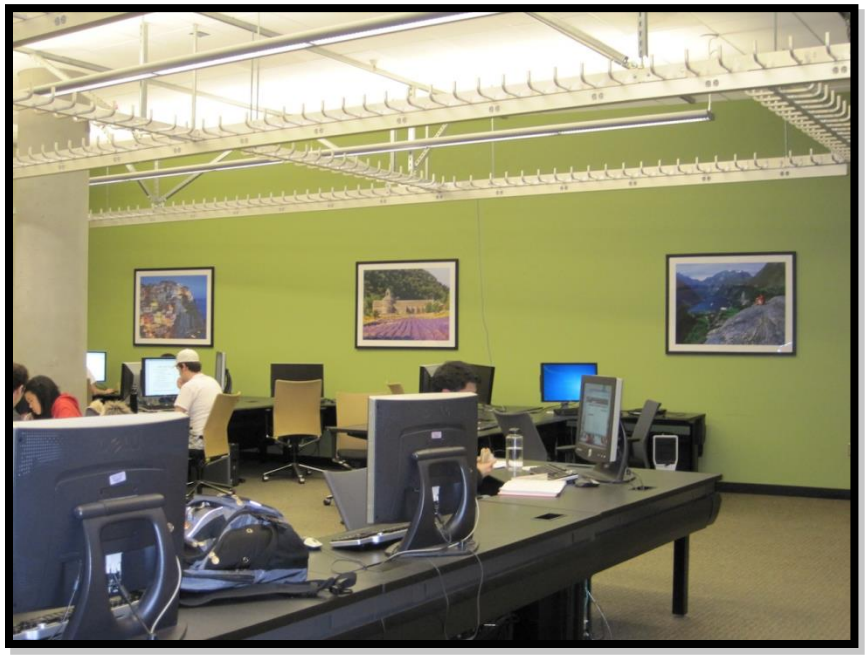


U. of Washington
Computer Science and Engineering





SOLUTION 2: SECURE IDENTIFICATION WITH THE DOMAIN

SOCIAL BELONGING

Journal of Personality and Social Psychology
2007, Vol. 92, No. 1, 82–96

0022-3514/07/$12.00 DOI: 10.1037/0022-3514.92.1.82

A Question of Belonging: Race, Social Fit, and Achievement

Gregory M. Walton
Yale University

Geoffrey L. Cohen
University of Colorado at Boulder

Stigmatization can give rise to *belonging uncertainty*. In this state, people are sensitive to information diagnostic of the quality of their social connections. Two experiments tested how belonging uncertainty undermines the motivation and achievement of people whose group is negatively characterized in academic settings. In Experiment 1, students were led to believe that they might have few friends in an intellectual domain. Whereas White students were unaffected, Black students (stigmatized in academics) displayed a drop in their sense of belonging and potential. In Experiment 2, an intervention that mitigated doubts about social belonging in college raised the academic achievement (e.g., college grades) of Black students but not of White students. Implications for theories of achievement motivation and intervention are discussed.

Keywords: attributional retraining, academic achievement, social identity, stereotype threat, stigma or race

ROLE MODELS

STEMing the Tide: Using Ingroup Experts to Inoculate Women's Self-Concept in Science, Technology, Engineering, and Mathematics (STEM)

Jane G. Stout, Nilanjana Dasgupta, Matthew Hunsinger, and Melissa A. McManus
University of Massachusetts, Amherst

Three studies tested a stereotype inoculation model, which proposed that contact with same-sex experts (advanced peers, professionals, professors) in academic environments involving science, technology, engineering, and mathematics (STEM) enhances women's self-concept in STEM, attitudes toward STEM, and motivation to pursue STEM careers. Two cross-sectional controlled experiments and 1 longitudinal naturalistic study in a calculus class revealed that exposure to female STEM experts promoted positive implicit attitudes and stronger implicit identification with STEM (Studies 1–3), greater self-efficacy in STEM (Study 3), and more effort on STEM tests (Study 1). Studies 2 and 3 suggested that the benefit of seeing same-sex experts is driven by greater subjective identification and connectedness with these individuals, which in turn predicts enhanced self-efficacy, domain identification, and commitment to pursue STEM careers. Importantly, women's own self-concept benefited from contact with female experts even though negative stereotypes about their gender and STEM remained active.

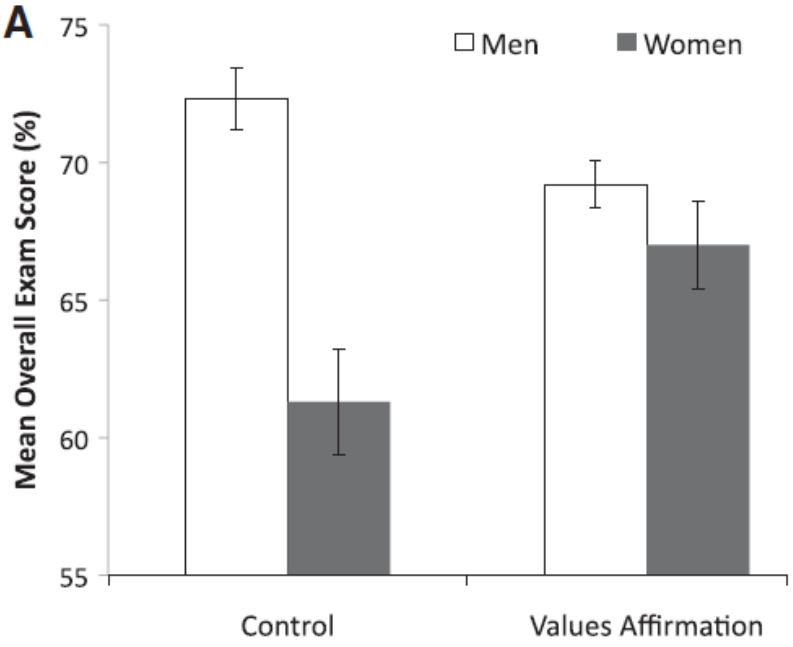
Keywords: gender stereotypes, self-concept, implicit social cognition, role models, science and engineering

(SELF-) AFFIRMATION

Reducing the Gender Achievement Gap in College Science: A Classroom Study of Values Affirmation

<u>Values Affirmation:</u> "Please write about your two most important values. Why are these important to you?"

<u>Control Condition:</u> "Please write about your two least important values. Why might these be important to someone else?"



SOLUTION 3: MAKE THE TASK CHALLENGING, NOT THREATENING

fight

flight

GROWTH MINDSET

ELSEVIER

Applied Developmental Psychology 24 (2003) 645–662

Applied Developmental Psychology

Improving adolescents' standardized test performance:
An intervention to reduce the effects of stereotype threat

<u>Growth Mindset:</u> "Intelligence is not a finite endowment, but rather an expandable capacity that increases with mental work."

<u>Control Condition:</u> No information about growth mindset.

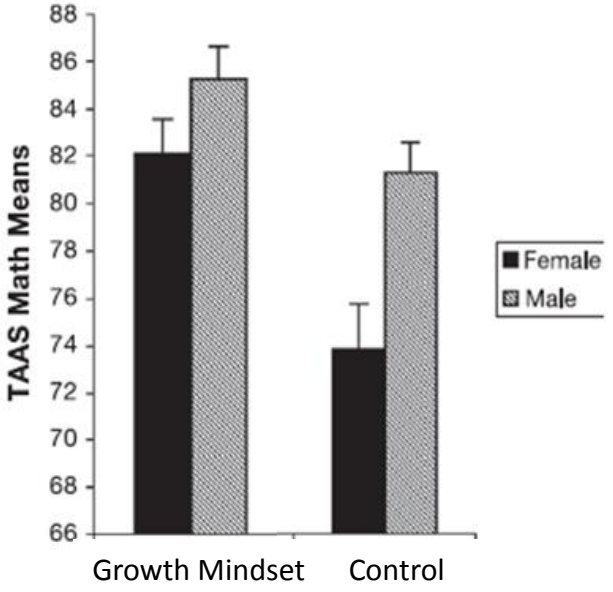


Fig. 1. Average math scores on the TAAS test.

“WISE” FEEDBACK

- Bla
- Ask ɔn” for
- Pha
- Phase 2: Receive critical feedback
- Experimental condition
  - Criticism
  - Criticism + positive buffer
  - Criticism + high standards + assurance

The Mentor’s Dilemma: Providing Critical Feedback Across the Racial Divide

Geoffrey L. Cohen
Claude M. Steele
Lee D. Ross
Stanford University

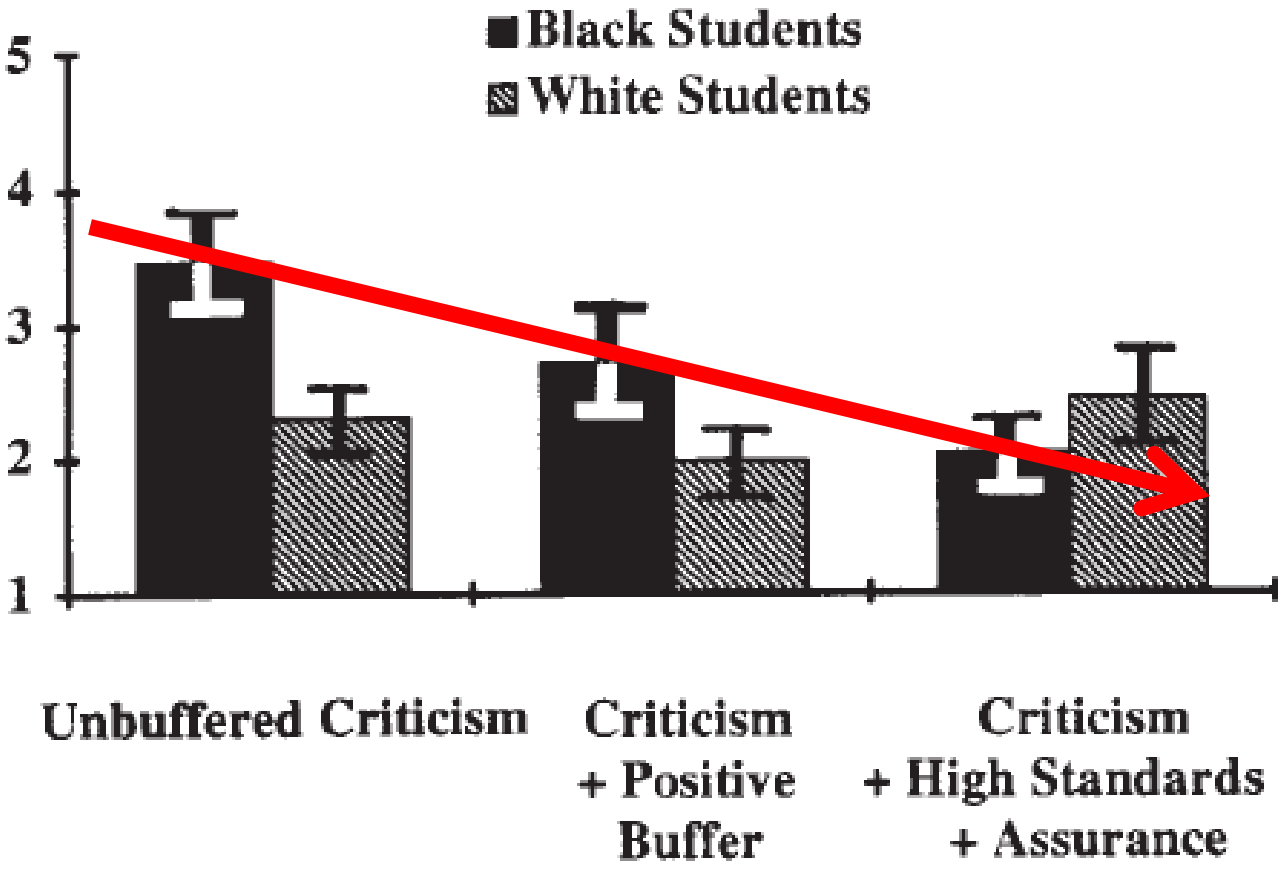


Figure 1 Ratings of bias as a function of race and feedback condition in Study 1.

DON'T sugar coat!
DO invoke high standards
DO provide assurance—*but realize that this may mean providing resources*

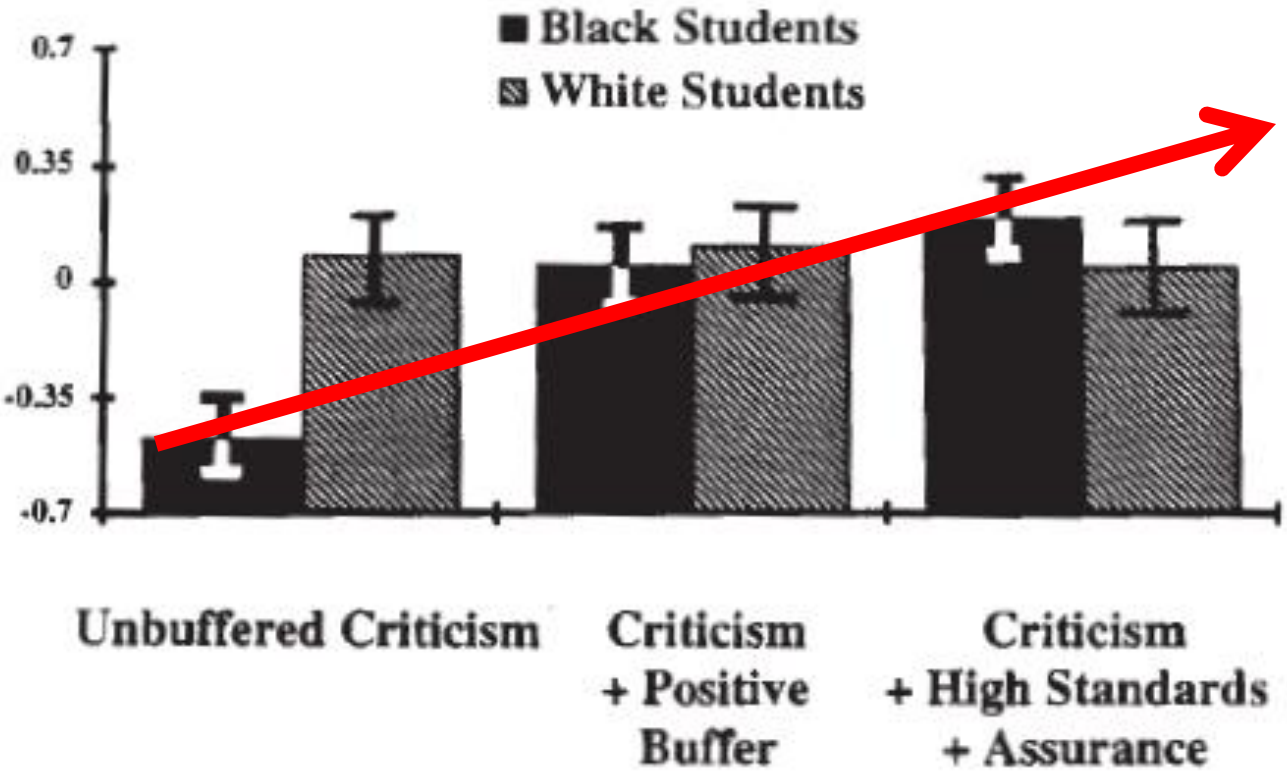


Figure 2 Task motivation as a function of race and feedback condition in Study 1.

STEREOTYPE THREAT

- Stereotype exists
- Person identifies with group and domain
- Test/task is difficult

STEREOTYPE THREAT

- Stereotype exists—***change the stereotype: representation, goals, and physical cues***

- Person identifies with group and domain—***secure identification with group and domain: peers, mentors, and roles models***

- Test/task is difficult—***make task challenging, not threatening: growth mindset, wise feedback***

THOUGHTS?
QUESTIONS?

khoffman@virginia.edu

https://implicit.harvard.edu/implicit/

Gender-Science on Project Implicit

Male
Liberal Arts

Female
Science

Gender-Science on Project Implicit

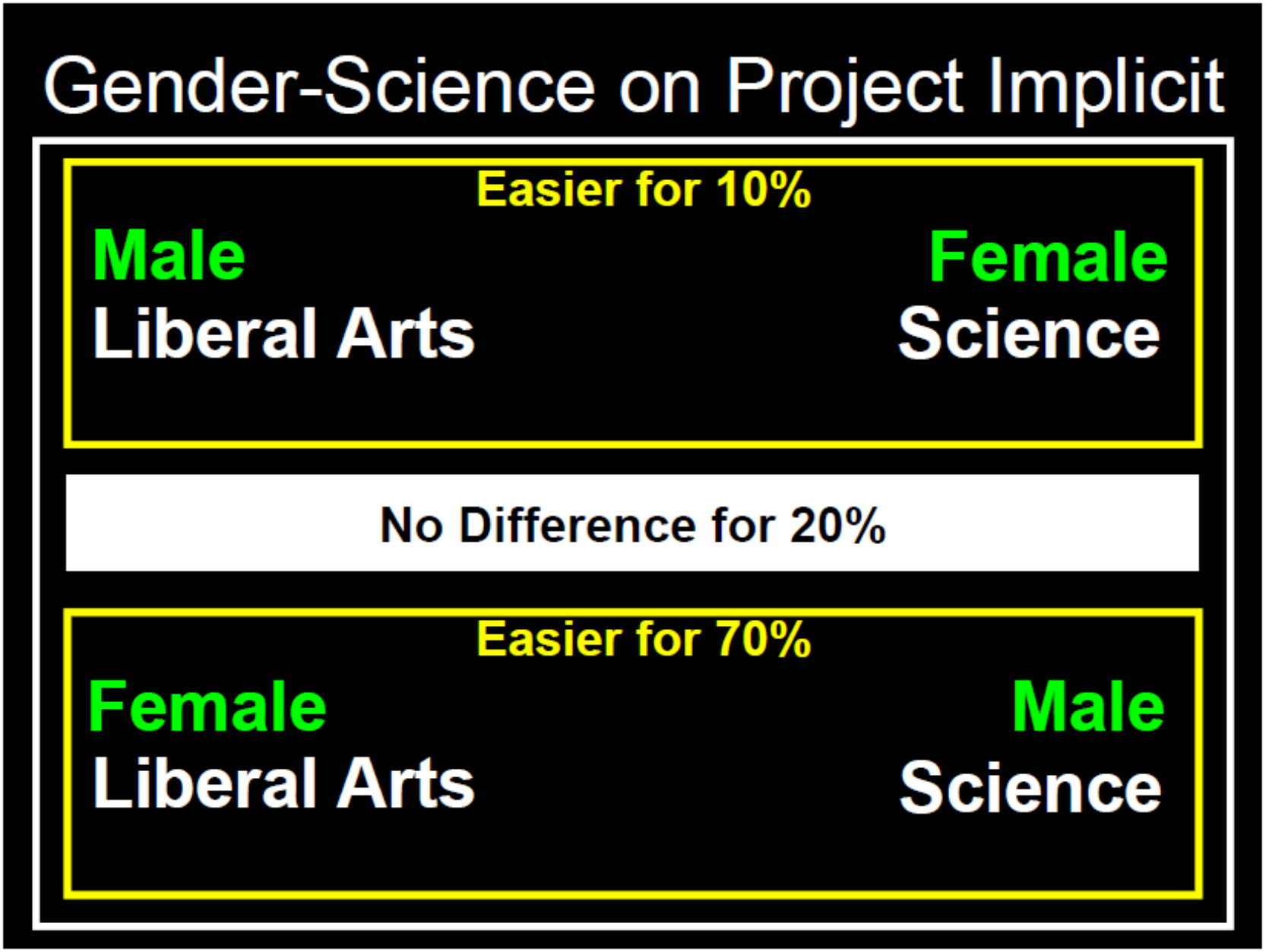
Male
Liberal Arts

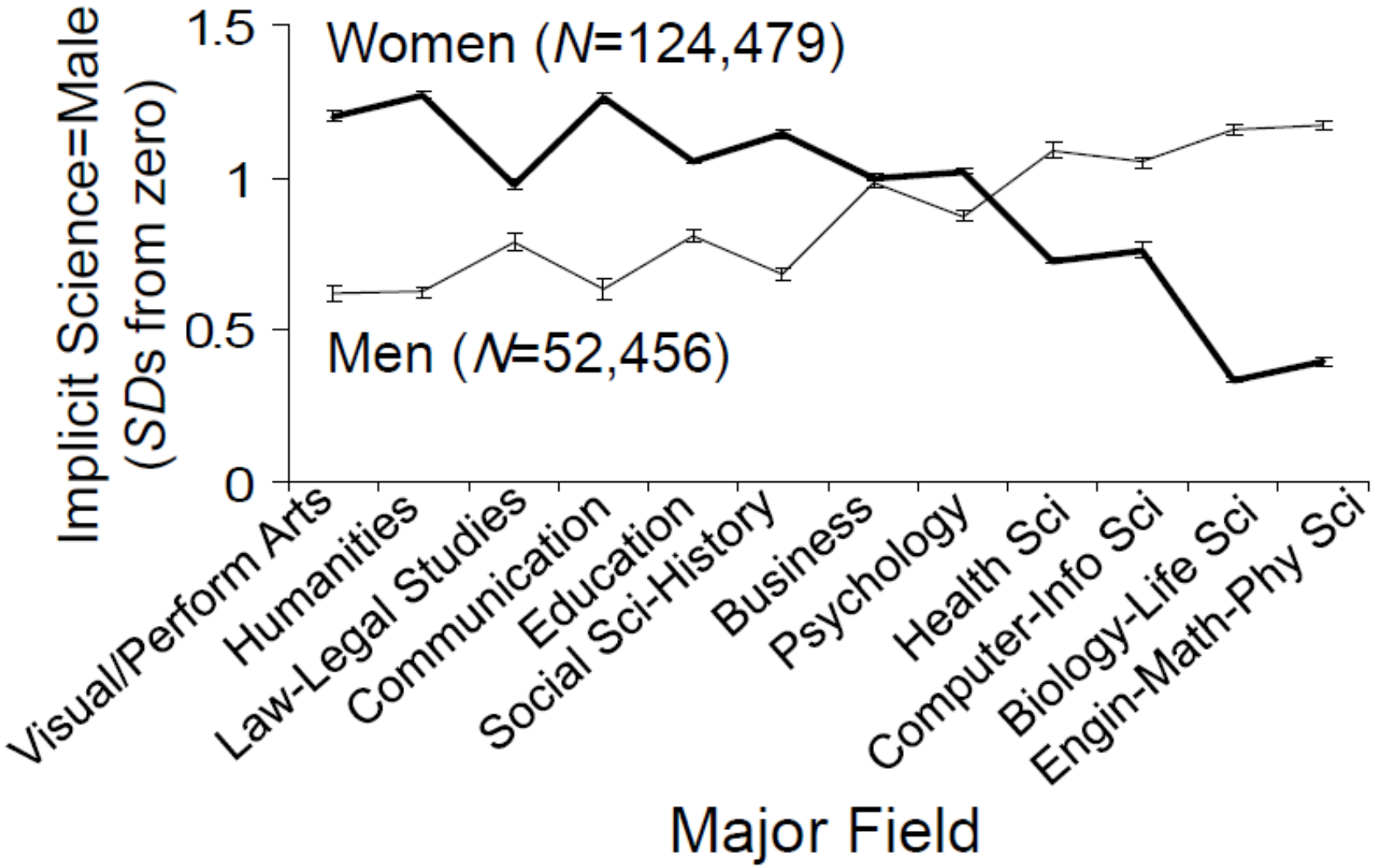
Female
Science

OR

Female
Liberal Arts

Male
Science


Gender-Science on Project Implicit
Easier for 10%
Male
Liberal Arts
Female
Science
No Difference for 20%
Easier for 70%
Female
Liberal Arts
Male
Science


Implicit Science=Male
(SDs from zero)
1.5
1
0.5
0
Women (N=124,479)
Men (N=52,456)
Visual/Perform Arts
Humanities
Law-Legal Studies
Communication
Education
Social Sci-History
Business
Psychology
Health Sci
Computer-Info Sci
Biology-Life Sci
Engin-Math-Phy Sci
Major Field

Smyth, 2013