

# Think-Pair-Share question

Why do we work on diversifying science?

# New research further confirms that music training benefits kids' brains



AFP RELAXNEWS  
Thursday, June 19, 2014, 2:32 PM

Researchers at the Boston Children's Hospital worked with magnetic resonance imaging (MRI) and found early musical training enhances the areas of the brain responsible for executive functioning.

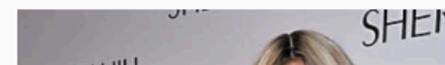
Also known as cognitive control or supervisory attentional system, "executive functioning" refers to brain management, not unlike the corresponding corporate term.

This is the top of the hierarchy in terms of brain organization, for executive functioning enables information processing and retention, regulates behavior, and is responsible for problem solving and planning, among other cognitive processes.

Better said, it's a key player to success in life.

In the study, researchers considered a musically trained child to be one who had at least two years of private lessons under his or her belt.

MOST POPULAR



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3K



211



236



German speakers are likely to imagine where this woman is going and English speakers to focus on her journey, but bilinguals may be able to have it both ways.

EyeEm/iStockphoto

## Speaking a second language may change how you see the world

By [Nicholas Weiler](#) | Mar. 17, 2015, 3:15 PM

Where did the thief go? You might get a more accurate answer if you ask the question in German. How did she get away? Now you might want to switch to English. Speakers of the two languages put different emphasis on actions and their consequences, influencing the way they think about the world, according to a new study. The work also finds that bilinguals may get the best of both worldviews, as their thinking can be more flexible.

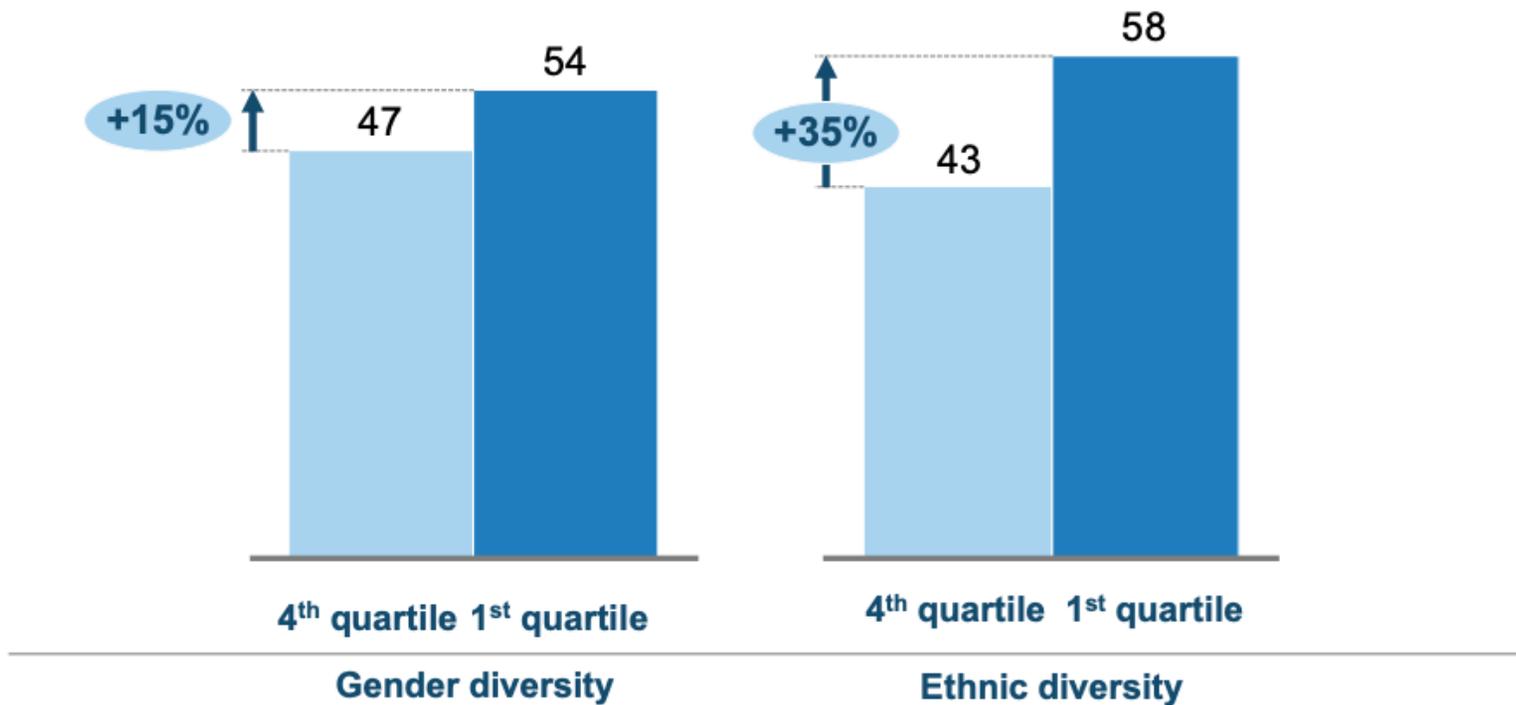
# McKinsey: Increased Diversity Correlates to Increased Innovation/Profit

“Delivering Through Diversity” (2018): Hunt, Prince, Dixon-Fyle, Yee

<https://www.mckinsey.com/business-functions/organization/our-insights/why-diversity-matters>

## How diversity correlates with better financial performance

Likelihood of financial performance above national industry median, by diversity quartile  
%



SOURCE: McKinsey Diversity Database

1. Diverse teams are more innovative and more productive
2. Our distinctive personal experiences influence everything we do: *including research and teaching*
3. *Demographic diversity* is valuable because it adds *intellectual diversity*

# Diversity training outcomes

The effects of programs intended to increase diversity at 829 large to midsize US companies was monitored over 10 years. The longitudinal effects of these programs was statistically isolated and quantified based on the **change in demographics of manager-level employees** over this timespan.

Type of program	White		Black		Hispanic		Asian	
	Men	Women	Men	Women	Men	Women	Men	Women
Mandatory diversity training				-9.2			-4.5	-5.4
Job tests		-3.8	-10.2	-9.1	-6.7	-8.8		-9.3
Grievance systems		-2.7	-7.3	-4.8		-4.7	-11.3	-4.1

**NOTE** GRAY INDICATES NO STATISTICAL CERTAINTY OF A PROGRAM'S EFFECT.

**SOURCE** AUTHORS' STUDY OF 829 MIDSIZE AND LARGE U.S. FIRMS. THE ANALYSIS ISOLATED THE EFFECTS OF DIVERSITY PROGRAMS FROM EVERYTHING ELSE GOING ON IN THE COMPANIES AND IN THE ECONOMY.

**FROM** "WHY DIVERSITY PROGRAMS FAIL," BY FRANK DOBBIN AND ALEXANDRA KALEV, JULY-AUGUST 2016

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# What works?

## Diversity Programs That Get Results

Companies do a better job of increasing diversity when they forgo the control tactics and frame their efforts more positively. The most effective programs spark engagement, increase contact among different groups, or draw on people's strong desire to look good to others.

### % CHANGE OVER FIVE YEARS IN REPRESENTATION AMONG MANAGERS

Type of program	White		Black		Hispanic		Asian	
	Men	Women	Men	Women	Men	Women	Men	Women
Voluntary training			+13.3		+9.1		+9.3	+12.6
Self-managed teams	-2.8	+5.6	+3.4	+3.9				+3.6
Cross-training	-1.4	+3.0	+2.7	+3.0	-3.9		+6.5	+4.1
College recruitment: women*	-2.0	+10.2	+7.9	+8.7		+10.0	+18.3	+8.6
College recruitment: minorities**			+7.7	+8.9				
Mentoring				+18.0	+9.1	+23.7	+18.0	+24.0
Diversity task forces	-3.3	+11.6	+8.7	+22.7	+12.0	+16.2	+30.2	+24.2
Diversity managers		+7.5	+17.0	+11.1		+18.2	+10.9	+13.6

\*College recruitment targeting women turns recruiting managers into diversity champions, so it also helps boost the numbers for black and Asian-American men.

\*\*College recruitment targeting minorities often focuses on historically black schools, which lifts the numbers of African-American men and women.

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# Take aways:

- Diversity work is not easy
- Diversity work can (and should!) be empirically quantified
- Effective diversity work is **institutional, integrated, and volitional**

A young boy and his father are driving through the woods. There is a terrible accident. The father is killed instantly. The boy is severely injured and rushed to a hospital for emergency surgery. In the operating room, the lead surgeon looks at the boy and says, "I can't operate on this boy, he is my son."

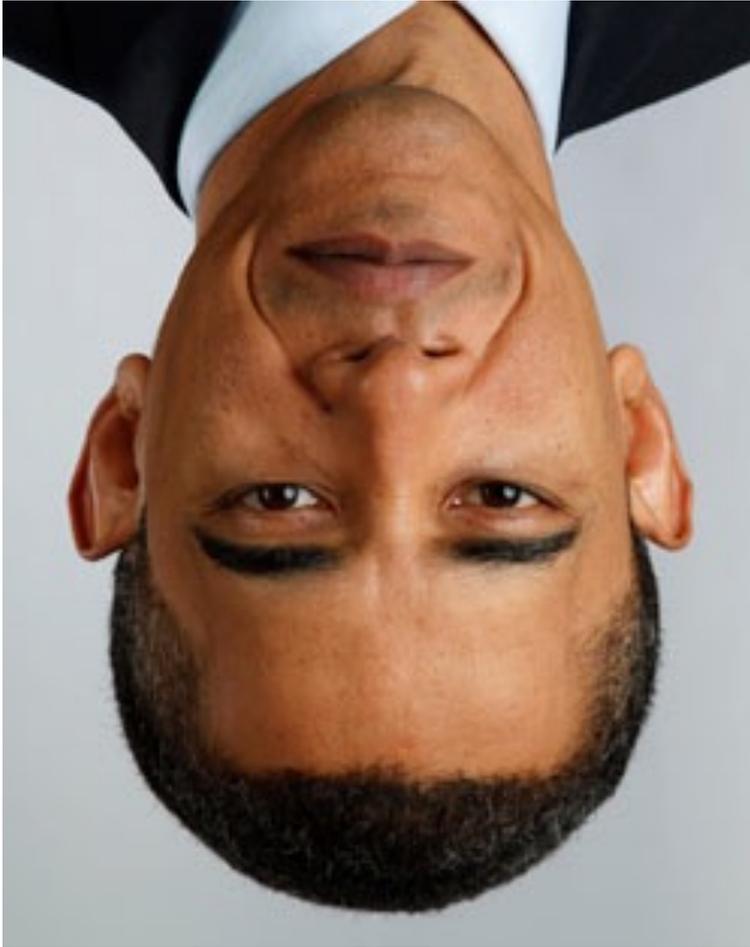


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**"Implicit bias" or "Implicit association" or "Unconscious bias"**

*Project Implicit: [implicit.harvard.edu](http://implicit.harvard.edu)*

# The Thatcher Effect



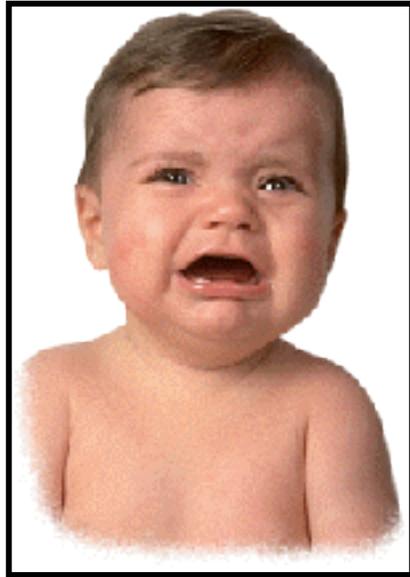
The brain naturally makes **assumptions** to make data processing reasonable

What is this person feeling?



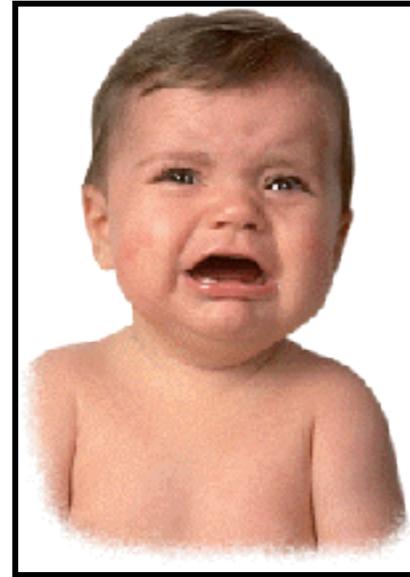
What is this person feeling?

Debbie



*afraid*

Danny



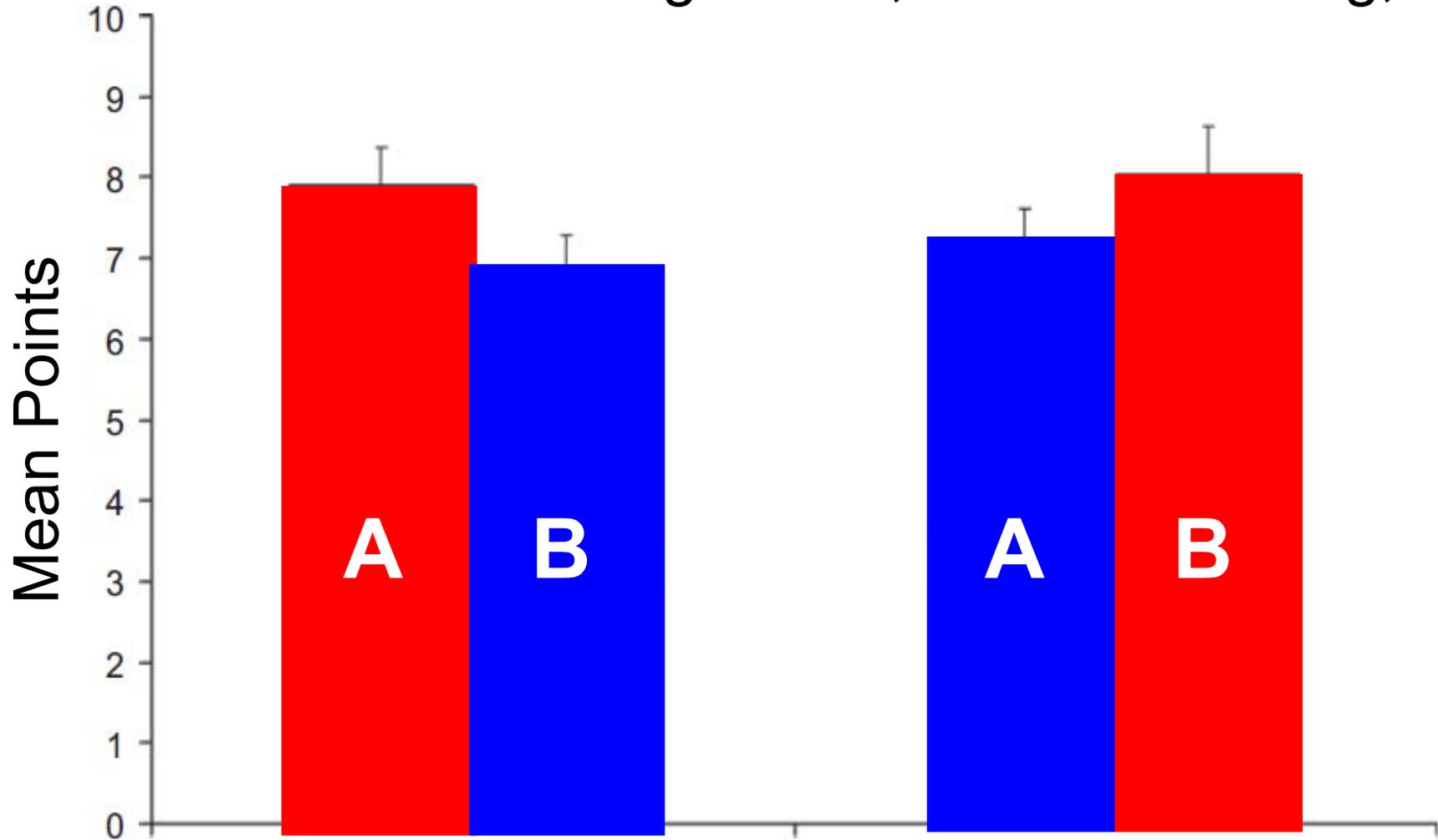
*angry*

# Who Is the Winner?



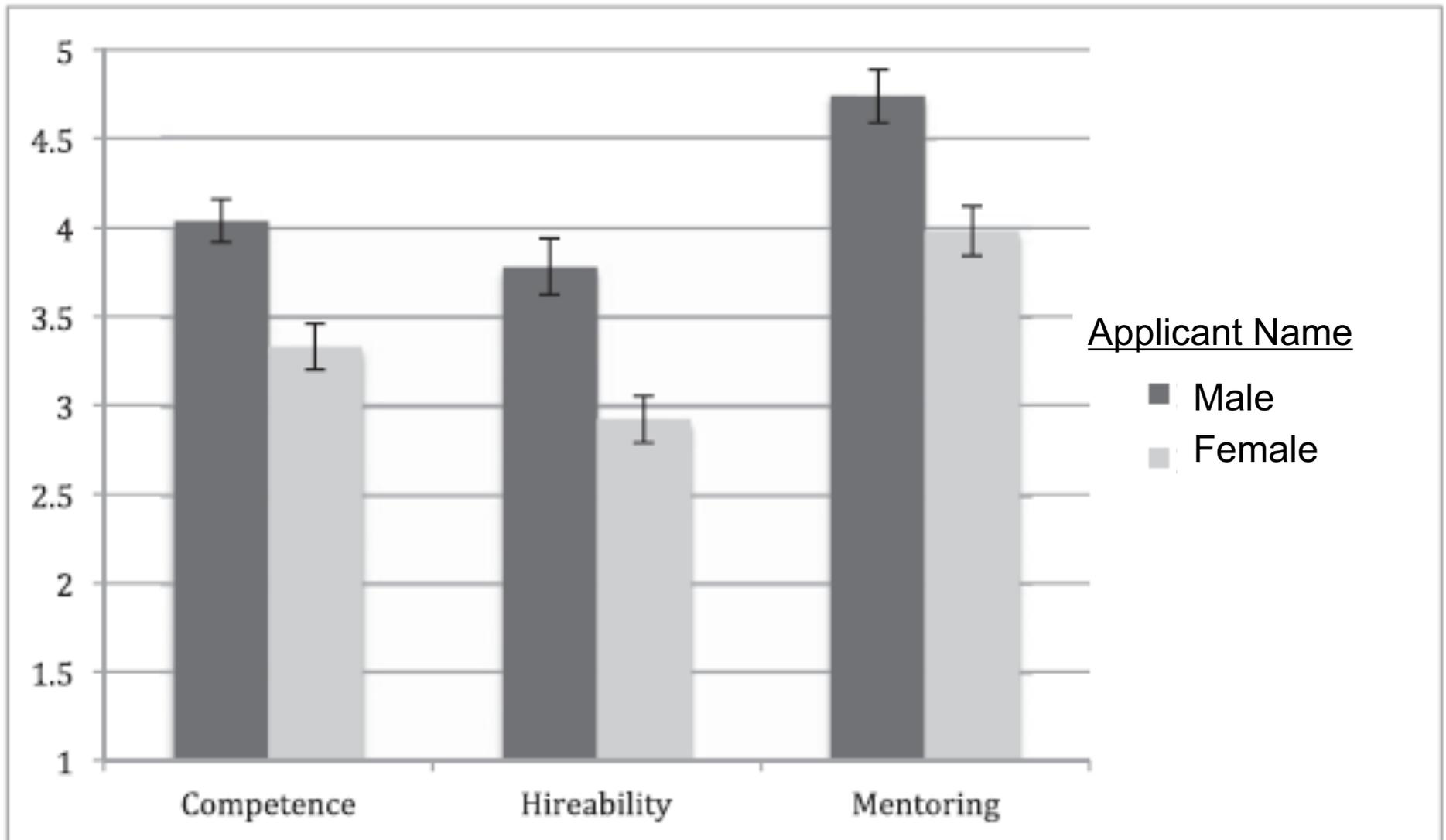
# The one in red

Hagemann, Strauss & Leiting, 2008



# Implicit bias impacts us as faculty

STEM faculty were asked to evaluate a resume for a potential lab manager. Half of the time the resume was assigned a male name, and half a female name.



# IAT: Implicit Association test

*Project Implicit: [implicit.harvard.edu](http://implicit.harvard.edu)*

Berkeley

Stanford

LEFT

RIGHT

Berkeley

Stanford

LEFT



RIGHT

Berkeley

Stanford

LEFT



RIGHT

Good

Bad

LEFT

RIGHT

Good

Bad

LEFT



RIGHT

Good

Bad

LEFT



RIGHT

Berkeley

Good

LEFT

Stanford

Bad

RIGHT

Berkeley

Good

Stanford

Bad

LEFT

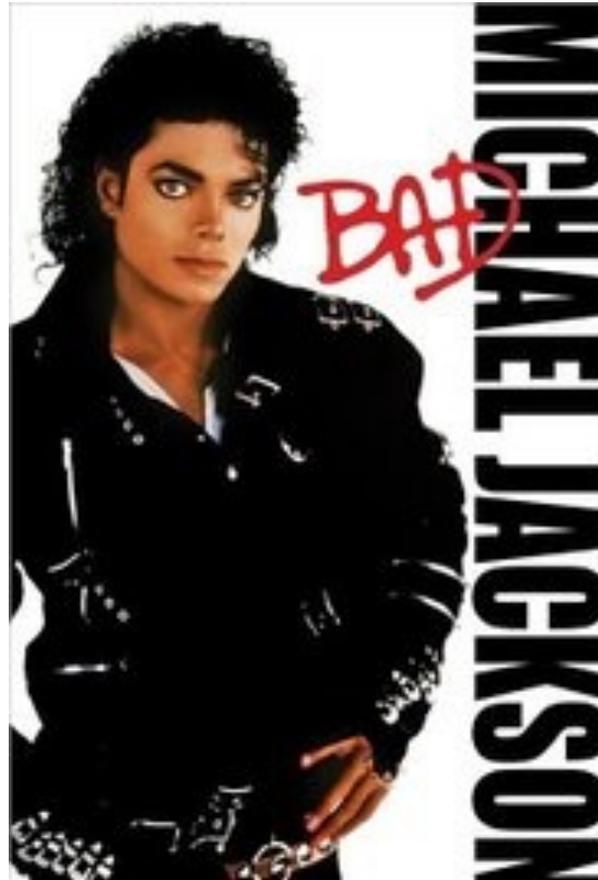
The logo for the University of California, featuring the word "Cal" in a stylized, cursive blue font with a yellow outline.

RIGHT

Berkeley

Good

LEFT



Stanford

Bad

RIGHT

Stanford  
Good



Berkeley  
Bad

LEFT

RIGHT

Stanford

Good

Berkeley

Bad

LEFT



RIGHT

Stanford

Good

Berkeley

Bad

LEFT



RIGHT

Latino  
Safety

White  
Crime

LEFT

RIGHT

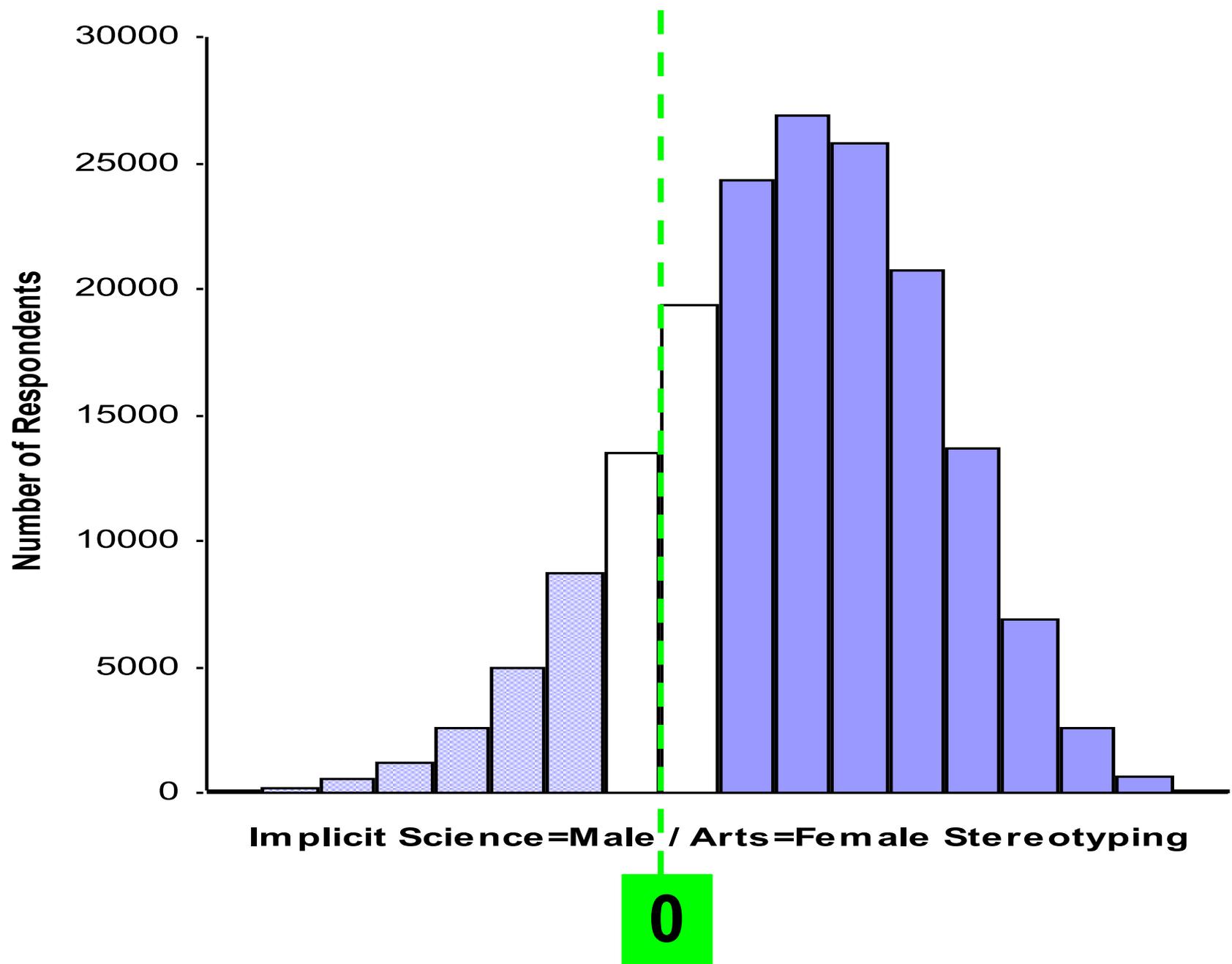
Women  
Sciences

Men  
Humanities

LEFT

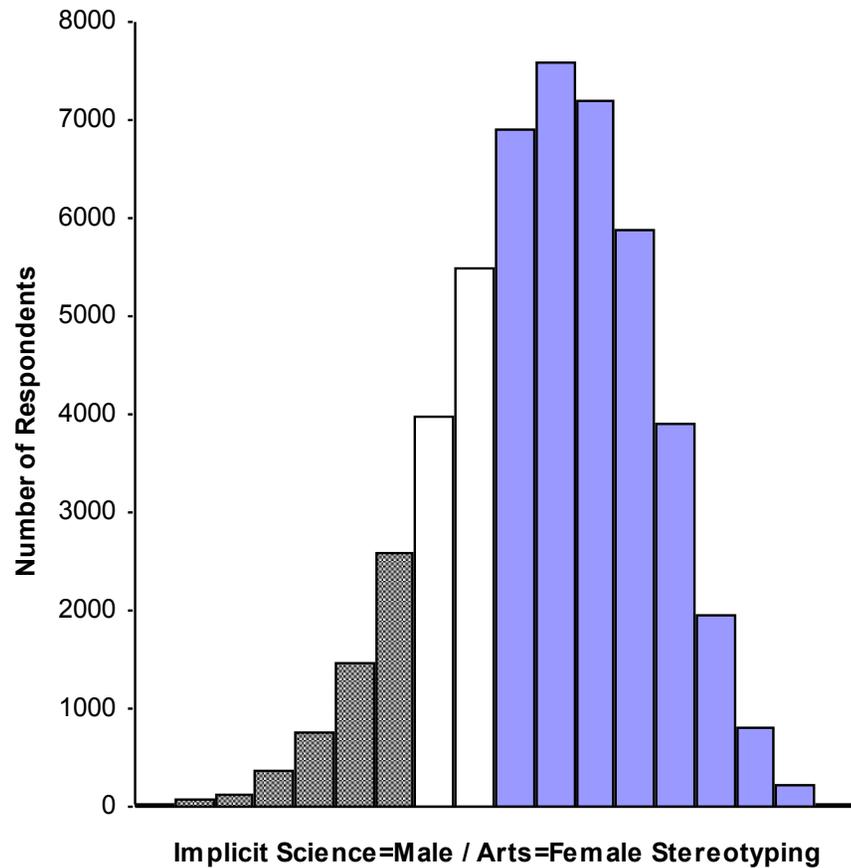
RIGHT

# Gender-Science Association Results on “Project Implicit”

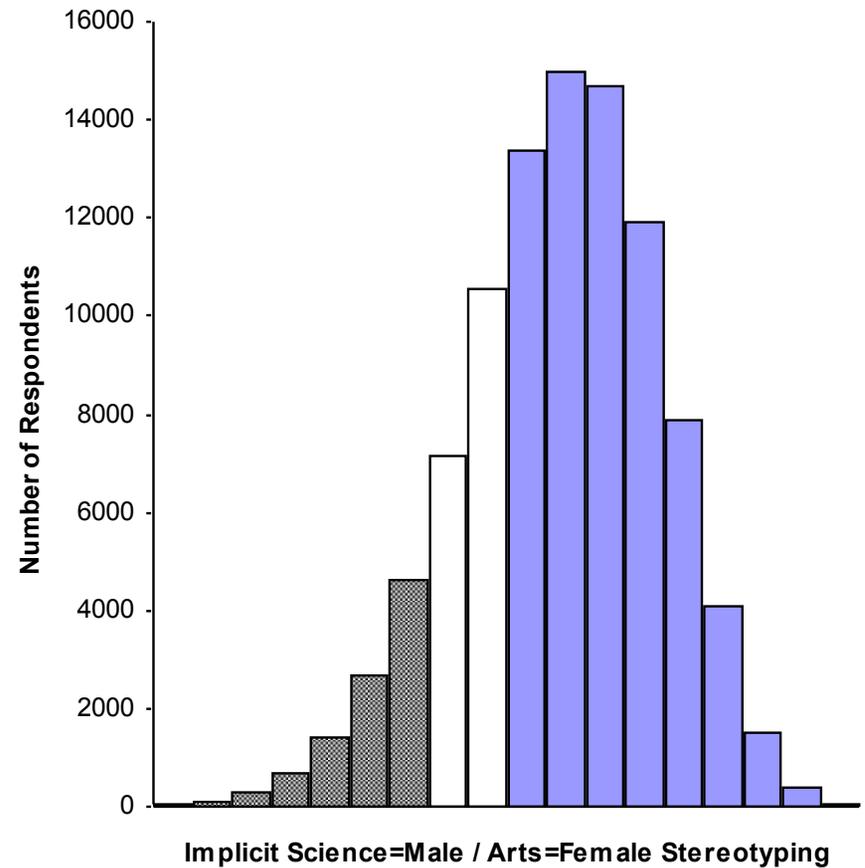


# Gender–Science Association Results on “Project Implicit”

## Male Respondents

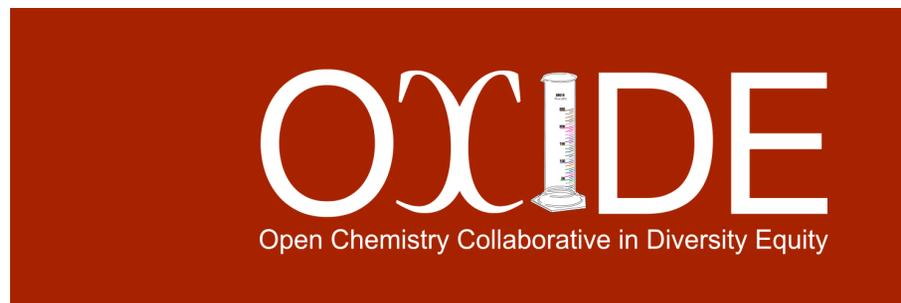


## Female Respondents



# Take aways:

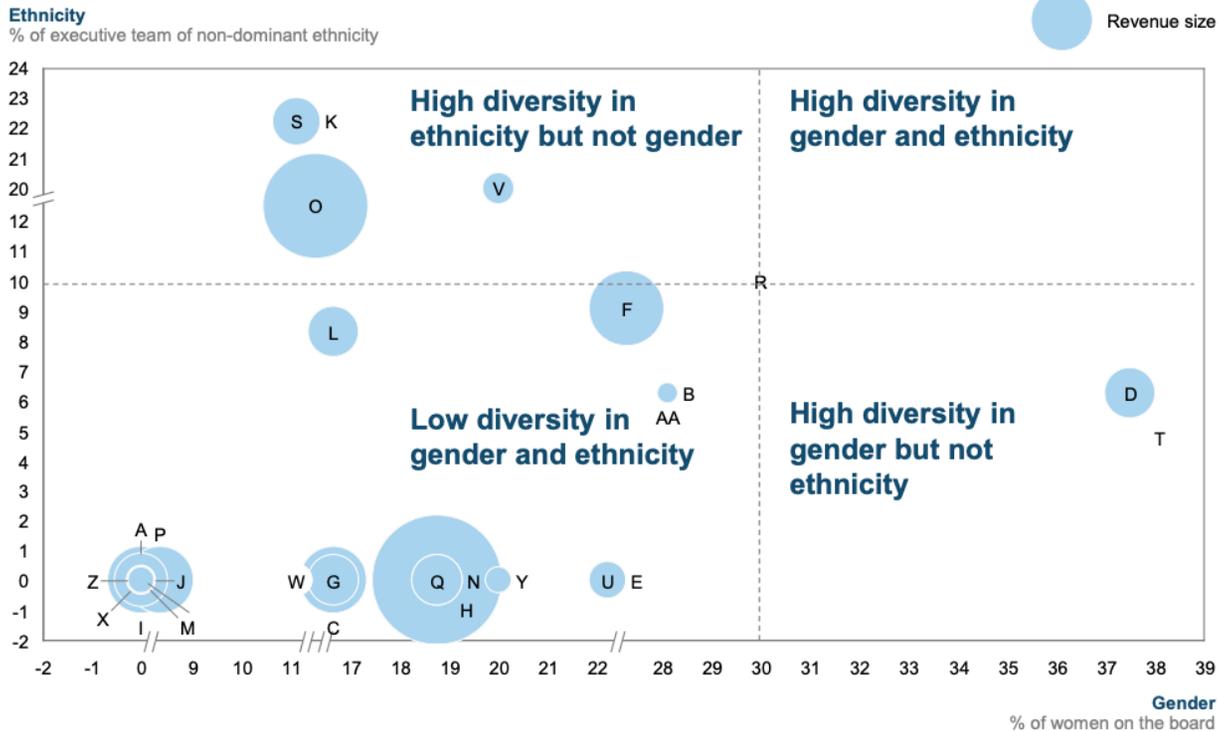
- Biases can be either explicit or implicit
- Implicit associations are common, pervasive, and probably unavoidable
- Implicit biases that associate **science** with **gender and race** are pervasive
- One can have unconscious biases even as a victim of those biases (i.e., *being biased doesn't necessarily mean you are a "bad person"*)
- Greater stress or cognitive load increases reliance upon implicit biases
- Increasing diversity in science is **hard work**, but there are data that can inform accessible interventions on the individual, group, classroom, and departmental levels
- Diversity work is diverse
- <http://oxide.jhu.edu/>



# Axes of Diversity

## No companies perform well on both gender and ethnic diversity

Example: consumer industries



SOURCE: McKinsey Diversity Database, companies websites

- Gender
- Race and Ethnicity
- (Dis)ability
- LGBTQ
- Socioeconomic status
- Culture
- Life experience
- Age
- Geography
- Educational pedigree
- Political ideology
- Religion
- Nationality
- Visa/immigrant status
- Language/accent
- etc.

Q: How does diversity influence your teaching?