

Psychological Foundations of Implicit Bias: Mechanisms and Mitigators

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What is implicit bias?

HOW WE MAKE DECISIONS

SYSTEM 1

FAST
PARALLEL
AUTOMATIC
EFFORTLESS
ASSOCIATIVE
SLOW-LEARNING



SYSTEM 2

SLOW
SERIAL
CONTROLLED
EFFORT-FILLED
RULE-GOVERNED
FLEXIBLE



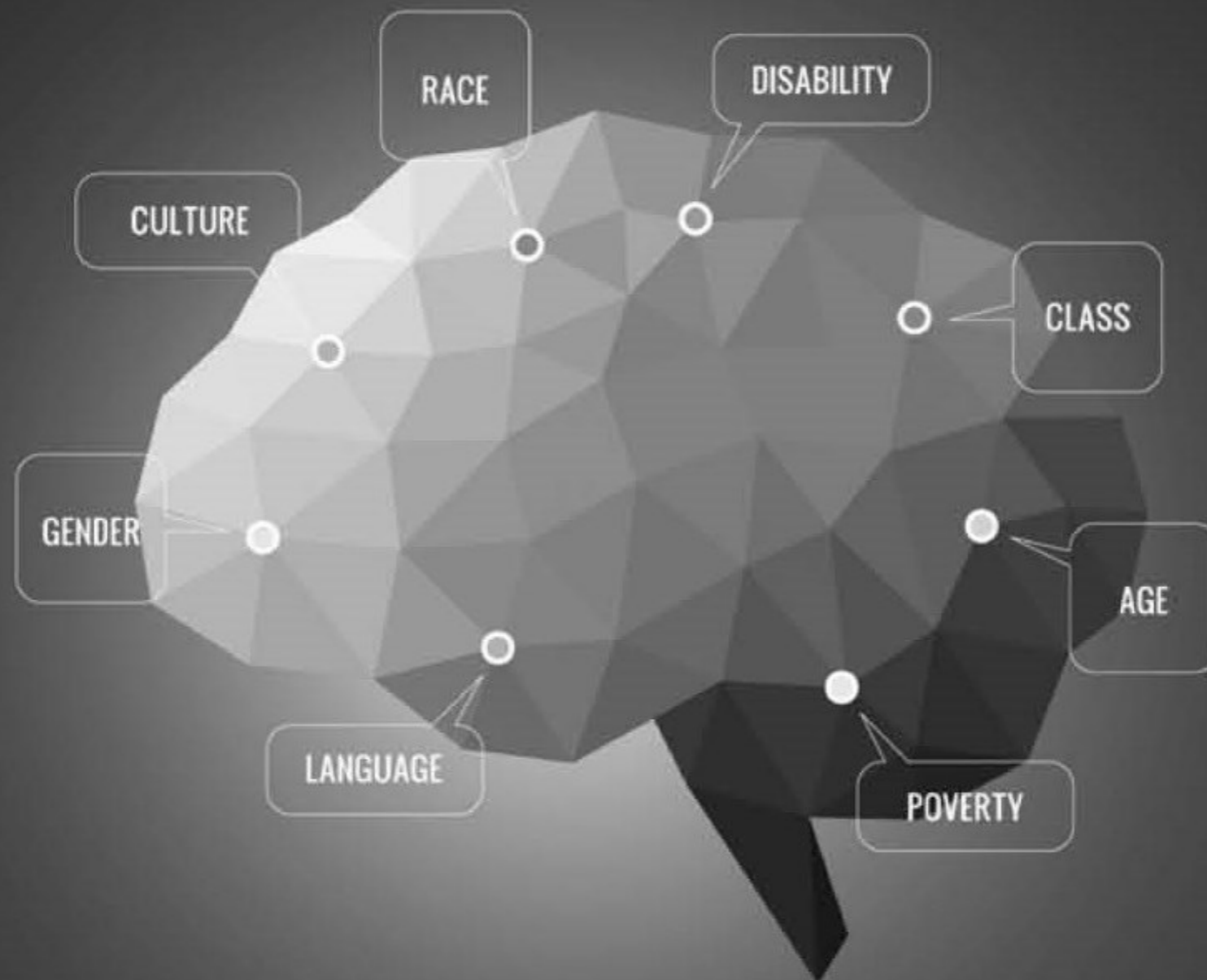
Our brains are evolutionarily hard-wired to store learned information for rapid retrieval and automatic judgments. Over 95% of cognition is relegated to the System I “auto-pilot.”

Psychological Perspective on Implicit Bias

Stereotypes inevitably form because of the innate tendency of the human mind to:

- Categorize the world to simplify processing
- Store learned information in mental representations (called *schemas*)
- *Automatically* and *unconsciously* activate stored information whenever one encounters a category member

Implicit biases are distressingly pervasive, operate largely unconsciously, and can automatically influence the ways in which we see and treat others, even when we are determined to be fair and objective.



A stylized blue graphic of a person's head and shoulders, composed of geometric shapes: a circle for the head, a vertical line for the neck, and a large, rounded shape for the shoulders and upper torso. The graphic is positioned at the top of the slide.

Implicit Association Test (IAT)

**Measures strength of automatic associations
between stimuli and evaluations**

Project Implicit: implicit.harvard.edu

Gay People

or

Bad

Straight People

or

Good

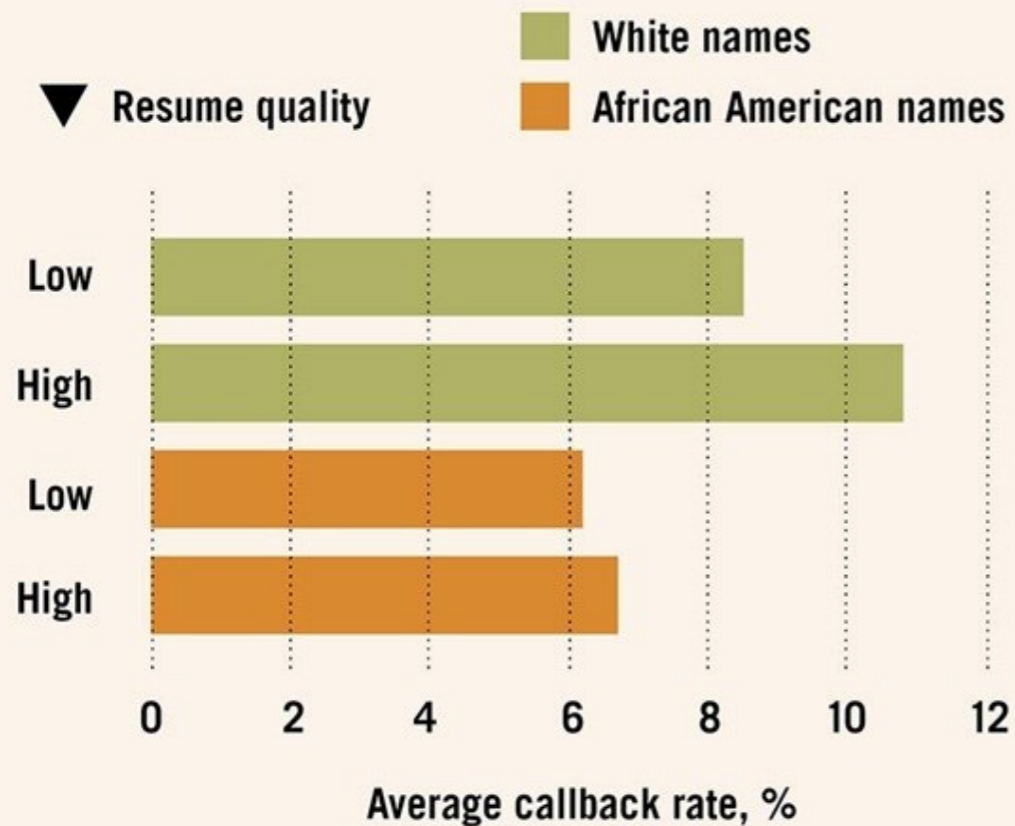


The IAT involves making repeated judgments (by pressing a key on a keyboard) to label words or images that pertain to one of two categories presented simultaneously (e.g., categorizing pictures of straight or gay couples and categorizing positive/negative adjectives). The test compares response times when different pairs of categories share a response key on keyboard (e.g., gay + good versus gay + bad).

Implicit Bias Can Have an Automatic (and Unrecognized) Impact on Judgments & Behaviors

Racism in a resume

Job applicants with African American-sounding names got fewer callbacks.



Bertrand & Mullainathan (2004)

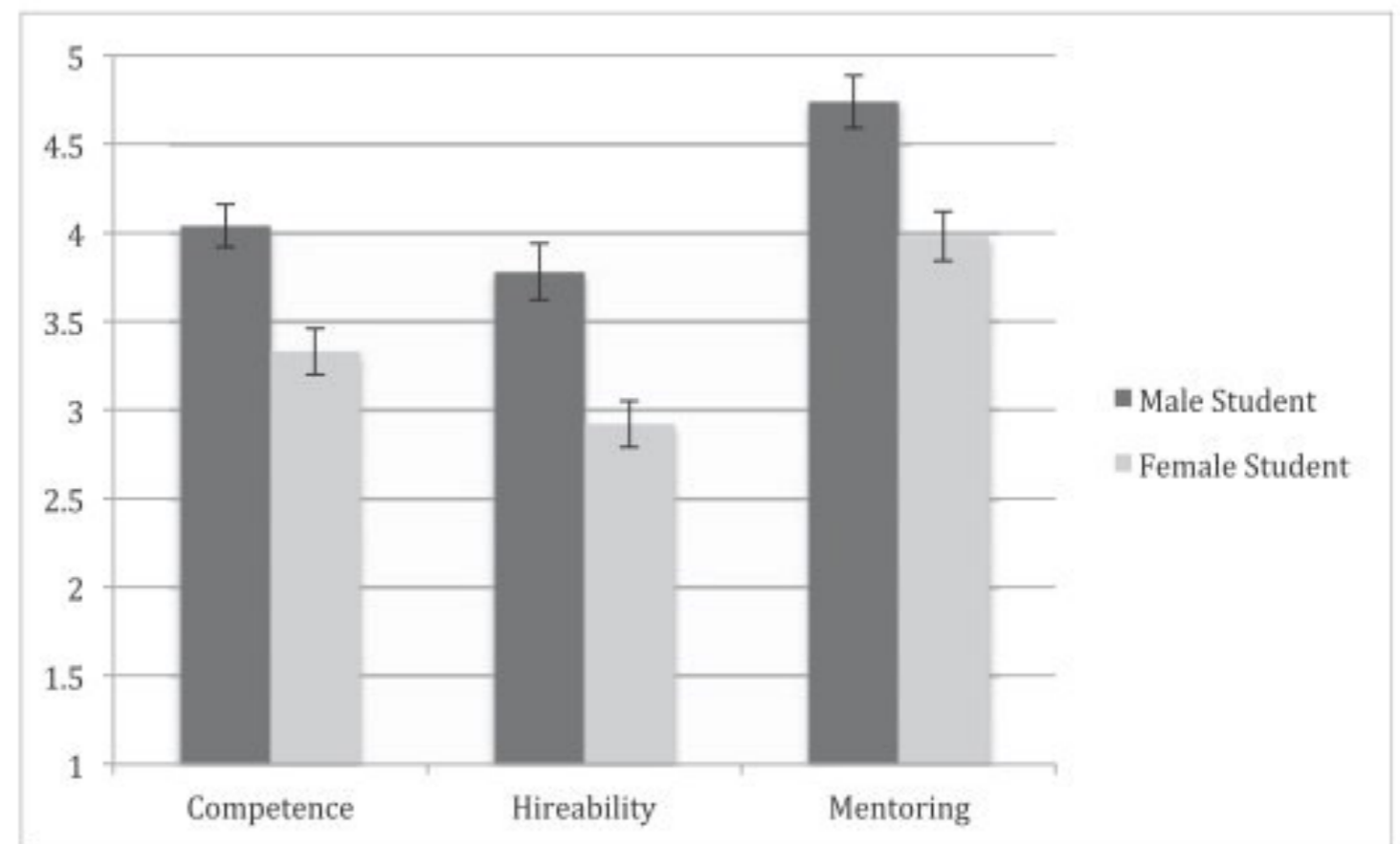


Fig. 1. Competence, hireability, and mentoring by student gender condition (collapsed across faculty gender). All student gender differences are significant ($P < 0.001$). Scales range from 1 to 7, with higher numbers reflecting a greater extent of each variable. Error bars represent SEs. $n_{\text{male student condition}} = 63$, $n_{\text{female student condition}} = 64$.

Moss-Racusin et al. (2012)

Women considered better coders – but only if they hide their gender

Researchers find software repository GitHub approved code written by women at a higher rate than code written by men, but only if the gender was not disclosed



📷 A 2013 survey found only 11.2% of software developers are women. Photograph: Antonio Zazueta Olmos/Antonio Olmos

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Note: The comments section provides a space for people to LEARN from one another.

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“ I’m probably such a racist, but a black man dressed as Santa is just wrong. ”

(via [microaggressions](#))

8 months ago

43 0 share

I patiently waited after class to ask my professor a question. He then began making sexual comments such as that I made him aware of his age because he could never get with me because I was out of his league. I felt uncomfortable so I left, with my question unanswered. I could not believe that my college professor prioritized his inappropriate comment over my question and ultimately the quality of my education, as I am no longer comfortable going to him for questions.

[gender, survivor](#)

1 year ago

55 0 share

“ CAN YOU HEAR ME? ”

The “joking” reaction of various friends, coworkers and bosses when I tell them that I’m hearing-impaired and used to have to wear aids. They then tell me “it’s not like it’s a big deal or anything, it’s not like you’re actually deaf”. Makes me feel like my problems don’t matter.

[ableism](#)

1 year ago

75 0 share

“ Whenever black people come to the beach I start saying ‘It got so dark over here’ and they never know what I’m talking about because they’re

Teacher:: what do they look like? (referring to a picture of Middle Eastern women in hijabs)

Student:: Terrorists.

Teacher:: I was looking for “religious, traditional, or worried.” But yes, that too. Good, Tyler!

[ethnicity, religion](#)

1 year ago

50 0 share

It angers me when people measure my race by the way I talk, dress, and carry myself. It’s as if black women can’t possibly be educated and come from a family with both parents. What sucks the most is that my close friends still say comments like “you’re not really black,” or “but they’re the other kind of black girls.” Can someone please tell me what other black there is?

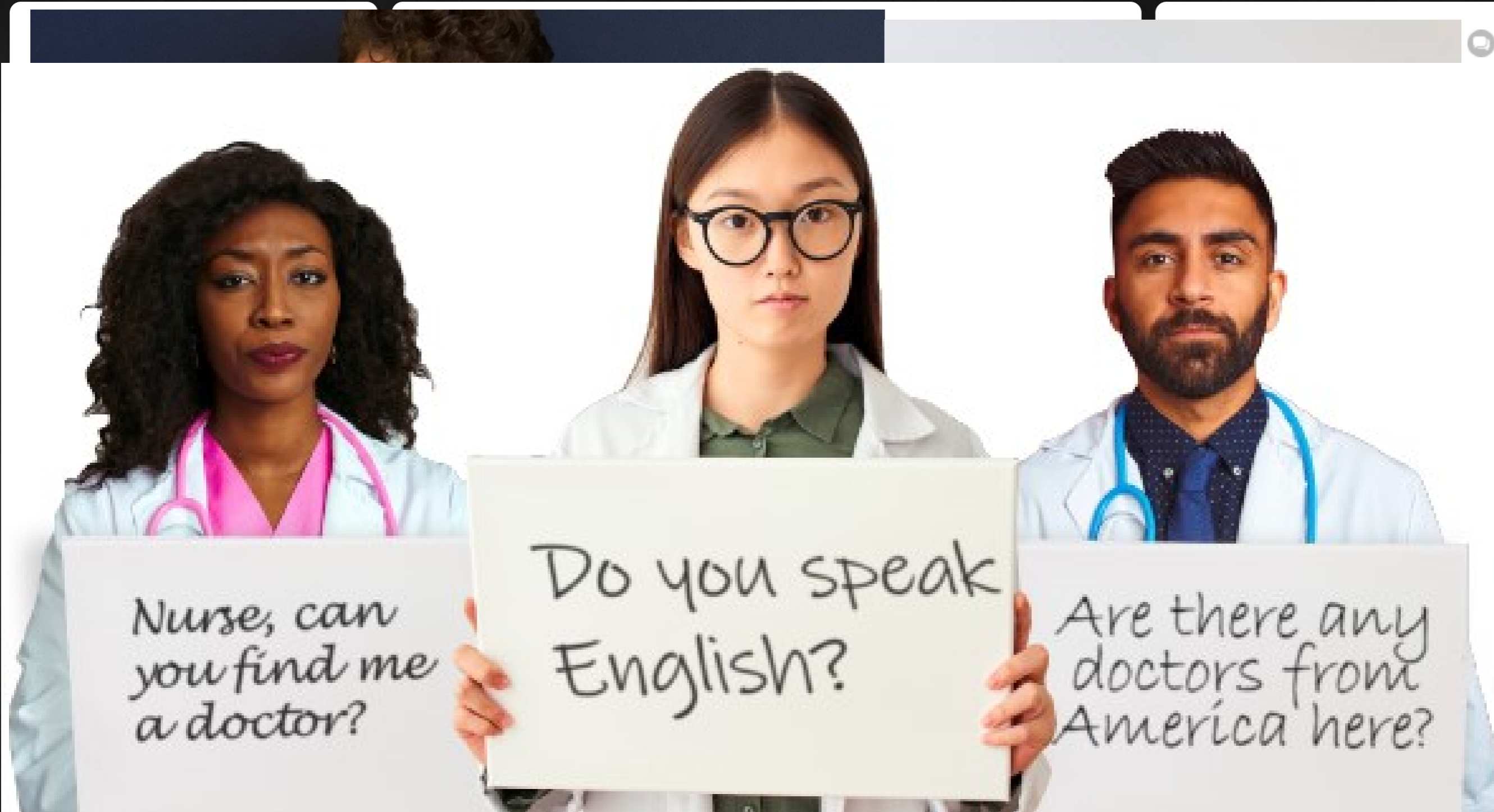
[race, gender](#)

1 year ago

56 0 share

“ I think black girls with short hair are ugly. ”

See www.microaggressions.com for lots of examples of everyday experiences with implicit bias.



Random

offensive and they took it down, but I read through the notes and was just saddened

what about because they're

ugly.

”

See www.microaggressions.com for lots of examples of everyday experiences with implicit bias.



The party games *Awkward Moment* and *Awkward Moment at Work* present hypothetical occurrences of microaggressions; players compete to submit the best responses to these “moments.”

Moment Card

While shopping at the mall, you see a store is selling T-shirts for girls that say, "Math is hard!"



Decider Card

Hardest to do



Reaction Cards

**Say, "P.U.
That stinks!"**



**Be like Marie
Curie and win
Nobel Prizes.**



**Send out a
distress signal.**



**Get to the root
of the problem.**



Reaction Cards

Say, "P.U.
That stinks!"



reaction

Send out a
distress signal.



Get to the root
of the problem.



Vice Provost for Faculty

Moments@Work: Advancing Sensitivity to Diversity Through Experiential Learning

The social climate is an important component of our dynamic work environment. Women and people from minority groups have historically had the greatest difficulty gaining a foothold at the workplace, as indicated by low rates of recruitment and high rates of dropout and turnover from these groups.

Using socio-cognitive theories we offer a game called Moments@Work which is played among a group of participants; we use the card game to raise awareness and increase sensitivity to Diversity and Inclusion (D&I) issues at the work place, and the computer game to conduct formal experimental studies regarding experiential learning and sensitization to these issues.

Thus far, the game has been played by deans, search committees, and other faculty groups interested in diversity, equity and inclusion. Sponsored by the Vice Provost for Faculty and the Faculty Committee on Diversity, Equity and Inclusion, this game is available for use with any faculty group. To request a free copy of the game contact [Courtney Bryant, Director VPF office](#).

Special thanks go to [Coty Gonzalez](#) and [Geoffrey Kaufmann](#), for their continued work on developing this important training and development tool.



Implicit Bias & System I Processing: Summary

- Because it arises from associations stored and retrieved through System I processes, implicit bias:
 - Is **automatic, pervasive, and robust**.
 - Often does not align with our declared beliefs.
 - Can **unconsciously affect expectations, perceptions, behaviors, and memories** in ways we often don't realize.
 - Is exacerbated by factors that make us more likely to rely on System I processes and/or on implicit stereotypes more specifically (e.g., fatigue, distraction, negative mood, etc.).
 - Is potentially **malleable** -- we can try to break the “mental habit” of unconscious bias; we can become more mindful of our own biases and their effects.

What about System 2?

- Think of System 1 as the “auto-pilot” of cognition and System 2 as the human pilot that takes over when necessary.
- System 1 and System 2 have complementary trade-offs.
 - System 1 directs thoughts, feelings, & behaviors quickly and effortlessly, but is vulnerable to errors (including implicit bias)
 - System 2 allows us to override or correct System 1 thinking and analyze a situation slowly, deliberately, and effortfully, but is cognitively expensive.

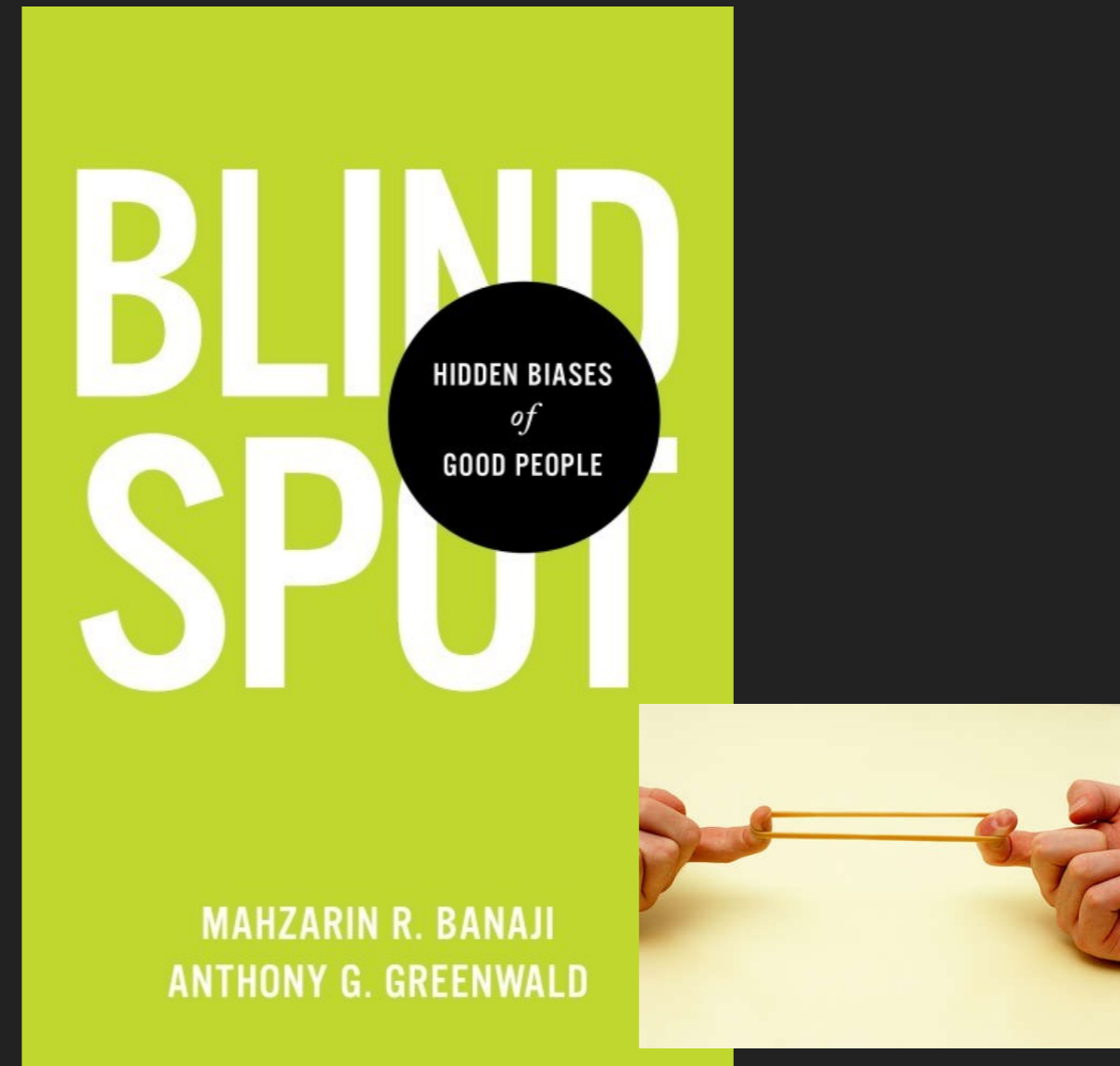
Devine's (1999) Dissociation Model

- **System 1: Stereotype Activation**
 - Stereotypes are firmly implanted (and reinforced) by learning and exposure, cognitive processes of categorization, etc.
 - Thus, stereotypes are automatically activated whenever a cue is present, regardless of personal prejudice level
 - Devine characterizes stereotyping as a “mental habit”
- **System 2: Preventing Stereotype Application**
 - Once a stereotype is activated, people can use System 2 processes to overcome the influence of the stereotype
 - Because controlled processes take motivation and effort, they can't (or won't) always be used.
 - Must first be aware of the activation of stereotypes, then take steps to mitigate their impact or weaken their power...

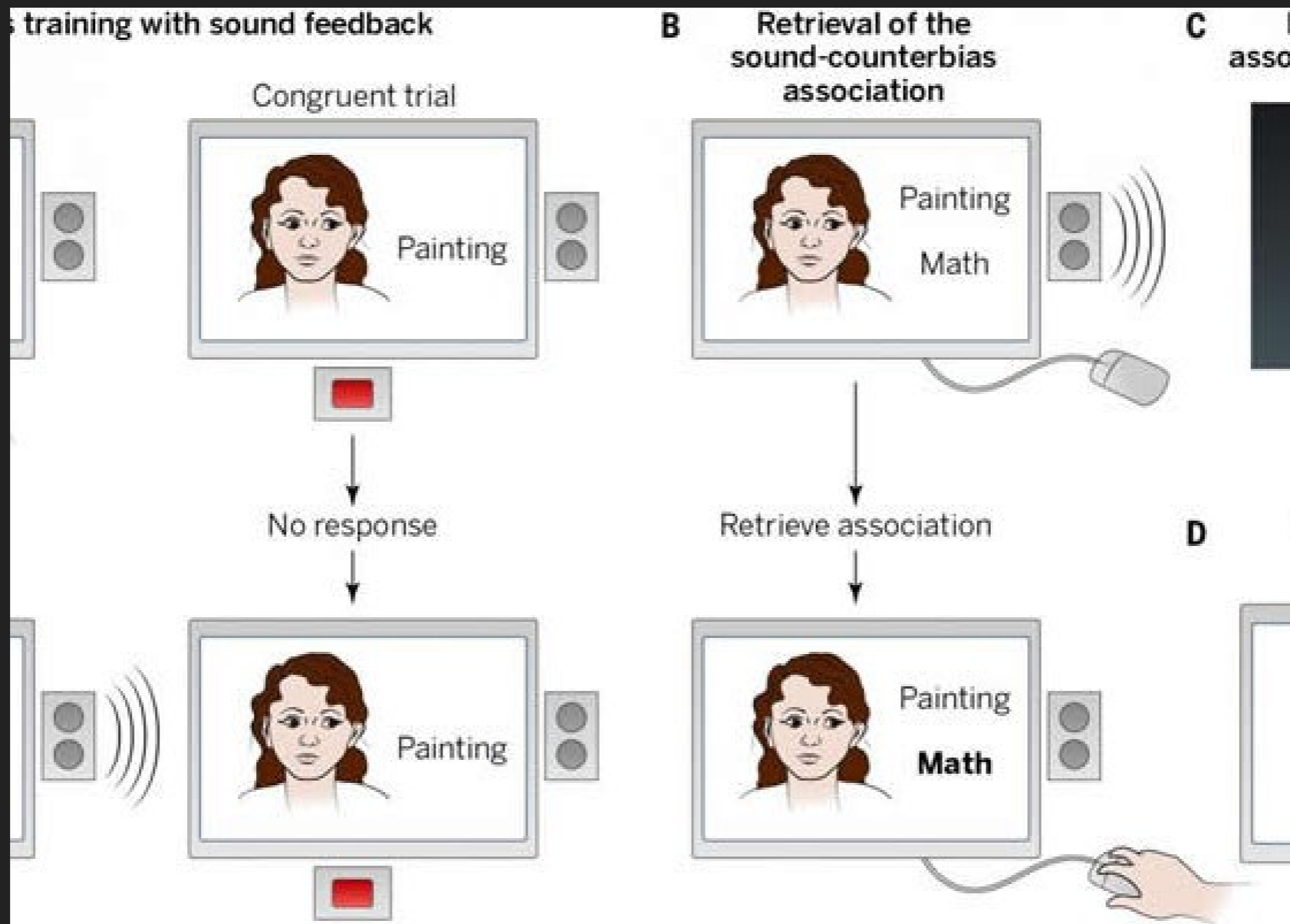
Techniques for Mitigating Implicit Bias

Growing evidence that implicit associations are malleable and can be “unlearned.”

- Relies on the construction of new associations and the cultivation of new mindsets to override or overpower existing associations.
- Requires “intention, attention, and time” (Devine et al., 2012)
- Practice and repetition are key!



“Like stretched rubber bands, the associations modified... likely soon return to their earlier configuration. Such elastic changes can be consequential, but they will require reapplication prior to each occasion on which one wishes them to be in effect.” – Banaji & Greenwald (2013, p. 152)



Counter-stereotypic Training:

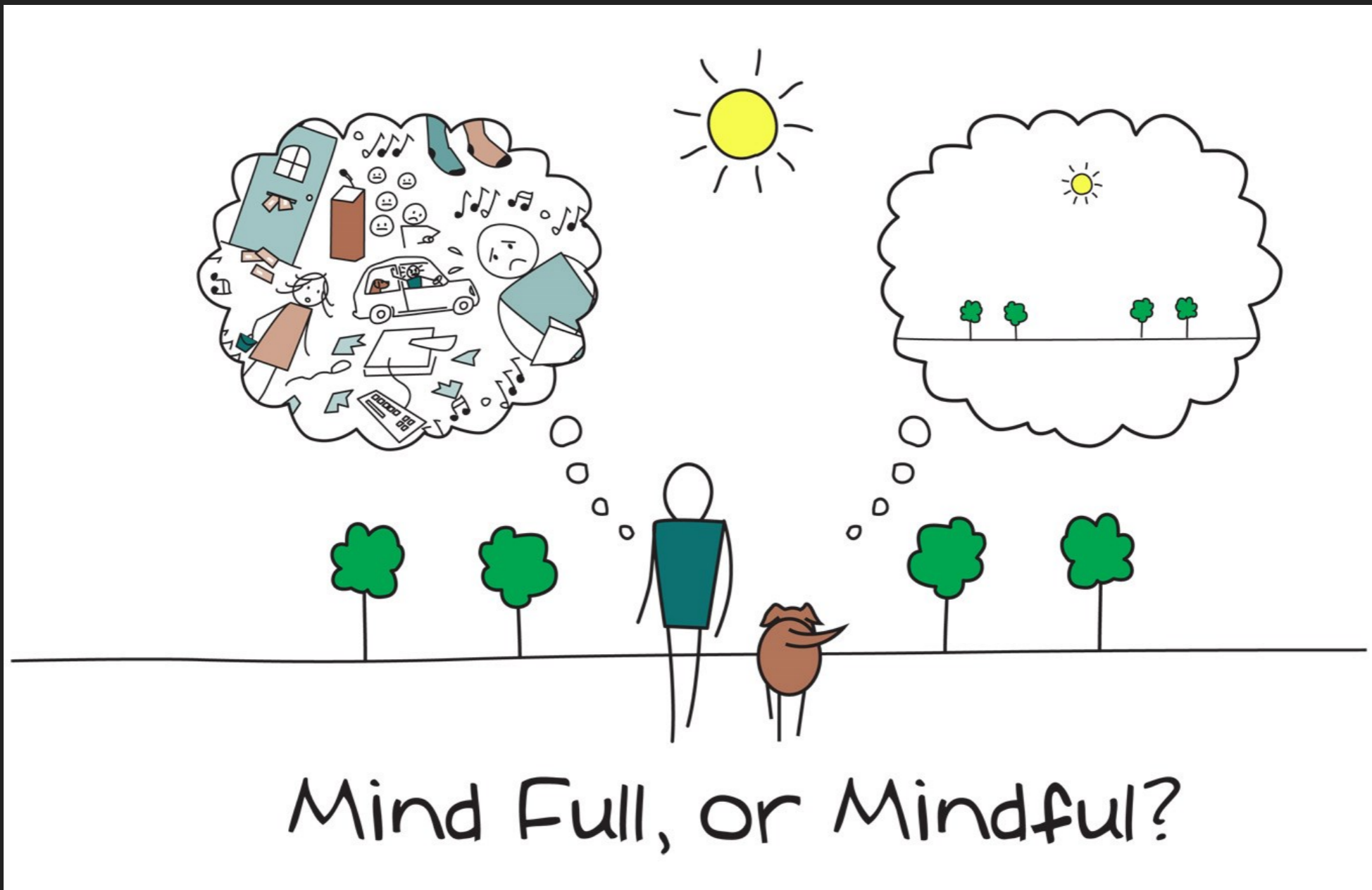
Deliberately and repeatedly negating stereotypes or associating individuals with counter-stereotypic traits or attributes



Mindset Training:

Cultivating a deliberative mindset, reminding oneself of egalitarian goals, reinforcing curiosity and constructive uncertainty about others

Beattie et al. (2013); Sassenberg & Moskowitz (2005); Stone & Moskowitz (2011)

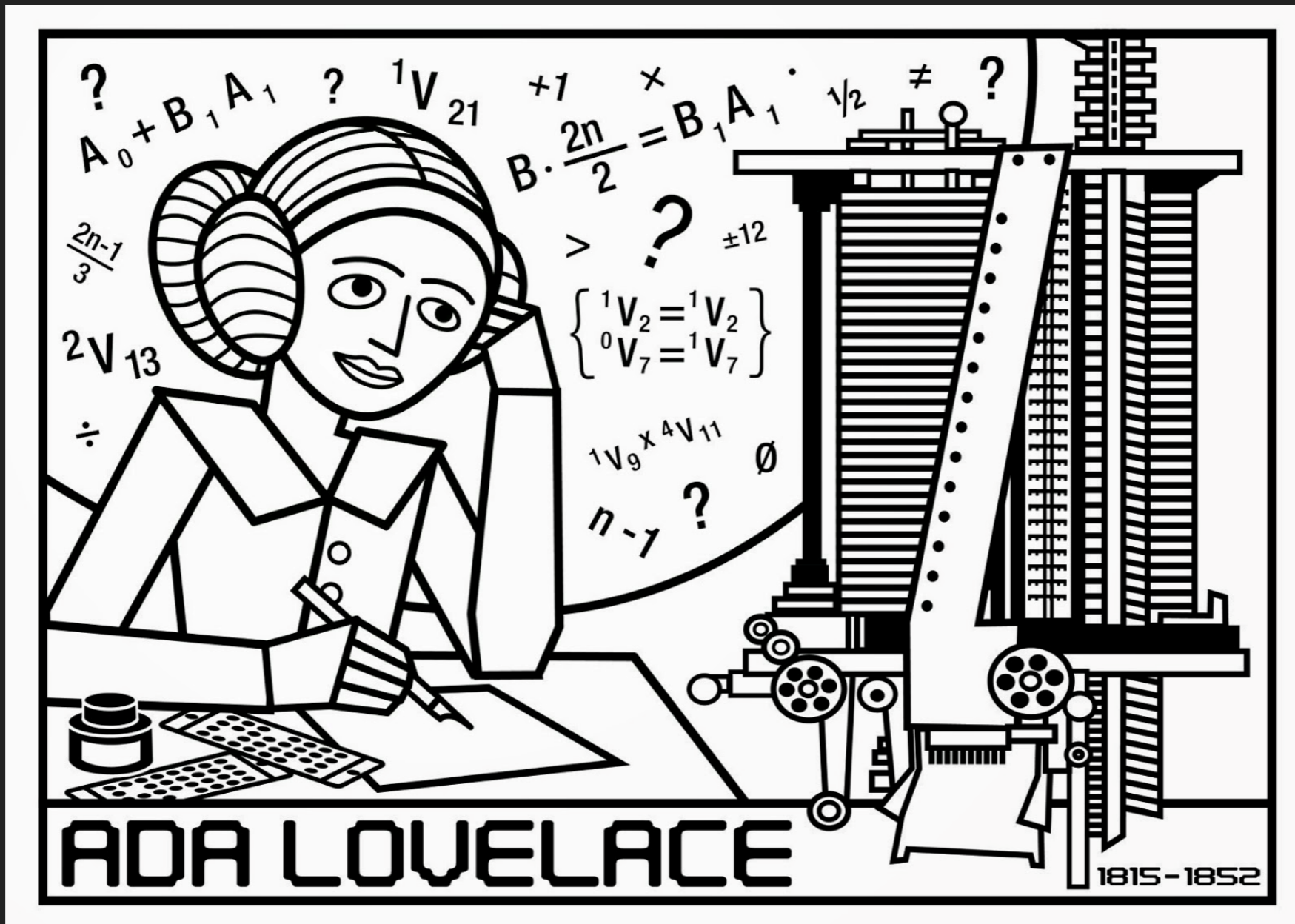


Mind Full, or Mindful?

Meditation:

Mindfulness meditation and “loving-kindness” meditation training have been shown to reduce outgroup biases

Kang et al. (2014); Lueke & Gibson (2015)



Counter-stereotypic Exemplars:
Reminding oneself of or surrounding oneself with
people who defy stereotypes

Can you name someone who fits these pairs of descriptors?

Suave + Computer Expert

Cuddly + Assassin

Female + Rock Star

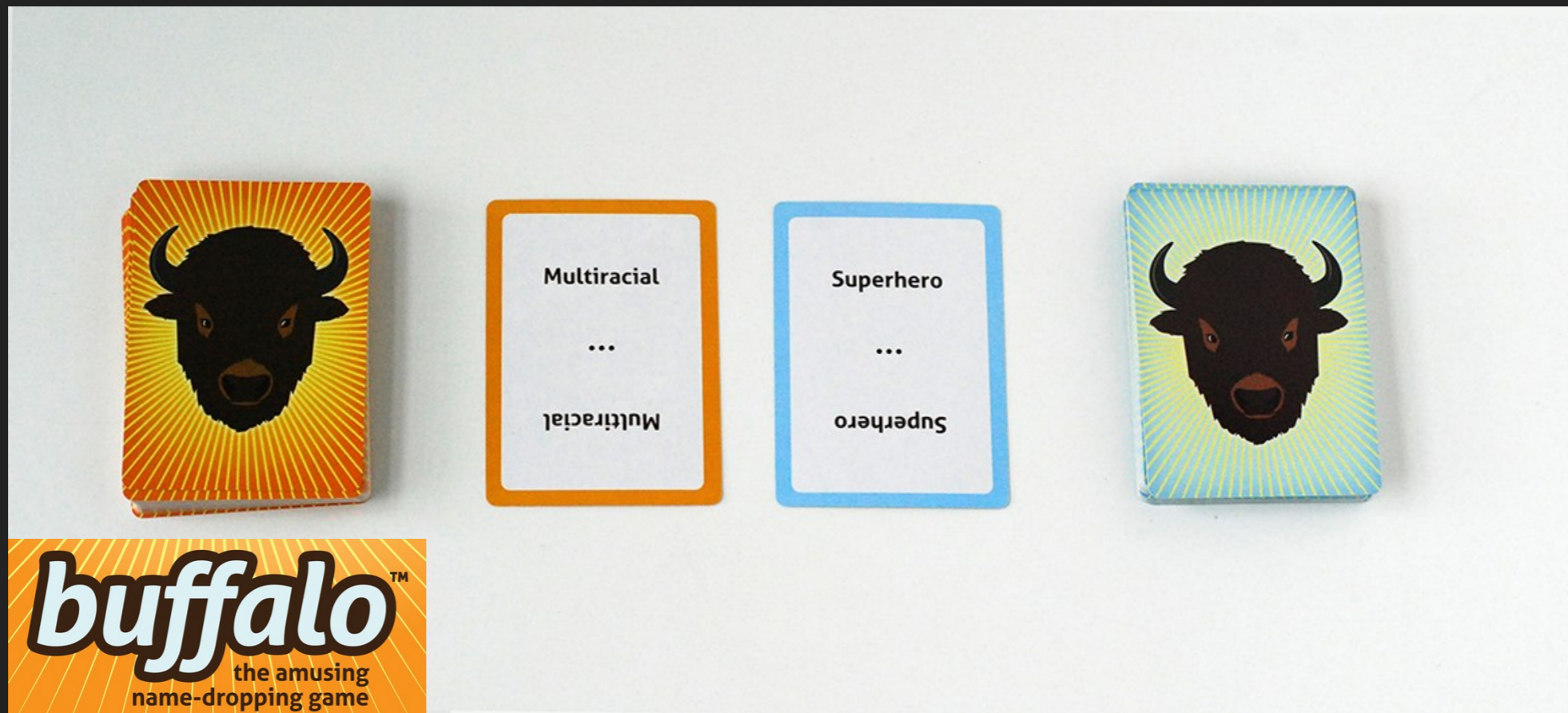
Glasses-wearing + Supermodel

Nerdy + Athlete

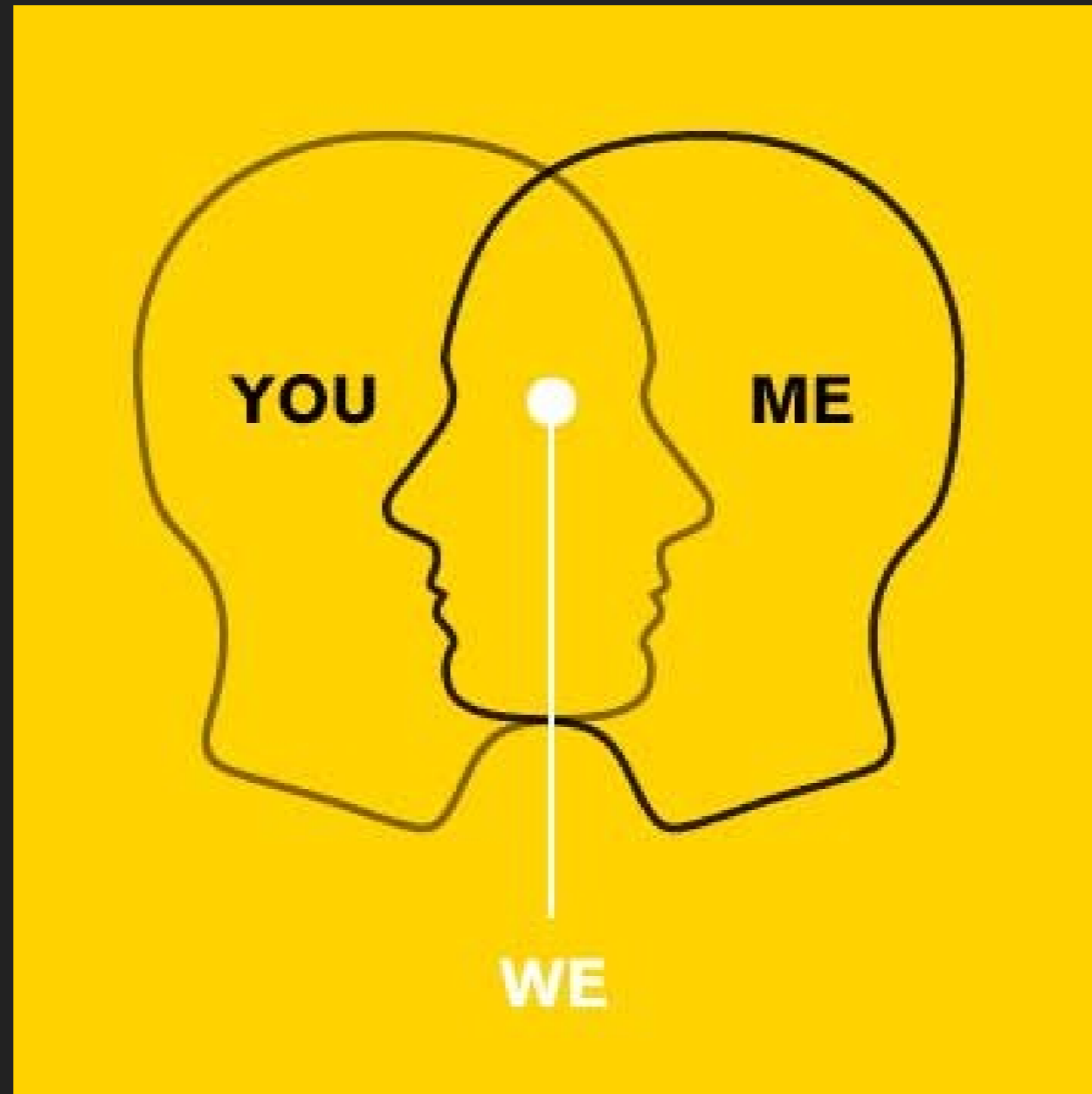
Iranian + Poet

Tattooed + Visionary

Multiracial + Newscaster



Repeated exposure to unexpected, atypical, and counterstereotypical exemplars in the party game *Buffalo* shown to promote more diverse, inclusive representations of social categories.

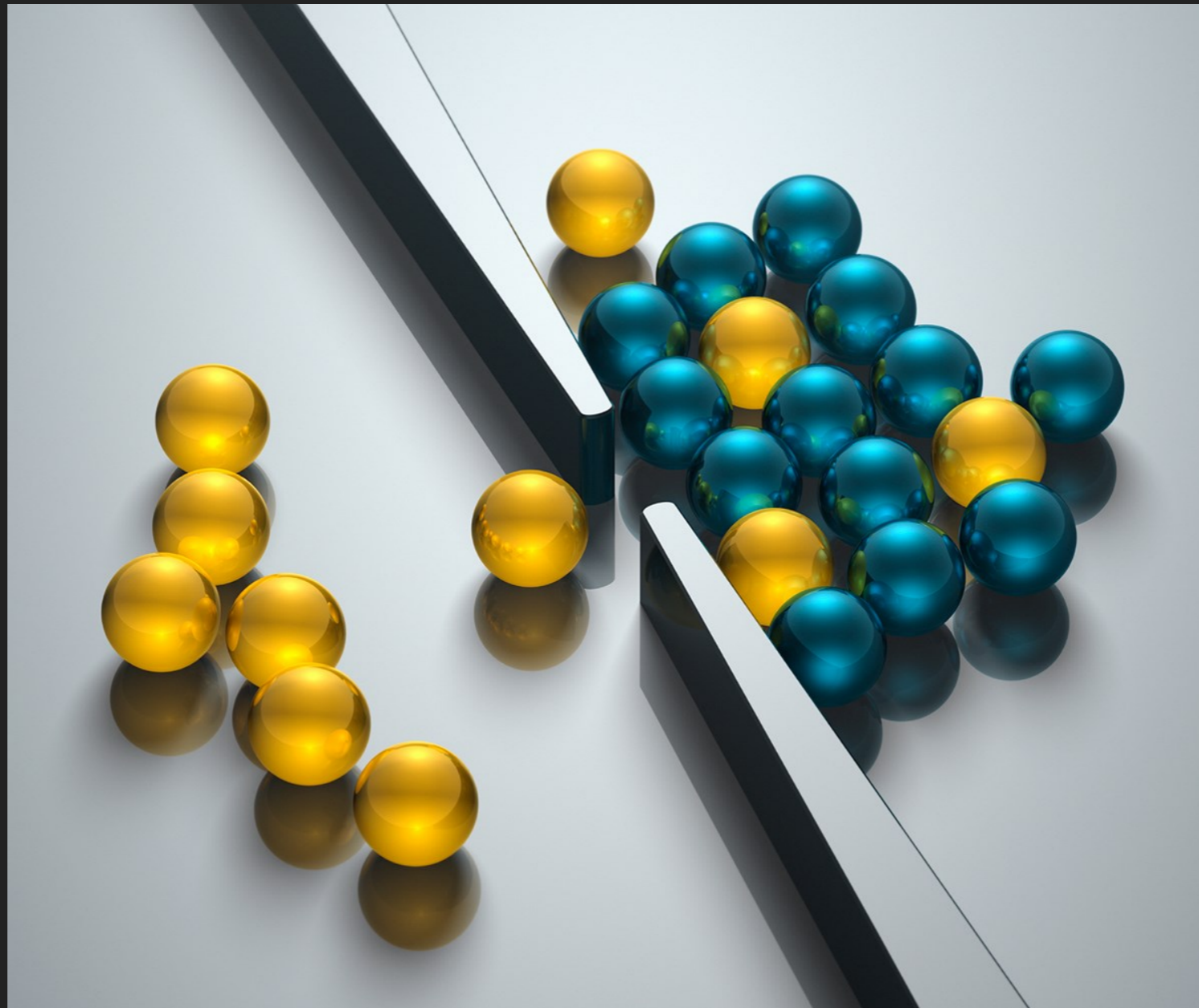


**Practicing Empathy and Perspective-taking:
Trying to understand others' unique subjective
experiences and points of view**

Benforado & Hanson (2008); Galinsky & Moskowitz (2000); Todd et al. (2011)



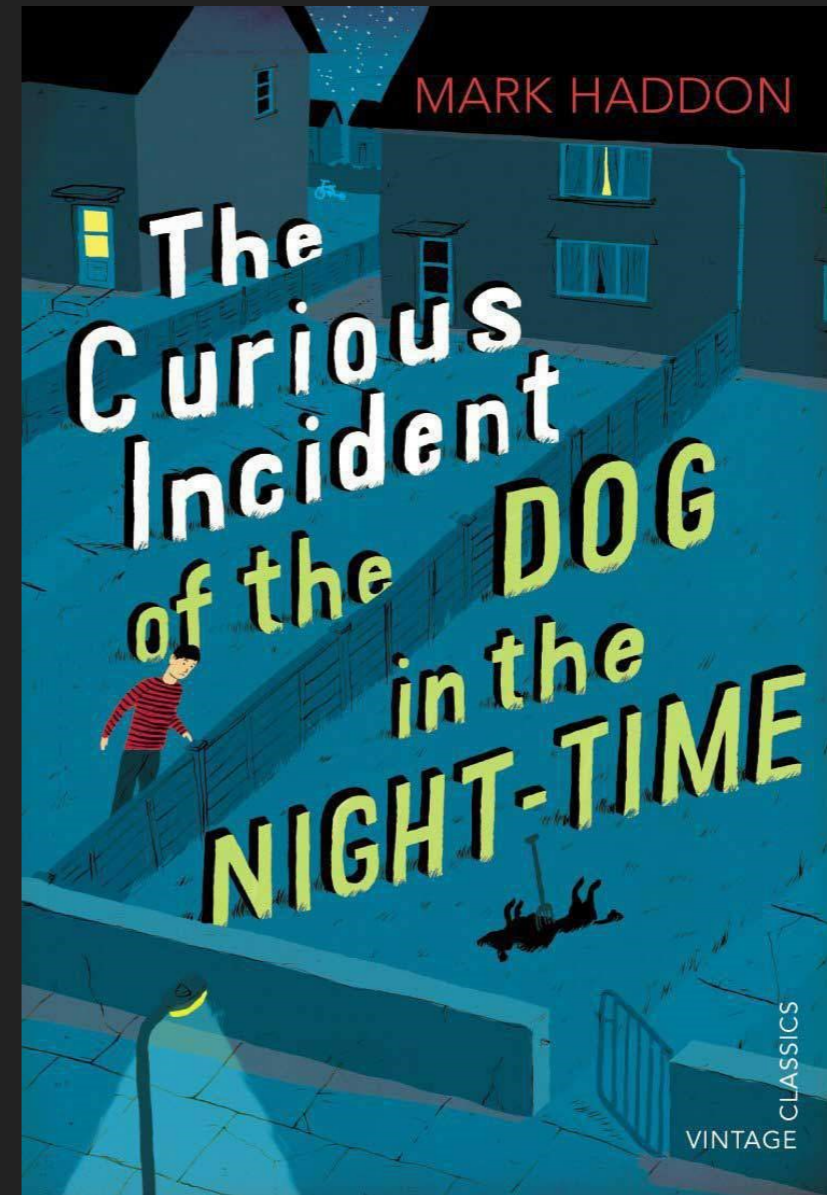
Research has shown the game *Awkward Moment* significantly increases players' understanding of the experience of bias and increases empathy and perspective-taking among both youth and adults.



Intergroup Contact:

Requires equal status and common goals, a cooperative environment with frequent informal interactions, and the presence of support from authority figures or customs

Allport (1954); Peruche & Plant (2006); Pettigrew & Tropp (2006)



**Contact and Perspective-taking through Fiction:
Fictional worlds of stories, games, and VR
environments have proven to be effective spaces
for bias reduction**

Kaufman & Libby (2012); Kaufman, Flanagan, & Freedman (2019)



**Reducing Bias through Simulation and Games:
Fictional worlds of stories, games, and VR
environments have proven to be effective spaces
for bias reduction**

Maister et al. (2015)

What you write is who you get.

“In this position, **outside the box** thinking is a must.”



Try “creative” instead

Bias Detection Software Tools:

The development of apps and platforms to detect bias (e.g., in language, nonverbal behaviors, etc.) has become a growing business



Just Not Sorry -- the Gmail Plug-in

offered by [Cyrus Innovation](#)

★★★★★ (62)

[Social & Communication](#)

40,699 users

Dear Mr. President,

I'm just writing to say that I'm sorry for taking so long to get back to you. I think I have a plan for the strategic direction of the company in the coming year. I'm no expert but |

"Just" demeans what you have to say. "Just" shrinks your power. It's time to say goodbye to the justs. --Tara Sophia Mohr

--
Steve Brudz

Lead Consultant @ [Cyrus Innovation](#)

Agile Software Development and Consulting

Bias Detection Software Tools:

The development of apps and platforms to detect bias (e.g., in language, nonverbal behaviors, etc.) has become a growing business



Physiological Sensing of Bias:

Increasing evidence that implicit bias is associated with distinct patterns of physiological responses (heart rate, brain activity, galvanic skin response, respiration rate, eyeblink patterns, etc.) that have the potential to be sensed in real-time (e.g., to deliver “just-in-time” interventions)

Dambrun et al. (2003)

Take-home Points

- Implicit bias is pervasive (but malleable)
- Implicit bias manifests in often subtle ways to affect perceptions, expectations, behaviors, social dynamics, etc.
- These subtle effects can profoundly affect their targets' well-being and sense of belongingness in a particular context
- Awareness of bias is only the first step: essential to engage in individual and collective efforts to combat implicit bias
- Tremendous (but still largely unrealized) potential for technological tools to assist in:
 - Bias Detection (e.g., physiological and other forms of automatic sensing)
 - Bias Mitigation (e.g., VR/AR experiences)

Thank you!

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