Bias: when the brain takes shortcuts

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Agenda

1. Why diversity and inclusion?

2. Bias: the why and the how

3. Understanding microaggressions

4. Addressing microaggressions
Fisher v. University of Texas

“What unique perspective does a minority student bring to a physics class?”

“I’m just wondering what the benefits of diversity are in that situation?”

Chief Justice John Roberts
Oral arguments 2015
Diverse teams are more effective

From: Frances Frei, Harvard Business School
Unmanaged diverse teams underperform

Phillips, Liljenquist and Neale 2009
Mello & Delise 2015
Lount, Sheldon, Rink, Sheldon and Phillips 2015

From: Frances Frei, Harvard Business School
Managed diverse teams outperform homogeneous teams

Google's Project Aristotle 2011-2013

From: Frances Frei, Harvard Business School
37x13

Adapted from Thinking, Fast and Slow
The Two Systems

<table>
<thead>
<tr>
<th>System 1</th>
<th>System 2</th>
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<tr>
<td>Unconscious Reasoning</td>
<td>Conscious Reasoning</td>
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<tr>
<td>Implicit</td>
<td>Explicit</td>
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<tr>
<td>Automatic</td>
<td>Controlled</td>
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<td>Unintentional</td>
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<td>Unaware</td>
<td>Aware</td>
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<td>Low effort</td>
<td>High effort</td>
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<td>Rapid</td>
<td>Slow</td>
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Adapted from Thinking, Fast and Slow, Breaking the Bias habit©, Wikipedia
Neuroanatomy of the two systems

**System 1**
- **Amygdala**: Early threat or reward processing
- **Insula**: Visceral subjective emotion
- **Striatum**: Instrumental approach response

**System 2**
- **Ventral mPFC**: Empathy and mentalizing
- **OFC**: Affective judgements

The neuroscience of prejudice and stereotyping
Why have a system 1?

Implicit systems can be helpful in certain contexts:

Allocation of brain resources
Implicit information processing (System 1) generates biased behavior

Can be wrong even when we “KNOW” better

Most associations or behaviors we learn can be controlled by System 1 over time

System 2 takes effort to engage so the brain’s default is to engage System 1 whenever possible
Implicit information processing (System 1) generates biased behavior

Implicit biases are cognitive errors introduced by System 1 selecting or encouraging one association or outcome over another.

Biases have an evolutionary and neurophysiological basis.
Animal social behaviors are modulated by social context

Social behaviors are modulated by kinship, familiarity, strain and early life social experience in rodents in a manner consistent with in- and out-groups (Kavaliers et al 2005, Bartal et al 2014, Nakamura et al 2016)

Differential neuronal responses to social information may underlie biased social processing in humans and rodents (Singer et al 2006, Hein et al 2010, Perry et al 2010, Golkar et al 2015)
Social cognition and behaviors can be biased by social group

Biased social cognition/behaviors are shaped by perceived group identity (Quattrone et al 1980, Levine et al 2005, Sturmer et al 2006)

Orchestra auditions and gender bias

Orchestrating Impartiality: The Impact of “Blind” Auditions on Female Musicians
Goldin and Rouse
American Economic Review, 2000
Social biases impact in science

Randomized double-blind study in which science faculty from research-intensive universities rated the application materials of a student (male or female) for lab manager position.

Identical applications, only variable changed was gender, indicated by name.

Faculty assessed student competence, salary offers, and how deserving they were of faculty mentoring.

Faculty participants believed that their feedback would be shared with the student they had rated.

Science faculty’s subtle gender biases favor male students.
C. A. Moss-Racusin, J.. Dovidio, V. Brescoli, M. Graham, and J. Handelsman
PNAS October 9, 2012, vol. 109 no. 41
Lasting consequences

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PNAS October 9, 2012, vol. 109 no. 41
Bias in Science, cont.

White investigators significantly more likely than Black and Hispanic investigators to win NIH R01 awards (Ginther et al. 2011)

URMs and White women’s requests for career guidance more ignored than those by White men (Milkman et al. 2014)

Male biologists less likely to hire and train women in their laboratories (Sheltzer & Smith, 2014)
So that’s them, what about us?
caress
freedom
health
love
peace
cheer
heaven
pleasure
diamond
gentle
honest
lucky
rainbow
miracle
sunrise
family
happy
laughter
paradise
vacation
AIESHA
JAMAL
LAKISHA
DARNELL
EBONY
LATISHA
TERRELL
TYRONE
MARQUIS
LATASHA
TAMEKA
DARRYL
JAZMIN
ROSHANDA
DERON
SHANIQUEA
DARIUS
DESHAWN
LASHANDA
TREVON
LEFT side if UNPLEASANT

RIGHT side if PLEASANT
LEFT side if BLACK name

RIGHT side if WHITE name
LEFT side if UNPLEASANT or BLACK name

RIGHT side if PLEASANT or WHITE name
LEFT side if WHITE name

RIGHT side if BLACK name
LEFT side if UNPLEASANT or WHITE name

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Bias and the brain

It’s the way our brains work

Bias can run counter to our intentions

Deliberately invoking System 2 reduces the impact of implicit bias

Use of objective standards reduces systemic impact of implicit bias
Microaggressions

Subtle verbal, and/or nonverbal, slights, insults, indignities, denigrating messages directed toward an individual due to their group identity

Brief, everyday exchanges that are pervasive

Automatic, unconscious; harm often unintended and unnoticed by the person committing them

Pierce, Carew, Pierce-Gonzalez, & Willis, 1978
Solorzano, Ceja, & Yosso, 2000
DW Sue, MG Constantine, 2007
Josh: So, Magdalena, where are you from?
Magdalena: Denver
Josh: No, I mean where are you from?”
What might the intent have been?
What might the impact be?
Dr. Swan actually told me that the reason we don't have a diverse student body is because all the strong URMs go to Harvard or MIT.
Dr. Baker just called me Yolanda. Dr. Peters did the same thing yesterday. There are just two of us in the program, and they can’t tell us apart?
Cumulative impact of microaggressions

Each can seem harmless

Each on its own is “no big deal”

But they all add up
Dr. Swan actually told me that the reason we don't have a diverse student body is because all the strong URMs go to Harvard or MIT.
Believe me, Julio, as the only woman in the computer science department I know what you are going through.
Detecting Microaggressions

Often hard to see because they are:

small
hard to see
can be easily explained away or dismissed
as a simple misunderstanding

From: Ijeoma Oluo
So You Want To Talk About Race
You speak English really well!
That one has not detected or heard a radio broadcast does not mean the radio signal was not sent; it means that one was not tuned in to the right channel to hear it.

Angela Byars-Winston
It’s about belonging

Microaggressions are messages about group membership

In-group versus out-group
Your name is so difficult, do you have a nickname?
Reacting to microaggressions

Targeted person must deal with a profound, complicated and deeply emotional event

• Was that a biased comment?
• Am I being too sensitive?
• Was that too small to make a big deal about?

Daena Giradella
Speak Up workshop
Neural mechanisms of social pain

‘Social pain’ is the unpleasant experience associated with actual or potential damage to one’s sense of social connection/ value

Processed by some of the same neural circuitry that processes physical pain

Pain mechanisms involved in preventing physical harm may have been co-opted to prevent social separation.

You don’t sound ____.
That’s great that you got an award at SACNAS, maybe you are ready to go to a real meeting.
Non-verbal microaggressions?

Photos of representation

Store clerks following you, not helping you

Waiting for the next elevator
How to respond?
At the same time the target must...

daddress the question of “should I speak up?”

Daena Giradella
Speak Up workshop
Be Ready

These situations will happen, so be prepared

Have a script, a simple phrase

Rehearse it

Ask a question, using a tone of humble inquiry to invoke System 2
Examples

Why do you say that?

Can you say more about what you mean by that?

I’m not sure I understand, can you explain?

I’m missing the joke, can you tell me what’s funny about that?
Let’s practice
Your parents must have been proud of you getting into school here, how far did they get in school?
But I don’t see you as _______, I just see you as a friend
You probably get tired of being called a credit to your race, but you should be proud of your accomplishments.
Think of yourself as someone who engages

But it’s not your obligation!

Maybe today you don’t feel like it—that’s fine

Maybe today you are in a good mood and are willing to do some teaching - but let them know it’s not your job
Talking about Equity And Inclusion

Can be hard
  if you are uncomfortable then you are probably doing something right

We needn’t be perfect
  silence will not lead to change

Comfort zones grow
  engaging is a skill that can be developed
“Even well-intended people cause harm. As such, people will often make statements which they intend or perceive to be supportive or complimentary yet end up becoming problematic.”

Dr. Maura Cullen
Approach With Humility

The discomfort is not equally shared

different risks due to power, prestige, group status etc.
consider your conversational partner’s calculations

Cultivate curiosity

Those with privilege and power must...

demonstrate willingness to do their own work
Microaffirmations

Small, hard-to-see acts that occur wherever people wish to help others to succeed.

...gestures of inclusion, listening and providing support that help a person build on strength and correct weakness.

“Wise feedback” has lasting impact

Mary Rowe
“Most science and math instructors believe they are being evenhanded in their refusal to encourage anyone, not understanding that any white male who grows up in this country already receives encouragement for his ambitions, if only in the form of the prevailing image of scientists as white and male.”

Eileen Pollack, The Only Woman In The Room
2015 Beacon Press
Additional Resources

Blindspot: Hidden biases of good people
Mazarin Banaji and Anthony Greenwald  2013 Bantam Books

What if I say the wrong thing?
Verna A Myers, 2014 American Bar Assoc.

So you want to talk about race?
Ijeoma Oluo, 2018, Seal Press

Implicit Association Test
projectimplicit.net/index.html

Breaking the Bias Habit
wiseli.engr.wisc.edu

FairPlay
fairplaygame.org

Speaking Up
tolerance.org/sites/default/files/general/speak_up_handbook.pdf

Curiosity versus expectations
why-it-is-not-my-responsibility-as-a-marginalized-individual-to-educate-you-about-my-experience