Unraveling BIAS in the Brain

NEUROSCIENCE-BASED STRATEGIES TO REDUCE PREJUDICE AND STEREOTYPES

In this webinar, we will explore how our brain can work against our best intentions, and identify ways we can be a kinder and more inclusive human.

First off, everyone has a brain and everyone has bias. These are facts, and the purpose of this webinar is not to prove them! The purpose of this webinar is to help us unravel bias in our brains.

Because If we use our brains to understand and combat bias, we can create a more inclusive and just world.

In this webinar we will:

Review some of the barriers to an inclusive and just world.

Outline 14 key terms to add to or reinforce your vocabulary

Examine 8 neural mechanisms in our brains that support prejudice and stereotypes, the underlying functions of bias.

Identify 9 self-regulation strategies to reduce prejudice and stereotypes.

So let's think for a moment: what does a "more inclusive, and just world mean?"

A world where personal and social circumstances are not obstacles to achieving potential.

A world where differences are honored and not feared.

A world where true equality is a given.

A world where kindness, acceptance, and love prevail.

Sure, that may seem very idealistic, and perhaps it is because we certainly aren't there yet.

That being said: What are the barriers to an inclusive and just world?

Let's look at some definitions to help us examine the barriers. These definitions will be important for the conversation on the brain.

First, we have prejudice. Prejudice is a preconceived opinion that is not based on reason or actual experience. Within the field of social psychology, prejudice refers more specifically to attitudes and emotional responses towards a group and its members.

Discrimination is the unjust or prejudicial treatment of different categories of people. People can be discriminated by race, gender, socio-economic status, religion, sexuality, ability, and age to name a few.

Oppression is the combination of prejudice and power which creates a system that discriminates against some groups and benefits other groups. Examples of these systems are racism, sexism, heterosexism, ableism, classism, ageism, and anti-Semitism. There are four types of oppression: ideological, interpersonal, institutional, and internalized. These systems overlap and interact.

Systems of Oppression enable dominant groups to exert control over non-dominant groups by limiting their rights, freedom, and access to basic resources such as health care, education, employment, and housing. The four-I's of systemic oppression will be covered in more detail in another webinar, however the takeaway is that these systems are designed by people, and upheld by people.

Stereotypes are a widely held but fixed, oversimplified, and generalized image or idea of a particular type of person or thing, including personal traits or circumstantial attributes. Stereotypes can become ideological beliefs

ENGINEER inclusion
ENGINEERING EQUITY INTO EDUCATION AND THE WORKFORCE
a division of 7E Ventures LLC by Dr. Meagan Pollock
engineerinclusion.com

held within one's culture that lead to assumptions about characteristics, behaviors, and social norms.

Marginalization is the treatment of a person, group, or concept as insignificant or peripheral. Marginalized groups refer to individuals who are consistently confined to the lower or peripheral edges of society or groups, because they are commonly seen as different from perceived norms and dominant cultures. They often experience disadvantage and discrimination that stem from systemic social inequalities and injustices.

Micromessages are small, subtle, unconscious messages that are sent and received when communicating with others. Micro-messages can be either positive "micro–affirmations" or negative "micro–inequities" that communicate value to an individual. Micro-messages are relayed through not only words but also nonverbal communication. In addition, micro messages are sent by what is said or not said, or what is presented or not presented.

Implicit bias refers to the attitudes or stereotypes that affect one's understanding, actions, and decisions in an unconscious manner. Implicit prejudice is in favor of or against one thing, person, or group compared with another, usually in a way considered to be unfair. These are often unrecognized and may not align to one's declared beliefs and values.

Prejudices, stereotypes, and consequently bias often operate in combination to influence our behavior. If we can unravel these in our brain, increase our understanding of how they happen, we can begin to shift our behavior and better contribute to a more inclusive and just world.

Ready for a little neuroscience? In our brains, the function of neurons constantly fluctuates as we engage in different activities, from simple tasks like grabbing your cup of coffee, to complex tasks like understanding systemic oppression or neuroscience.

Functional magnetic resonance imaging (fMRI) is a technique for measuring and mapping brain activity. The invention of this technique has allowed us a deeper understanding of the brain. Research over the last 3 decades using the fMRI tells us that Networks in the brain support the: learning, experience, and expression of prejudice, and the storage, activation, and behavioral expression of social stereotypes. We also know that networks in the brain support the self-regulation of cognitive control, which can reduce the expression of prejudice and stereotypes.

My goal is to inspire awareness and initiate action. This is the action piece!

Self-regulation is the ability to manage one's behaviors, including the ability to set specific goals, and to use appropriate strategies to attain those goals. Or it is the process of acting in an intentional manner, often through mechanisms of cognitive control. Self-regulation answers the questions: "What am I trying to achieve?" Or "What do I need to do?"

Throughout this webinar, I'm going to provide you with strategies to help you contribute to a more inclusive and just world.

First up? Let's understand our brain.

I want to acknowledge the white paper: "The neuroscience of prejudice and stereotyping," by David AMMO DIO, as it provided the images and framework for the neural mechanisms of social cognition that underlie forms of bias that you will be introduced to, today.

The amygdala responds to motivationally relevant cues — aversive or rewarding — that guide adaptive behaviors. This includes social motivations, such as the desire to affiliate or compete with others, which is one of the most powerful of human drives. This type of motivation leads to a discernment of 'us' from 'them'. This mental computation takes just a fraction of a second, yet it sets the stage for social categorization, stereotypes, prejudices, intergroup conflict and inequality, and, at the extremes, war and genocide. Given this, studies directly implicate fear conditioning as a mechanism underlying implicit prejudice.

This is because there are patterns of amygdala function with respect to intergroup

ENGINEER inclusion
ENGINEERING EQUITY INTO EDUCATION AND THE WORKFORCE
a division of 7E Ventures LLC by Dr. Meagan Pollock
engineerinclusion.com

responses. One pattern reflects a learned threat response to racial outgroups, which is rooted in fear conditioning. Fear conditioning refers to the pairing of an initially neutral stimulus, such as light or a tone, with an aversive fear eliciting stimulus. The conditioned fear response is described in terms of emotional, behavioral and physiological responses.

The most famous example of human fear conditioning is the case of Little Albert, an 11 month old infant used in John Watson and Rosalie Rayner's 1920 study. Like most babies, Albert had a natural fear of extremely loud noises but no aversion to white rats. So Watson and Rayner presented him with a white rat, and when he reached to touch it, they struck a hammer against a steel bar just behind his head. After seven repetitions of seeing the rat and hearing the frightening noise, Albert burst into tears at the mere sight of the rat. In addition, Albert showed some generalization of his learned fear response–he would cry at the sight of objects that resembled the white rat, such as a white dog or a white coat.

Fear conditioning may be acquired in a single trial and expressed primarily through behavioral freezing, anxiety and heightened vigilance.

"Social prejudices are scaffolded by basic-level neurocognitive structures, but their expression is guided by personal goals and normative expectations." David Amodio

What irrational fear conditioning can you identify in your life?

One of the most common racially motivated and irrational fear conditioning is of black men in hoodies being dangerous. Just because a black man wears a hoodie, doesn't mean he's dangerous. Consider an excerpt from Whistling Vivaldi by Dr. Claude Steele, about New York Times Columnist Brent Staples.

What about people experiencing homelessness?

Fears that immigrants are taking all the jobs?

In what circumstances do you experience behavioral freezing, anxiety and heightened vigilance? Can you rationalize this fear conditioning based on your own personal experiences?

Next in the brain is the insula, a part of the prejudice network.

The insula is frequently associated with responses to racial outgroup versus ingroup members in experimental tasks. These findings are interpreted as reflecting a negative visceral reaction, such as disgust, to racial outgroups, and it has been specifically associated with white subjects' implicit negative attitudes towards black people. Thus, the insula seems to contribute to the emotional affect that is often experienced as part of a prejudiced response.

The insula is also implicated in prosocial emotions, such as empathy, towards liked individuals. Empathy is the ability to understand and share the feelings of another. For example, insula activity was found to increase when subjects viewed another person being exposed to a painful stimulus, but only if that person was of the same racial group.

Similarly, another study observed insula activity when members of liked, but not disliked, outgroups were harmed. Both findings suggest that empathy-related activity in the insula depends on the victim's social affiliation.

According to Dr. Brene Brown, empathy is a skill that can bring people together and make people feel included, which is very different than sympathy, which creates an uneven power dynamic and can lead to more isolation and disconnection.

It can be easy to jump to conclusions about people. Because of how implicit bias works, we are prone to assign stereotypes, negatively or at least untruthfully, attributing causality of events. Most of the time, we don't know the whole story.

One of my favorite tools taught to me by my mentor Tegwin Pulley is to ask the question, what else might be true?

Part of the prejudice network, the striatum is broadly involved in instrumental learning and reward processes, including the coordination of goal-directed and habit-based responses.

Findings from functional neuroimaging research suggest that this portion of the brain is associated with the value placed on a potential action and its anticipated outcomes.

Also part of the prejudice network, the orbital frontal cortex is often considered to include the inferior ventral medial prefrontal cortex, and is associated with the processing of feelings, learned associations between a certain behavior and a specific consequence, evaluation and decision making.

In the social domain, the OFC supports the monitoring of social cues and subsequent adjustment of one's behavior. This function is crucial in intergroup situations involving social norms, in which responses may be influenced by others' expectations. The Medial prefrontal cortex is involved in both the prejudice, stereotyping, and regulating networks.

The medial frontal cortex is an important structure for the processing of social information. In the context of social cognition, mPFC activity has been primarily associated with the formation of impressions about other people, especially impressions that require mentalizing.

Mentalizing is the process of considering a person's unique perspective and motives.

According to Chris and Uta Frith, "Mentalizing is the process by which we make inferences about mental states. Much of the time these inferences are made automatically, without any thought or deliberation. It is important for us to be able to read the minds of others because it is their mental states that determine their actions."

This process has been interpreted as reflecting a 'humanization' process and, by extension, empathy.

So, a lack of medial prefrontal cortex activity in response to a social target may indicate a form of prejudice that is characterized by dehumanization and a lack of empathy. Dehumanization is the process of depriving a person or group of positive human qualities, and the literal stripping of human attributes with an animal or object association.

Examples of dehumanization include:

during the Holocaust, Nazis referred to Jews as rats.

Natives were dehumanized as savages who stood in the way of westward expansion.

White supremacists refer to black people as apes.

Black people were kidnapped, transported, and enslaved.

Women abducted into the sex trade are treated as objects or property.

Immigrants are termed and treated as vermin, animals, or an infestation.

"Dehumanization is … viewed as a central component to intergroup violence, because it is frequently the most important precursor to moral exclusion, the process by which stigmatized groups are placed outside the boundary in which moral values, rules, and considerations of fairness apply."

Dehumanization starts with language. Words matters.

People are not property.

People are not animals.

We must consider how stereotypes, prejudice, and bias affects how we see and engage with others. I encourage you to examine the ways in which you've perhaps unintentionally stopped seeing groups of humans as humans. Ask yourself, what else might be true?

If Mentalizing is the process of considering a person's unique perspective and motives, how could your lens affect your assessment of others?

Is your lens clouded by a narrow world view?

Is your lens out of focus to the humanity of others?

Is your lens one of empathy and kindness?

Evaluate the state of your lens, and make a plan to adjust it accordingly. Stereotypes reflect conceptual associations between

social groups and a particular set of attributes. These associations are thought to reside in semantic memory.

Social information represented in the anterior temporal lobe is selected into the Medial Prefrontal Cortex to support the process of social cognition. Thus, knowledge of social stereotypes appears to reside in the Anterior temporal lobe. Stereotype retrieval and implementation happens in the left Inferior Frontal Gyrus and response inhibition on the right IFG. Thus, stereotypes are activated and applied.

So, With intentional effort, aka self-regulation, we can inhibit the influence of stereotypes on behavior.

Stereotypes reinforce the marginalization and oppression of others. We must Actively challenge stereotypes, dispel myths, and provide more authentic stories of individuals.

The last part of the brain we are going to examine is the Anterior Cingulate Cortex. The ACC has been widely implicated in the monitoring and detection of response conflict. This means that cognitive control is needed to curb the personally unwanted influence of implicit stereotypes and prejudices on behaviour.

In two fMRI studies in which subjects completed implicit association tests measuring racial attitudes, false feedback to the subjects indicating that they showed racial prejudice elicited heightened Anterior Cingulate Cortex activity, and this degree of activity was associated with feelings of guilt — a self-regulatory emotion that promotes prosocial behaviours.

The control of implicit bias requires the detection of a conflict between a biased tendency and one's goal to act without bias. You can take implicit association tests to help you identify your unconscious biases. Awareness is the first step to action.

Remember that Networks in the brain support the self-regulation of cognitive control, which can help us reduce the expression of prejudice and stereotypes.

Here is a recap of strategies:

Know Your Brain

Examine Your Fear Conditioning

Practice Empathy to Drive Connection

Stop Dehumanizing Others

Change Your Lens

Watch, Read, and Learn

Actively Challenge Stereotypes

Identify Your Implicit Biases

One more strategy…

Silence is complicity. By not saying anything… By not standing up for those who are marginalized and oppressed, we become complicit in their oppression.

In this webinar,

We reviewed some of the barriers to an inclusive and just world.

We outlined 14 key terms to add to your vocabulary, if not already there.

We examined the 8 neural mechanisms in our brains that support prejudice and stereotypes, the underlying functions of bias.

We identified 9 self-regulation strategies to reduce prejudice and stereotypes.

Our goal was to unravel the bias in our brains to create a more inclusive and just world. When we learn about bias in the brain, we can better connect to our hearts. When we connect to our hearts, we can change our behavior to be more kind, empathetic, and inclusive. When our heart and brain work to combat prejudice, stereotypes, and bias, we can dismantle systems of oppression, and together create a more just world.

If we use our brains to understand and combat bias, we can create a more inclusive and just world.

REGISTER FOR THE ON-DEMAND WEBINAR AT ENGINEERINCLUSION.COM/WEBINARS/BIAS

ENGINEER inclusion
ENGINEERING EQUITY INTO EDUCATION AND THE WORKFORCE
a division of 7E Ventures LLC by Dr. Meagan Pollock
engineerinclusion.com