Cognitive bias

Recognizing and managing our unconscious biases

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We all have biases, whether we are aware of them or not. We hold opinions in favor of, or against, a thing, person, or group compared with another. These preconceived opinions are often not based on reason or actual experience.

Cognitive bias refers to the systematic pattern of deviation from norm or rationality in judgment, whereby inferences about other people and situations may be drawn in an illogical fashion. Individuals create their own "subjective social reality" from their perception of the input.

Unconscious or implicit bias refers to biases in judgment or behavior resulting from subtle cognitive processes that we are unaware of, and which happen outside of our regular thought process and control. It occurs automatically and is triggered by the brain making quick judgments and assessments of people and situations that are influenced by personal background, experiences, memories, and cultural environment.[1] Social judgments and inferences, especially those guiding first impressions, are often mediated by unconscious processes.[2] The brain is extracting patterns from inputs and building predictive models that are the basis of the biases.

Biases presumably originated in response to fears, and for the caveman—and cave woman—were helpful for safety, and useful for evolution and survival.

Cognitive stereotyping helps perceive surroundings quickly and efficiently, and unconsciously affect judgment with missing information filled in from unconscious cognition to guide behavior during social interactions and decision-making. Theoretically, this allows for simplification of complex environments to predict and respond to future events, even with incomplete information.

Over time, we intensify and reaffirm our perception that members in a certain category are more homogeneous than they are in reality. We then use personal characteristics—race, gender, etc.—as markers for personality, behaviors, and other traits. This is compounded by media and cultural stereotypes presented by friends, family, colleagues, the news, and social media.

Biases drive behaviors

Dr. Wiley Souba (AΩA, University of Texas McGovern Medical School, 1978), states, "Research in neuroscience has made it unambiguously clear that every aspect of our life experience, and every choice we make, is generated by neuronal patterns in our brain. Both genome and experiences shape and mold our way of being at any point in time in our life."[3]

Most of us believe that our decisions are based on conscious deliberations of the available information about the choice options and deductive or inductive reasoning. However, we often use mental shortcuts, which is a part of being human and is related to self-preservation. We learn to use routinized procedures for social judgment, and may form impressions of people without any conscious awareness of the perceptual cognitive basis.

Unconscious bias may be detrimental without consideration of objective and known facts.

It has been estimated that our brains are capable of processing 11 million bits of information every second.[4]

In 2011, Daniel Kahneman described an accepted framework for understanding human cognitive functioning by illustrating mental processing in two parts: System 1 and System 2.[5] System 1 is cognition, and used for information outside of conscious awareness, e.g., having learned to stop for a red light and proceed with a green light without using any conscious thought. System 2 is conscious cognition processing to think and make decisions requiring

concentration through thoughtfulness, effort, and deliberate concentration. These two systems work together to make sense of the world.

Cognitive processing—System 1—helps us understand that many of the mental associations that affect how we perceive and act are operating implicitly or unconsciously, and are the source of our unconscious biases.

Since our implicit associations are outside of our conscious awareness, they do not necessarily align and match our explicit beliefs or our stated intentions. They have been learned over time and incorporated functionally in our brains and neurons. Individuals with good intentions can unknowingly act from their unconscious biases, producing unintended negative effects and consequences on decision-making, unaware that these unconscious biases exist.

Unconscious bias can be related to age, race, ethnicity, gender, employment, selection and promotion, health care, religion, disability, nationality, socioeconomic status, law and justice, education, etc. Unconscious bias can be followed by an unconscious tendency to try to relate information that confirms pre-existing beliefs. It becomes a habit of which the person is actually unaware.

A similar phenomenon is implicit stereotype, which is an unconscious attribution of presumed qualities to a certain social group—race or gender—referred to as implicit social cognition and bias. In contrast, explicit stereotypes are the result of intentional, conscious, and controllable thoughts and beliefs resulting in conscious bias, or prejudice.[6] We consciously use information about characteristics, gender, race, ethnicity, age, socioeconomic status, sexual orientation, and other factors to help understand the etiology and epidemiology of diseases and in diagnosis of individual patients. Our unconscious biases can influence every step of this process.

Becoming aware of the unconscious

Through self-reflection and personal awareness, people can become aware of their biases. For decades, unconscious bias has been studied and tested in nearly every profession and personal setting.

One study found that fictitious resumes with Caucasian-sounding names sent in reply to help wanted ads were 50 percent more likely to receive callbacks for interviews compared to resumes with African-American sounding names.[7]

In another study, faculty rated male applicants for a laboratory manager position as significantly more competent and employable than female applicants. Faculty selected a higher starting salary, and offered more career mentoring to the male applicants.[8] And, among mentored career K08 or K23 grant recipients, the mean salary for female researchers was about $32,000 less than their male counterparts.[9] In addition, women scientists who are mothers were found to be 79 percent less likely to be hired, and if hired, were offered $11,000 less in salary than women with no children. By contrast, parenthood conferred an advantage for men in the same study.[10] Studies also show that evaluators consistently scored identical curriculum vitae and resumes lower when they are assigned a female name.[8,11]

In the tech world, 19 percent of software developers are female, and of those, only 19 percent are in technology leadership roles. Eighty-eight percent of all information technology patents filed between 1980 and 2012 have male only invention teams, while two percent have female only teams.[12] A 2008 London Business School study looked at 100 teams from 21 companies and found that work teams with equal numbers of women and men were more innovative and more productive than teams of any other composition.[13]

In 2014, researchers created a fictitious legal memo that contained 22 deliberately planted errors for spelling and grammar, and factual, analytical, and technical writing. The memo was distributed to law firm partners as a writing analysis study. The partners were asked to edit and evaluate the memo. Half of the memos listed the author as African-American, and half as Caucasian. When the author was listed as African-American, the evaluators found more of the embedded errors and rated the memo as lower quality than those who believed the author was Caucasian. They concluded unconscious confirmation bias was present, despite the reviewers' intention to be unbiased.[14]

Unconscious bias among health care professionals can influence their behaviors and judgments.[15] Since 1997, more than 30 studies have been published relevant to unconscious bias in clinical decision-making. Racial bias was found to be prevalent among health care providers, and race can influence medical decision-making.[16]

In 2006, researchers tested implicit bias among physicians and their prediction of thrombolysis for African-American and Caucasian patients. They used the Implicit Associations Test (IAT), a social psychology measure designed to detect the strength of a person's automatic association between mental representations of objects (concepts) in memory. They specifically measured implicit race preference and perceptions of cooperativeness. Before taking the test, physicians reported no explicit preference

for Caucasian versus African-American patients, and stated they didn't have any preconceived perceptions of cooperativeness.

The IATs revealed otherwise, identifying implicit preference favoring Caucasians, and implicit stereotypes of African-Americans as less cooperative with medical procedures and less cooperative in general. As physicians' pro-Caucasian implicit bias increased, so did their likelihood of treating Caucasian patients and not treating African-American patients with thrombolysis.[17]

Diversity and inclusion

Decades of work by investigators from myriad disciplines show that socially diverse groups, with a mix of race, ethnicity, gender, and sexual orientation are more innovative than homogeneous groups. Social diversity provides advantages in solving complex, non-routine problems. Interacting with individuals from different backgrounds affects group members' preparation, evaluation of alternative views, and ability to reach consensus.

Diversity enhances creativity and encourages searching for novel information and perspectives that lead to better decision-making and problem solving, and lead to higher quality scientific research.[18] Unconscious assumptions and bias limit the science and technology pool, and undermine scientific innovation.

Studies of the medical and scientific peer-review process have shown that African-Americans and women are held to higher standards to be judged competent, which has resulted in efforts to minimize implicit bias in peer review, including double-blind peer review when authors and peer-reviewers are unaware of each other's identity[19]

Dr. Eve Higginbotham (ΑΩΑ, Morehouse School of Medicine, 2008, Faculty), notes, "While there has been focus on diversity—the differences among people in a group or community—for decades, there has not been as much attention paid to inclusion, which is the process of respectfully engaging all members of a community, organization, or nation."[20] A limiting factor on inclusivity is unconscious bias. This also is evident in developing effective inter-professional education and patient care where there are often unconscious biases related to professional background and roles.

Measuring unconscious bias

Reliable computer-based tests have been developed to measure implicit and unconscious bias. The most commonly used is the IAT, which measures differential association of two target concepts—male or female, black or white, good or bad—and relies on differences in response latency to reveal unconscious bias. The larger the performance difference, the stronger the unconscious bias.

Between 1998 and 2006, more than 4.5 million IAT tests were completed on the IAT website. The project found that:

- Implicit bias is pervasive.
- People are often unaware of their implicit biases.
- Implicit biases predict behavior.
- People differ in levels of implicit bias.[21]

The IAT is a powerful and useful instrument to explore and document the impact of bias on behavior. It can be used to increase awareness of cognitive bias, and help individuals and groups to compensate and learn about influences on decision-making and social interactions. The IAT is available online at implicit.harvard.edu. It is free and takes about 10 minutes to complete a test.

Unconscious bias in medicine and leadership

Because time pressures, fatigue, stress, and information overload impact physicians' and clinical educators' cognition, there is a corresponding increase in unconscious cognition resulting in increased implicit biases.

In 1999, Parker J. Palmer, writer and activist, observed:

> Why must we go in and down? Because as we do so, we will meet the darkness that we carry within ourselves—the ultimate source of the shadows that we project onto other people. If we do not understand that the enemy is within, we will find a thousand ways of making someone "out there" into the enemy, becoming leaders who oppress rather than liberate others….Good leadership comes from people who have penetrated their own inner darkness and arrived at the place where we are at one with one another, people who can lead the rest of us to a place of "hidden wholeness" because they have been there and know the way.[22]

Souba discusses the importance of the inward journey in leadership where biases—overt and unconscious—are critically important:

> We each come to the table with a set of fixed and unchallenged beliefs and assumptions that unconsciously lead us to listen to what we hear in predetermined ways. We each make sense of (interpret) the world through the lenses (contexts) of world views and frames of reference. Context becomes a critical determinant of making sense of a leadership challenge. Change the context and you can shift yourself

and your sense-making in relationship with it.

Context is always alterable. It is always created by you, and only you, and thus always a matter of choice. However, before creating a new context you must expose the current one and the hidden assumptions that make up the current/reigning context. Once exposed, crafting a new context can alter the occurring such that your correlated ways of being and acting give rise to more of your natural self-expression—you at your best.[23]

Can we change and be alerted to our unconscious biases? How can we gain awareness of unconscious biases that may be affecting our decisions and resulting outcomes? Even when we believe, and strive to be egalitarian—believing in the principle that all people are equal and deserve equal rights and opportunities—unconscious biases can slip into our thoughts and processes.

Since unconscious biases are not permanent, they are malleable and can be changed by devoting intention, attention, and time to developing new associations. It involves taking the time to consciously think about potential and possible biases prior to acting or making decisions.[24] There is evidence that even minimal interventions in reducing stereotyping and discrimination are efficacious. For example, "simply giving whites instructions to imagine a day in the life of a black person, looking at the world through his/her eyes and walking through the world in his/her shoes led to less implicit stereotyping and in-group favoritism." [25]

Programs testing mental imagery—cognitive therapy—have shown a change in unconscious and automatic stereotyping. People who are made aware of the influence of their stereotypes can be motivated to mentally change their initial biased responses.

Becoming aware to effect change

Educate yourself, take action, and be accountable. Work consciously to be aware, and be able to tell the difference between real threats and unconscious bias-driven impulsive actions.

In 2014, thousands of medical students joined the community movement WhiteCoats4BlackLives, and participated in demonstrations across the United States to safeguard the lives and well-being through the elimination of racial bias in the practice of medicine. The group's three goals are to raise awareness of racism as a public health concern; end racial discrimination in medical care; and prepare future physicians to be advocates for racial justice. The students demanded an examination of racial bias and unconscious bias in academic medical centers, recognizing that in the profession and medical education it is an important issue that must be addressed.[26]

One of the most effective ways to mitigate unconscious bias is "habituation of egalitarian goal pursuit."[28] Approach every encounter with patients, colleagues, employees, students, and especially those who are members of underprivileged or stereotyped social groups, different genders, races, ethnicities, ages, socioeconomic status as an opportunity to reinforce and act consistently with commitment to egalitarian values. By making egalitarian goals habit, they become unconsciously accessible and automatically activated in the presence of groups different than yourself.

Create an inclusive learning environment to build positive associations with others. This is a primary element of medical professionalism and the care of patients.

Skills to abate unconscious bias include:

- Perspective taking which is the cognitive component of empathy;
- Emotional regulation to use more inclusive social categories; and
- Partnership-building for clinicians to create partnerships with patients working as a team toward common goals.[29]

The Joint Commission provides several actions that health care providers can practice to combat unconscious bias:

- Have a basic understanding of the cultures from which your patients come.
- Avoid stereotyping patients; individuate them.
- Understand and respect the magnitude of unconscious bias.
- Recognize situations that magnify stereotyping and bias.
- Assiduously practice evidence-based medicine, by making the most objective evaluation and decisions possible. Consciously gather and assess the evidence for diagnosis, treatment, and caring.
- Participate in techniques to de-bias patient care, including training, intergroup contact, perspective-taking, emotional expression, and counter-stereotypical exemplars.[21]

One of the most important predictors of learning is willingness to recognize and work toward understanding. This is the only way to modify and eradicate our own unconscious biases.

We can all work to educate others—colleagues, students, leaders, managers—that unconscious bias exists, and that it has detrimental unintended consequences.

Unconscious biases are pervasive, and everyone is susceptible to them. Sometimes, an unconscious bias may be positive and useful. However, the outcome is more often negative, affecting evaluation, decisions and actions contrary to openly held beliefs and egalitarian commitments.

Unconscious biases can result in prejudice that affects decisions and leads to unintended consequences.

Unconscious biases are not permanent, they are malleable and can be changed by devoting intention, attention, and time to develop and learn new associations.

We need to take action, manage our unconscious biases, and understand how our behavior and decision-making is influenced by our unconscious biases. We can overcome our unconscious biases by becoming aware and being open to change.

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