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THE SCIENCE OF EQUALITY, VOLUME 1:
**ADDRESSING IMPLICIT
BIAS, RACIAL ANXIETY, AND
STEREOTYPE THREAT IN
EDUCATION AND HEALTH CARE**

EXECUTIVE SUMMARY

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FROM THE AUTHORS

In the late summer of 2014, an unarmed young black man, Michael Brown, was approached by police officers as he walked in the street in Ferguson, Missouri. Five minutes later, he was dead with six gunshots in his body – two to his head. Grief turned to rage in his neighborhood when the mainly white police department responded using military force, and the rage grew more volatile. The Department of Justice is now investigating.

This was not an isolated event this summer. Eric Garner in Staten Island and John Crawford in Ohio were both killed by police. Marlene Pinnock was repeatedly punched in the head by a police officer in Los Angeles. Neither these deaths and assault, nor the impassioned responses, occurred in a vacuum.

This report, released as the summer of 2014 draws to a close, details the social science that can help us understand the day-to-day dynamics of race and how to alter the circumstances that too often culminate in tragedy.



FOREWORD

Last year, we celebrated the 50th anniversary of the March on Washington, honoring the historic struggles for racial equity and justice waged during the Civil Rights Movement. And yet in the last few years, we have seen far too many killings of unarmed black young people rise to the level of national public consciousness, some within the span of just a few months. With each death, we've committed a new name to memory: Jonathan Crawford III in Ohio; Eric Garner in New York; Michael Brown in Ferguson, Missouri; Renisha McBride in Michigan; Trayvon Martin and Jordan Davis in Florida; and Jonathan Ferrell in North Carolina. And the list is growing. With each new name, we've learned their unique personal histories and debated different accounts of what might have happened in each instance. Mostly, we have mourned the eerily familiar similarity in each of their tragic deaths: how black people, particularly men and boys, are perceived is inherently linked to their survival. Perception can mean the difference between life and death.

Even more familiar is the polarized, defensive, and entrenched way in which our racial discourse responds to these losses. Families, friends, and advocates are outrageously put in the position of defending the basic humanity of the victims just to secure the most minimal inquiry into justice that would be so easily afforded to most other Americans. Many others legitimately struggle with racial ambivalence as they reconcile their own experience around race with the alarming patterns of systemic injustice being revealed with such frequency. And predictably, a small but vocal minority will leap to justify the killings and excuse a world in which black men and boys should be feared and assumed criminal until proven otherwise. Our challenge is to find inroads to a meaningful, productive conversation addressing the perceptual challenges black men and boys face – which now often ends before it really gets going.

As tragic as the last few years have been, we have also seen glimmers of hope in the way new thinking and new research, particularly in the mind sciences, have emerged to push our conversations, and indeed our imaginations, beyond the historical frameworks and rigid binaries that limit our understanding of race. The public adoption of seemingly academic ideas like **implicit bias**, embedded stereotypes that heavily influence our decision-making without our conscious knowledge, signifies a willingness to delve deeply into that which makes solving our race challenges seem so intractable. The Perception Institute, a consortium of leading social scientists engaged in the mind sciences, is proud to be a part of a wide community of scholars, advocates, and funders, bringing implicit bias and other ideas into the mainstream. Last year, we released a landmark report, *Transforming Perception*, in which we detailed

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how subconscious processes work to reinforce and undergird structural barriers to equality in the criminal justice, education, and health care sectors. *Transforming Perception* was an effort on our part to increase awareness and understanding of how the mind and race interact.

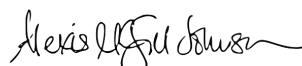
As important as implicit bias is to understanding race and our daily lives, however, at its best, it is a diagnosis of perception. What we desperately need to move forward is a prescription grounded as much in the complexity of the mind as in our historical analysis of structural barriers. Implicit bias and perception are often seen as individual problems when, in fact, they are structural barriers to equality.

The harrowing concentration of lost lives of young black men and boys in the summer of 2014 illustrates the urgency of understanding that the recognition of the pervasiveness of implicit bias is not itself a silver bullet. The Research Advisors to the Perception Institute have been engaged in empirical work identifying effective interventions to reduce bias and as important, identifying related phenomena, racial anxiety and stereotype threat, that must also be addressed to create the equal society we all want to see.

Our response is a new report series: *The Science of Equality*. This series is designed to examine and explain the perceptual distortions that underpin implicit bias and the anxiety that ensues when race is expressly discussed. As we demonstrate in this report, stereotype threat, which causes our cognitive capacities to diminish when we worry that we might confirm a negative stereotype about our identity group, and racial anxiety, where our discomfort around inter-racial interaction causes the very negative experiences we're worried about, are key to addressing a host of racialized harms. Future volumes will address their role in the contexts of the media, politics and policy, employment, and criminal justice.

This first volume of *The Science of Equality*, *Addressing the Impact of Implicit Bias, Racial Anxiety, and Stereotype Threat in Education and Health Care*, draws on over two hundred studies to describe the operation of implicit bias, racial anxiety, and stereotype threat; to document how students of color are both overdisciplined and given too little feedback on their work in the classroom; to examine how standardized tests lowball the aptitudes and abilities of black and Latino students; and to show how the fact that doctors are far from immune from the kinds of biases and anxieties that affect all of us leads to worse outcomes for African Americans and increased distrust between black patients and white doctors.

We live in a time when discrimination looks less like a segregated lunch counter and more like a teacher never calling on your son or a doctor failing to inspire trust in your daughter and improperly diagnosing her illness as a result. *The Science of Equality, Volume 1* shows the role perception plays in our daily lives from the mundane to the tragic. It's our sincere hope that translating these insights can make the complex science around race and the mind accessible and show how these scientific phenomena affect every sphere of our lives.



Alexis McGill Johnson
Executive Director, Perception Institute

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TWO STORIES

A sixth-grade boy, not too tall with short hair and brown skin, climbs onto the city bus on his way to middle school. He would like to get some reading done before school and sees an open seat near the front of the bus. It would be quieter here than the back where other kids from his neighborhood are talking and joking, but the white lady in the next seat over looks nervous when he moves toward the seat. Never mind. When the bus drops the kids off at school, the security guard makes him empty his pockets and looks in his backpack. Again? He keeps his eyes on the ground, ignoring the other kids streaming past. He is kind of looking forward to Humanities; they are getting back essays on Ancient Egypt, and he worked hard on his. The teacher hands back the essays. An A! But the teacher didn't give any comments or suggestions. He looks at the kid next to him. He got an A, too. Did everyone? Did his work even matter? Science is next. The worst. The teacher never calls on him or any of the other black kids. Today is the end-of-semester test. He studied most of the weekend, but the test is really hard. Finally school is done. His mom is picking him up for his doctor appointment – his asthma has been getting worse. The doctor doesn't ask too many questions, and the appointment is over quickly. No new medicine or anything. The nurse smiles at him and his mom. She looks a little like his aunt. He smiles back.

The doctor welcomes the boy and his mother into her office. This is a first visit, but she sees from the chart that the boy has been getting medication for asthma for several years. She is careful to first talk to the mother. In her recent "cultural competencies" seminar they were taught that with black families it is important to show respect to the parents by mainly addressing them. The visit is fairly short; it doesn't seem like much has changed for the boy. As they leave, the doctor sees the boy smile at the nurse. She is a little surprised. He seemed distant, or at least shy, with her. As the boy and his mother leave the office, the nurse gives her a "look." What did she do this time? The doctor moved to this practice and to the city from the suburbs fairly recently. She feels like she has tried to get along with this nurse. She compliments the nurse on her work, but it seems like she is always saying the wrong thing. Last week she accidentally mixed this nurse up with another nurse who is also black. She felt so stupid, they don't really look alike, but all of the other nurses are either white or Latina, and she was moving quickly. Lately, when she goes into the staff room and she sees the two black nurses sitting together, she goes and eats in her office. It is so awkward. And who can she talk to? She could call her friend from medical school who is black, but



EXECUTIVE SUMMARY

Most Americans agree that people of all races and ethnicities should be treated respectfully and fairly. Yet news reports and personal experiences (like those illustrated above) tell us that race and ethnicity continue to matter and affect how people are treated and how they interact with each other. The science of “implicit bias” – automatic associations of stereotypes or attitudes about particular groups – has emerged in the public discourse about race and ethnicity and provided a much needed explanation. People can have conscious values that are betrayed by their implicit biases, and implicit biases are often better at predicting discriminatory behavior than people’s conscious values and intentions.

But implicit bias alone doesn’t explain all of the ways in which racial and ethnic dynamics affect day-to-day life and perpetuate disparities. Racial anxiety and stereotype threat are also critical barriers to fair treatment. They help explain why white doctors may have shorter visits and less eye contact with black or Latino patients, why white teachers may give less critical feedback to black students, and why people of different races and ethnicities sometimes find dealing with each other so challenging that they avoid doing so when they can.

Interventions to deal with implicit bias – which often involve enhancing awareness of racial bias – must also address people’s concerns about navigating discussions about race and their anxieties about appearing racist. Otherwise, one racial dynamic may be lessened but another triggered.

This report describes cutting-edge research on implicit bias, racial anxiety, and stereotype threat – and the interventions that help to reduce them and their effects. The reality of implicit bias, racial anxiety, and stereotype threat confirm that race “matters” – both among people of color whose experiences verify their presence and among many whites who genuinely consider themselves non-racist even if their behavior may sometimes suggest otherwise.

We also recognize that addressing the problem of race at the individual level is not sufficient. But it is necessary. Structural and institutional arrangements are critical, but individuals’ behaviors within institutions are also important. In order to challenge structural racialization and inequality in society’s institutions and culture, individuals must be equipped to modify patterns of behavior and persuaded to support policies that will do this work.

Below we describe the content of the report and briefly note the key concepts. The body of the report includes detailed discussions of the concepts and the studies that support them. We also include an extensive bibliography at the end of the report for those who are interested in further study.

PART I

Part I describes of the science of **implicit bias**, how it is measured, and its behavioral consequences. Implicit bias refers to the process of associating stereotypes or attitudes toward categories of people without conscious awareness.

- ◆ *Implicit*: A thought or feeling about which we are unaware or mistaken.
- ◆ *Bias*: When we have a preference or an aversion toward a person or a category of person as opposed to being neutral, we have a bias.
- ◆ *Stereotype*: A specific trait or attribute that is associated with a category of person.
- ◆ *Attitude*: An evaluative feeling toward a category of people or objects – either positive or negative – indicating what we like or dislike.

Implicit Bias Affects Behavior

Implicit biases affect behavior and are far more predictive than self-reported racial attitudes. In this part we describe the studies that have demonstrated links between implicit bias against blacks and a number of critical real-life scenarios, including:

- ◆ The speed and likelihood of shooting an unarmed person based on race
- ◆ Employment callbacks relative to equally qualified white applicants
- ◆ The rate of referring otherwise similar black and white patients with acute coronary symptoms for thrombolysis
- ◆ Why black defendants with stereotypically black features receive longer sentences, and why stereotypically black defendants are more likely to be sentenced to death in cases involving white victims

PART II

Part II provides a description of **racial anxiety**, how it is experienced by both whites and people of color, and its behavioral consequences.

- ◆ Racial anxiety is discomfort about the experience and potential consequences of interracial interaction.
- ◆ People of color can be anxious that they will be the target of discrimination and hostile or distant treatment.
- ◆ Whites can be anxious that they will be assumed to be racist and, therefore, will be met with distrust or hostility.

People experiencing racial anxiety often engage in less eye contact, have shorter interactions, and generally seem – and feel – awkward. Not surprisingly, if two people are both anxious that an interaction will be negative, it often is. So racial anxiety can result in a negative feedback loop in which each party's fears appear to be confirmed by the behavior of the other.

PART III

Part III describes the science underlying **stereotype threat**, which occurs when a person is concerned that she will confirm a negative stereotype about her group.

- ◆ Stereotype threat can affect anyone, depending on the prevailing stereotypes in a given context.
- ◆ Stereotype threat has been most discussed in the context of academic achievement among students of color, and among girls in STEM (science, technology, engineering and math) fields.
- ◆ Whites can suffer stereotype threat when concerned that they may be perceived as racist.

When people are aware of a negative stereotype about their group in a domain in which they are identified, their attention is split between the activity at hand and concerns about being seen stereotypically.

- ◆ Research finds that concern about negative stereotypes can trigger physiological changes in the body and the brain, such as:
 - ◇ An increased cardiovascular profile of threat and activation of brain regions used in emotion regulation
 - ◇ Cognitive reactions (especially a vigilant self-monitoring of performance)
 - ◇ Affective responses (especially the suppression of self-doubts)
- ◆ Stereotype threat diverts cognitive resources that could otherwise be used to maximize task performance.

PART IV

Part IV focuses on the role of racial dynamics in **education** and **health care**. Implicit bias, racial anxiety, and stereotype threat have effects in virtually every important area of our lives. In the report, we illustrate the interrelated implications of the three phenomena in the domains of education and health care. Education and health care are of critical importance for obvious reasons – and a fair amount of research has highlighted the role race plays in unequal outcomes in both domains. The research to date includes the findings highlighted below.

Racial Dynamics in Education

- ◆ Discipline and suspension disparities were not based upon more severely problematic behavior by black or Latino youth; the greatest racial disparities were in responses to subjective behaviors such as “disrespect” or “loitering.”
- ◆ Conventional measures of academic performance underestimated the ability of members of stereotyped groups by 0.17 standard deviations or 62 points on the SAT. The size of this gap is significant and highly likely to be an underestimation.

- ◆ Teachers may give students of color too little critical feedback.

Racial Dynamics in Health Care

- ◆ Physicians were 40% less likely to refer African Americans for cardiac catheterization than whites; the lowest referral rates were for African American women.
- ◆ Doctors' levels of bias largely mirrored those of the general population, with medical doctors strongly preferring whites over blacks. Doctors in some fields, such as pediatrics, showed less biased behavioral responses to racial difference.
- ◆ Physicians engaged with patients of color may be less likely to be empathic, to elicit sufficient information, and to encourage patients to participate in medical decision-making.
- ◆ African American patients have a greater level of distrust toward white counselors in clinical settings, which has serious consequences for mental health care, as well as physical health care.

PART V

Part V describes critical **interventions** that institutions ought to adopt and individuals ought to engage in to respond effectively to the racial dynamics that lead to the harms to targeted groups described above.

“Debiasing” and Preventing Effects of Implicit Bias

The research on reducing implicit bias or “debiasing” is fairly new, however, researchers have conducted recent studies finding some success. Most significantly, Patricia Devine and her colleagues have combined interventions devised by other research and successfully reduced implicit racial bias, as well as increased awareness of personal bias and concern about discrimination. These strategies are listed below.

- ◆ *Stereotype replacement*: Recognizing that a response is based on stereotypes, labeling the response as stereotypic, and reflecting on why the response occurred creates a process to consider how the biased response could be avoided in the future and replaces it with an unbiased response.
- ◆ *Counter-stereotypic imaging*: Imagining counter-stereotypic others in detail makes positive exemplars salient and accessible when challenging a stereotype's validity.
- ◆ *Individuation*: Obtaining specific information about group members prevents stereotypic inferences.
- ◆ *Perspective taking*: Imagining oneself to be a member of a stereotyped group increases psychological closeness to the stereotyped group, which ameliorates automatic group-based evaluations.

- ◆ *Increasing opportunities for contact:* Increased contact between groups can reduce implicit bias through a wide variety of mechanisms, including altering their images of the group or by directly improving evaluations of the group.

These data “provide the first evidence that a controlled, randomized intervention can produce enduring reductions in implicit bias.” The findings have been replicated and further studies will be in print in 2015.

Preventing Implicit Bias from Affecting Behavior

To the extent that debiasing is an uphill challenge in light of the tenacity of negative stereotypes and attitudes about race, institutions can also establish practices to prevent these biases from seeping into decision-making. Jerry Kang and a group of researchers developed the following list of interventions that have been found to be constructive:

- ◆ *Doubt objectivity:* Presuming oneself to be objective actually tends to increase the role of implicit bias; teaching people about non-conscious thought processes will lead people to be skeptical of their own objectivity and better able to guard against biased evaluations.
- ◆ *Increase motivation to be fair:* Internal motivations to be fair, rather than fear of external judgments, tends to decrease biased actions.
- ◆ *Improve conditions of decision-making:* Implicit biases are a function of automaticity (what Daniel Kahneman refers to as “thinking fast”). “Thinking slow” by engaging in mindful, deliberate processing prevents our implicit biases from kicking in and determining our behaviors.
- ◆ *Count:* Implicitly biased behavior is best detected by using data to determine whether patterns of behavior are leading to racially disparate outcomes. Once one is aware that decisions or behavior are having disparate outcomes, it is then possible to consider whether the outcomes are linked to bias.

Interventions to Reduce Racial Anxiety

The mechanisms to reduce racial anxiety are related to the reduction of implicit bias – but are not identical. In our view, combining interventions that target both implicit bias and racial anxiety will be vastly more successful than either in isolation.

- ◆ *Direct intergroup contact:* Direct interaction between members of different racial and ethnic groups can alleviate intergroup anxiety, reduce bias, and promote more positive intergroup attitudes and expectations for future contact.
- ◆ *Indirect forms of intergroup contact:* When people observe positive interactions between members of their own group and another group (vicarious contact) or become aware that members of their group have friends in another group (extended contact), they report lower bias and anxiety, and more positive intergroup attitudes.

Stereotype Threat Interventions

Most of these interventions were developed in the context of the threat experienced by people of color and women linked to stereotypes of academic capacity and performance, but they may also be translatable to whites who fear confirming the stereotype that they are racist.

- ◆ *Social belonging intervention:* Providing students with survey results showing that upper-year students of all races felt out of place when they began but that the feeling abated over time has the effect of protecting students of color from assuming that they do not belong on campus due to their race and helping them develop resilience in the face of adversity.
- ◆ *Wise criticism:* Giving feedback that communicates both high expectations and a confidence that an individual can meet those expectations minimizes uncertainty about whether criticism is a result of racial bias or favor (attributional ambiguity). If the feedback is merely critical, it may be the product of bias; if feedback is merely positive, it may be the product of racial condescension.
- ◆ *Behavioral scripts:* Setting set forth clear norms of behavior and terms of discussion can reduce racial anxiety and prevent stereotype threat from being triggered.
- ◆ *Growth mindset:* Teaching people that abilities, including the ability to be racially sensitive, are learnable/incremental, rather than fixed has been useful in the stereotype threat context because it can prevent any particular performance from serving as “stereotype confirming evidence.”
- ◆ *Value-affirmation:* Encouraging students to recall their values and reasons for engaging in a task helps students maintain or increase their resilience in the face of threat.
- ◆ *Remove triggers of stereotype threat on standardized tests:* Removing questions about race or gender before a test, and moving them to after a test, has been shown to decrease threat and increase test scores for members of stereotyped groups.

Interventions in Context

The fundamental premise of this report is that institutions seeking to alter racially disparate outcomes must be aware of the array of psychological phenomena that may be contributing to those outcomes. We seek to contribute to that work by summarizing important research on implicit bias that employs strategies of debiasing and preventing bias from affecting behavior. We also seek to encourage institutions to look beyond **implicit bias alone**, and recognize that **racial anxiety** and **stereotype threat** are also often obstacles to racially equal outcomes. We recommend that institutions work with social scientists to evaluate and determine where in the institution’s operations race may be coming into play.



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CONCLUSION

The conclusion describes the **conditions** required for transformative change. Social science described in this report helps people understand why interracial dynamics can be so complicated and challenging despite our best intentions. The interventions suggested by the research can be of value to institutions and individuals seeking to align their behavior with their ideals. Yet for lasting change to occur, the broader culture, and ultimately our opportunity structures also need to change for our society to meet its aspirations of fairness and equal opportunity regardless of race and ethnicity.



INTRODUCTION

During the late summer of 2014, as this report was being finalized, Eric Garner in Staten Island, New York, and Michael Brown in Ferguson, Missouri, were both killed by police officers under circumstances in which race seemed to drive behavior. On August 7, 2014, the second-degree murder verdict was announced against Theodore Wafer, who killed the unarmed Renisha McBride when she sought help at his home after a car accident in 2013. During the trial, Wafer testified that he grabbed his 2-gauge shotgun because he feared for his life. He said he “just reacted” (Bosman, 2014) when he shot her in the face through the door, causing her immediate death. While we cannot know with certainty whether Wafer would have had the same reaction had McBride been white, it seems unlikely. Few are of the view that Eric Garner’s and Michael Brown’s fates would have been the same had they been white. These tragedies do not occur in isolation. They are accompanied by daily instances in which racial or ethnic difference come into play. And yet most Americans espouse values of racial fairness.

Recent advances in neuroscience, social psychology, and other “mind sciences” have provided insight into otherwise confounding contradictions between our stated values and behaviors and outcomes. Advocates and “race talkers” (media pundits who focus on race) have been particularly interested in social psychological research focusing on “implicit bias” – the automatic association of stereotypes or attitudes with particular social groups (Banaji & Greenwald, 2013; Dovidio & Gaertner, 2004; Kirwan Institute, 2013).

Understanding implicit bias can help explain why a black criminal defendant charged with the same crime as a white defendant may receive a more draconian sentence (Mustard, 2001), or why a resume from someone named Emily will receive more callbacks than an otherwise identical resume from someone named Lakeisha (Bertrand & Mullainathan, 2004; Rooth, 2010). Implicit bias can also help explain why the number of tragic deaths linked to race keeps growing.

The dangers posed by and prevalence of implicit biases – coupled with the growing body of research supporting the link between biases and behaviors (Devine, 1989; Kang & Lane, 2010) – have led institutions such as judges’ associations, police departments, law firms, corporations, school districts, and city governments to begin to engage in efforts to address the effects of implicit bias. This work confirms that people of color whose experiences of the world make abundantly clear that “race matters” are not simply oversensitive, while also explaining how whites who consider themselves non-racist may be sincere, even if their behavior sometimes suggests otherwise. Each

of the authors has been working with such institutions to devise training programs and address the racial dynamics that are undermining fairness and equal treatment.

This is not meant to suggest that racialized outcomes are only a result of individual actions; cumulative racial advantages for whites as a group have been embedded into society's structures and institutions (powell, 2012). As Grant-Thomas & powell (2014) argue: "a society marked by highly interdependent opportunity structures and large inter-institutional resource disparities will likely be very unequal with respect to the outcomes governed by those institutions and opportunity structures." Today's structural conditions are a result of racial advantages and disadvantages accumulated during times of overt white supremacy, and these dynamics have proved "very durable indeed" (Grant-Thomas & powell, 2014).

However, there are two key reasons why structural racism cannot be successfully challenged without an understanding of how race operates psychologically. First, public policy choices are often affected by implicit bias or other racialized phenomena

Research suggests that some forms of anti-bias education may have detrimental effects if they increase bias awareness without also providing skills for managing anxiety.

that operate implicitly (powell & Godsil, 2014). As a result, the changes in policy necessary to address institutional structures are dependent upon successfully addressing implicit biases that can affect political choices. Second, institutional operations invariably involve human behavior and interaction; any policies to address racial inequities in schools, work places, police departments, court houses, government offices, and the like will only be successful if the people implementing the policy changes comply with them (Grant-Thomas & powell, 2014).

Although implicit phenomena have the potential to impede successful institutional change, implicit racial bias is not the only psychological phenomenon that blocks society from achieving racial equality. We risk being myopic if we focus only on people's cognitive processing. Our experiences, motivations, and emotions are also integral to how we navigate racial interactions (Tropp & Mallett, 2011).

Not surprisingly, then, implicit bias cannot explain all racial dynamics. Racial anxiety and stereotype threat also create obstacles for institutions and individuals seeking to adhere to antiracist practices (Tropp & Molina, 2012; Steele & Aronson, 1995; Goff et al., 2008).

Racial anxiety refers to discomfort about the experience and potential consequences of interracial interactions (Stephan & Stephan, 1985).¹ People of color may experience racial anxiety that they will be the target of discrimination and hostile or distant treatment. White people tend to experience anxiety that they will be assumed to be racist and will be met with distrust or hostility (Devine & Vasquez, 1998). Whites experiencing racial anxiety can seem awkward and maintain less eye contact with

1 This definition of racial anxiety is distinct from what social scientists refer to as "racial threat," which includes the anger, frustration, uncertainty, feelings of deprivation, and other emotions associated with concern over loss of resources or dominance, dominance (for example, see Stephan et al., 2002).

people of color, and ultimately, these interactions tend to be shorter than those without anxiety (Shelton & Richeson, 2006). If two people are both anxious that an interaction will be negative, it often is. So racial anxiety can result in a negative feedback loop in which each party's fears seem to be confirmed by the behavior of the other.

Stereotype threat refers to the pressure that people feel when they fear that their performance may confirm a negative stereotype about their group (Steele & Aronson, 1995). This pressure is experienced as a distraction that interferes with intellectual functioning. Although stereotype threat can affect anyone, it has been most discussed in the context of academic achievement among students of color, and among girls in STEM fields (Steele, 2010). Less commonly explored is the idea that whites can suffer stereotype threat when concerned that they may be perceived as racist (Goff et al., 2008). In the former context, the threat prevents students from performing as well as they ought, and so they themselves suffer the consequences of this phenomenon. Stereotype threat among whites, by contrast, often causes behavior that harms others – usually the very people they are worried about. Concern about being perceived as racist explains, for example, why some white teachers, professors, and supervisors give less critical feedback to black students and employees than to white ones (Harber et al., 2012) and why white peer advisors may fail to warn a black student but will warn a white or Asian student that a certain course load is unmanageable (Crosby & Monin, 2007).

In other words, cognitive depletion or interference caused by stereotype threat can affect how one's own capacity, such as the ability to achieve academically, will be judged; this causes first-party harm to the individual, whose performance suffers. However, as is explored in more detail below, stereotype threat about how one's character will be judged (e.g., being labeled a racist), can cause third-party harms when experienced by an individual in a position of power.

Social science research in this context is valuable because it contributes to our understanding of otherwise confounding racial dynamics in the face of egalitarian values. Crucially, social scientists have also begun to identify interventions that have shown success in preventing the behavioral effects of implicit bias, racial anxiety, and stereotype threat. This report summarizes the cutting-edge research explaining these phenomena and identifies best practices for institutions, policy makers, and individuals working toward racial equality.





Science is nothing but perception.

~Plato

This first volume of *The Science of Equality, Addressing the Impact of Implicit Bias, Racial Anxiety, and Stereotype Threat in Education and Health Care*, documents how perceptions of ourselves and others impact education and health care. Drawing on over two hundred studies, we describe the operation of implicit bias, racial anxiety, and stereotype threat, document how students of color are both overdisciplined and given too little feedback on their work in the classroom, how standardized tests lowball the aptitudes and abilities of black and Latino students, and show how doctors are far from immune from the kinds of biases and anxieties that affect all of us, leading to worse outcomes for African Americans and increased distrust between black patients and white doctors.

We live in a time when discrimination looks less like a segregated lunch counter and more like a teacher never calling on your son or a doctor failing to inspire trust in your daughter and improperly diagnosing her illness as a result. *The Science of Equality, Volume 1* shows the role perception plays in our daily lives from the mundane to the tragic. It's our sincere hope that translating these insights can make the complex science around race and the mind accessible, and show how these scientific phenomena affect every sphere of our lives.

— from the Foreword



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