KIRWAN INSTITUTE
for the Study of Race and Ethnicity

STATE OF THE SCIENCE: IMPLICIT BIAS REVIEW 2016

As a university-wide, interdisciplinary research institute, the **Kirwan Institute for the Study of Race and Ethnicity** works to deepen understanding of the causes of—and solutions to—racial and ethnic disparities worldwide and to bring about a society that is fair and just for all people.

Our research is designed to be actively used to solve problems in society. Research and staff expertise are shared through an extensive network of colleagues and partners, ranging from other researchers, grassroots social justice advocates, policymakers, and community leaders nationally and globally, who can quickly put ideas into action.

STATE OF THE SCIENCE:

IMPLICIT BIAS REVIEW

2016 Edition

By Cheryl Staats,
Kelly Capatosto, Robin A. Wright,
and Victoria W. Jackson

With funding from the W. K. Kellogg Foundation

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DEAR READER,

The Kirwan Institute is excited to publish the fourth edition of its annual ***State of the Science: Implicit Bias Review*** to deepen public awareness of implicit biases and the challenges they pose to a society that strives to treat all of its members equally. Research from the neuro-, social and cognitive sciences show that hidden biases are distressingly pervasive, that they operate largely under the scope of human consciousness, and that they influence the ways in which we see and treat others, even when we are determined to be fair and objective.

"...the desire for help understanding this important body of research continues to grow"

This important body of research has enormous potential for helping to reduce unwanted disparities in every realm of human life.

The nation's response to the Kirwan Institute's *State of the Science* reports has been overwhelming. Educators, law enforcement organizations, human resource experts, health care professionals, and many more, have come to rely on this publication every year to help keep them abreast of the latest findings from brain science about implicit bias and to guide them in thinking about the real world implications of that research.

Kirwan's Implicit Bias team, lead brilliantly by Cheryl Staats, the author of the first *State of the Science*, is now engaged throughout the year, leading workshops and presentations in states and communities across the country as the desire for help understanding this important body of research continues to grow.

It is our great pleasure, therefore, to provide to the field the 2016 issue of *State of the Science: Implicit Bias Review*. We hope that it will continue to assist you and your organizations work for a more equitable and inclusive society.

Please let us hear from you.

Sharon L. Davies, Executive Director

About the Authors

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Robin A. Wright

All previous editions of the *State of the Science: Implicit Bias Review* are available at www.KirwanInstitute.osu.edu/implicit-bias-review

About this Review

The 2016 *State of the Science: Implicit Bias Review* is the fourth edition of this annual publication. By carefully following the latest scholarly literature and public discourse on implicit bias, this document provides a snapshot of the field, both in terms of its current status and evolution as well as in the context of its relevant antecedents. As in previous editions, this publication highlights the new 2015 academic literature through the lenses of five main domain areas: criminal justice, health and health care, employment, education, and housing. Accompanying these five content areas is a discussion of the latest research-based strategies for mitigating the influence of implicit biases, as well as a recognition of major contributions that expand beyond these domain-specific boundaries.

Given that implicit bias has become such a "hot topic" that it has begun to appear in seemingly innumerable arenas, our team set some parameters to limit the scope of pieces included in this publication. These parameters include: 1) With few exceptions, included articles and chapters must have focused on implicit racial and/or ethnic bias. 2) While we sought to be exhaustive whenever possible, we focused our efforts on articles and chapters published through formal channels (e.g., academic journals or publishing houses). This parameter admittedly excludes some scholarship, including Honors and Masters Theses, independent studies, and dissertations, at least some of which we anticipate including in subsequent editions once they are formally published. 3) Finally, while we aim to capture as many 2015 articles as possible, those that were published late in the year may be instead addressed in the subsequent year's edition of the *State of the Science: Implicit Bias Review*.

One note about language: this document tends to use the term "implicit bias" over "unconscious bias," though the two terms are often used interchangeably in the literature.

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1 Introduction

"Implicit biases are fascinating because they produce behavior that diverges from someone's endorsed principles and beliefs"

Professor Phil Stinson

It is hardly exaggeration to say that at times 2015 felt like the year that the term "implicit bias" truly permeated society in ways that had previously been beyond compare. Regardless of your preferences in or attention paid to media, news outlets, and/or current events, varying degrees of reference to the concept abounded.

As in previous years, prominent individuals in the criminal justice and legal field were pivotal for bringing implicit bias into major news headlines. For example, in a February 2015 speech about law enforcement at Georgetown University, James B. Comey, Director of the Federal Bureau of Investigation (FBI), acknowledged that "much research points to the widespread existence of unconscious bias" and how these unconscious racial biases can affect how people respond to individuals of different racial groups (Comey, 2015). Later in the year, Princi-

pal Deputy Assistant Attorney General for the Civil Rights Division of the U.S. Department of Justice, Vanita Gupta, made headlines following the U.S. Department of Justice's Civil Rights Division's completion of a 20 month investigation into the juvenile justice system in St. Louis County, Missouri. When asked about reasons for the racialized disparities the investigation uncovered, Gupta publicly noted "the role of implicit bias when there are discretionary decisions being made" (Pérez-Peña, 2015).

Implicit bias also was a headlining topic in lower levels of government and policy. For example, here in the Kirwan Institute's home state of Ohio, in December 2015 the state's Attorney General, Mike DeWine, announced changes in police training requirements. As part of an increase in police recruit basic training hours from 605 to 653, the additional training will encompass "more emphasis on use of force, community relations, dealing with the mentally ill and recognizing 'implicit bias,' an acknowledgment of hidden biases and training to eliminate them" (Ludlow, 2015). Specifically on the topic of implicit bias, Attorney General DeWine had called for officers to recognize its existence and operation earlier in the year. He expressed, "As you're seeing something unfold, you have to understand where your instincts are taking you and why they're taking you there. And you have to make a correction for that" (Gokavi, 2015). Among other efforts beyond Ohio, the state of California has also engaged extensively with large-scale implicit bias education for law enforcement, including a new research-based training course titled "Principled Policing: Procedural Justice and Implicit Bias," which debuted in November 2015 (State of California Office of the Attorney General, 2015).

"we're guarding against not just racial slurs, but we're also guarding against the subtle impulse to call Johnny back for a job interview but not Jamal"

President Barack Obama also made a subtle nod to implicit bias in a eulogy given for Honorable Reverend Clementa Pinckney in late June following the loss of Pinckney and eight others during a shooting at Emanuel African Methodist Episcopal Church in Charleston, SC. President Obama acknowledged how racial bias can operate both consciously and unconsciously, noting that "Maybe we now realize the way racial bias can infect us even when we don't realize it, so that we're guarding against not just racial slurs, but we're also guarding against the subtle impulse to call Johnny back for a job interview but not Jamal" (Obama, 2015).

Finally, perhaps the most significant yet largely overlooked event on the implicit bias front was when the U.S. Supreme Court recognized the concept as a consideration when upholding the importance of disparate impact as a tool for addressing housing discrimination in *Texas Department of Housing v. The Inclusive Communities Project* (Yoshino, 2015). In writing the opinion of the Court, Justice

Anthony Kennedy (joined by Justices Ginsburg, Breyer, Sotomayor, and Kagan) asserted that:

> "Recognition of disparate impact liability under the FHA also plays a role in uncovering discriminatory intent: It permits plaintiffs **to counteract unconscious prejudices** and disguised animus that escape easy classification as disparate treatment. In this way disparate-impact liability may prevent segregated housing patterns that might otherwise result from covert and illicit stereotyping." ("Texas Department of Housing and Community Affairs et al. v. Inclusive Communities Project, Inc., et al.," 2015, pp. 17, emphasis added)

Training and Education

As a natural byproduct of this increased awareness across numerous domains, the desire for training and further education on the concept similarly grew. While Google's unconscious bias training that publicly debuted in September 2014 shined a light on how implicit biases may be contributing to the lack of diversity in the technology industry, Facebook made perhaps the biggest public splash in this arena in 2015 when they also made their implicit bias training publicly available* (Facebook, 2015; Guynn, 2015; Reader, 2014). Beyond releasing materials, Facebook even encouraged individuals to amend the content to address their own organizations' needs and desires, thereby propagating the reach of their effort (Facebook, 2015). At an annual meeting in December 2015, another tech giant, Microsoft, announced that all of its employees participated in a mandatory class on implicit bias in the hope that all employees can "bring their best ideas to the table" (Weinberger, 2015).

The scope of interest in implicit bias education should not be underestimated, as it extends well beyond the technology industry. Other notable examples range from trainings at major corporations such as Coca-Cola, Proctor & Gamble, and Bank of America to Hollywood's interest in implicit bias training as a way to combat gender bias in the filmmaking industry (Gillett, 2015; Shao, 2015; Zarya, 2015).

* The videos and materials from Facebook's Managing Unconscious Bias training are available at https://managingbias.fb.com/.

What Is Implicit Bias?

im•plic•it bi•as /im ˋplisit ˋbīəs/ : The attitudes or stereotypes that affect our understanding, actions, and decisions in an unconscious manner. Activated involuntarily, without awareness or intentional control. Can be either positive or negative. Everyone is susceptible.

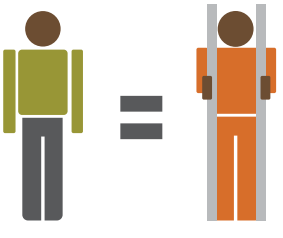
Dual Systems Theory

Implicit bias is a product of **System 1 thinking**. We act on our implicit biases without awareness; thus, they can undermine our true intentions.

To compare System 1 and 2 thinking, think of how we process simple addition like 2+2 vs. a complex algebraic equation that requires conscious thinking and effort to solve.

Where Our Biases Originate

Our implicit biases are the result of mental associations that have formed by the direct and indirect messaging we receive, often about different groups of people. When we are constantly exposed to certain identity groups being paired with certain characteristics, we can begin to automatically and unconsciously associate the identity with the characteristics, whether or not that association aligns with reality.



In the U.S., there is a strong implicit association between African Americans and criminal activity.

Implicit vs. Explicit Biases

Implicit biases and explicit biases are related—yet distinct—concepts. Because implicit associations arise outside of conscious awareness, these associations do not necessarily align with our openly-held beliefs or even reflect stances we would explicitly endorse. This disconnect between implicit and explicit is known as **dissociation**.

Why Implicit Bias Matters

Implicit bias matters because everyone possesses these unconscious associations, and implicit bias affects our decisions, behaviors, and interactions with others. Although implicit biases can be positive or negative, both can have harmful effects when they influence our decision-making.

Understanding implicit bias is also important because of its connection to structural inequality. A significant body of research has established that implicit bias can have broad negative impacts. Addressing implicit bias on multiple levels (e.g., individual and institutional) is critical for achieving social justice goals.

What Can I Do About It?

Having biases doesn't make you a bad person—it only makes you human. Fortunately, our implicit biases are not permanent; they can be changed. Take these steps to challenge your unconscious beliefs.

1 Educate Yourself

Take the Implicit Association Test (IAT) at **implicit.harvard.edu** to learn of your unconscious beliefs. Study history and look for the connections between the past and the current realities of inequality.

2 Take Action

Seek people who run counter to stereotypic views, increase contact with groups of people outside of your own demographics, and try to think of things from the perspective of others.

3 Be Accountable

When confronted with bias, take the time to examine your actions or beliefs. Think of how you would explicitly justify them to other people.

For a more extensive introduction to implicit bias, see the 2013 edition of the Kirwan Institute's *State of the Science: Implicit Bias Review*. Shorter primers on the subject can be found in the 2014 and 2015 editions. All previous editions of the *State of the Science: Implicit Bias Review* are publicly available at: **www.KirwanInstitute.osu.edu/implicit-bias-review**

TRENDS

2 Trends in the Field

"We need to train society to be able to tell the difference between real threat and unconscious, bias-driven fears"

Professor Janice Sabin

Acknowledging that trend identification often requires some degree of subjective interpretation, this chapter nevertheless seeks to highlight some of the trends related to implicit bias that occurred in 2015. In addition to commentary on the academic realm, we also use this chapter to delineate patterns in public discourse, particularly as implicit bias remains an oft-mentioned phenomenon across numerous venues.

Public Discourse

Various media entities used their influence to open up dialogue around implicit bias. Extending well beyond traditional news outlets and some of the relevant headlines noted in the opening chapter, the breadth and depth of this engagement manifested in different forms. For example, premiering in February 2015 on *Independent Lens* on PBS, *American Denial* is an hour-long documentary that explores the existence and persistence of racial biases (L. Smith, 2015). With an

eye toward implicit bias, the film considers the complexities of racial attitudes in the U.S. and acknowledges how unconscious biases and cognitive dissonance can contribute to these multifaceted dynamics.* On the television front, a high-profile ad campaign, "Love Has No Labels," encouraged people to avoid making snap judgments that are often influenced by implicit biases. Coordinated by the Ad Campaign and a range of prominent corporations and nonprofits, these short videos and commercials encouraged viewers to reject labels that limit our embrace of diversity and our common humanity.† Also on television, an April episode of the Science Channel series *Through the Wormhole with Morgan Freeman* explored implicit bias under the broad episode theme of "Are We All Bigots?" (Speigel, 2015).

Bringing attention to the topic through a less-traditional approach, the Joan Hisaoka Healing Arts Gallery at Smith Center for Healing and the Arts and Busboys and Poets restaurant locations in Washington, D.C. hosted a multi-site exhibition titled "IMPLICIT BIAS – Seeing the Other: Seeing Our Self" (Joan Hisaoka Healing Arts Gallery, 2015). Running for approximately six weeks in early autumn, the exhibition focused on unconscious racial bias and included works that both addressed issues of racial disparity through the lens of implicit bias as well as those that promoted bias self-awareness and encouraged a vision for an equitable future (Joan Hisaoka Healing Arts Gallery, 2015).

Finally, news articles are increasingly drawing attention to the use of technology for detecting implicit bias in situations such as job postings and performance reviews (Giang, 2015).‡

The Academic Realm

Subsequent chapters of this edition of the *State of the Science: Implicit Bias Review* provide in-depth summaries and academic context for the most recent research published in 2015. Here we take a moment to reflect on the broader landscape of scholarly trends, both in terms of content and quantity of scholarship.

In terms of domain-specific content, this year's work in the criminal justice realm veered heavily toward conceptual/theoretical articles and less toward work that took an empirical approach. On the topic of mitigating the influence of bias, mindfulness meditation gained attention as a particularly promising approach, as featured in articles by Lueke and Gibson (2015) and Stell and Farsides (2015).

In terms of methodological approaches to implicit bias, researchers continued to employ the Implicit Association Test (IAT) extensively; however, as discussed

* A film discussion guide for *American Denial* is available at www.americandenial.com/wp-content/uploads/2015/02/discussion_american_denial.pdf.

† More information about this multifaceted campaign and example videos can be seen at www.lovehasnolabels.com.

‡ Here the Kirwan Institute notes this simply as a trend, not an endorsement of any such program.

in later chapters, other scholars experimented with alternative approaches for assessing these biases (examples include De Houwer, Heider, Spruyt, Roets, & Hughes, 2015; Drake, Kramer, Habib, et al., 2015; O'Shea, Watson, & Brown, 2015).

The volume of some research areas varied from prior years as well. For example, while far fewer pieces considered employment-related dynamics, the education realm rebounded nicely from previous anemic years with robust scholarly dialogue spanning topics such as perceptions of student behavior and how implicit bias can operate in higher education contexts. The areas of health and criminal justice remained consistently strong in terms of quantity of publications.

Broadly speaking, academic articles from 2015 also represented a large and significant step beyond the realm of a Black-White racial dichotomy to consider other aspects of racial, ethnic, and national identity, among other factors. Key examples from this work include Levinson and colleagues' work with native Hawaiians and scholarship by Lowes et al. that considered implicit biases in the Democratic Republic of Congo (Levinson, Hioki, & Hotta, 2015).

2.1 Criminal Justice

"Research about implicit bias helps us to better understand the disconnect between our society's ideal of fairness for all people and the continued reality of its absence."

– PROFESSOR JOHN A. POWELL

Although many of this year's articles were more conceptual than empirical, academic dialogue related to the operation of implicit bias in the context of policing, juries, judges, and other aspects of the criminal justice system remained robust. Keeping the broader structural context in mind remains critical, and some work, such as an article by Hutchinson (2015), suggested that understanding the full picture of racial disparities in the criminal justice system requires the inclusion of not just contemporary implicit bias-related explanations, but also recognition of historical patterns of racism.

Discussing Race in Court

Several 2015 articles debated the merits of bringing up race in courtroom interactions and considered how the activation of implicit biases may influence these exchanges.

Adding context to the literature that suggests efforts to suppress automatic stereotypes can make them hyper-accessible thanks to "rebound effects" (Galinsky & Moskowitz, 2000, 2007; Macrae, Bodenhausen, Milne, & Jetten, 1994), Cynthia Lee examined the likelihood that actors in the justice system would rely on implicit biases. Lee noted that when judges purposely instruct jurors to ignore racial cues, the likelihood of relying on implicit racial associations actually increases (C. Lee, 2014). Lee described elements of judicial proceedings that would change considerably if the actors (e.g., the defense or the victims) were different races and considered to what extent implicit bias and colorblindness may affect these outcomes. The retelling of high profile cases involving race, notably the George Zimmerman trial in the death of Trayvon Martin, were used to illustrate disparate outcomes as a result of racialized experiences and implicit biases. The broad themes of this article align well with her 2013 article in the *North Carolina Law Review* in which she encouraged prosecutors and criminal defense attorneys who are concerned about the role of implicit racial bias to make race salient in the courtroom (C. Lee, 2013).

"having a desire alone to act without bias does not necessarily ensure that one will successfully act without bias."

Lustbader (2015, p. 920)

Other 2015 work by Cynthia Lee addressed the question of whether lawyers and/or judges should conduct voir dire into racial bias. She argued that any attorney who is concerned about how racial stereotypes may affect jurors' interpretation of evidence may benefit from bringing attention to implicit racial bias early in the judicial process, as this type of education can encourage jurors to consider the evidence presented without reliance on automatic racial associations. In considering the ramifications of meaningful voir dire into racial bias, she noted that this may constitute a valuable step toward ensuring "a truly impartial jury" (C. Lee, 2015, p. 847).

Also supporting the need to address race in court were articles in *Northwestern University Law Review* by Brayer and Joy. Brayer articulated the necessity for jurors and attorneys to address racial factors in judicial proceedings (Brayer, 2015). He argued that instances like Ferguson, MO elicit the activation of implicit stereotypes for everyone involved in court proceedings, even if the case is not directly related to race. As such, he contended that simply mentioning race and racial bias can act as a prompt for jurors to evaluate their own implicit biases when making decisions. Echoing Brayers' emphasis on the importance of discussing race in court, Joy noted how discussing race during judicial proceedings can mitigate the negative effect of implicit biases during the jury selection process. The article illustrated that ignoring race when it is a salient factor of trial proceedings can further obscure the relevant issues of a case. Thus, Joy suggested that addressing racial topics directly is the best approach to counteracting lawyers'

"fears" about the subject and can serve as a way to create more objective juries (Joy, 2015, p. 180).

In another article from this issue of the Northwestern University Law Review, Sarah Jane Forman offered a more critical view of discussing race when considering current patterns of racial stratification in the media following the Ferguson tragedy (Forman, 2015). In light of these racialized images and the implicit biases they generate, Forman posed the question about whether or not the notion of a fair and impartial jury can truly exist. Though Forman noted the importance of understanding implicit biases within judicial proceedings, she cautioned that there is also evidence to suggest that using this information in the voir dire process may not be advantageous in practice. She stated that this type of direct information could elicit racial polarization and make the potential jurors feel defensive. To decrease the likelihood that awareness of implicit biases could be harmful, she encouraged caution and "delicacy" in how race-related issues are talked about during the voir dire process (Forman, 2015, p. 178).

Judges

Reflecting on the importance of listening in the courtroom, Lustbader (2015) maintained that by listening to and learning from stories about racial injustice, judges can validate the experiences of communities of color. However, judges' implicit racial biases have the potential to reduce their ability to listen effectively, thus breaking down cross-cultural communication in the courtroom. To illustrate these effects of bias, Lustbader articulated that a client's ability to speak freely and openly with a judge (a basic assumption of procedural fairness) is influenced by cultural and racial biases. The article concluded with the suggestion that cross-cultural communication and reductions in implicit bias can be accomplished through education about diverse groups, being critical about one's objectivity, awareness of implicit bias, improved decision making, and through reflecting on the decision making process. These suggestions all align with other scholars' recommendations on how implicit biases may be mitigated in the courtroom environment (see, e.g., Bennett, 2010; J. Kang et al., 2012; National Center for State Courts).

Juries

Given that all individuals are susceptible to the influence of implicit biases, this fact becomes particularly challenging when considering the role that jurors often play in affecting defendants' life trajectories. Building on this increasingly fruitful area of research, Ingriselli (2015) examined two theories related to implicit racial bias and their potential to predict trial verdict outcomes. The study experimentally manipulated jury instructions through an online trial vignette involving

a Black defendant. Depending on the condition, subjects received instructions that either primed them with egalitarian values, self-worth, procedural justice, or did not include separate instructions. Additionally, the instructions were presented either before or after the case description, and the case vignette varied on whether race was salient. Participants were then asked to evaluate case details (e.g., whether the defendant was guilty, how sure they were, etc.) and complete both an Implicit Association Test (IAT) and an explicit racism questionnaire. Results indicated that the best predictor of guilty judgments was Aversive Racism Theory, which asserts that individuals high in implicit bias and low in explicit bias suppress negative racial attitudes in circumstances when their own bias is made salient (Ingriselli, 2015). (For more on aversive racism in the context of implicit bias scholarship, see, e.g., Dovidio & Gaertner, 2000, 2004; Penner et al., 2010; Wojcieszak, 2015.) Moreover, findings suggest that both implicit and explicit racial bias contributed to higher ratings of guilt, but did so independently. Additionally, instructions presented before evidence reduced guilty verdicts more than when instructions were presented following case information. This article adds to a considerable body of research that increasingly calls into question how the everyday prejudices and implicit biases jurors harbor can challenge their ability to render objective, evidence-based verdicts (see also Levinson, 2007; Levinson, Cai, & Young, 2010; Levinson, Smith, & Young, 2014; Reynolds, 2013).

Another jury-focused article discussed the racial implications of Rule 606(b) of the Federal Rules of Evidence on juror deliberation (Chandran, 2015). Rule 606(b) ensures the confidentiality of jury deliberation proceedings in order to prevent the public's access to case-sensitive information and eliminate the unnecessary public scrutiny of jurors (Chandran, 2015). However, Chandran presented evidence that the rule may deny Black defendants the right to a fair and impartial trial if implicit and explicit racial bias affects trial outcomes. Though Rule 606(b) is meant to protect and preserve jury legitimacy, the secrecy of jury deliberation and the history of racialized trial outcomes has led many marginalized groups to believe the judicial system does not promote fairness for all groups of people (Chandran, 2015). Thus, Chandran concluded with the recommendation for a more proactive commitment to ending racism by reconciling Rule 606(b) with the 14th amendment by considering the impact of both implicit and explicit bias.

Attorney Interactions

Turning an eye to attorney-client relationships, Gocha (2015) discussed the impact of implicit and explicit racial bias in this context and considered how those interactions may influence case outcomes. To mitigate any negative effects of this influence, Gocha suggested that attorneys should be obligated to address race and factors associated with racial bias (both implicit and explicit) in order to advise their clients in a manner that reflects the reality of the case. This article extends previous work asserting that attorneys are not immune from the influ-

ence of implicit bias (Eisenberg & Johnson, 2004). It also builds on discussions in Lyon (2012) on how implicit biases can affect two key aspects of the judicial process: attorney-client relationships and jury selection.

Expert Testimony on Implicit Bias

As implicit bias scholarship continues to permeate the legal context, questions have emerged regarding the use of implicit bias research as a part of expert testimony in legal cases. A review by King, Mitchell, Black, Conway, and Totten (2015) highlighted the relevance of implicit bias in light of previous cases that relied on secondary evidence (e.g., academic studies that indirectly reference subject matter of the case). The authors provided an overview of the qualifications for relevant expert testimony and implications addressing the validity and reliability of inclusion of implicit bias research. This article is timely given the ongoing debates in the legal field regarding whether implicit bias scholarship is permissible as expert testimony, particularly in light of a recent denial of potential testimony by renown implicit bias scholar Dr. Anthony G. Greenwald that made headlines for the case Karlo v. Pittsburgh Glass Works LLC (Mitchell, 2015).

Inside the Courtroom: Other Scholarship

Using a criminal justice perspective to analyze the school-to-prison pipeline, Arellano-Jackson (2015) composed a list of possible solutions to disrupt this pathway, two of which were specific to implicit bias. One recommendation was to combat judges' biases and urge for release in juvenile detention cases. This recommendation centered on the negative impacts that occur when students are held in juvenile detention. Critical to this outcome is the call for judges to respond to their biases when determining sentences. A second recommendation focused on implicit biases that attorneys may hold against juvenile clients of color. The analysis suggests that attorneys should address their hidden assumptions about clients through methods such as taking additional time during meetings to understand their clients better.

Shooter Bias / The Decision to Shoot

Extensive research has been devoted to the concept of "shooter bias," which refers to how implicit associations related to Blackness and weapons in the U.S. context can affect the speed and accuracy of shooting decisions (Correll, Hudson, Guillermo, & Ma, 2014; Correll, Park, Judd, & Wittenbrink, 2002; Correll et al., 2007; James, Klinger, & Vila, 2014; Ma et al., 2013; B. K. Payne, 2001, 2006; Sadler, Correll, Park, & Judd, 2012). Several 2015 articles explored this premise and aspects of the decision to shoot more broadly with varying outcomes.

For example, Madurski and LeBel attempted to replicate findings from a previous study by Joshua Correll that measured responses related to the implicit association between race and weapons (Madurski & LeBel, 2015). According to the original study, the presence of non-random patterns in reaction time data suggested a deliberative process in participants' performance (Correll, 2008). Correll's work had asked participants to quickly react to whether a target was holding a weapon or a tool by choosing either to shoot or not to shoot in the simulation. The target was either Black or White, and participants were either primed to use racial information to determine their responses or not, meaning that differences between the conditions could demonstrate a deliberative process (Correll, 2008). Using the same methodology as Correll (2008), Madurski and LeBel used twice as many participants (300 total) in order to achieve desired statistical power. Contrasting with Correll's work, they did not find evidence of a deliberative process. Moreover, Maduraski and LeBel's study demonstrated instances of implicit pro-White bias during the replication when the original study did not. This lack of result replication will likely continue to fuel the debate on the extent to which deliberative thinking affects automatic attitude assessments.

Taking the idea of shooter bias to an international context, in another adaptation of the shooter task, researchers examined whether ingroup shooter bias was present for non-western participants (Schofield, Deckman, Garris, DeWall, & Denson, 2015). Individuals from Saudi Arabia participated in online experiments in which they saw characters that varied on race (Middle Eastern vs. White), possession of a weapon (weapon vs. non-weapon), and headwear (baseball hat vs. shemagh and igal—traditional Saudi Arabian head attire). They were instructed to press a button that indicated to shoot or not to shoot the simulated target. Results demonstrated an ingroup bias where Saudi Arabian individuals were more likely to shoot White targets, which replicated effects of similar ingroup bias on shooter tasks conducted with Westerners (see Unkelbach, Forgas, & Denson, 2008). However, Saudi Arabian individuals were also more likely to shoot targets wearing their traditional head attire than a baseball cap. Schofield and colleagues concluded this may be evidence of automatic activation of negative cultural stereotypes rather than racial stereotypes associated with the more traditional clothing (Schofield et al., 2015).

Turning more generally to shooting decisions, Mekawi, Bresin, and Hunter (2015) examined risk and protective factors associated with differences in decisions to use lethal force. The study explored three factors related to the decision to shoot: White participants' fear of non-White individuals (i.e., White fear), participants' degree of perspective-taking, and implicit racial dehumanization. Participants in the study completed four assessments. First, participants took a racial dehumanization IAT and completed a simulated shooter task in which they were directed to shoot when they perceived that the target (Black, White, or Asian) had a

weapon. Participants also indicated their fear of racial minorities as well as their level of empathy on a self-report measure. Findings indicated that high amounts of White fear predicted a lower threshold for shooting Black individuals compared to White and Asian individuals on the simulated shooter task. High levels of reported dehumanization further increased the bias to shoot Black targets. As a protective factor, participants' perspective-taking behavior moderated the relationship between White fear and shooting bias—showing that those who were high in perspective-taking were less likely to exhibit a racial bias in shooting decisions. In terms of a contribution to the wider scholarly literature, this article touches on and advances several recurring themes. In the realm of bias mitigation, perspective-taking has been shown to be an effective strategy for reducing automatic expressions of bias (Benforado & Hanson, 2008; Galinsky & Moskowitz, 2000; Todd, Bodenhausen, Richardson, & Galinsky, 2011; Todd & Galinsky, 2014). Scholars have also considered the notion of dehumanization in previous work, particularly in the context of criminal justice processes, but also in the context of health care (see Goff, Eberhardt, Williams, & Jackson, 2008; Goff, Jackson, Di Leone, Culotta, & DiTomasso, 2014; Waytz, Hoffman, & Trawalter, 2015). This article is also notable for its inclusion of Asians in the shooter bias task, as this connects directly to Sadler et al. (2012).

"those who were high in perspective-taking were less likely to exhibit a racial bias in shooting decisions"

Related to many conversations about shooting decisions are debates surrounding "Stand Your Ground" laws. In an analysis of this self-defense legislation that eliminated the requirement for individuals to first consider a way to escape before using deadly force during a threatening situation, Wolf addressed the implications of implicit racial bias (Wolf, 2015). He argued that these policies can lead to a "shoot first" culture that disproportionately places Black individuals at risk (Wolf, 2015, p. 53). The article suggested that part of this disproportionate risk is due to the public's implicit associations between Black individuals and criminality (for more on this association, see, e.g., Blair, Judd, & Chapleau, 2004; Eberhardt, Goff, Purdie, & Davies, 2004; Quillian & Pager, 2001). This article extends a discussion by Feingold and Lorang (2013) in which they suggest that revising "Stand Your Ground" laws so that they discourage the impulsive use of deadly force may be a promising intervention for defusing implicit bias.

Considering the complexity of implicit bias dynamics, a review of racialized outcomes in policing delineated the effects of two types of racial bias: 1) negative bias against Black individuals, and 2) favoritism of White individuals—specifically, that anti-Black and pro-White bias lead to distinct policing outcomes (Richardson, 2015). Often unnoted in the literature, Richardson elaborated on how pro-White bias can allow Whites to be seen as generally more law-abiding, which may contribute to Whites' immunity to issues of police brutality, even when

their behavior may be ambiguously criminal. Richardson explained that implicit pro-White bias might contribute to the existence of fewer errors in shooter tasks where Whites may be holding either a gun or a wallet. By elaborating on the distinct effects of these two types of implicit bias, the disparate rates of policing are explained above and beyond overrepresentation of Black individuals in the criminal justice system.

Finally, with an eye toward the broader historical context undergirding shooting decisions, Lawson (2015) offered a critique of race, crime, and the national landscape by analyzing the relationship between implicit bias and the shootings of unarmed Black men (Lawson, 2015). He outlined the history of the dehumanization of Black men during slavery and the Jim Crow era and its trajectory into in our current portrayals of Blacks in pop culture. Lawson emphasized how although these messages adapt to time and place, the motivation of fear is consistent within these prejudiced portrayals. By connecting this history of prejudiced messages to modern times, Lawson argued for the ubiquitous influence of implicit bias in shooting decisions and noted that implicit bias is embedded in the criminal justice system as a whole.

Trainings for Police Officers

Given many high profile incidents involving police officers shooting unarmed individuals in the past few years, it is unsurprising that implicit bias continues to surface as a significant topic in the law enforcement arena, with many calls for officer training on implicit bias (Abdollah, 2015; Fridell & Brown, 2015; Gove, 2011).

To consider the impact of these efforts, by comparing outcomes of implicit bias trainings at various police departments, R. J. Smith (2015) examined whether the trainings alone are effective at deterring racial disparities in policing. To do so, Smith highlighted examples from police stations that have utilized implicit bias training in their departments. Additionally, he included instances where race-neutral policies were successful in reducing racial bias in policing. To illustrate, Smith briefly mentioned the intersection between implicit racial bias and masculinity threat—male police behaving more in line with masculine stereotypes in scenarios when they feel threatened. Policies that took masculinity threat into account (such as having a different officer arrest a suspect than one who chased them down) reduced overall use of force and as well as racial disproportionality in use of force. By highlighting these examples, Smith advocated for integrating structural regulations as well as the use of implicit bias trainings to reduce racial disproportionality in policing.

Outside the Courtroom: Other Scholarship

Among many topics carefully addressed to shed light on the complex nuances that undergird racial profiling, Jack Glaser blended his unique positioning as a public policy professor who is well-versed in social psychology to highlight the unintentional causes of profiling, which includes implicit attitudes (Glaser, 2015). With detailed use of implicit bias scholarship, Glaser devoted a chapter to how implicit stereotypes and attitudes can affect individuals' judgments and actions, even when those unconscious forces contrast with explicit intentions. Recognizing how the complex dynamics of policing interactions can be further complicated by implicit biases, Glaser concluded that "even if it is not being done deliberately, this is racial profiling—prior conceptions about race and crime are causing minorities to be regarded with greater suspicion" (Glaser, 2015, p. 94)

In an article considering the U.S. criminal justice system through a "colorblind" perspective (i.e., one that believes race is an irrelevant factor), a portion was dedicated to the focus of racialized social cognition and implicit bias (Van Cleve & Mayes, 2015, p. 406). The authors provided evidence of how implicit bias is apparent in policing behaviors and sentencing outcomes and suggested that implicit bias and other forms of socialized prejudice lead to the interrelationship between the construction of race and racial outcomes within criminal justice systems.

2.2 Health and Health Care

"And I believe that if we refuse to deeply examine and challenge how racism and implicit bias affect our clinical practice, we will continue to contribute to health inequalities in a way that will remain unaddressed in our curriculum and unchallenged by future generations of physicians."

– KATHERINE C. BROOKS

Scholarly conversations regarding the influence of implicit bias in the health care domain have reflected on medical student, patient, and clinician experiences. This year's content follows similar themes, all of which engage with the possible implications of implicit social cognition.

Perceptions of Pain

Sheng and colleagues explored differences in neurological responses to pain expression in same-race faces versus different-race faces among Caucasian and Chinese individuals in Beijing. The authors examined whether the parts of the brain recruited to code painful expressions in same-race individuals are shared with or distinct from those recruited to code painful expressions in different-race individuals (Sheng, Han, & Han, 2016). To assess this, the researchers conducted trials in which participants were sequentially presented with two faces: the first face had either a neutral expression or an expression of pain, whereas the second displayed an expression of pain. During the trials, the authors measured participants' Event Related Potentials (ERP) to examine stimulus-specific changes in brain activity based on the race, gender, and expression on the face displayed (Sheng et al., 2016).

Results demonstrated that although all participants exhibited shifts in neurological activity for the first face when presented with an expression of pain as opposed to a neutral expression, the shifts in neurological activity were larger for faces of the participant's same race than it was for faces of a different race. Moreover, the neurological activity continued when participants were presented with the second face with expressions of pain only when it shared the same race as the first face suggesting that "distinct neural assemblies are recruited in the processing of pain expressions of different races" (Sheng et al., 2016, p. 9). Notably, gender was found to have no significant effect on neurological responses to pain expression, thus suggesting that race is the only social category to influence neural activity. Furthermore, the authors found no statistical correlation between the neurological response to pain perception based on race and implicit attitudes revealed by the IAT (Sheng et al., 2016). These findings provide insight into the findings of previous studies that have revealed implicit racial attitudes to be a significant predictor of physician's pain management decisions along racial lines (Azevedo et al., 2013; J. A. Sabin & Greenwald, 2012; Weisse, Sorum, Sanders, & Syat, 2001).

With a direct connection to health care providers, a recent study by Hirsh and colleagues explored the unique and collective influence of patient race, provider bias, and clinical ambiguity on pain management decisions. In this study, medical residents and fellows from accredited programs across the United States were presented with computer-simulated patient profiles including both a video of a patient expressing pain and a text vignette with the patient's self-report of pain level and a description of the cause of the pain. Participants also completed a race IAT and a self-report of explicit racial bias (Hirsh, Hollingshead, Ashburn-Nardo, & Kroenke, 2015). Both race and clinical ambiguity (congruity between the facial expression of pain level and the patient's self-reported pain level) were manipulated in the analysis. Participants were asked to rate their likelihood of using three types of analgesics to treat the patient's pain. Hirsh et al. found ambigui-

ty to be significantly larger indicator of pain management decisions than race or both race and ambiguity combined. Furthermore, no significant correlation existed between either implicit or explicit bias and pain management decisions (Hirsh et al., 2015).

Together these two 2015 articles expand the dialogue around the role of implicit associations in the context of patient pain management decisions and raise questions to guide future research inquiries.

Differential Treatment

Adding to the discourse on the relationship between implicit bias and clinical decision-making, two separate studies explored the relationship between implicit racial and class bias and clinical treatment among acute care clinicians at Johns Hopkins Hospital. The first study involved surgical registered nurses (Haider, Schneider, Sriram, Scott, et al., 2015); the second study involved acute care attending physicians, fellows, and residents (Haider, Schneider, Sriram, Dossick, et al., 2015). In both studies, the authors presented the clinicians with acute care clinical vignettes in which the race and social class of the patient were randomly altered. After providing their treatment recommendation, the clinicians completed both race and class IATs followed by a questionnaire which assessed their explicit preferences (Haider, Schneider, Sriram, Dossick, et al., 2015; Haider, Schneider, Sriram, Scott, et al., 2015). The researchers found statistically significant differences in treatment decisions among clinicians based on the race and social class of the patient in several vignettes; however, no statistical correlation was found between these treatment differences and implicit or explicit preferences, which suggests that some other factor must be influencing clinical decision-making (Haider, Schneider, Sriram, Dossick, et al., 2015; Haider, Schneider, Sriram, Scott, et al., 2015). Notably, these findings were consistent in the two studies despite differences in educational training, gender, and race of the participants.

A similar study involving senior medical school students in Australia and Hawaii found that while ethnicity did not influence the medical treatment of Indigenous patients, it did influence the attitudes and assumptions the students made about an indigenous patient (Ewen et al., 2015). In this study, Ewen and colleagues presented students with a medical vignette of a patient with symptoms of poor diabetes management. Some participants received a vignette that specified the ethnicity of the patient as aborigine while others received no ethnic identification for the patient. Participants then answered five written questions about their treatment decisions followed by an in-person interview about their perceptions of the patient. The authors found that although there was no evidence that medical treatment decisions were affected by the ethnicity of the patient, attitudes and perceptions were. Specifically, the authors note:

> "At the heart of the matter here is the subtlety and persistence of the findings: biases appear to affect how students think about different patients and biases seem to influence how they shape their consultations with Indigenous patients. These preconceptions might generate in their negative expectations of the encounters with Indigenous patients, possibly influencing these future health practitioners to engage less with Indigenous patients than they do with other patients" (Ewen et al., 2015, p. 11).

Ewen and colleagues acknowledge that the design of their research experiment failed to replicate the conditions under which physicians operate, and that these conditions coincide with increased susceptibility to the operation of implicit biases. Examples of these conditions include time constraints and high cognitive load (Bertrand, Chugh, & Mullainathan, 2005; Betancourt, 2004; D. J. Burgess, 2010; D. J. Burgess et al., 2014; Stone & Moskowitz, 2011).

Considering implicit bias in the context of obesity, J. A. Sabin, Moore, Noonan, Lallemand, and Buchwald (2015) examined whether clinicians' implicit and explicit biases influenced their treatment of obesity in American Indian and Alaska Native children. Researchers used a sample of clinicians from Indian Health Service and measured their implicit attitudes toward American Indians and Alaskan Natives (category 1) and Whites (category 2) using an IAT. Participants also took a weight IAT, which assessed implicit attitudes toward thin versus overweight individuals. Sabin and colleagues analyzed this IAT data in addition to self-report questionnaires that measured explicit biases as well as clinicians' treatment approaches for childhood obesity. IAT results indicated the clinicians demonstrated a small pro-White bias, and a robust pro-thin bias; however, no relationship existed between implicit or explicit biases and clinicians' self-reported treatment of childhood obesity. Instead, continuing education—specifically, diversity training—was the best predictor of clinicians' likelihood to refer children to a behavior specialist or dietitian and prescribe medication. Wanting to better understand the nuances of these findings, the researchers concluded by noting their desire to conduct further research on clinicians' implicit attitudes and their effect on real-world obesity treatment.

Mitigating Bias in Health Care / Medical Education

Adding to the discourse on how to mitigate implicit bias in health care, researchers Byrne and Tanesini (2015) conducted a theoretical analysis of existing implicit bias intervention literature. Through their analysis, they concluded that the most effective way to mitigate implicit bias among medical students is through habituation of egalitarian goal pursuit (Byrne & Tanesini, 2015). Moreover, the authors argued that students should be "encouraged to approach every encounter with patients who are members of underprivileged or stereotyped social groups as an opportunity to reinforce and act out their avowed commitment to these

[egalitarian] values" (Byrne & Tanesini, 2015, p. 1259). By making egalitarian goals a habit, the authors believe they will become more unconsciously accessible and automatically triggered in the presence of the target group. Additionally, the authors advocate for small shifts in the medical school curriculum to foster commitment to egalitarian goals and to continually expose students to counter-stereotypical members of minority groups (Byrne & Tanesini, 2015). This suggestion of embracing egalitarian intentions as well as being exposed to counterstereotypical exemplars closely aligns with recommendations that have emerged in previous literature for addressing implicit biases (see, e.g., Dasgupta & Asgari, 2004; Dasgupta & Greenwald, 2001; Dasgupta & Rivera, 2006; Moskowitz, Gollwitzer, Wasel, & Schaal, 1999; Stone & Moskowitz, 2011).

Inspired by the "White Coats for Black Lives" die-in demonstrations held by medical students in response to recent police killings of unarmed African Americans, Ansell and McDonald (2015) provided an assessment of the operation of implicit bias in academic medicine (Ansell & McDonald, 2015). The authors cite administrative decisions such as whether to accept insurance plans that serve high numbers of disadvantaged minorities, recruitment and retention efforts aimed at Black students and faculty, and the provision of health care services all as elements of academic medicine susceptible to the influence of implicit biases (Ansell & McDonald, 2015). To combat this, Ansell and McDonald emphasized the need for increased oversight of care quality and equality, institutional racial climate assessments, as well as open dialogue and education on implicit bias among students, faculty, staff, administrators, and patients (Ansell & McDonald, 2015). This article connects with previous research that also considered approaches for introducing the concept of implicit bias in the context of medical school education (see, e.g., D. Burgess, van Ryn, Dovidio, & Saha, 2007; Hannah & Carpenter-Song, 2013; Hernandez, Haidet, Gill, & Teal, 2013; Teal, Gill, Green, & Crandall, 2012).

Finally, in an article addressing the real world impact of implicit bias in medicine, Boscardin (2015) compiled a list of interventions to reduce implicit biases that are specific to activities within the medical training curriculum. Among her suggestions was improving self-awareness as a way to counter the negative effects of stress from the faced-paced environment. Another recommendation involved creating an inclusive learning environment in order to build positive associations toward others. Third, Boscardin focused on promoting opportunities for positive intergroup interaction, and lastly, she highlighted the importance of developing empathy skills, particularly perspective taking.

Other Scholarship

Researchers Hawkins, Fitzgerald, and Nosek (2015) unsuccessfully attempted to replicate findings from two previous studies which demonstrated positive correlations between conception risk in women and racial bias (McDonald, Asher, Kerr, & Navarrete, 2011; Navarrete, Fessler, Fleischman, & Geyer, 2009). Despite utilizing the same research design, Hawkins and colleagues found no statistical correlation between fertility and implicit racial bias. The authors cite the difference in samples as one possible explanation for the conflicting results (Hawkins, Fitzgerald, & Nosek, 2015).

2.3 Employment

"...sometimes visible formal equality is substantively unequal, and ignoring implicit bias ... could be harmful for the grander goals that organizations seem committed to in good faith."

– PROFESSOR RUSSELL G. PEARCE, PROFESSOR ELI WALD, AND SWETHAA S. BALLAKRISHNEN, LL.M. 2015, P. 2412

While 2015 was a relatively slow year for employment-related implicit bias scholarship, two themes emerged in the literature: accent bias and unconscious bias in the context of workplace dynamics.

Accent Bias

Previous research has indicated that implicit biases can be activated on any number of characteristics perceived in others, including accents (Livingston, Schilpzand, & Erez, forthcoming). Adding to this literature in the employment context, Cocchiara, Bell, and Casper assessed the degree to which race-recognizable dialects (e.g., African American vernacular English or foreign accents) implicitly influenced hiring decisions. They posited that while phone interviews offer candidates a significant barrier to race-based discrimination, race-recognizable dialects may implicitly initiate racial stereotypes and affect hiring decisions (Cocchiara, Bell, & Casper, 2014). To assess their theory, Cocchiara and colleagues conducted a qualitative analysis of human resources literature pertaining to racial attitudes and fit, evaluations of applicants, as well as the social significance of dialect. They concluded that race-recognizable dialects may unconsciously influence perceptions of an applicant's ingroup or outgroup affiliation, which may implicitly impact evaluations of fit, employability, and qualifications in favor of those who speak non-accented English (Cocchiara et al., 2014).

Reinforcing these findings are those from Kushins' 2014 study on the impact of speaker voice, race identification, and stereotyping in the employment process. Participants in this study were presented with a recording of a callback message left on a hiring manager's answering machine by a White, Black, and an American-born, native English speaking Chinese man (Kushins, 2014). They were then asked to describe their perception of the speakers' physical characteristics and to answer evaluation questions related to the speakers' character attributes. Kushins found the participants' racial perception of the voice strongly influenced their perceptions of the speakers' character attributes (Kushins, 2014). In particular, participants rated those they perceived as White or Asian speakers significantly more favorably than those they perceived as Black. Most notably, while 71.4% and 85.7% of participants stated they would definitely consider hiring the speaker they considered White or Asian, respectively, only 8.2% of participants agreed with this statement in relation to the speaker they perceived to be Black (Kushins, 2014). Kushins noted that "Consistent with research on implicit stereotyping, studies on speech and race have found listeners ascribing racial stereotypes to unseen speakers," which may contribute to this study's dynamics (Kushins, 2014, p. 238).

Workplace Dynamics

A review of the workplace dynamics within law firms described the juxtaposition between two prevailing ideologies: 1) "difference blindness," in which individuals are understood to "behave as atomistic actors, such that their achievement is a function of individual merit;" and 2) "bias awareness," an approach to diversity and inclusion that reflects "a relational understanding of achievement, merit and identity" and is committed to recognizing bias and privilege (Pearce,

Wald, & Ballakrishen, 2015, p. 2411). The work suggested that lawyers' implicit biases favoring individuals from their racial and gender ingroup (in the legal realm, often White males) have subverted many conscious efforts to promote diversity in the legal profession. Thus, the article included an approach to professional relationships and external partnerships that demonstrates an awareness of implicit racial and gender bias. This approach specifically involves rethinking seemingly objective evaluative criteria, as implicit biases can greatly skew these assumptions. Moreover, community building with diverse employees at different levels of the workplace hierarchy is seen as a primary way to unlearn organizational-level bias, according to the authors.

2.4 Education

"Training teachers to understand bias will not eliminate it, but it could create an institutional environment in which it is clear that understanding bias and its effects is critically important. The long-term return on investment is inestimable."

– SORAYA CHEMALY

Whether we are considering pre-K, K–12, or higher education, the complex dynamics of the education system allow for many opportunities in which implicit biases may emerge. These implicit biases may contrast with explicit egalitarian intentions, thereby creating a challenging gap between educators' intentions and outcomes. This chapter considers how implicit biases may impact perceptions of student behavior, pre-service teachers' attitudes, and higher education, as well as approaches for addressing implicit bias in the education context.

Perceptions of Behavior and Related Disciplinary Situations

Extensive previous research, including several Kirwan Institute publications, has considered the role of implicit bias in how student behavior may be perceived and addressed, particularly in the context of differential treatment and racialized discipline disparities (see, e.g., Capatosto, 2015b; Ogletree, Smith, & Wald, 2012; Staats, 2014; Wald, 2014; R. A. Wright, 2016). Several recent articles continue this research exploration.

With a clear eye towards discipline data, Carter, Skiba, Arrendondo, and Pollock (2014) released a comprehensive report that addressed the potential causes and solutions for racial disparities frequently found in school discipline data. The analysis began with a historical overview of the racialized structure of the U.S.

Author Reflection

Kelly Capatosto *on "Two Strikes: Race and the Disciplining of Young Students"*

Of all the research pieces this year, Okonofua and Eberhardt (2015) stood out in my mind as having a significant impact in terms of both the subject matter and methodology. In my opinion, matched-scenario studies communicate the importance of implicit bias better than any other type of research design. In my experience, individuals who are hesitant to the idea of implicit bias often try to point to other attributes (e.g., such as clothing style or body language, etc.) as a race-neutral reason for why well-meaning people can create such negative outcomes. In contrast, this type of study really grabs you by the shoulders and says, "there's something wrong here."

As a researcher, I love studies like this that highlight difficult topics like implicit bias in education. However, as someone who has worked in schools, this study also reveals a truth that I do not necessarily want to acknowledge—the negative impact of labeling students as a "troublemaker" (Okonofua & Eberhardt, 2015, p. 620). Unfortunately, the tendency to label students is all too common. As humans, we attach such meaning to labels that they can serve as a self-fulfilling prophecy—something that educators have been aware of since the first Pygmalion study (for an overview of self-fulfilling prophecy research in education, see Boser, Wilhelm, & Hanna, 2014). Yet, the problem persists. Additionally, the study shows the compounded danger of labels when considering racial identity. These findings are instrumental for influencing how researchers and educators alike try to find ways to reduce bias (both conscious and implicit) in the classroom.

Moreover, this piece enhances the dialogue on how individuals should approach discipline at the policy level. Currently, most education policies that address behavior are designed with the idea that schools can change the education environment to make students misbehave less (e.g., through calm-down plans, positive reinforcing, behavior aids, etc.). Though these efforts are certainly important, the Okonofua and Eberhardt piece brings to light the unfortunate reality that discipline consequences also depend on teachers' biases, not just the behavior of the student. This shifts the responsibility of addressing racial discipline disparities. We can retire the lens of seeing discipline policy as a way to change the target population's behavior; instead, we can that acknowledge the biases of actors in the system. Education policy must adapt to address this perceptive shift to meaningfully mitigate the racial discipline and achievement gaps.

Boser, U., Wilhelm, M., & Hanna, R. (2014). The Power of the Pygmalion Effect: Expectations Have a Deep Influence on Student Performance. https://www.americanprogress.org/issues/education/report/2014/10/06/96806/the-power-of-the-pygmalion-effect/

Okonofua, J. A., & Eberhardt, J. L. (2015). Two Strikes: Race and the Disciplining of Young Students. Psychological Science, 26 (5), 617–624.

education system followed by a description of how implicit bias perpetuates patterns of inequality. Within this discussion, a special emphasis was given to micro-aggressions (i.e., subtle forms of aggression that perpetuate negative racial messages) as a way in which implicit bias manifests itself in everyday behavior. Following the analysis of how implicit bias contributes to racial disparities in discipline, the report included several strategies for creating constructive dialogue about race. Among these suggestions was a call for educators to acknowledge race with their peers as well as with their students. Moreover, the authors encouraged culturally competent teaching methods to decrease bias and promote academic rigor for all students.

"findings showed that teachers rated incidents as more troubling and warranting of discipline if the student was Black or misbehaved multiple times"

Another piece with a focus on school discipline highlighted the interaction between multiple individual and school-level factors that contribute to racial disproportionality in discipline outcomes (McIntosh, Girvan, Horner, & Smolkowski, 2014). Embracing a multidimensional view of bias (i.e., one that recognizes both implicit and explicit facets), the authors highlighted the relevance of the contextual factors that may increase school personnel's likelihood of relying on biases (e.g., fatigue, ambiguity) and offered potential solutions to decrease bias on a school level. Solutions included advocating for increased accountability through collaboration and data analysis to decrease both explicit and implicit bias in discipline decisions. Additionally McIntosh and colleagues offered three solutions specific to mitigating implicit bias: recognizing decision points that are vulnerable to bias (e.g., time of day), decreasing ambiguity of corresponding consequences for discipline, and teaching ways to "neutralize" practices that create disproportionality, such as making snap judgments (McIntosh et al., 2014, p. 15).

Researchers Jason A. Okonofua and Jennifer L. Eberhardt employed an experiment that was the first of its kind to empirically test the effects that race has on teachers' perceptions of problematic behaviors (Okonofua & Eberhardt, 2015). The experiment consisted of two studies. In the first part, researchers showed a racially diverse group of female K–12 teachers the school records of a fictitious middle school student who had misbehaved twice; both infractions were minor and unrelated. Requesting that the teachers imagine working at this school, researchers asked the teachers a range of questions related to how they perceived and would respond to the student's infractions. While the student discipline scenarios were identical, researchers manipulated the fictitious student's name; some teachers reviewed the record of a student given a stereotypically Black name (e.g., Deshawn or Darnell) while others bore a stereotypically White name (e.g., Jake or Greg). Results indicated that from the first infraction to the second, teachers were more likely to escalate the response to the second infraction when the student

was perceived to be Black as opposed to White. Significant differences based on race were not found if the teachers' scenario listed only one behavior incident.

The second study addressed teachers' perceptions of whether a behavior concern indicated a pattern or was perceived as an isolated incident. Using a similar study design, findings showed that teachers rated incidents as more troubling and warranting of discipline if the student was Black or misbehaved multiple times. Additionally, teachers were more likely to attribute behaviors to a larger pattern and were more likely to predict future suspension if the student was Black than if the student was White. Moreover, labeling the student as a troublemaker mediated these relationships between race and choice of disciplinary action. Reflecting on these results, study co-author Jason A. Okonofua suggested the influence of implicit bias, noting "Explicit bias did not predict our findings, and our effects persisted while controlling for it" (J. A. Smith, 2015).

Considering perceptions of behavior for students with autism, Yull (2015) dedicated a section to addressing the role of implicit and explicit bias on these students in an analysis of the effect of race and economics on students' access to accommodations. Yull suggested that the symptomology of autism itself may predispose individuals to activate negative implicit biases, such as people not familiar with autism symptoms (mis)perceiving autistic individuals as violent or dangerous. Moreover, the work suggested that the effects of implicit bias on the perceptions of aggression may be compounded if the student is part of a racial minority group.

Finally, a report from the National Center for Youth Law revealed the route in which implicit bias led to racial disproportionality in not just the education system, but also in child welfare and mental health systems (J. Lee, Bell, & Ackerman-Brimberg, 2015). The report described key decision points within each of these domains as a gateway for individuals' implicit biases to invade seemingly objective processes. To illustrate, the authors referred to routes for implicit bias to influence educational outcomes through perceptions of student behavior, office referrals, and removal from class. The report concluded with interventions to address implicit bias, such as data-based accountability, an increased prevention focus, and cultural competency.

Pre-Service Teachers

While research studies examining implicit bias in the education realm is often a bit sparse compared to other domains, a small but burgeoning body of literature has focused on the pre-service teachers' attitudes and associations (see, e.g., Cross, DeVaney, & Jones, 2001; Glock, Kneer, & Kovacs, 2013; Glock & Kovacs, 2013). Continuing this line of inquiry, with the goal of increasing teacher effectiveness, Glock and Karbach (2015) measured the implicit racial attitudes of pre-service

teachers using three separate instruments: the Implicit Association Test (IAT), the Affect Misattribution Procedure (AMP), and the affective priming task. The sample included 65 pre-service teachers in Germany, all of whom took each of the three implicit measurements that were presented in a random order. Across all three measures, stimuli were comprised of various images of students with a darker complexion. While the images did not represent one race in particular, the images of individuals with darker complexions were considered the minority group. Pre-service teachers' results demonstrated a pro-majority bias on all three implicit measures. Parsing apart the nuances of the three implicit measures revealed that the IAT and AMP indicated negative attitudes toward racial minority students compared to majority students; in contrast, results from the affective priming task reflected neutral attitudes toward minority students as opposed to positive attitudes toward their majority counterparts. Reflecting on the influence pre-service teachers will eventually have on students' educational experiences, Glock and Karbach noted that by holding implicitly favorable attitudes toward racial majority students, pre-service teachers' "implicit racial bias might contribute to disadvantages experienced by racial minority students" (Glock & Karbach, 2015, p. 59).

Another study conducted with pre-service teachers considered the impact of diversity-focused pedagogy on their implicit attitudes (Hartlep, 2015). The exploratory study analyzed whether course content related to dismantling Asian American stereotypes would alter pre-service teachers' implicit attitudes toward Asians. Thus, participants completed an Asian/Asian American Implicit Association Test (IAT) both before and after the course to compare results. Findings demonstrated that although some implicit attitudes decreased, there was no evidence to demonstrate a link between this decrease and the class content that specifically addressed anti-Asian bias. Hartlep concluded with a call for more research aimed to address the impact that diversity pedagogy can have on students' attitudes.

Higher Education

Milkman, Akinola, and Chugh (2015) used an audit research design to analyze how implicit racial bias is perpetuated within the process of entering college and gaining employment. The article emphasized the importance of employment "pathways," which are less concrete routes to entering the job force as opposed to a formalized "gateway" (e.g., sending in a resume) (Milkman et al., 2015, p. 1678). To answer this question, the researchers analyzed responses from professors at 259 universities in the fields of business, education, human services, health sciences, engineering and computer sciences, life sciences, natural and physical sciences, social sciences, humanities, and the fine arts. The professors were contacted via email under the guise that a student was interested in meeting them

to discuss future mentorship in graduate study. All email requests were identical except for the students' gender and race.

Results demonstrated that professors were more responsive to White males than women or minority students, overall. This preference for White males was pervasive; all academic fields, except the fine arts, demonstrated this bias for White males, with the highest discrimination levels evidenced in the schools of business, education, and human services. (The pattern seen in the fine arts was also very pronounced and was among the top three highest rates of disparity.) The researchers concluded that the inherent subjectivity of how one should respond to a meeting request demonstrates that this pathway is more likely to be influenced by implicit bias racial bias than a more formal method of field entry. Additionally, higher paying disciplines and private institutions demonstrated the highest degree of White male bias in their responses. Surprisingly, minority and female representation was unrelated to discrimination, revealing the need for more opportunities to study education pathways for women and minorities.

Acknowledging the underrepresentation of women in fields related to science, technology, engineering, and math (STEM), O'Brien, Blodorn, Adams, Garcia, and Hammer examined the intersection of race and gender on implicit biases and participation in STEM programs (O'Brien, Blodorn, Adams, & Garcia, 2015). To examine these hypotheses, the researchers employed four studies. The first examined data from over 1,700,000 questionnaires from incoming college freshmen between 1990 and 1999 wherein students indicated their major. Data indicated that African American women were significantly more likely to be enrolled in a STEM field than European American women were. Additionally, African American men were more likely to enroll in a STEM degree program than European American men were, although this difference was not as high as it was between women. In study 2, researchers examined the implicit gender-STEM associations in a sample of 153 women using a gender-STEM Implicit Association Test (IAT). Findings demonstrated the general presence of an implicit association between men and STEM (as opposed to liberal arts). However, participants' ethnicity partially mediated the difference between African American and European American women's tendency to major in STEM fields. A third study isolated a sample of women currently enrolled in college-level STEM programs, also finding that African American women held weaker gender-STEM stereotypes than their European American counterparts. A final study included male participants in the analysis of gender-STEM implicit attitudes. Both male and female African American participants were found to exhibit weaker gender-STEM implicit associations than European American participants. Taken together, these studies emphasize the importance of an intersectional approach to gender-STEM implicit associations, as ethnic variation yielded notable differences in the strength of this association.

Addressing Implicit Bias in Education

While researchers have considered many approaches for addressing implicit bias (see the Mitigating Implicit Bias chapter of this publication), some discussions focus on the unique dynamics of specific domains (for examples of other context-specific dialogue, see Casey, Warren, Cheesman, & Elek, 2013; Ross, 2008). Exploring one of the more prominent suggestions for reducing the effects of implicit bias, Pit-ten Cate, Krolak-Schwerdt, and Glock (2015) examined the effects of improved accountability for teachers' decision making. The study measured whether added accountability measures for a subject pool of primary school teachers reduced their implicit racial bias and improved accuracy in judgements of student achievement. Over the course of three administrations (pre-test, post-test, and a six-month follow up), teachers read a series of nine vignettes that included information on similar student profiles that varied by race. After reading the vignettes, teachers responded to questions regarding the student's future achievement. The intervention portion of the study primed teachers' level of accountability by asking them about their perception of accountability measures in their work. Results demonstrated that added accountability increased teachers' accuracy through a reduction in racial biases. Moreover, teachers' level of confidence in decision-making better aligned with their accuracy following increased perception of accountability, whereas they had exhibited overconfidence before the intervention. Nevertheless, presence of racial differences in teaching outcomes reoccurred in the 6-month follow-up period, although not to the same extent as pre-test. The researchers noted the importance of both accuracy and confidence in decision-making practices in support of using increased accountability to reduce systematic error in education. This suggestion of improving accountability aligns with previous work suggesting that implicit biases can be combatted when decision makers are held accountable for their actions (J. Kang et al., 2012; Lerner & Tetlock, 1999; National Center for State Courts; Reskin, 2005).

2.5 Housing and Neighborhoods

"... social science research demonstrates the pervasiveness of racially discriminatory treatment of minorities by landlords, realtors, and institutions. While much of this research does not utilize implicit measures, there is significant reason to conclude that implicit bias rather than animus may often be the animating cause of the differential treatment."

– PROFESSOR RACHEL D. GODSIL AND JAMES S. FREEMAN, J.D. 2015, P. 318–319

Like previous years, academic literature that directly addresses the intersection of implicit bias and housing/neighborhood dynamics remained scant. Here we highlight two pieces that loosely addressed these issues, the first focusing on the rental industry, and the latter considering implicit racial biases and place-based dynamics in a specific U.S. state.

Keeping up with emerging trends in the housing and rental industry, Todisco (2015) elaborated on whether the regulations of the Fair Housing Act should apply to users of Airbnb Inc., a website where individuals can host guests at their private residences for a fee. Airbnb is considered a "sharing economy," thus choosing to reject or accept guests is not regulated by commercial standards (Todisco, 2015, p. 121). Todisco considered the impact of implicit racial bias in determining whether hosts will accept or decline Airbnb users, namely that use of profile pictures, names, and other identifiers can elicit stereotypes and other forms of bias against Black users. The article concluded with a call to action for legislators and the public to pressure Airbnb into adopting procedures that reduce the possibility for discrimination based on race. While implicit bias and explicit bias remain largely indistinguishable in this context, other examinations have documented racial discrimination in Airbnb and other online marketplace rentals stemming from either applicants' names (i.e., distinctively White or African American) and/or profile pictures (B. Edelman & Luca, 2014; B. G. Edelman, Luca, & Svirsky, 2016)

"examinations have documented racial discrimination in Airbnb and other online marketplace rentals stemming from either applicants' names and/or profile pictures"

In a spring 2015 article in the *University of Hawai'i Law Review*, Godsil and Freeman (2015) examined the relationship between implicit racial biases and place. Of particular emphasis was how implicit bias limited access to certain spaces for Native Hawaiians. The article used the lens of implicit bias to understand racialized differences in topics such as individual purchasing behavior, real estate transactions, and government land allocation and use. The authors posit that negative race-place associations may contribute to these patterns through neighborhood perceptions and practices such as racialized lending. Moreover, many Native Hawaiians hold cultural values and attitudes that emphasize humans' relationship with the land. Thus, Godsil and Freeman caution that this cultural ideology can add an additional layer of complexity to the operation of implicit bias during housing and land use decisions.

MITIGATIN

3 Mitigating Implicit Bias

"We can overrule our mental habits and gut reactions. It's not inevitable these biases have to control our behavior"

Dr. Jennifer Raymond in Pederson (2015)

As evidenced throughout all four editions of the *State of the Science: Implicit Bias Review*, recognition of the influence of implicit bias is often accompanied by or otherwise prompts questions about how to address these biases. As such, the scholarship on addressing implicit bias on individual and institutional levels remains an active and evolving area of research.

The Malleability of Implicit Associations

Laying the foundation for all of the content of this chapter and a large segment of implicit bias research broadly, the notion that implicit biases are malleable and may be changed has been discussed and studied extensively (for just a few examples, see Blair, 2002; Dasgupta, 2013; Dasgupta & Asgari, 2004; Dasgupta & Greenwald, 2001; Joy-Gaba & Nosek, 2010; Lai et al., 2014; Rudman, Ashmore, & Gary, 2001). An extensive study by Mann and Ferguson (2015) used a total of seven experiments to explore the malleability of implicit associations with a

focus on whether individuals' implicit attitudes would change after new information prompted them to re-evaluate their first impressions.

- In Experiment 1a, participants received information in an excerpt about a fictional male character who broke into a house. Participants in the experimental condition then received new information which stated that he had entered the house to save children from a fire (thus, the "fire rescue" condition of the study) (Mann & Ferguson, 2015). Attitudes before and after the new information were assessed through the Affect Misattribution Procedure (AMP). The results demonstrated that individuals significantly revised their implicit bias toward the target individual after the introduction of new information led them to reinterpret the scenario.

- Experiment 1b replicated study 1a but instead used the IAT to measure implicit attitudes. The results supported the initial findings, showing a strong shift from negative to positive evaluations once the participants learned the new information about the target.

- Experiment 2 examined the mechanisms behind implicit attitude change, specifically addressing whether re-evaluation of the original information was necessary or if non-related positive information about the target could alter evaluations. To examine this hypothesis, the experiment included another condition to the fire rescue story wherein the man rescued individuals on a subway. Results demonstrated that only the re-interpretation condition elicited a reversal in attitudes.

- A third experiment explored whether effortful processing was required for re-interpretation by grouping conditions into high, low, and no cognitive load. In each condition, the positive shift occurred after the fire rescue story; however, the *reversal* of initial negative attitudes was only evident in the low or no cognitive load conditions.

- Experiment 4 reinforced the causal role of re-interpretation in implicit attitude change by asking participants to rate whether they re-evaluated new information. Additionally, they reported their speed and amount of deliberation during the re-evaluation process. Findings suggested reinterpretation is an altogether different mechanism than simply utilizing elaborative thinking (in which "people think carefully about the new information in general" as opposed to reinterpreting "earlier details in particular") (Mann & Ferguson, 2015, p. 837).

- Experiment 5 revisited the notion of re-interpretation vs. elaborative thinking in scenarios where the participant did and did not need to reinterpret the initial story. Participants saw scenarios from experiment 2 (i.e., the fire rescue or subway rescue) and answered questions about their re-evaluation processing. Results showed that the more participants reported that the second story

required a new interpretation of the first, the more likely they were to demonstrate positive implicit attitude reversal.

- A final experiment tested the longevity of the implicit attitude reversals and found that participants who read the fire rescue story maintained their positive implicit attitudes toward the man in the excerpt three days later.

Collectively the experiments demonstrated that implicit associations can be changed in the presence of new information. Notably, this change is most likely to occur if the new information causes the individuals to re-interpret their previous knowledge of the individual/information in question.

Mindfulness Meditation

Lueke and Gibson (2015) examined the effect of mindfulness meditation on implicit age and race biases. The authors described mindfulness meditation as method to "view thoughts and feelings nonjudgmentally as mental events, rather than as part of the self" (Lueke & Gibson, 2015, p. 284). The social benefits of mindfulness meditation are based on the idea that nonjudgmental reflection has the potential to reduce cognitive biases. In the study, White college students completed questionnaires that assessed their desirability to respond in un-prejudiced ways and their degree of mindfulness. After completing the questionnaires, the subjects then listened to either a control audio recording or a mindfulness recording prompting them to be aware of their physical sensations and environment. Following the listening session, subjects took an age or race IAT. Results demonstrated that participants in the mindfulness meditation condition exhibited a decrease in implicit biases for both age and race. Further analyses revealed that the results were achieved through a reduction in activation of automatic racial and age-based associations (Lueke & Gibson, 2015). This article aligns well with previous work by Y. Kang, Gray, and Dovidio (2014) who found that participants who engaged in six weekly loving-kindness meditation sessions significantly decreased their implicit outgroup biases toward two target groups, Blacks and homeless people. Moreover, this concept of mindfulness meditation as a way to address implicit biases even gained some media attention as a promising strategy (see, e.g., Gregoire, 2014; Torres, 2014).

Additional work in the realm of mindfulness also demonstrated the promise of meditation programs to reduce implicit racial biases. A UK-based study used loving-kindness meditation and considered the role of positive emotions in reducing implicit racial biases (Stell & Farsides, 2015). To test this relationship, a group of White participants was randomly assigned to either a loving-kindness meditation or imagery (control) condition. In both conditions, participants fixated on a target image of a Black individual. In the loving-kindness meditation condition, subjects were instructed to form positive emotions toward that individual; the

Researcher Interview

Dr. Adam Lueke is the lead author of a 2015 article that examines the use of mindfulness meditation to mitigate the negative effects of individuals' implicit biases. Dr. Lueke elaborates on the impact that mindfulness can have on the future intergroup relations in the U.S.

Dr. Lueke began exploring implicit bias in his graduate work at Central Michigan University, where he first came across mindfulness meditation as a strategy to reduce problem solving errors (see Ostafin & Kassman, 2012). He sought to apply this framework under the logic that practicing mindfulness meditation could serve as a way for individuals to distance themselves from negative implicit associations.

Dr. Lueke suggested that the benefits of mindfulness meditation are twofold. First, practicing mindfulness allows individuals to develop more constructive thinking patterns—a more "naturally egalitarian mindset"— through improving cognitive capabilities such as problem solving and executive control. Dr. Lueke noted that, "[mindfulness] promotes this naturally egalitarian mindset by weakening the subjective associations that already exist in our minds, allowing us to be more free and objective in the present moment rather than having this specter from the past hang over our shoulder and affect our judgments." Second, promoting mindfulness as an intervention can result in a variety of beneficial outcomes; reducing implicit biases is just one of them. Interventions focusing on mindfulness meditation can improve factors such as job satisfaction or general wellbeing.

Lueke acknowledged the advantages of this holistic approach by stating "you can market the effects of mindfulness much more easily than you can a specific solution for a specific type of problem." Mindfulness meditation interventions are able to have a covert, yet very real impact on individuals' implicit attitudes—critical when considering an audience that is resistant to addressing implicit biases or race relations directly. "People don't want to feel purposely changed or manipulated in any way."

Dr. Lueke was excited about seeing the impact that mindfulness will have across time. Referencing the participants in Lueke and Gibson (2015) who engaged in mindfulness meditation, "they saw a reduction because they are in a present non-judgmental state of mind. But that won't last forever." Participants will eventually return to their default frame of mind, which includes their implicit biases. Conversely, with practice, individuals can change this default to a more mindful one. As a result, implicit attitudes will more readily "represent equality on a consistent basis rather than bias."

Most importantly, Dr. Lueke is interested to see how a potential shift in individual implicit attitudes could potentially change the culture as a whole. The broader the implementation, the more likely that individuals will be able to see changes in others' behavior. Lueke describes arriving at this goal as when "there is an equal understanding and acknowledgment of the problems that we are facing from both sides on any issue, which allows the problems to become more visible and easily addressed. At this point there won't be a need for a constant rallying cry; we can really see how these interventions—if it's mindfulness or other attitude shifts—have taken their effect."

Lueke, A., & Gibson, B. (2015). Mindfulness Meditation Reduces Implicit Age and Race Bias: The Role of Reduced Automaticity of Responding. Social Psychological and Personality Science, 6(3), 284–291.

Ostafin, B. D., & Kassman, K. T. (2012). Stepping Out of History: Mindfulness Improves Insight Problem Solving. Consciousness & Cognition, 21(2), 1031–1036.

imagery condition involved focusing on the perceptual (rather than affective) components of the target image. Following the meditation, participants took two IATs, one with Black and one with Asian faces as the outgroup. Additionally, individuals completed an emotion rating scale, which indicated their positive emotions toward others during the meditation process. Findings suggested that loving-kindness meditation increased controlled mental processing and reduced implicit bias toward Blacks but not for outgroup members not associated with the target image (i.e., Asians) (Stell & Farsides, 2015). Moreover, positive emotions toward others and increased cognitive control mediated the relationship between loving-kindness meditation and reduction in implicit racial bias. Considering the broader implications, lead author Alexander Stell stated, "This indicates that some meditation techniques are about much more than feeling good, and might be an important tool for enhancing inter-group harmony" (University of Sussex, 2015).

Counterstereotypical Exemplars

Previous research using counterstereotypical exemplars as a way to change implicit associations has yielded mixed results. While some academic articles have generally supported this approach (Critcher & Risen, 2014; Dasgupta & Asgari, 2004; Dasgupta & Greenwald, 2001; Lai et al., 2014), other scholarship has questioned the extent of its effectiveness (Joy-Gaba & Nosek, 2010; Schmidt & Nosek, 2010). Continuing this ongoing dialogue, a study conducted by Kevin Pinkston replicated the design from Dasgupta and Greenwald (2001) and focused on whether or not Black and White individuals would experience similar effects when exposed to positive Black exemplars. The study hypothesized that Black individuals would demonstrate more of a pro-Black bias when exposed to positive Black exemplars and negative White exemplars as a function of the balanced identity theory, which holds that individuals are motivated to have positive ingroup attitudes to maintain self-esteem (see Greenwald et al., 2002). Black and White participants were assigned to a condition with positive Black exemplars, positive White exemplars, or a control (pictures of flowers) and then took a race IAT. On average, White subjects exhibited a moderate pro-White bias while Black individuals exhibited a slight pro-Black bias (Pinkston, 2015). Results showed a marginally significant reduction of pro-White bias for White individuals when exposed to positive Black exemplars, which aligned with findings from Dasgupta and Greenwald's original 2001 study. However, Black individuals' pro-Black bias did not differ significantly between conditions, which demonstrated less malleability in Black individuals' implicit racial attitudes when presented with Black exemplars than White individuals' implicit attitudes (Pinkston, 2015). Pinkston posited that this pattern may be due to a higher awareness of negative racial stereotypes for Black individuals, which may lead to increased internalization of those associations.

Educational Programming for Children

Researchers Félix Neto, Maria da Conceiçao Pinto, and Etienne Mullet examined the effect that a cross-cultural music program had on students' implicit skin-tone biases. The underlying rationale of the study was that the students would identify more with individuals from another culture if they shared musical interests, which may lead to a reduction in bias (Neto, Pinto, & Mullet, 2015). The study exposed 229 Portuguese sixth graders (ages 11 and 12) to music from Cape Verde, an African country with a majority Black population. The experimental group participated in a 90-minute class on music education each week, which included music popular in both Portuguese and Cape Verdean culture; in contrast, the control group experienced no change to their academic programming. In addition to the programming, students also completed a skin tone IAT as well as pre- and post-measures of their explicit skin tone attitudes. Results demonstrated that music program participants experienced a decrease in explicit and implicit bias immediately after the program, and this change in implicit attitudes persisted two years later. Moreover, both implicit and explicit biases decreased more over time for those in the music program versus their control group counterparts. The results demonstrated the unique role that creative educational programming can have for improving intergroup relations and decreasing bias.

"music program participants experienced a decrease in explicit and implicit bias immediately after the program, and this change in implicit attitudes persisted two years later."

Approach / Avoidance Behaviors

Approach/avoidance behavior (i.e., choosing to move toward or away from an object) is another avenue for considering individuals' implicit biases toward target groups. In a study by Van Dessel, Houwer, Gast, and Smith (2015), approach/avoidance behavior is suggested to influence implicit racial attitudes. For example, approaching Black faces and avoiding White faces has been shown to decrease implicit racial bias for White subjects (see K. Kawakami, Phills, Steele, & Dovidio, 2007). Using two online experiments, the current study analyzed whether merely providing instructions on the nature of approach/avoidance experiments would yield similar effects. During the task, participants were either assigned instructions for novel groups (e.g., "Niffites and Luupites") or racial groups (Blacks and Whites). Following instructions to approach or avoid names from a specified group, participants took the IAT. Results from one experiment demonstrated a significant preference for the novel category subjects were asked to approach rather than avoid (Van Dessel et al., 2015). This means that if a participant was

instructed to approach Luupite names and avoid Niffite names, they were more likely to demonstrate an implicit pro-Luupite preference. In contrast, for the established racial groups, results demonstrated no such pattern; subjects exhibited an implicit pro-White bias regardless of which group they were instructed to approach. A second experiment utilized the same paradigm but used the evaluative priming task to assess implicit attitudes instead of the IAT. The latter yielded the same results, thus indicating that implicit pro-White bias was unaffected by instructions to approach or avoid a certain racial category.

Another study examined implicit approach/avoidance behavior as it relates to attachment style. To examine potential antecedents for forming intergroup relationships, Boccato, Capozza, Trifiletti, and Bernardo (2014) conducted three studies to assess whether individual differences in attachment could predict contact with outgroup members. Study two examined the implicit association to avoid or approach members of a group. The study utilized a single category IAT (SC-IAT) in order to assess participants' tendency to associate "approach" vs. "avoid" concepts with the outgroup target. Results showed that individuals generally were more likely to possess an avoid association rather than an approach association with outgroup members. However, individuals' ratings of security in attachment predicted these scores; those who were more secure were less likely to associate avoidance with outgroup members. The authors concluded that these results indicate that secure attachment may serve as the first step to positive intergroup contact, which is a well-established approach for reducing implicit biases (Allport, 1954; Peruche & Plant, 2006; Pettigrew & Tropp, 2006, 2011).

Other Scholarship

With the use of transcranial direct current stimulation (tDCS), a non-invasive brain stimulation technique, a 2015 study examined the relationship between activation in the medial prefrontal cortex (mPFC) (a brain area involved in social-cognitive processing) and implicit biases (Sellaro et al., 2015). Using a sample of 60 university students, the study enhanced or reduced mPFC activity in participants with the use of tDCS, while a control group underwent a mock tDCS procedure. Following stimulation or control, all participants took the race IAT. Results demonstrated that enhancement of mPFC activity reduced negative racial biases compared to those who experienced either a reduction of mPFC activity or mock-stimulation control.

4 Assessments and Measurements

"The move from explicit to implicit attitude measurement is one of the most significant changes to occur in the attitude literature in the last 20 years"

Professor Hart Blanton and Professor James Jaccard (2015), p. 338

Scholars have devoted considerable research to investigating ways of assessing and/or measuring implicit biases. Examples of techniques utilized in past studies include functional Magnetic Resonance Imaging (fMRI) (e.g., Brosch, Bar-David, & Phelps, 2013; Cunningham et al., 2004; Phelps et al., 2000), facial electromyography (EMG) (e.g., Vanman, Saltz, Nathan, & Warren, 2004), response latency measures (e.g., Greenwald, McGhee, & Schwartz, 1998; J. Kang & Lane, 2010), the Affect Misattribution Procedure (AMP) (e.g., Alhabash & Wise, 2015; Kalmoe & Piston, 2013; B. K. Payne, Cheng, Govorun, & Stewart, 2005; K. Payne & Lundberg, 2014), and methods using priming (e.g., Goff et al., 2008; Graham & Lowery, 2004). This year's research extends the scholarship in a few of these key areas.

The Implicit Association Test (IAT)

As one of the most popular measures of implicit biases, continued research on the Implicit Association Test (IAT) in terms of design and the nuances of its use are unsurprising.

On a relatively technical note, for a study examining the statistical implications of IAT analysis, Richetin and colleagues used 420 scoring algorithms to compute the most optimal method of scoring IAT data (Richetin, Costantini, Perugini, & Schönbrodt, 2015). The analysis produced several recommendations for IAT scoring. First, extreme latencies (i.e., responses that are too fast or too slow relative to other test takers) should be treated, but extreme values should be replaced rather than eliminated. Next, Richetin et al. advised that reaction times computed should include participant errors. Additionally, the researchers concluded that while the D score is good way to compute the difference in IAT data, they reiterated the "G score" as a good alternative, as originally described in Sriram, Nosek, and Greenwald (2006). The authors also concluded IAT scoring should not separate performance between test and practice trials. Overall, Richetin and colleagues concluded that the traditional D scores show respectable performance, though slight changes may improve their validity (Richetin et al., 2015).

Building on previous research that considered the possible faking of IAT results (Cvencek, Greenwald, Brown, Gray, & Snowden, 2010; Egloff & Schmukle, 2002; Fiedler & Bluemke, 2005; Fiedler, Messner, & Bluemke, 2006; Kim, 2003; Röhner, Schröder-Abé, & Schütz, 2013; Steffens, 2004), Röhner and Ewers (2015) examined the effects of non-construct related variance on the IAT—or differences in data that do not relate to the associations it measures. The research included two parameters that may affect IAT results: response caution (i.e., the individual difference between those who respond slowly with high accuracy and those who respond quickly with more errors) and non-decision processes related to executive function (e.g., task switching and encoding stimuli). The primary hypothesis was whether faking (i.e., when participants were explicitly told to achieve a desired results on the IAT) could alter IAT results as a function of these parameters. The results suggested that faking showed some effect on IAT performance, but this depended on the instructions given. Instructions for faking varied on whether participants were told to achieve high or low scores and whether they were provided strategies on how to cheat or not. The authors determined that although the analysis was inconclusive, it revealed key insights into the faking process itself.

Other research on the IAT considered the role of participants' identities on IAT results. First, a report by the Pew Research Center explored the effect of racial identity (either biracial or single-race) on IAT results (Morin, 2015). Using data from Project Implicit®, the analysis included single-race Whites, Blacks, and Asians, as well as biracial White and Black or White and Asian individuals. Among other findings, the following patterns emerged. First, single-race respondents tended

to implicitly favor their own race; however, single-race Asians who exhibited a pro-Asian implicit bias did so to a degree only slightly higher than those with a pro-White bias. Conversely, both biracial groups exhibited the same direction of implicit bias, which was slightly pro-White. These findings add to the complexity of implicit racial bias as a function of racial identity.

Along a very similar line of inquiry, an article by Howell and colleagues examined how individuals' racial identity (Black, White, or biracial) may affect their reaction to IAT results (Howell, Gaither, & Ratliff, 2015). Using data from over 1,000,000 individuals on Project Implicit's® website following IAT administration, results indicated distinct responses to IAT results for mono-racial vs. biracial groups. Specifically, Black and White individuals were most defensive when presented with results indicating an implicit pro-White bias while biracial individuals were defensive if results were polarized toward either group. These patterns suggest that holding multiple racial identities may create unique reactions regarding social/racial feedback when compared to mono-racial groups. This research also adds to previous literature on how individuals respond to IAT results (see, e.g., P. Clark & Zygmunt, 2014; Hilliard, Ryan, & Gervais, 2013).

Another angle of 2015 IAT-related research provided a critical lens. With a consideration for the external validity of implicit bias measures, an article by Blanton and colleagues examined existing IAT studies against observable outcomes of bias (Blanton, Strauts, Jaccard, Mitchell, & Tetlock, 2015). Results from 29 of their 31 analyses were determined to be "right biased," which is described as an overestimation of the prevalence of bias and an overestimation of the degree of behavioral bias (Blanton et al., 2015, p. 1472). The authors concluded by proposing that new research should revisit notion that IAT measurement can detect individuals who are "predisposed to commit prejudicial acts that they would rather not commit"(Blanton et al., 2015, p. 1479).

Affect Misattribution Procedure (AMP)

Reflecting on the decade since the development of the Affect Misattribution Procedure (AMP), Payne and Lundberg summarized the research on this implicit measure. The researchers documented compelling evidence supporting the reliability and validity of the AMP, ultimately concluding that what was once regarded as a "promising new measure" has withstood extensive scrutiny to emerge as a well-validated assessment that is positioned to advance implicit bias research (K. Payne & Lundberg, 2014, p. 683).

Furthering research related to the Affect Misattribution Procedure (B. K. Payne et al., 2005), Gawronski & Ye addressed the criticism that the AMP may be susceptible to influence of explicit attitudes with two empirical studies (Gawronski & Ye, 2015). Notably, one study looked at whether attention response-eliciting

features would influence results on an age or race AMP test. Findings showed that participants exhibited a pro-White and pro-young bias overall, regardless of whether they were instructed to attend to age or race-related features. Aligning with the conclusions in Payne and Lundberg 2014, findings support the use of the AMP as a valid and reliable measure of implicit attitudes.

"like the IAT and other measures of implicit associations, the AMP also appears to be susceptible to distortions due to individuals' faking or similar efforts to modify one's self-presentation"

Also on the topic of the Affect Misattribution Procedure's validity, Teige-Mocigemba, Penzl, Becker, Henn, and Klauer (2015) examined whether participants could fake results on AMP. During AMP administration, participants were instructed to fake desired outcomes at given times; however, participants were not advised how to fake their results. Results from faked trials yielded significantly different results from trials in which no faking occurred. The researchers noted that despite the ability of faking to manipulate AMP scores, its results were still influenced by the attitude the AMP was measuring. Thus, like the IAT and other measures of implicit associations, the AMP also appears to be susceptible to distortions due to individuals' faking or similar efforts to modify one's self-presentation (Teige-Mocigemba et al., 2015).

Implicit Relational Assessment Procedure (IRAP)

With work dating from the mid-2000s, the Implicit Relational Assessment Procedure (IRAP) received renewed methodological attention in 2015.

For example, in a study examining the validity of the IRAP, O'Shea et al. (2015) analyzed whether question framing influences IRAP outcomes. The study manipulated the order of the instructions presented when administering the IRAP. Results indicated a positive skew in participant responses; participants found it easier to respond "true" to positive descriptions of stimuli than "false" (O'Shea et al., 2015). Notably, this tendency for participants to positively frame contrasting associations differed by the data analysis technique. To illustrate, when the IRAP data was analyzed in order to obtain results on relative associations (same procedure as IAT analysis) rather than the design to obtain absolute attitudes, the positive framing was eliminated. The authors discussed the implications of this framing bias as a major concern for IRAP validity and considered an alternate approach for measuring absolute attitudes, the Simple Implicit Procedure (SIP).

Another study examining the IRAP focused on its reliability (Drake, Kramer, Sain, et al., 2015). A balanced sample of Black and White undergraduate participants

underwent two IRAP administrations. Findings from the IRAP performance suggested that individuals tended to have a pro-ingroup (as opposed to an anti-outgroup) implicit bias, although the extent differed between groups. The authors note that the IAT would not have uncovered this finding given its approach that focuses on relative comparisons. While the overall findings provided evidence supporting the IRAP's reliability and validity, interestingly the data revealed that Black and White participants' scores shifted to reflect more egalitarian attitudes by the second administration, which may yield further "questions about the stability and validity of the measure over successive administrations" (Drake, Kramer, Sain, et al., 2015, p. 82).

Relational Responding Task (RRT)

Finally, as researchers continue to seek novel ways of assessing implicit biases, De Houwer et al. (2015) introduced a new measure of implicit beliefs, the Relational Responding Task (RRT). Similar to the IRAP, the RRT aims to capture implicit beliefs by requiring participants to respond in alignment with specific beliefs. The RRT appears to be a more user-friendly measure than the IRAP (De Houwer et al., 2015).

As a first step for validating this measure, a group of Flemish participants completed the task by responding to statements as if they believed that Flemish people were more intelligent than immigrants are, or vice versa. Directions regarding the correct response were counterbalanced between blocks. Results from these RRT measures correlated with participants' explicit ratings of ingroup bias, both subtle and overt. Unlike the IRAP, the attrition rate for the RRT was very low (less than 5%), and taken together, the results indicated a promising start toward the use of the RRT as a tool for assessing implicit beliefs (De Houwer et al., 2015).

5 General Contributions

"We live with this inherent dichotomy between the rational decisions we think we are supposed to be making, and the real impact of our unconscious processing"

Howard Ross, p. 15 of Everyday Bias

A vast quantity of scholarship that falls beyond the five substantive domains formally tracked by the *State of the Science: Implicit Bias Review* each year also has an important impact on the field. Here we highlight some of these prominent contributions.

Implicit Bias Formation and Transmission

Extensive research has explored the development of implicit associations, with general consensus on the origins of these associations citing the direct and indirect messages we receive throughout the course of our lives, such as through early life experiences and media exposure (Castelli, Zogmaister, & Tomelleri, 2009; Dasgupta, 2013; J. Kang, 2012; Rudman, 2004a, 2004b).

Extending this line of inquiry in 2015 (particularly Castelli et al.'s 2009 work on the transmission of implicit racial attitudes), two studies considered the transfer of implicit attitudes. Focusing on race, Willard, Issac, and Carney (2015) conducted four experiments to study whether implicit racial biases can be transmitted to an observer; that is, can we essentially "'catch' racial bias from others by merely observing subtle nonverbal cues"? (p. 96). Using video of an interracial interaction between a Black individual and a White individual, undergraduate participants assessed recordings that demonstrated the presence of implicit bias through non-verbal expressions of racism (see Carney, 2004 for design). One experiment separated participants into conditions where they watched either a video displaying anti-Black bias or pro-Black bias. Those who watched the anti-Black bias video rated the White subject as more likable than the Black subject, whereas the pro-Black condition had no effect. A second experiment found that participants who watched the anti-Black video adopted more negative racial stereotypes than those who watched the pro-Black video. Turning then to the transmission of attitudes, two final experiments found that students who watched the anti-Black video had significantly higher levels of implicit anti-Black bias than those who watched the pro-Black interaction, and that the attitude transmission seen was in fact a result of the perception of actor bias and not extraneous factors. Broadly speaking, the results suggested that implicit biases can spread to impartial observers through non-verbal behavior. While the authors note that this contagion of bias can be "problematic" in an organization, they do uplift the idea that individuals can develop a pro-Black bias through watching positive intergroup interactions as well (Willard et al., 2015, p. 97).

To expand the literature on family ethnic-racial socialization, Yasui (2015) conducted a meta-analysis of measurements used to assess the socialization process. The meta-analysis was comprised of 41 studies published from 1983 to 2013. Yasui structured the analysis according to the Process Model of Ethnic-Racial Socialization (PMERS) framework, which takes into account both explicit and implicit dynamics of socialization. The transmission of implicit racial attitudes was conceptualized as subtle socialization methods such as "spontaneous verbal behaviors" or body language (Yasui, 2015, p. 19). Following the analysis, Yasui concluded that a focus on implicit message transmission and implicit racial attitudes is necessary to fill the methodological gap in the assessment of ethnic-racial socialization.

Outside of the scope of race or ethnicity, other 2015 work by Kashima and colleagues examined components of social attitude transmission; specifically, how culture was transmitted through the interaction between "newcomers" (i.e., those new to a culture) and "oldtimers" (i.e., those with experience in the culture) (Kashima et al., 2015, p. 114). Among other measures, the study examined the mechanisms behind implicit attitude transfer and whether institutionalization affected the degree of this transmission.

Participants were randomly assigned to be a newcomer or oldtimer. Oldtimers engaged in a preliminary task to learn the rules of the imaginary culture; in this case, the rules consisted of "approaching" or "avoiding" certain fruits on a computer game (Kashima et al., 2015, p. 115). Following the preliminary task, oldtimers and newcomers were grouped together and completed the computer game simultaneously. The task procedure was either made explicit through instruction or learned through observation. Additionally, the institutionalization condition instructed newcomers that oldtimers understood the intricacies of the culture. Following the computer task, both took the Evaluative Priming Task (EPT) to measure implicit attitudes towards the stimuli. Findings showed that the newcomers successfully acquired the correct cultural behaviors with explicit instructions. Moreover, when instructions were explicit, newcomers also developed more positive implicit attitudes toward approach stimuli compared to avoid stimuli. However, in the absence of explicit instructions, attitude transmission occurred only in the institutionalized condition. Kashima et al.'s findings suggested that inferring the rewards and costs associated with the objects mediated participants' attitude transmission while institutionalization facilitated it. Considering the implications of these results broadly, the researchers stated that implicit attitudes may be transmitted by inference, which can have impacts on how newcomers acquire information about the details of an organizational culture.

"implicit attitudes may be transmitted by inference, which can have impacts on how newcomers acquire information about the details of an organizational culture"

A final 2015 article on the formation of implicit attitudes moved away from their transmission and instead considered whether differences in mental imagery (e.g., subliminal messages vs. mental representation) affected individuals' implicit and explicit attitudes independently (N. Kawakami & Miura, 2015). To test this idea, participants were told they would see subliminal images of either a duck or rabbit; however, the explicit message and the actual prime were either congruent or incongruent with this instruction. For example, in the congruent trial, participants believed they would see a duck and were in fact subliminally primed with a duck, whereas in the incongruent trial, the actual prime differed from what the experimenter suggested. Following the exposure, participants took a variation of the affective priming paradigm to assess their implicit attitudes toward the duck and rabbit images and also explicitly rated their attitudes towards these animals. Results demonstrated a dissociation between implicit and explicit attitudes when participants' mental representations were incongruent with the subliminal image—meaning, subliminal primes accurately predicted individuals' implicit attitudes toward the image even when given competing explicit information. Explicit information correlated to self-reports regardless of whether the subliminal message was congruent or incongruent. In the authors'

Researcher Interview

Linda R. Tropp is a Professor of Social Psychology at the University of Massachusetts Amherst. Her research focuses on "how members of different groups approach and experience contact with each other, and how group differences in power or status affect views of and expectations for cross-group relations" (UMass Amherst, 2008).

This interview focuses on her work on racial anxiety and its intersection with implicit bias.

Dr. Tropp's interest in intergroup contact stemmed from an early desire to understand and reconcile relations between groups. Growing up in an industrial city in the wake of "White flight," Dr. Tropp thought a lot about racial identities. Reflecting on experiences where racial and cultural differences were salient, she noted, "I felt that perceiving difference didn't have to correspond with animosity." This sentiment remains a driving factor behind much of her scholarly work.

One aspect of Tropp's intergroup work focuses on racial anxiety. Defined as "discomfort about the experience and potential consequences of interracial interaction, racial anxiety can manifest before, during, and/or after a cross-race interaction" (Godsil, Tropp, Goff, & powell, 2014, p. 10). For example, racial anxiety may inhibit individuals from pursuing intergroup relationships. Similarly, racial anxiety may cause tension during a cross-race interaction; if both parties are anxious that the outcome of the exchange may be negative, it increases the likelihood that the interaction will unfold in a non-productive way.

This concept of racial anxiety is closely linked to implicit racial bias, as they both influence how individuals think and feel about race. Additionally, they both have an effect on dynamics of intergroup contact. Despite the connections between these two concepts, each requires a different approach when trying to mitigate their negative impact. To this end, Dr. Tropp suggested that knowledge of implicit biases alone might actually exacerbate racial anxiety during cross-race interaction if individuals become fearful of doing something that may make the interaction uncomfortable. Thus, she advises that any explanation of implicit bias "should be coupled with discussion on how racial anxiety operates."

With this suggestion in mind, Dr. Tropp provided several ideas for mitigating the stress associated with cross-racial interaction. First, Tropp challenges individuals to step out of their comfort zones. Like any interaction, both parties may get along, or they may not. Thus, Tropp cautioned against the tendency to imagine the worst possible outcomes. Relatedly, Tropp also spoke on the issue of unrealistic expectations, noting that "we should not have an expectation... that cross-race interactions will always be easy and go completely smoothly."

Tropp's advice centered on the patience required to develop greater competency when learning about and interacting with those around us. There is no panacea for reducing racial anxiety; it requires a long-term commitment and continued practice. She described, "Through greater experience [with those different from us], we can alleviate or attenuate some of the anxieties we associate with cross-group interaction."

Godsil, R. D., Tropp, L. R., Goff, P. A., & powell, j. a. (2014). Addressing Implicit Bias, Racial Anxiety, and Stereotype Threat in Education and Health Care The Science of Equality (Vol. 1): Perception Institute.

UMass Amherst. (2008). UMass Psychology People - Dr. Linda R. Tropp. from http://www.psych.umass.edu/people/lindatropp/

words, "it seems that mental imagery influences the development of explicit attitudes, while real information influences the development of implicit attitudes" (N. Kawakami & Miura, 2015, p. 259).

Ingroups and Outgroups

As a rather encompassing category, a significant amount of literature focused on ingroup/outgroup dynamics. Topics addressed ranged from fear and danger to group cohesion to identity perceptions, among other topics.

Two articles with Armita Golkar as the lead author considered how group membership relates to feelings of fear and safety. First, Golkar, Björnstjerna, and Olsson (2015) explored the interaction between race and group membership on learned fear. The study utilized a classical conditioning paradigm where Caucasian, non-Middle Eastern participants viewed faces that were either ingroup (White) or outgroup (Black and Middle Eastern) accompanied by a mild electrical shock. Following the acquisition phase, participants entered the extinction phase, which removed the shock component from the presented stimuli. After the classical learning task was complete, participants completed a racial IAT as well as other explicit questionnaires on racial and group attitudes. Results demonstrated different levels of fear acquisition and extinction depending on the race as well as group affiliation, with higher levels of fear acquisition for both outgroups compared to ingroup members; however, extinction of this association was slower for Black faces than Middle Eastern faces. Although these results depicted a racial bias for learned fear of outgroup members, IAT scores were unrelated to these differences for both the acquisition and extinction phases.

"enhanced activity in brain regions linked to fear learning and processing of race information predicted biases in actual social behavior"

Similarly, a second article, which included two of the same authors from the article discussed above, explored how racial ingroup vs. outgroup status affects the transmission of social learning (Golkar, Castro, & Olsson, 2015). Researchers utilized the same design to examine how participants learned about danger and safety through observation of Black (outgroup) and White (ingroup) members. Learning regarding both danger and safety was more influential when modeled by an ingroup member opposed to an outgroup member. Notably, this ingroup learning bias was not moderated by implicit racial attitudes for either danger or safety conditions.

Moreover, a third article by select members of the aforementioned research team addressed the underlying neural components of biased social fear learning and interaction (Molapour, Golkar, Navarrete, Haaker, & Olsson, 2015). Findings indicated that fear learning of ingroup faces resulted in different patterns of amygdala and anterior insula activation than fear learning of outgroup faces. To illustrate, learned fear of outgroup faces increased connections between the amygdala and fusiform gyrus. In short, this work demonstrated that "an enhanced activity in brain regions linked to fear learning and processing of race information predicted biases in actual social behavior" (Molapour et al., 2015, p. 181). This work echoes other scholarship that articulated a connection between fear or threat and amygdala activation (Davis & Whalen, 2001; Pichon, Gelder, & Grèzes, 2009; Whalen et al., 2001).

On the topic of group cohesion, in their examination of the expression of prejudice, Effron and Knowles (2015) studied whether characteristics of one's group enabled the legitimization of explicit bias. The primary hypothesis was that entitative groups—those with "high similarity, proximity, and interdependence among members who share information and have strong interpersonal bonds"—allow individuals to defend expressions of explicit prejudice as a function of protecting their collective interests (Effron & Knowles, 2015, p. 235). As part of eight studies (both correlational and experimental) examining this phenomenon, study five directly addressed the contributions of implicit racial bias. First, a group of White participants completed entitativity measures for Whites and Blacks (i.e., the level of similarity and collective interests that the individual perceived to have with both groups) as well as an explicit bias questionnaire and an IAT. The study revealed that perceived White group entitativity moderated the relationship between implicit and explicit bias; high group cohesion allowed for the explicit expression of one's implicit biases (Effron & Knowles, 2015). Conversely, those with low group cohesion expressed relatively low explicit bias on the questionnaire regardless of their level of implicit racial bias. Moreover, those with low implicit racial bias did not explicitly express prejudice, even if they perceived their group as highly cohesive. The authors reflected that, "Together, these findings suggest that membership in an entitative group can provide a license to express bias against outgroups" (Effron & Knowles, 2015, p. 248).

"Whites with a Black friend were perceived as having higher comfort with the outgroup compared to Whites with a White friend"

An extensive article used a series of studies to examine the concept of "implicit homophily"—how "implicit outgroup bias shapes [individuals'] affiliative responses toward ingroup targets with outgroup friends as a function of perceived similarity" (Jacoby-Senghor, Sinclair, & Smith, 2015, p. 415). Two studies in this article employed a preliminary study that considered the idea of outgroup comfort—

how familiar one is with members of an outgroup. In this case, participants responded to images of friend groups who were either single-race (both White) or a mixed-race pair (Black and White) to assess explicit attitudes. A single-subject IAT also assessed implicit racial attitudes. In terms of outgroup comfort, Whites with a Black friend were perceived as having higher comfort with the outgroup compared to Whites with a White friend. Notably, implicit anti-Black bias predicted participants' ratings of outgroup comfort. Using this foundation, subsequent studies further developed the implicit homophily concept:

- After participating in the preliminary study, study one had White participants rank the photos of mixed-race and single-race pairs on dimensions of affiliation, perceived similarity, and stigma transference (i.e., being evaluated based on one's interpersonal associations with outgroup individuals). Following the picture task, participants took the IAT as well as an explicit measure of racial bias. Findings from the study revealed that when participants were told that the pairs were friends (as opposed to randomly assigned), higher implicit anti-Black bias predicted lower affiliation to Whites with a Black friend compared to the single-race pair; however, this relationship was not found if participants were told that the pair was randomly assigned (Jacoby-Senghor et al., 2015). Moreover, higher implicit anti-Black bias related to decreased perception of similarity toward mix-raced pairs versus the White-only pairs.

- Study two followed the same design as study one; however, outgroup comfort similarity—when members of the same race have similar experiences with outgroup members—was manipulated. After participants completed a demographic questionnaire, researchers provided a fake percentage that supposedly indicated the level of similarity between the participant and his/her partner's questionnaire responses. Participants were randomly assigned to a high or low outgroup comfort similarity condition, with the control condition providing no similarly information. Following the picture matching, participants took the IAT. Findings from the control condition demonstrated that higher implicit anti-Black bias predicted decreased affiliation with White-Black friend pairs compared to pairs that were White-only (Jacoby-Senghor et al., 2015). However, for individuals who were told that their outgroup comfort was similar to the target, the effect of implicit bias on affiliation was not significant. These results indicated that perceived outgroup comfort similarity served as a mediator for the effect of implicit anti-Black bias on affiliation with ingroup members.

- To distinguish outgroup comfort similarity as a unique mechanism, study three assigned participants to either an outgroup comfort similarity condition or a personality similarity condition while using the same design as study two. Results replicated the previous study by showing that when outgroup comfort similarity was high, implicit anti-Black bias did not predict affiliation with the target. However, when similarity between the participant and the target was per-

sonality-based, implicit anti-Black bias predicted less affiliation toward Whites with a Black friend compared to White-only pairs (Jacoby-Senghor et al., 2015).

- A final study measured whether implicit anti-Black bias predicted real-life affiliation of Whites who have Black friends. To do so, the researchers examined participants' Facebook accounts to see how many friends they had who also had Black friends, and they also measured participants' implicit anti-Black bias. The results suggested that women high in implicit anti-Black bias were less likely to have indirect contact with other races; however, the same was not found for men (Jacoby-Senghor et al., 2015).

In sum, although the real world evidence was inconclusive, the research provided an innovative analysis of the relationship between implicit racial bias and its effects on how individuals perceive members of their own race who engage in interracial relationships. The research supported the concept of implicit homophily, as the implicit racial biases of the White participants were "related to their affiliative responses to White targets as a function of their friends' race over and above effects of explicit racial bias" (Jacoby-Senghor et al., 2015, p. 427).

In a December 2015 article, Wright and colleagues explored implicit identity perceptions of mixed-race (Black-White) individuals in the United Kingdom (B. Wright, Olyedemi, & Gaines Jr., 2015). In their study, Black, White, and mixed-race participants completed three Stroop task trials which required them to categorize mixed-race photo stimuli as either Black or White (for more on the Stroop task, see Stroop, 1935). In the first trial, participants were given an open choice to assess their explicit racial categorization of mixed-race individuals. In the second and third trials, they were instructed on how to racially categorize each photo (B. Wright et al., 2015). Below each photo was either a word (i.e., "Black," "White," or the neutral word "Crane") or a blank space intended to create conditions in which the word was congruent, incongruent, or unrelated to the participant's perception of the stimuli. Results from the key press categorization data demonstrated that on an explicit level, mixed-race and Black participants perceived stimuli as Black, whereas White participants displayed an explicit perception of mixed-race individuals as White. Alternatively, response time data revealed that on an implicit level mixed-race individuals perceive themselves as equally Black and White, while both Black and White single-race participants implicitly perceived these biracial individuals as Black (B. Wright et al., 2015). This work connects nicely with Morin (2015), which was discussed in an earlier chapter of this document.

Acknowledging that existing research on the effects of exposure to racial outgroups on explicit attitudes varies, Rae and colleagues investigated the association between outgroup exposure and implicit biases. Using state-level data from Project Implicit®, the researchers considered whether the proportion of Black

residents in a state predicted the intergroup implicit biases displayed by its residents. Results indicated that "higher proportions of Black residents in a state or county predicted stronger ingroup bias among both White *and* Black respondents from that state or county" (Rae, Newheiser, & Olson, 2015, p. 539). The authors stated that the explanations for this correlation remain uncertain, yet the finding of implicit ingroup biases being stronger among White respondents than Blacks aligns with previous literature (see, e.g., Ashburn-Nardo, 2010).

Broadly related to other research that used eye tracking devices (Beattie, 2013; Mele, Federici, & Dennis, 2014), at the intersection of perception and social cognition, 2015 research by Hansen and colleagues examined the relationship between racial bias and visual attention (Hansen, Rakkshan, Ho, & Pannasch, 2015). The study measured whether implicit or explicit bias predicted what White participants fixated on when looking at same-race and other-race faces. White participants were shown images of Black, Asian, and White faces while an eye-tracking device analyzed their visual patterns. Additionally, participants took the IAT and completed a brief questionnaire to assess their levels of implicit and explicit racial bias. Findings indicated that participants high in racial bias—both implicit and explicit—examined faces differently than those low in bias (Hansen et al., 2015). For example, those high in explicit bias tended to fixate on the mouth region of Black faces and demonstrated less consistency in looking at patterns compared to those low in explicit bias. Moreover, participants high in implicit bias tended to focus on the region between the target's eyes, regardless of race. These findings suggested that type and level of bias influenced race-specific patterns of visual attention on other-race faces. More generally speaking, this work also connects to other studies that considered how implicit biases may manifest in intergroup interactions in subtle ways, such as reduced eye contact (Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; McConnell & Liebold, 2001).

Using intergroup contact as a foundation for the research, work by Zabel et al. explored cognitive depletion—a phenomena central to reliance on implicit biases—as it results from interracial interaction (Zabel, Olson, Johnson, & Phillips, 2015). The study examined whether content, rather than group dynamics alone, affected mixed-race conversations; more specifically, whether the intimacy level of content influenced cognitive depletion through changes in participants' self-regulation. Participants in this study believed they were engaging in a recorded video discussion that required them to answer questions provided by a randomly assigned partner. The nature of the questions ranged from high intimacy (e.g., "describe your first love") to low intimacy (e.g., "what is your favorite thing about your school?") (Zabel et al., 2015, p. 547), and participants believed their conversation partner was either a member of the same race (in this case, White) or a different race (Black). Following the mock-interaction, participants performed the Stroop task (Stroop, 1935) to measure their cognitive depletion. Results showed that participants who answered intimate questions for an interracial partner exhibited a higher degree of cognitive depletion compared to

Author Reflection

Robin A. Wright *on "Implicit Bias, Awareness, and Imperfect Cognitions"*

Are we responsible for the discriminatory behavior that is caused by our implicit biases? Holroyd (2015) asserts that lack of awareness of our implicit bias in no way absolves us from the responsibility we have to be observationally aware of morally discriminatory aspects of our behavior resulting from biases. And I agree! Think for a moment: we've all experienced those instances where after first meeting someone we think to ourselves, "I'm not sure what it is about that person that rubs me the wrong way!" That unidentifiable "gut" reaction may just be the result of bias, and not being able to name "it" in no way gives us the right to treat that person poorly. If anything, not being able to name "it" means we are all the more responsible for ensuring we're not acting in a prejudiced manner. After all, why should that person receive unjust treatment for a reason we cannot even identify?

As I reflect on the recent non-indictment of Officers Timothy Loehmann and Frank Garmback—who on November 22, 2014 shot to death a 12 year old African American boy, Tamir Rice, outside of a recreation center in Cleveland, OH—I become all the more certain that we must hold ourselves accountable for the role of our implicit biases in our actions. Whether driven by implicit forces – such as shooter bias (Correll, Park, Judd, & Wittenbrink, 2002) – or explicit ill-intentions, the results of those officers' decisions can never be undone. It simply is not acceptable in this instance, or any other, for us to absolve one another of accountability for the pain and harm we've caused our fellow human beings on the basis that we are "well-intentioned." Intention matters. But as the unjust death of Tamir Rice shows us, so does impact.

"It may not have been your intention when you were crossing the road for you to step on my foot, but the impact of you stepping on my foot, it still remains."

Anonymous

Correll, J., Park, B., Judd, C. M., & Wittenbrink, B. (2002). The Police Officer's Dilemma: Using Ethnicity to Disambiguate Potentially Threatening Individuals. Journal of Personality and Social Psychology, 83(6), 1314-1329.

Holroyd, J. (2015). Implicit Bias, Awareness, and Imperfect Cognitions. Consciousness and Cognition, 33, 511-523.

those who interacted with a White partner. Moreover, interracial discussion did not elicit increased cognitive depletion if the content intimacy of the questions was low. This research connects to previous work indicating that heavy cognitive load is a condition in that is particularly conducive to the rise of implicit attitudes (Bertrand et al., 2005; D. J. Burgess, 2010).

Ethical Considerations

A few recent articles touched on ethical considerations related to implicit bias, such as questions of individuals' responsibilities related to their unconscious biases and the notion of bias "ownership."

Given the real world implications of implicit bias, researchers have begun to question whether individuals should be held responsible for actions that result from their implicit biases. Adding to this debate, Holroyd (2015) argued that although individuals may lack introspective awareness of their implicit associations or inferential awareness of their propensity to exhibit biased behavior, individuals should possess the ability to be observationally aware of aspects of their behavior that may be morally discriminatory as a result of their biases. Using the legal framework that "negligence does not require that an individual in fact be aware of the harm caused by her action; only that a reasonable person would have been," Holroyd concludes that a reasonable person, not driven by self-interests or self-deception, possesses the ability to recognize discriminatory aspects of their behavior (Holroyd, 2015, p. 515). The author supports this claim with recent implicit bias studies that demonstrate individuals' ability to recognize the difficulty they faced in associating "Black" with "good" as opposed to "Black" with "bad" on the Race IAT. As such, Holroyd believes that individuals are responsible for harm caused by their implicit associations (Holroyd, 2015).

Furthering this general line of inquiry, another article posited a philosophical framework for individuals' moral responsibility regarding implicit biases (Vierkant & Hardt, 2015). Making a distinction from prior work by Levy (2014), the authors articulated the idea that implicit biases, as opposed to just explicit biases, can unify an agent—meaning the individual holds beliefs and behaves in a congruent fashion. Additionally, the work defines implicit biases as rational to the extent that, "1) They are sensitive to how the world is, and so change depending on input, 2) They are sensitive to moral reasons, 3) They are integral to how we make sense of the world" (Vierkant & Hardt, 2015, p. 255). Because implicit biases relate to these features and are susceptible to cognitive control, the article holds that individuals are responsible for their implicit, as well as explicit biases, in terms of their moral reasoning.

Finally, on the topic of "ownership" over one's implicit beliefs, how does the perception of ownership of one's implicit attitudes impact the congruence of implicit

and explicit beliefs? Furthermore, what is the role of self-esteem, perceptions of ownership of implicit attitudes, and implicit-explicit attitude congruence? With these questions in mind, Cooley, Payne, Loersch, and Lei (2015) constructed a three part study assessing attitudes toward gay male couples. Implicit attitudes were measured using the Affect Misattribution Procedure, which assesses primed evaluations (favorable vs. unfavorable) of gay and opposite-sex couples. Explicit attitudes were evaluated using the Modern Homophobia Scale. In study one, participants' perceptions of ownership of their implicit beliefs about gay men were manipulated through a series of instructional prompts. In study two, both self-esteem and ownership of implicit attitudes were measured—but not manipulated by the researchers. Finally, in study three participants' self-esteem was measured and perceptions of ownership of implicit beliefs were manipulated the same as in study one (Cooley et al., 2015). Analysis revealed that, whether manipulated or not, inferences of ownership of one's implicit attitudes influenced the correspondence between implicit and explicit beliefs. More specifically, the authors found that those who believed that their implicit attitudes toward gay men belonged to them were more likely to report explicit attitudes that closely aligned to their implicit beliefs than those who did not believe they owned their implicit attitudes. Furthermore, this correlation was larger still for those who reported high self-esteem (Cooley et al., 2015).

News and Media

Acknowledging the continued power of the media and its influence on attitudes—both implicit and explicit—several research studies considered how media portrayals could shape individuals' perceptions.

For example, as part of a discussion on how media content can shape implicit attitudes, Schmader and colleagues examined whether stereotypic film portrayals affected implicit ingroup bias (Schmader, Block, & Lickel, 2015). In addition to including a specific analysis of implicit attitudes toward Latinos in two studies, the authors included a variety of identity and affective measures to examine moderators between stereotypic portrayals and implicit attitudes. In study one, Mexican Americans participants either watched a comedic stereotypical portrayal of Latinos, a serious stereotypical portrayal of Latinos, or no video (control). Following the video clip portion, participants responded to identity questionnaires and took the Latino-White IAT. Those who rated group identity as highly important displayed more negative implicit bias toward Latinos after watching the comedic clip compared to the serious clip. A second study replicated the procedure of study one but included both Mexican and European Americans as participants. Moreover, each was paired with a confederate whom they believed were watching the same clip. Results followed the same pattern as study one; Mexican Americans who rated ethnicity as particularly important to their identity demonstrated more negative implicit attitudes towards Latinos following the

stereotypical portrayal of their ingroup. Taken together, the authors suggested that these findings illustrate that negative media portrayals may elicit negative ingroup biases to the extent that ethnic identity is an important aspect of an individual's self-definition.

A recent study by Arendt and Northup (2015) sought to examine the long-term effects of news stereotypes of outgroup members on implicit and explicit attitudes through a series of three studies in the U.S. and Austria. Study one examined this dynamic in relation to individuals' exposure to local U.S. television news—an arena in which African Americans (the target group) are over-represented as criminals. A second study considered the dynamic in relation to participants' regular use of an Austrian tabloid-style newspaper known to over-represent foreigners (the target group) as criminals. The final study further constrained the parameters of study two by directly examining the extent to which regular exposure to crime-related articles in Austria's tabloid-style newspaper affected implicit and explicit attitudes (Arendt & Northup, 2015). To assess these relationships, participants in each study self-reported their exposure to the aforementioned content, completed an IAT to assess their implicit attitudes toward the relevant target group, and completed a feeling thermometer to measure their explicit affinity toward the target group. Results revealed that among U.S. participants, exposure to local television news was positively correlated with levels of implicit anti-Black bias. Alternatively, studies two and three demonstrated that among Austrian-born participants, implicit anti-foreigner biases were only correlated with exposure to the tabloid for those participants who reported regularly reading articles about crime. Additionally, the authors found a small, indirect connection between exposure to stereotypic news media and explicit affinity toward the target group (Arendt & Northup, 2015). Reflecting on the implications of this work, the researchers noted that better understanding of news stereotype effects may facilitate the development of new approaches for prejudice reduction (Arendt & Northup, 2015).

"better understanding of news stereotype effects may facilitate the development of new approaches for prejudice reduction"

Another study related to media portrayal explored how elevation—"feelings of being moved, touched, and inspired by images of people engaged in morally beautiful acts such as love, generosity, and kindness"—affected individual's responses to outgroup members (Oliver et al., 2015, p. 106). As one of the five studies, the researchers examined whether feelings of connectedness with diversity would affect implicit attitudes toward racial outgroup members. Researchers used a modified IAT to assess implicit connectedness—an indication of whether a participant associated images of Black and White individuals as "self" or "other" (Oliver et al., 2015, p. 115). Using White participants, results demonstrated that feelings of connectedness with ingroup members predicted a higher implicit association

between White with "self" and diversity with "other." However, no relationships were found between elevation and participants' implicit attitudes.

Turning to explicit strategies employed by the media, articles by Sonnet and colleagues (2015) and Matthes and Schmuck (2015) considered specific approaches and their effect on implicit biases. First, with a focus on implicit racial messages in the news and the perpetuation of negative stereotypes, Sonnett, Johnson, and Dolan (2015) highlighted examples of racial priming during the coverage of Hurricane Katrina. Using a comparative design to assess implicit racial themes within three major news programs, the researchers determined that each of the three networks produced similar implicit cues—such as associating Black residents with messages of desperation of violence—despite diversity in reporting structures and reporting roles. Second, looking abroad, Matthes and Schmuck (2015) examined the effects of anti-immigration political ads on the attitudes of individuals in Austria and Switzerland. Following two experiments addressing explicit attitudes, a third study examined the effects of political ads on individuals' implicit attitudes. All three studies indicated that educational attainment—rather than political ideology—predicted explicit stereotyping following the ads. Notably, those with lower educational attainment were more influenced by negative portrayal of immigrants than those with higher education attainment; however, those with higher educational attainment were susceptible to changes in their implicit negative biases, although to a much smaller extent. Together these studies reinforce the significance of media messaging and how subtle nuances can have implications for viewers' implicit biases.

Previous work has examined how implicit biases can affect the point at which individuals perceive the onset of the emotion of anger in others' faces, finding that higher levels of implicit bias were associated with a greater readiness to perceive anger in Black faces as opposed to White (Hugenberg & Bodenhausen, 2003). Subsequent work explored how implicit associations between race and emotional expression can influence one's ability to recognize the emotions of outgroup members, such as sadness or anger (Bijlstra, Holland, Dotsch, Hugenberg, & Wigboldus, 2014). Building on this foundation while considering the influence of media, Arendt, Steindl, and Vitouch (2014) studied whether newspaper articles that featured a dark-skinned criminal affected participants' perceived facial threat (i.e., the perception of hostility) of dark-skinned strangers. Researchers predicted implicitly activated stereotypes as the mechanism linking media influence to perceptions of hostility (Arendt et al., 2014). College student participants read four articles unrelated to crime and seven crime-related articles. Participants were randomly assigned one of three conditions for the crime related-articles, which differed on how salient skin color was in each article. Skin color was either not mentioned (control), mentioned in five of seven crime-related articles (moderate salience), or mentioned in all seven of the crime-related articles (high salience). After reading the articles, students viewed animations of six faces that changed from 0% angry to 100% angry. The faces included three

light-skinned targets and three dark-skinned targets of an ambiguous race, and upon watching each animation, students were asked to indicate when they perceived the face to express hostility. Results demonstrated that the control group exhibited the lowest levels of perceived hostility of dark-skinned individuals, and the group where skin color was most salient exhibited the highest perceived hostility. The researchers attributed this phenomenon to the activation of implicit racial stereotypes, which, in turn, biased subjects' perception of threat in dark-skinned faces. This study provided key insight for how the media can influence social cognition related to implicit bias and stereotyping.

Using the context of media, other work continued the dialogue on the importance of technology in shaping implicit and explicit attitudes. Hsueh, Yogeeswaran, and Malinen (2015) examined the influence of online social norms on explicit and implicit prejudice expression. Under the guise of a marketing survey, the study asked participants to provide feedback on an article about Asian students who cheated on an international exam to earn scholarships. Participants then were randomly assigned to either view comments that were either anti-Asian or non-prejudiced, and after reading the comments, participants posted their feedback to the mock comment board, filled out a racial attitude questionnaire, and took an IAT to measure implicit racial attitudes. Findings demonstrated that prejudiced comments were predictive of participants exhibiting higher explicit anti-Asian prejudice on comment and questionnaire measures. Moreover, those in the high prejudice comment condition exhibited higher levels of implicit bias than those in the control group. Considering the broader implications of these online interactions and related concerns, Hsueh and colleagues reflected that "exposure to prejudiced (or antiprejudiced) online comments… impact not only perceivers' conscious attitudes towards and ethnic group, but also their unconscious or automatic attitudes toward the entire group" (Hsueh et al., 2015, p. 567).

Finally, in their review on the use of implicit attitude measures in the field of media psychology, Blanton and Jaccard (2015) provided recommendations to a list of ten potential challenges in integrating these measures into the field. Their analyses concluded with a response toward potential objectors of the listed methodological pitfalls to inform future use of these measures in media psychology.

Political Behavior and Voting

Recognizing that implicit biases have real-world effects on individuals' decisions and behaviors, it is unsurprising that considerable scholarship has considered how implicit biases may operate in the context of politics and voting (see, e.g., Ditonto, Lau, & Sears, 2013; Glaser & Finn, 2013; Greenwald, Smith, Sriram, Bar-Anan, & Nosek, 2009; Iyengar & Westwood, 2014; B. K. Payne et al., 2010). Articles from 2015 continued this overall trend, though the topics they addressed expanded well beyond just these dynamics in Presidential election years.

The one article that explicitly did use the context of a Presidential election was by Meirick and Schartel Dunn. They observed divergent results in their assessment of the relationship between exposure to the 2008 Presidential debates and explicit and implicit affinity for African Americans. In addition to data from the American National Elections Studies panel from September 2008 (before the debate) and October 2008 (after the debate), they also included a debate exposure measure (Meirick & Schartel Dunn, 2015). Implicit racial attitudes were measured using the Affect Misattribution Procedure (AMP), which measures the ways in which people's objective evaluation of an ambiguous object (e.g., a Chinese ideogram) changes when primed with a White face as opposed to a Black face. The researchers initially found that debate exposure was negatively correlated with implicit anti-Black bias; however, after controlling for debate exposure level, party affiliation, education level, income, race, and gender, no statistically significant correlation existed. Alternatively, Meirick and Schartel Dunn found that explicit racial affinity for African Americans was positively correlated with debate exposure both prior to and after controlling for demographic variables (Meirick & Schartel Dunn, 2015). These findings broadly align with Schmidt and Nosek (2010) who found that President Obama's campaign and early presidency had little effect on implicit attitudes. Conversely, these findings contrast with the "Obama effect" reported by Plant et al. (2009) wherein extensive exposure to Obama led to a drop in implicit bias.

"implicit racial bias played a role in evaluating the politician's characteristics, specifically their level of intelligence"

Considering the spectrum of political viewpoints, Byrd, Hall, Roberts, and Soto (2015) isolated non-conservative (i.e., liberal or moderate) political attitudes in order to study the impact of implicit racial bias on voting behavior. Non-conservative White participants read political speeches paired with a photograph of either a Black or a White politician and then rated how favorably they viewed the candidate and whether they would support the candidate. Overall, participants favored Black over White politicians in terms of political support. Moreover, this explicit bias favoring Black candidates was not predicted by implicit bias, as measured by the IAT. However, implicit racial bias played a role in evaluating the politician's characteristics, specifically their level of intelligence. Results showed that a higher degree of pro-White bias predicted higher evaluation of the White politician's intelligence and lower ratings of the Black politician's intelligence (Byrd et al., 2015). This work builds on previous research examining the connection between implicit attitudes and perceptions of intelligence (see, e.g., Bertrand et al., 2005; Frazer & Wiersma, 2001; Hannon, 2014). In sum, the authors concluded that although non-conservative Whites favor Black candidates on explicit ratings of voting preference, negative implicit biases toward Blacks persist which could potentially inhibit their support in a real election.

Moving beyond voting behaviors to voting policies broadly, a 2015 study by Banks and Hicks examined whether emotional priming would affect Whites' attitudes toward racialized voting policy (i.e., voter ID laws) as a function of their implicit racial biases (Banks & Hicks, 2015). The study included two waves of participation. A first online wave asked participants to take a race IAT, respond to an explicit racism scale, identify their political affiliation, and answer a brief demographic questionnaire. For the second wave, researchers assigned participants to one of three conditions: fear, anger, or relaxation (control) condition. In the fear and anger conditions, the subjects viewed an image of someone with the corresponding facial expression (i.e., fear or anger) and wrote a detailed explanation about what makes them feel that particular emotion. Similarly, participants in the control condition wrote a description about what relaxes them. Connecting this manipulation to race IAT scores for these White participants, Banks and Hicks found that inducing fear notably influenced Whites' support for voter ID law as a function of implicit bias. In particular, Whites high in implicit racism scored approximately 16 percentage points higher in support for voter ID laws than individuals high in implicit bias in the control condition. Attesting further to the power of inducing fear, in the absence of fear, implicit racial bias did not have an influence on respondents' perception of ID laws.

Finally, considering these dynamics abroad, an Italian study considered implicit race and gender bias as they determine voting preference (Iyengar & Barisione, 2015). Researchers examined implicit gender bias by recording votes for politicians whose faces were altered to look either more masculine or feminine, and similarly assessed implicit racial bias by altering faces to appear either more Afrocentric or European. Although researchers hypothesized that voters would be more likely to support candidates that displayed masculine, White features, results showed that party affiliation was a much better predictor of voting behavior than implicit racial or gender bias.

Research Involving Video Games / Avatars

Like previous years, implicit bias scholars continued to explore how virtual reality and avatars may be used to help understand unconscious cognitive dynamics.

As a part of the growing trend to combine technology with efforts to change implicit associations, a videogame aptly titled "Fair Play"* used perspective taking to try to reduce players' implicit racial biases (Gutierrez et al., 2014, p. 371). Participants in the study were randomly assigned to either play the videogame in which participants navigate a virtual world as a Black male graduate student who is seeking an advanced science degree at a predominantly White university, or read a text about this fictitious character's experience. Throughout the course

*. To learn more about "Fair Play" or to play the videogame, please visit www.gameslearningsociety.org/fairplay_microsite.

Author Reflection

Cheryl Staats *on video game-based research generally*

As someone who both loves her smartphone but also still favors doing scheduling via a hard copy paper planner, I probably fall along the middle of the road of the spectrum that spans from Luddite to "tech guru." Nevertheless, in each year's edition of the *State of the Science*, I continually find myself fascinated by the strains of research that use virtual reality and other technological tools to study implicit bias. Beyond the notable findings themselves, many of the reasons for my interest in this realm of research center on its practical sides.

For example, I find the concept of using a video game as an experimental manipulation attractive because it is such an accessible concept for both participants and the general public to grasp. Not only is the premise of a video game understandable and relatable, it also is far easier to communicate than other ways of exploring implicit biases, such as functional Magnetic Resonance Imaging (fMRI) and other techniques stemming from neuroscience or complex social psychology. While this is a tremendously minute point in the grand scheme of research endeavors, there is still value in a platform that allows the findings to be easily understood and communicated. To that end, past examples of this work have garnered media attention. For example, a study by Yang, Gibson, Leuke, Huesmann, and Bushman (2014) considered the effects playing violent video games as a Black avatar had on White participants' implicit and explicit attitudes toward Blacks. This article received media attention from Grabmeier (2014) and Harvey (2014), among others.

Moreover, I find video game-based implicit bias research to be a unique realm in that it provides opportunities to move not just beyond the typical Black-White racial dichotomy discussed in the literature, but also to introduce unfamiliar racial cues to assess responses. A notable example of this is work by Peck, Seinfeld, Aglioti, and Slater (2013) in which they used immersive virtual reality to give participants the illusion of possessing alien-like purple skin. By expanding beyond typical racial constructs and related associations, this type of approach exemplifies the vast range of creative possibilities this kind of manipulation offers.

Thus, while I would fail miserably to name the latest releases of video game consoles, each year I look forward to the implicit bias scholarship that embraces this design, thanks to the practical, accessible, and creative possibilities they offer.

Grabmeier, J. (2014). Playing As Black: Avatar Race Affects White Video Game Players. Research and Innovation Communications. http://researchnews.osu.edu/archive/raceavatar.htm

Harvey, K. (2014). New Study Links Video Games to Racial Prejudice. The Grio. http://thegrio.com/2014/03/25/new-study-links-video-games-to-racism/

Peck, T. C., Seinfeld, S., Aglioti, S. M., & Slater, M. (2013). Putting Yourself in the Skin of a Black Avatar Reduces Implicit Racial Bias. Consciousness and Cognition, 22(3), 779-787.

Yang, G. S., Gibson, B., Leuke, A. K., Huesmann, L. R., & Bushman, B. J. (2014). Effects of Avatar Race in Violent Video Games on Racial Attitudes and Aggression. Social Psychological and Personality Science, 5(6), 698-704.

of the game, the character encounters various trials related to racial bias. Following the experiment, results indicated that those who played the game displayed lower levels of implicit racial bias than those who read the text only; however, this was only true when players reported a high degree of empathy for the character. Conversely, those with high empathy who did not play the game failed to demonstrate the same pattern. Thus, the authors noted the importance of perspective taking to increase empathy as a means to reduce implicit racial biases, which aligns to other research suggesting that induced empathy through perspective taking can counter automatic expressions of racial biases (Shih, Stotzer, & Gutiérrez, 2013; Todd et al., 2011).

Other videogame-based experiments examined the role of avatar race on players' aggression, which had mixed results. To illustrate, Cicchirillo (2015) examined whether playing a violent game with an African American avatar would increase implicit biases on a modified IAT. Black participants who played a violent video game (as opposed to a non-violent game) with a Black avatar exhibited higher levels of anti-Black bias. This broadly aligns with previous research that found that White participants playing a violent video game as a Black avatar led to increased negative attitudes toward Blacks on both implicit and explicit measures (Yang, Gibson, Leuke, Huesmann, & Bushman, 2014). Conversely, Ash (2015) also examined the effects of violent gaming with a Black avatar on racial stereotyping but did not find any significant effects.

"White participants playing a violent video game as a Black avatar led to increased negative attitudes toward Blacks on both implicit and explicit measures"

An article in *Scientific Reports* considered how implicit racial bias may affect interactions with virtual ingroup and outgroup avatar partners as examined by studying hand kinematics. Using a sample of fourteen Caucasian participants engaging with avatars in realistic motor interactions, Sacheli et al. found that higher IAT scores of implicit racial prejudice were associated with greater differences in "visuo-motor interference" (i.e., circumstances in which "the execution of an action is facilitated by the concurrent observation of the same action and hindered by the concurrent observation of a different action" (Bortoletto, Mattingley, & Cunnington, 2013)) with the ingroup avatar as opposed to an outgroup avatar (Sacheli et al., 2015).

National and Ethnic Identity

Expanding beyond just a Black/White racial approach, more researchers are investigating implicit bias as it pertains to ethnic identity and/or national origin. (For other examples of this broadened scope from previous years of research, see Garza & Gasquoine, 2013; Yogeeswaran, Adelman, Parker, & Dasgupta, 2014.)

As a part of a review on ethnic and national identities, Devos and Mohamad measured the implicit associations of various ethnic groups and their perceptions of what it means to be an American (Devos & Mohamed, 2014). Findings suggested that the implicit association between American and White is both pervasive and complex. Moreover, these implicit associations had varying effects on individuals' identification as an American as moderated by their ethnicity and political ideology. Taken as a whole, this article helped disentangle the research on the intersection of implicit bias and national identity.

Further developing the discourse on implicit bias in America, Levinson et al. (2015) conducted empirical research on the implicit biases of Native Hawaiians toward four groups of Hawai'i inhabitants: European Americans, Japanese Americans, Native Hawaiians, and Micronesians. Implicit biases (both attitudes and stereotypes) were measured via the IAT, and explicit attitudes were measures through multiple questionnaires. Among other findings, IAT data demonstrated that Hawaiian participants held negative implicit biases toward Micronesians in contrast to positive implicit biases towards Japanese Americans. Moreover, implicit attitudes toward Caucasians and other native Hawaiians reflect more complex trends that did not reflect statistical significance. For example, Hawaiian participants implicitly associated with Caucasians with positive stereotypes and native Hawaiians with negative stereotypes. However, this pattern reversed when implicit attitudes were measured; participants generally held more positive implicit attitudes toward Native Hawaiians than Caucasians. This pattern illustrates a possible divergence between attitudes and stereotypes when describing the implicit associations Hawaiian participants hold toward different groups.

Finally, moving beyond the U.S. context, a 2015 study by Lowes and colleagues utilized a variation of the IAT (the single target IAT, or ST-IAT) to examine the implicit attitudes of participants from the Democratic Republic of Congo towards four ethnic groups: Luluwa, Luba, Lele, and Kuba (Lowes, Nunn, Robinson, & Weigel, 2015). Beyond providing evidence that the ST-IAT is a valid measure of implicit ethnic attitudes, the findings suggested implicit preferences for one's own ethnic group, which also aligned with own-ethnicity self-reported explicit attitudes. Notably, though, the level of implicit own-ethnicity bias was found to be less than what was uncovered by self-report through survey questions (Lowes et al., 2015). Considering the broader use of the IAT and its variants, Lowes and colleagues reflected that the study of ethnicity in Africa and other locations might benefit from inclusion of IATs.

Implications for Philanthropy

The Spring 2015 issue of *Responsive Philanthropy*, a publication of the National Committee for Responsive Philanthropy, considered how implicit biases might play a role in philanthropy and grantmaking. powell (2015) focused on the ways in which implicit biases can undermine the best of intentions even for those in the philanthropic sector who avow commitments to principles such as equity and fairness, reflecting that the "philanthropic community must ensure that implicit biases do not betray the conscious values at the root of philanthropic work" (powell, 2015, p. 13). Two other articles focused on how implicit biases can create blindspots in grantmaking, such as in philanthropy related to Native Americans and in the context of failing to address gender norms in gender equity philanthropy (Echo Hawk, 2015; Wilchins, 2015). Finally, Bester (2015) discussed how public dialogue around race that addresses structural and institutional factors remains incomplete if not accompanied by considerations of how implicit bias may also be contributing to these dynamics (Bester, 2015).

In light of the emerging field of direct philanthropy, Jenq and colleagues studied how microfinance lenders are biased toward attractive, lighter-skinned, and non-obese borrowers. Online peer-to-peer microfinance was studied through Kiva.org, a direct philanthropy website, to determine if systematic lender biases affect charitable decision-making. The analysis looked at the 6,977 loans posted on Kiva during June 2009. From 2007 to 2009, the average loan amount requested was $701 and the median amount was $550 (Jenq, Pan, & Theseira, 2015). Looking at time to funding as the outcome variable (which is positively correlated to the requested loan amount), Jenq et al. found that donor bias impacted time to funding (Jenq et al., 2015). Borrowers who were viewed as one standard deviation more overweight and darker skinned were treated by lenders as if they requested loans that were $65 and $40 more, respectively. A borrower who was assessed as one standard deviation more attractive was treated as if they requested a loan that was $60 less (Jenq et al., 2015). The findings did not support "statistical discrimination on observable borrower characteristics that are correlated with unobserved underlying productivity or default risk" (Jenq et al., 2015, p. 236). Thus, Jenq et al. determined the disparity in time to full funding was the result of implicit bias. In support of this hypothesis, researchers found less experienced lenders, who lack task experience, are more likely to display bias when funding loans (Jenq et al., 2015). Additionally, as demand for credit increased, which can lead to additional cognitive burdens, less experienced lenders were more likely to display bias when funding loans (Jenq et al., 2015).

Neuroscience

Several 2015 articles continued exploring implicit bias using the insights gleaned from neuroscience.

As a portion of a larger article conducted by Luo et al. (2015), results revealed genetic differences related to implicit racial bias and perceptions of outgroup member pain. Sixty Chinese individuals assessed pain perceptions of Asian (ingroup) and White (outgroup) targets by pressing a button when images were displayed during an fMRI. Results demonstrated genetic differences for racial ingroup bias as evidenced by patterns of activation of the anterior cingulate cortex and supplementary motor area (ACC/SMA), an area of the brain associated with empathy. Additionally, activity of the ACC/SMA was predicted by IAT scores for individuals with the G/G genotype for the Oxytocin Receptor (OXTR) gene but not individuals with the A/A genotype (Luo et al., 2015). Reflecting on the significance of this contribution to the literature, Luo and colleagues noted, "Taken together, our findings provide the first neuroimaging evidence for a genetic association with the racial ingroup bias in ACC/SMA activity during empathy for others' suffering" (Luo et al., 2015, p. 29).

Other work by Cheon, Livingston, Chiao & Hong (2015) examined the influence that serotonin transporter polymorphism (5-HTTLPR) may have on implicit racial attitudes. In particular, long allele variations (L/L) are related to higher emotional regulation; in contrast, the short allele variations (S/S and S/L) are associated with higher emotional reactions to threatening stimuli and were predicted to relate to higher levels of implicit racial bias (Cheon, Livingston, Chiao, & Hong, 2015). To assess this hypothesis, 109 White participants completed the Black-White IAT, an explicit racial attitude questionnaire, and provided a saliva sample for researchers to examine genetic information. Results demonstrated that individuals who carried the S/S allele exhibited a higher degree of implicit bias on the Black-White IAT compared to individuals who possessed the L/L allele variation, thereby confirming the authors' hypothesis. Looking at the explicit attitude questionnaire, no relationship was found between these variations and explicit racial basis. Notably, the authors summarize the significance of their work when they stated that "the present findings are the first to our knowledge that have identified specific genes that may contribute to implicit or automatically activated racial biases" (Cheon et al., 2015, p. 37).

Connecting to prior work that found that the beta-adrenoceptor antagonist propranolol significantly reduced implicit racial bias while not affecting explicit biases (Terbeck et al., 2012), a new article in *Psychopharmacology* further examined the neurological and behavioral effects of propranolol on implicit racial bias (Terbeck et al., 2015). To assess this phenomenon, 40 White participants were either administered propranolol (which reduces noradrenaline-related activity) or a placebo. Participants then took part in a fMRI task followed by the race IAT.

The fMRI task exposed participants to unfamiliar faces of Black and White individuals. Results demonstrated a significant reduction of implicit racial bias for those who received propranolol via reduced activation of the fusiform gyrus and thalamus (Terbeck et al., 2015). Results implicated noradrenaline activity in the fusiform gyrus as a neural mechanism underlying implicit racial bias.

An experiment assessing the neural mechanisms behind behavioral mimicry—copying the mannerisms of others—explored how race and emotion affected participants' neural and behavioral responses (Rauchbauer, Majdandžić, Hummer, Windischberger, & Lamm, 2015). Forty-one European-Caucasian students participated in a behavioral task during an fMRI analysis. The task assessed mimicry behavior during trials that included targets who displayed different emotions (happy vs. sad) and were of different racial groups (Black vs. White). Results demonstrated two distinct neural processes occurred when participants modulated mimicry responses, as the process of mimicry modulation activated different brain areas when exposed to happy faces vs. faces of another race. Taken altogether, this study further helped explain the intersection between implicit actions and social cognition from a neurological perspective.

Finally, in an article that examined the relationship between affect, memory, and task performance, researchers Storbeck, Davidson, Dahl, Blass and Yung included studies that specifically addressed implicit racial bias (Storbeck, Davidson, Dahl, Blass, & Yung, 2015). In one study, 82 college students participated in a weapons identification task (see B. K. Payne, 2001). Results demonstrated that those who had depleted cognitive resources (via incongruent affect/memory motivations and demands) showed higher anti-Black bias. This aligns with previous work by B. K. Payne (2005) that found an increase in automatic anti-Black biases when psychological resources were strained.

Youth

Given the prevalence of implicit biases, research inquiries extend beyond adult populations to efforts trying to understand their development and operation in youth (see, e.g., Baron & Banaji, 2006; Newheiser & Olson, 2012; Nosek et al., 2007; Rutland, Cameron, Milne, & McGeorge, 2005; Xiao et al., 2014). Taking this line of inquiry to an even younger age, a 2015 study examined a unique form of implicit racial bias in infants—preferential looking at members of the same race (Liu et al., 2015). The study analyzed factors behind infants' visual preference for same-race faces in order to understand how this bias develops. The article examined this preferential learning among Chinese infants by using an eye-tracking device paired with images of same-race and other-race faces (for more on the use of eye-tracking devices, see Beattie, 2013). Results replicated other studies, which indicated that 3-month-old infants exhibit a same-race looking bias; however, once infants were nine months old, they looked at other-race faces more than

own-race faces, thus reversing the trend. The researchers describe this shift in preference as a developmental change in automatic looking behavior from an emphasis on familiarity to novelty as one ages.

A press release for a follow up study conducted by the same team applied this finding to addressing unconscious bias in social-preferences (Manser, 2015). In addition to findings from the last study, the research indicated that infants engage in visual narrowing (i.e., not being able to distinguish individual differences in other-race faces) over the preference shift occurring from age three months to nine months. The authors aimed to combat this visual narrowing with repeated exposure to faces of different races. By doing so, they found a significant reduction in preference for own-race faces in four to six-year-olds. Together these two studies highlight an important link between perceptual development, social development, and unconscious biases.

Societal Impacts, Perspectives, and Social Issues

A few studies from 2015 broadly grapple with how implicit biases can affect individuals' understanding of the social world (individually or generally), as well as in the context of broader community dynamics.

Looking at the intersection of implicit bias and the experience of prejudice, Barreto and Ellemers (2015) examined whether members of a stereotyped group over- or underestimate the extent to which they experience prejudice. The piece emphasized the role of implicit bias in perpetuating stereotypes without the knowledge of the actor or target. Thus, the authors concluded that members of undervalued groups underestimate the extent that they are targets of discrimination given that instances of prejudice, such as implicit bias, may go unnoticed. In contrast, overt discrimination or a salient power hierarchy (i.e., organization structure) is more easily accessible to notice.

By acknowledging that individuals often subscribe to views on social problems that confirm their view of the world, Drakulich (2015a) assessed the extent to which individuals' implicit and explicit biases related to the frames that they used to describe social issues such as labor market inequalities and crime. In addition to using data from the 2008–09 ANES (American National Election Studies) Panel Study, researchers also administered the Affect Misattribution Procedure (AMP) to assess implicit attitudes toward African Americans and Whites. Results from non-Hispanic White respondents demonstrated that implicit and explicit racial bias related to frames of labor market inequality and crime. Among the findings, the author found that racial bias (both explicit and implicit) related to framing social problems in terms of individuals' disposition as opposed to systemic discrimination. Considering the implications of this work, Drakulich noted that the use of implicit and explicit measures of racial bias "provides evidence of a larger

persistent but hidden role of racial bias that continues to influence preferences for particular understandings of social problems" (Drakulich, 2015a, p. 412).

Closely related to this, a second 2015 article by Drakulich sought to identify how both implicit and explicit racial bias affects how individuals understand support social policies such as those related to economic inequalities or punitive criminal justice policies. Among his findings, Drakulich found that implicit racial bias was a key aspect of non-Hispanic Whites' motivation to oppose policies addressing racial inequalities and support criminal justice policies such as the death penalty (Drakulich, 2015b). He advocated for the increased use of measures of implicit racial affect in studies that examine punitive attitudes, as "implicit measures may help us pull back the curtain on a larger lingering role for racial bias in the way the public views public policies" (Drakulich, 2015b, p. 562).

Finally, in a law review article on the societal implications of implicit bias, Lawrence III (2015) argued that racism should be viewed as a social illness rather than a collection of individual acts of discrimination. The analysis included three local texts specific to Hawai'i in order to demonstrate that implicit bias can affect an entire community. These texts included a news article about a judicial hearing, an article on the implications of implicit bias in the context of educational equity in Hawai'i, and a story about a college halftime satirical performance of a music video that generated conflict among the student body. With an eye toward unconscious bias in the context of the cultural meaning of these texts, Lawrence III argues that "the 'bad guy hurts victim' story of fault and causation keeps us from seeing and recognizing our collective, shared biases, from talking with one another about them, from seeing how they harm us all and from working together to heal ourselves" (Lawrence III, 2015, p. 459).

"racism should be viewed as a social illness rather than a collection of individual acts of discrimination"

Scholarly Dialogue

A few authors' publications allowed them to engage in direct scholarly dialogue with their peers in the field to discuss questions related to their and/or their colleagues' work.

The *Journal of Personality and Social Psychology* included one such dialogue, which, in this case, was actually a continuation of previous discourse related to the IAT's predictive validity. The central topic undergirding this discussion was a discrepancy in average predictive validity correlations identified in previous meta-analyses. Greenwald, Poehlman, Uhlmann, and Banaji (2009) had calculated an average predictive validity correlation of 0.235 for IAT measures on Black-White implicit associations, whereas similar work by Oswald, Mitchell, Blanton,

Jaccard, and Tetlock (2013) yielded a lower predictive validity correlation (0.148). To understand this contrast, Greenwald, Banaji, and Nosek (2015) reexamined these meta-analyses and determined that the contrast could be explained by the two research teams' differing approaches to including studies and effect sizes. Greenwald and colleagues also countered Oswald et al. (2013)'s judgment of effect sizes by noting that "small effect sizes affecting many people or affecting individual people repeatedly can have great societal significance" (Greenwald, Banaji, & Nosek, 2015, p. 560).

Responding to these conclusions by Greenwald et al. (2015), Oswald, Mitchell, Blanton, Jaccard, and Tetlock (2015) delineated points of agreement and contrast, the latter of which included detailed points about differing analytical approaches to researchers' coding schemes and a rebuttal of Greenwald and colleagues' (2015) assertion that Oswald et al. (2013) engaged in sample splitting. Turning to the question of effect sizes, further considerations by Oswald and colleagues (2015) led them to remain at odds with Greenwald and colleagues' conclusions on the real-world consequences of small IAT effect sizes. Oswald et al. contrasted lab-based findings with these dynamics and asserted that "the challenge for future IAT researchers is to demonstrate empirically that the small effects found in research laboratories translate into consequential real-world effects" (Oswald et al., 2015, p. 565).

Another scholarly dialogue occurred in *Psychological Science* regarding a 2013 article by Kubota et al. on the Ultimatum Game in which players accept or reject splits of a $10 sum proposed by another individual. Pictures of a Black, White, or "other-race" person accompanied each offer. Findings indicated that participants accepted more offers proposed by White proposers versus Black and accepted lower value offers from White proposers than Black. Connecting this to implicit bias, the research team determined that greater levels of implicit race bias against Blacks predicted participants' likelihood of accepting fewer offers from Black as opposed to White proposers, and this was true even after controlling for various factors (Jennifer T. Kubota, Li, Bar-David, Banaji, & Phelps, 2013).

Although researchers found a difference between acceptance rates from proposers who were either Black or White, in a 2015 article, Arkes argued that is 1% difference was "minuscule" and did not result in a significant difference when only White participants were isolated (Arkes, 2015, p. 245). Moreover, he posited that variability in reaction time data and IAT scores were not sufficient to provide meaningful insights.

Following Arkes's commentary, the original authors issued a response that restated their primary interest in examining how racial information affected decision making (Jennifer T. Kubota, Li, Bar-David, Banaji, & Phelps, 2015). Kubota and colleagues reiterated the importance of participants' responses towards targets, even if differences in money earned did not yield a large effect. Thus, the authors

affirmed their 2013 findings and further emphasized the importance of small effects in this line of research.

Other Scholarship

A few additional pieces provided notable contributions.

Providing a fresh angle on implicit ingroup attitudes, Rudman and McLean (2015) examined the interaction between implicit racial attitudes and attractiveness stigma; that is, a deviation from one's ingroup standards of attractiveness. Attractiveness stigma has been seen as a proxy for ingroup esteem since Kenneth Clark's famous doll test (For information on the seminal piece, see K. B. Clark & Clark, 1939). Thus, Rudman and McLean explored the cognitive underpinnings associated with preference for physical attributes associated with Black vs. White faces in two studies.

In study one, a group of Black participants each took the race IAT and the aesthetic IAT, the latter being a test that utilizes the same IAT procedure but uses words like "ugly," "homely," "plain," etc. to categorize faces. Following both IAT administrations, participants answered two questionnaires related to standards of beauty for Black individuals; one asked participants to rate pictures of Black women with treated versus natural hairstyles, whereas the second asked participants to rank beauty products that elicit "racial capital" (e.g., hair relaxers and skin whitener). Findings demonstrated that both IATs predicted responses on the hair treatment questionnaire (i.e., those with a higher implicit pro-White bias had a higher preference for chemically treated hair).

For a second study, Black and White participants took the aesthetic IAT and answered questionnaires regarding their experience with intergroup contact. Results demonstrated that Whites showed more ingroup bias than Blacks did. Moreover, only when controlling for Black attractiveness (i.e., when images of Black individuals were more attractive than pictures of White individuals) was the pro-White bias mitigated on the aesthetic IAT. However, Whites still implicitly preferred White faces, even when attractiveness was higher for images of Blacks. In terms of intergroup contact, attractiveness stigma predicted aesthetic IAT results beyond level of intergroup contact. The authors discussed these results as an indication that appearance stigma may be an important contributor to racial asymmetries in automatic ingroup biases (Rudman & McLean, 2015).

Examining how different identities impact automatic social categorization, Smith, LaFrance, and Dovidio (2015) focused on the intersection of race, gender, and emotion in a two-part study. In experiment one, participants completed a categorization task with pictures of Black and White faces that were neutral, happy, or angry. Participants were randomly assigned to conditions where they grouped

Researcher Interview

Jacqueline S. Smith is a Postdoctoral Research Associate at the University of Massachusetts Amherst. She received her M.S., MPhil., and Ph.D. in social psychology from Yale University. Her research focuses on how stereotypes about social categories based on gender, race, and status influence the perception and judgments of emotional expressions.

Jacqueline's work has been recognized by the National Science Foundation and the Society for Personality and Social Psychology. Smith's dissertation examined intergroup biases in judgments of emotional appropriateness and was supported by the Society for the Psychological Study of Social Issues. The interview focuses on Smith's recent article: "Categorising Intersectional Targets: An "either/and" Approach to Race- and Gender-Emotion Congruity."

What inspired you to explore this question?

I was initially interested in the contradictory expectations for Black women's emotions in the literature: based on their gender, anger is an unexpected, stereotype-incongruent emotion, but based on their race, anger is expected and stereotypical. This seems to put Black women in a difficult position in which they have to navigate competing expectations. Furthermore, it seemed likely that people hold unique expectations about the emotions of Black women. Research on implicit associations has tended to examine only one category at a time, and the results are generalized to all members of that category. However, people belong to multiple social categories whose combinations may elicit unique expectations.

What do you see as some of the new directions within the field of implicit bias research?

I think more and more researchers are recognizing the importance of taking into account the multiple social categories that people belong to and the unique mechanisms and consequences associated with different types of categories (e.g., race, gender, social class, sexual orientation, weight). I also think more questions are being asked about the implicitly biased individual: To what extent are individuals aware of their bias or potential to be biased? Should individuals be held morally responsible for their bias or biased behavior?

How would you suggest people/ organizations use the findings of your study to mitigate the operation of unwanted biases in their lives and/or institutions?

Our work highlights the fact that people have complex "pre-programmed" expectations for others based on the social categories they belong to that may lead to the same behavior by different individuals being interpreted in drastically different ways. Thus, when evaluating the subtle behaviors of others (e.g., "Was that anger called for?" "Does she need to smile more?"), people should ask themselves, would I make the same judgment for a person of a different race or gender?

Smith, J. S., LaFrance, M., & Dovidio, J. F. (2015). Categorising Intersectional Targets: An "either/and" Approach to Race-and Gender-Emotion Congruity. Cognition and Emotion, Online first 15 Sept 2015.

faces according to race or gender, and researchers measured reaction times. When asked to group by gender, people categorized angry male faces faster than angry females face; when grouping by race, participants were slightly quicker to categorize Black vs. Whites regardless of their expression. Gender had no effect in the race condition, and race had no effect in the gender condition, thus demonstrating that the effect on emotion occurred only when the either race or gender was salient.

Participants followed the same procedure in a second experiment by Smith and colleagues but categorized faces by emotion so that neither race nor gender was more salient. Individuals categorized anger more slowly than neutral faces for White females but not Black females (where categorization of angry and neutral faces was equal). However, participants categorized anger faster than neutral expressions for both Black and White males. Thus, anger recognition was predicted by gender, but was inconsistent by racial group, as anger was positively associated with Black men but not Black women. Moreover, participants responded faster to happy faces (compared to neutral) for both Black and White females. These findings demonstrated the additive effects of race and gender as responses toward Black women differed from both Black men and White women and suggested examining race and gender separately is insufficient to understand how humans process social cues for multiple identities. Broadly speaking, this work adds to the literature regarding automatic social cognition and connects to earlier work by Hugenberg and Bodenhausen (2003) on perceptions of facial emotions such as anger.

Building on literature about how Black-sounding names are discriminated against in numerous contexts (see, e.g., Bertrand & Mullainathan, 2004), Giulietti, Tonin, and Vlassopoulos (2015) conducted an email correspondence study of 19,079 public service providers in the United States to determine if the race of the sender impacted the response rate. The correspondences solicited information about accessing services from school districts, local libraries, sheriff offices, county clerks, county treasurers, and job centers (Giulietti et al., 2015). Researchers used a 2×2 experimental research design with four possible treatment combinations of a White-sounding name or a Black-sounding name in conjunction with a simple or a complex question email. The researchers found that emails signed with Black-sounding names had a response rate of 68%; in contrast, emails with White-sounding names had a response rate of 72% (Giulietti et al., 2015, p. 4). Additionally, emails with Black-sounding names were less likely to receive cordial responses with salutations such as “Hello,” “Hi,” “Dear,” “Mr.,” and “Good,” (Giulietti et al., 2015, p. 14). The disparities existed even when the email indicated the sender was not of a low socioeconomic status, so statistical discrimination is unlikely (Giulietti et al., 2015, p. 15). The approach of this study aligns well with the design of Milkman et al. (2015) in which researchers sent email meeting requests to professors from fictitious prospective graduate students and found that the professors’ response rates varied by perceived race and

Author Reflection

Victoria W. Jackson *on "Racial Discrimination in Local Public Services: A Field Experiment in the US"*

In their paper, "Racial Discrimination in Local Public Services: A Field Experiment in the US," Giulietti, Tonin, and Vlassopoulos addressed implicit racial bias in the provision of information by public service providers in the United States. The researchers found that emails requesting information about how to access a public agency's services had a lower response rate when the sender had a Black-sounding name versus a White-sounding name. The racial disparities found in the response rates to the emails struck me because of the broad implications it has on access to important public services for Black Americans. One of the biggest barriers to accessing any service is lack of information. The paper highlights literature showing that information about a service impacts decision-making and take-up rates (Giulietti, Tonin, & Vlassopoulos, 2015). Experiences of discrimination in public services can lead to feeling alienated from available services and civic life. Also, this could place an additional burden on Black Americans requiring more of their time, energy, and resources to access basic information.

There is a long history of Black Americans being denied access to and resources from public agencies. When I read this study, I viewed that history as being inextricably linked to these present-day findings. The de facto discrimination that was uncovered is evidence of the subtle ways Black Americans are denied full and equal access to public institutions. Public organizations need to commit to fulfilling their obligations under federal civil rights law.

Additionally, the disparities in responses may be indicative of racial discrimination experienced by Black people actively receiving service from these public services. The vast majority of emails were sent to school districts, sheriff's offices, and libraries. In particular, school districts and sheriff's offices are very influential agencies. Research and the experiences of Black children across the United States have shown there is rampant racial discrimination in schools impacting student achievement and school discipline. Current events and data have shown that law enforcement agencies are engaged in racially biased policing against Black Americans. Fortunately, many of these public service providers are taking steps to mitigate implicit racial bias in their agencies.

Giulietti, C., Tonin, M., & Vlassopoulos, M. (2015). Racial Discrimination in Local Public Services: A Field Experiment in the US: Institute for the Study of Labor. http://ftp.iza.org/dp9290.pdf.

gender of the sender. While Milkman and colleagues were unable to distinguish the precise influence of implicit as opposed to explicit bases, they did note that unobtrusive approaches, such as in these studies where email recipients were unaware they were being studied, are important for helping us come closer to understanding "the extent that unconscious bias may be contributing to discrimination" (Milkman et al., 2015, p. 1679).

Continuing the dialogue on the effects of dehumanization, Kteily, Bruneau, Waytz, and Cotterill (2015) explored the relationship between subtle (implicit) vs. blatant (explicit) racial dehumanization. The researchers found that both subtle and blatant dehumanization related to differences in intergroup outcomes; however, blatant dehumanization was typically the best predictor of the two.

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6 Conclusion / Success Stories

"What I do know is that if we're going to take conversations about race to the next level, then implicit bias must be at the heart of those conversations."

DeAngleo Bester

Despite the considerable academic research dedicated to mitigating the influence of implicit biases at both individual and institutional levels, the task of on-the-ground implementation of these strategies and ideas can feel daunting to many. Nevertheless, several organizations have had success reducing the harmful impacts of implicit bias on their institutional goals. From policing to tech startups, many organizations are making collective effort to guard against bias. Recognizing the complexity of this challenge, this chapter highlights stories from organizations and entities that have had some success in addressing implicit bias. While none of these examples is meant to be prescriptive, we highlight them to spark ideas on how other organizations may also consider tackling this issue.

The Women's Fund of Central Ohio (Women's Fund) is a public foundation dedicated to gender equality for women and girls in central Ohio. The foundation focuses on four priority areas: gender norms, economic self-sufficiency for women, leadership for women, and life skills for girls (Women's Fund of Central Ohio). The Women's Fund partnered with the Kirwan Institute for the Study of Race and Ethnicity to incorporate implicit bias in their work around gender norms. Beth Morrow Lonn, Chief Grants and Operating Officer for the Women's Fund, was interviewed to learn how knowledge of implicit bias has changed how the Women's Fund addresses their priority areas. Ms. Lonn noted that she was first introduced to implicit bias when she attended a conference sponsored by Philanthropy Ohio where Sharon Davies, Executive Director, and Cheryl Staats, Senior Researcher, of the Kirwan Institute presented on implicit bias (Lonn, 2016).

As a result of this partnership, The Women's Fund staff grew to understand that implicit bias, in conjunction with other factors, influences gender norms and their persistence. The broad impact of gender norms affects children and adults of any gender (Lonn, 2016). The Women's Fund embraced this knowledge and integrated implicit bias into their three-year strategic plan. Moreover, the organization is conducting research with the Kirwan Institute using an implicit bias lens, which will help guide the organization's efforts in the future. The research project is using an intersectional approach that considers implicit gender bias as it affects many identity groups (Lonn, 2016).

Implicit bias has been included in trainings for board members, staff, and grantees. The feedback from grantees about the inclusion of implicit bias in trainings has been overwhelmingly positive. Ms. Lonn noted that there has been an "implicit bias ripple effect;" many grantees have become interested in including implicit bias into their work of their respective organizations following this implicit bias education (Lonn, 2016). Broadly speaking, the Women's Fund views implicit bias a necessary component of their gender equality work.

Amherst Public School District implemented a plan to reduce racial disparities in school discipline. The plan addresses implicit racial bias as a contributing factor in the disproportionate rate of suspensions for Black and Latino students. "According to state data, Black students last year made up 7 percent of the Amherst student body and 22 percent of suspensions. Latinos are 13 percent of the school and 29 percent of suspensions" (Brown, 2015). Moreover, approximately 85% of teachers in Amherst are White (Brown, 2015). Michael Burkhart, Amherst school equity task force member and former consultant for corporations on improving diversity, cited implicit racial bias as a factor noting, "We all get the same message from the media, who's dangerous," he says, "and we know this starts around 6th grade. As Black and Brown boys start to get bigger, especially with White women teachers, it takes on a whole different dimension" (Brown, 2015). The district took several actions steps to improve school discipline outcomes. First, it instituted in-depth teacher trainings about stereotypes and behavior. Second, administra-

tors changed the student code of conduct so several behaviors like leaving the classroom or swearing at a teacher no longer result in automatic suspensions. After the first year with the new changes, suspensions decreased from 84 to 9 at the same point in the school year, though numbers disaggregated by race have not been released as of April (Brown, 2015). Amherst Public Schools is just one example of a district that has considered racialized discipline disparities in the context of implicit bias. For information on other efforts, see Capatosto (2015a) and Contractor (2014).

Duke University began their Black Faculty Strategic Initiative in 1993 with the goal of doubling the number of Black faculty from 44 to 88 in ten years. Within nine years, Duke had accomplished this goal, with 138 African American Faculty members in tenure and non-tenure track positions in 2012 (Flaherty, 2015; Mock, 2013). To increase diversity, in addition to traditional strategies, Benjamin Reese Jr., Vice President and Chief Diversity Officer at Duke University and president of the National Association of Diversity Officers in Higher Education, noted the importance of including existing faculty in conversations on how implicit bias can shape hiring decisions and recruitment approaches (Flaherty, 2015). Moreover, as a part of their Office for Institutional Equity, Duke also provides faculty and staff a Diversity Toolkit, which includes an implicit bias "coaching video"(Office for Institutional Equity at Duke University).

Royal Bank of Canada CEO Gordon Nixon committed the bank to increasing gender, cultural, and professional diversity before the end of his more than 12-year tenure (Ovsey, 2014). Embracing workplace diversity as good for business, RBC generated $58 billion in profit, while its share price rose 164% while Nixon was CEO (Financial Post Staff, 2013; Ovsey, 2014). In addition to diversity, the bank is now focusing on inclusion, particularly at its executive level. Zabeen Hirji, chief human resources officer, said, "Diversity is about mix. *Inclusion* is really putting that mix to work for you"(Ovsey, 2014). RBC is working to make their executive level reflect the gender and racial/ethnic demographic composition of their general workforce (Ovsey, 2014). Notably, informing these diversity and inclusion efforts is implicit bias training. As part of this, esteemed implicit bias scholar, Dr. Mahzarin Banaji, spoke with senior leadership and other employees about implicit bias as part of an effort "to really get people to become self-aware" and realize "that having a bias doesn't make you a bad person" (Ovsey, 2014). After becoming aware of implicit bias, one leader noted, "I was putting together a team to be working with this important client and as I was looking at people I was going to select, I realized that I was actually looking for somebody like me" (Ovsey, 2014). Improved processes in conjunction with changes in organizational culture are being used to achieve diversity and inclusion goals. For instance, hiring for senior level positions is done by the senior management team instead of one person. Diversity is viewed as part of the talent management strategy to nurture potential executive-level talent early on their careers (Ovsey, 2014).

Google is using "bias-busting" workshops in their efforts to improve the systemic lack of diversity in the technology industry (Bock, 2014; Guynn, 2015). The workshops have taught thousands of employees about implicit bias and how to address it in the workplace. Since 2013, Google has used a 90-minute lecture to train nearly half of their 56,000 employees worldwide (Guynn, 2015). Facing many of the diversity challenges that the tech industry experiences broadly, men comprise 70% of Google's workforce, and African American and Latino employees are severely underrepresented, at two and three percent respectively (Guynn, 2015; Luckerson, 2015). A year after releasing its workforce demographics, Google released another report reflecting a small degree of progress; however, women in both technical and leadership positions increased by only 1 percentage point from the previous year (Kokalitcheva, 2015). African American and Latino employee representation did not change, but the hiring of African Americans and Latinos for technical and non-technical positions "has outpaced overall hiring in those roles" (Kokalitcheva, 2015). In conjunction with implicit bias training, Google has enacted changes that can lead to meaningful improvements in diversity like doubling the number of schools from which they actively seek recruits (Luckerson, 2015).

The Kalamazoo Police Department in Michigan implemented notable reforms after a report showed the staggering amount racial profiling done by the department (Chiles, 2015). Lamberth Consulting, an organization that studies racial profiling, analyzed police stops at 12 locations in Kalamazoo from March 2012 to March 2013. The researchers found that police stopped Black motorists more than twice as often as they stopped White motorists. However, despite searching, handcuffing, and arresting more Blacks, Whites were more likely to be found with contraband such as guns and drugs (Chiles, 2015). The report led to new policies that aimed to reduce racial profiling and build trust between Black residents and the police. The Department partnered with Professor Lewis Walker, founder of Western Michigan University's Walker Institute for the Study of Race and Ethnic Relations, who helped the force understand implicit bias (Chiles, 2015). Public Safety Chief Jeff Hadley required mandatory racial bias training and mandated all officers to document probable cause for every search they conduct. Officers were also instructed to use a more personalized and community-oriented approach to policing by walking neighborhoods and talking to residents. As a result of these efforts, overall crime has declined by 7%, all while officers have initiated fewer traffic stops (Chiles, 2015). Chief Hadley acknowledges that ending racial profiling and repairing the strained relationship between Black residents and police and will take time but acknowledges progress is already being made to, in his words, "achieve crime reduction [while] at the same time maintaining the relationship with the community" (Chiles, 2015). This is just one example of numerous police agencies from across the U.S. that has received implicit bias education, many from the Fair and Impartial Policing Training Program.

The Ohio State University Medical School has increased their percentage of Underrepresented in Medicine Minorities (URM) by 6 points since 2011 (Capers, 2014). In addition to implementing a holistic admissions review process in 2011, the admissions committee has taken steps to guard against their implicit biases influencing their admissions decisions. In 2012, the Ohio State University Medical School admissions committee took the Black-White IAT, the Gender-Career IAT, and the Gay-Straight IAT (Capers, 2014). The aggregate results for the Black-White IAT showed that despite only 10% of men and women on the admission committee reporting an explicit White preference, 52% of women and 69% of men had an implicit White preference (Capers, 2014). During the 2012–2013 admissions cycle, committee members were asked, "I am conscious of my individual IAT results when I interview medical school candidates?" Reflecting the impact of raising awareness of implicit bias, 45% responded "strongly agree" or "agree" (Capers, 2014). The 2013 entering class was 20% URM, which is three percentage higher than the previous year (Capers, 2014). While it cannot be said that taking the IAT and awareness of results directly caused the increase in URM students, understanding and guarding against implicit racial bias has been a success part of the Ohio State Medical School to increase the enrollment of URM students.

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