Implicit Bias

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WHAT IS IMPLICIT BIAS?

A lifetime of experience and cultural history shapes people and their judgments of others. Research demonstrates that most people hold unconscious, implicit assumptions that influence their judgments and perceptions of others. Implicit bias manifests in expectations or assumptions about physical or social characteristics dictated by stereotypes that are based on a person's race, gender, age, or ethnicity. People who intend to be fair, and believe they are egalitarian, apply biases unintentionally. Some behaviors that result from implicit bias manifest in actions, and others are embodied in the absence of action; either can reduce the quality of the workforce and create an unfair and destructive environment.

EXPLICIT VS. IMPLICIT BIAS

Explicit bias involves consciously held, self-reported attitudes that shape how people evaluate or behave toward members of a particular group. Explicit bias is accessible – it can be measured with straightforward questions in surveys, such as "do you agree or disagree with the statement that boys are better than girls at math. It can also be combated with logic and discussion because it is acknowledged by the person expressing the bias. *Implicit* bias, in contrast, is activated automatically and unintentionally, functioning primarily outside of a person's conscious awareness. Therefore, measuring implicit bias requires more subtle tools, and combating it is challenging.

IMPLICIT BIAS: INDIVIDUAL AND INSTITUTIONAL

Implicit bias is usually thought to affect individual behaviors, but it can also influence institutional practices and structures.[1] For example, many institutions adhere to certain practices that disadvantage a subset of the institution's members, such as holding faculty meetings at a time when parents are most likely to be picking up children at day care, which discriminates against parents of young children. Institutional bias is usually not deliberate – schedules, for example, were often established at a time when most faculty were men married to women who stayed home with children. Thus, it is important to consider how past biases and current lack of awareness might make an institution unfriendly to members of certain demographic groups.

MEASURING IMPLICIT BIAS

Two methods are used to assess implicit bias. The Implicit Association Test (IAT) is commonly used to measure implicit bias in individuals. The IAT measures the strength of associations between concepts (e.g., black people, old people, or gay people) and evaluations (e.g., good or bad) or characteristics (e.g., athletic, smart, or clumsy). The IAT is based on the observation that people place two words in the same category more quickly if the words are already associated in the brain. For example, the rate at which a person can link the words "black" or "white" with "good" or "bad" indicates their implicit bias. In this

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[1] NRC. (2006) *Beyond Bias and Barriers*. National Academies Press, Washington, DC.

way, the IAT measures attitudes and beliefs that people may be unwilling or unable to report.[2]

The second method of measuring implicit bias uses randomized experiments on populations of people. In these studies, each participant is asked to evaluate an item, which might be a resume, a photograph, or a job-performance description. One characteristic of that item is varied randomly. For instance, in one type of experiment all evaluators see the same resumé, which has been randomly assigned a woman's or a man's name. If the evaluators who have seen the resume with the man's name are more likely to hire the candidate, but they believe they have no a priori preference for a man or woman, then this is evidence that, on average, this group of evaluators is expressing implicit bias.

Experiments show that people are more likely to hire a male candidate for a science position,[3] rate the athletic ability of a person higher if they believe the person is African-American rather than white, and rate the verbal skills of a person higher if they think the writer is a woman rather than a man.[4] Some stereotypes are fictional, whereas some are real generalities about a demographic group, but either way, stereotypes can lead to flawed assessments of individuals. For example, when evaluators are asked to estimate heights of subjects standing in a doorway, the evaluators will typically underestimate the heights of the women and overestimate the heights of the men[5]. In this case, the bias is based on a true generalization – men are, on average, taller than women – but applying the bias that is derived from the generalization to assessments of individuals leads to erroneous estimates about them.

Institutional bias is often studied by comparing trends at institutions that have different policies, or by comparing outcomes within one institution before and after implementation of a policy. Many universities, for example, experienced an increase in the proportion of women faculty who received tenure after implementing a flexible tenure-clock policy. Although definitively establishing that the policy is responsible for the change is not possible, strong associations can suggest that certain institutional changes have positive outcomes on reducing institutional bias.[6] More research is needed to analyze the impact of policies and practices on institutional bias against various groups within the STEM community.

THE IMPACT OF IMPLICIT BIAS

Biases are destructive for those who apply them as well as those being judged based on stereotypes. Various experiments suggest that those who judge others through a biased lens can miss the chance to hire superior employees or appreciate the true talents of others, including their own children. For instance, parents rate the math abilities of their daughters lower than parents of boys with identical math performance in school.[7,8] College faculty are less likely to respond to an email from a student inquiring about research opportunities if the email appears to come from a woman than if the identical email appears to come from a man.[9] Science faculty are less likely to hire or mentor a student if they believe the student is a woman rather than a man.[10] In all of these experiments, expressions of bias are the same

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[2] https://implicit.harvard.edu/

[3] Moss-Racusin, C.A., Dovidio, J.F., Brescoll, V.L., Graham, M.J., and Handelsman, J. (2012) Science faculty's subtle gender biases favor male students. *Proc. Natl. Acad. Sci*. 109:16474-17479.

[4] https://www.zotero.org/groups/wiseli_library/items/collectionKey/4JXCFD2K

[5] Biernat, M., Manis, M., & Nelson, T. (1991) Stereotypes and standards of judgment. *Journal of Personality and Social Psychology* 66:5-20.

[6] NRC. (2006) *Beyond Bias and Barriers*. National Academies Press, Washington, DC

[7] Yee, D. K., & Eccles, J. S. (1988) Parent perceptions and attributions for children's math achievement. *Sex Roles*, 19, 317–333.

[8] Espinoza, P., Areas da Luz Fontes, A.B., and Arms-Chavez, C.J. (2014) Attributional gender bias: teachers' ability and effort explanations for students' math performance. *Social Psychology Educ*. 17:105-126.

[9] Milkman, K.L., Akinola, M., and Chugh, D. (2014) What happens before? A field experiment exploring how pay and representation differentially shape bias on the pathway into organizations. *J. Applied Psychology* 23:710-717.

[10] Moss-Racusin, C.A., Dovidio, J.F., Brescoll, V.L., Graham, M.J., and Handelsman, J. (2012) Science faculty's subtle gender biases favor male students. *Proc. Natl. Acad. Sci*. 109:16474-17479.

across faculty of different academic ranks, fields of study, and genders.

REDUCING THE IMPACT OF IMPLICIT BIAS

Bias Mitigation: Metrics of Success
The incidence of implicit bias has not changed over the last few decades, demonstrating the persistence of such bias across time and generations. Active interventions can sometimes reduce implicit bias, but the effects of such interventions are often temporary.[11] For instance, images of people who do not fit stereotypes (or, "counter-stereotypes") influence IAT scores for 24 hours, but then the effect fades. Instead of trying to eliminate implicit bias, a good goal is to reduce the impact of implicit bias on people's behavior by making people aware of the existence of implicit bias and encourage them to consciously evaluate their judgments about others in order to mitigate bias effects.

The IAT is useful in bias training as a tool to raise people's awareness about their own implicit biases, but it is not a perfect yardstick of bias mitigation. Even when outcomes indicate that the influence of bias on a person's behavior has been reduced, IAT scores may remain constant. Therefore, it is important to use behavioral and attitudinal metrics to evaluate bias-mitigation success.

Bias Mitigation: Bias Training and Awareness
Open discussion of implicit bias can reduce the impact of such bias on behaviors of members of an organization or community, as evidenced by several studies:
- A diversity-training session reduced implicit bias of men, although not of women.[12]
- An experiential learning device – playing a board game that generated discussion about bias – was more effective at reducing bias than reading factual information about bias, and the effect persisted when subjects were surveyed seven to eleven days later.[13]
- Implementation of a bias workshop during a search and hiring process increased the odds of academic departments hiring women. These workshops used an active-learning approach to engage the participants in discussions about bias research and how it can affect hiring decisions.[14]
- In a randomized controlled study, bias-workshop improved department climate and attitudes of faculty toward women measured three months after the workshop.[15]

Studies have also documented the influence of bias-mitigation approaches on behavior and decision-making:
- Organizational leadership can create greater value for equitable behaviors.[16]
- A multicultural approach to race reduces bias whereas attempts at "color blindness" can increase expressions of bias.[17]

[11] Lai, C.K., Marini, M., Lehr, S.A., Cerruti, C., Shin, E.L., Joy-Gaba, J., Ho, A.K., Teachman, B.A., Wojcik, S.P., Koleva, S., Frazier, R.S., Heiphetz, L., Chen, E., Turner, R.N. Haidt, J., Kesebir, S., Hawkins, C.B., Sartori, G., Schaefer, H.S., Rubichi, S., Dial, C.M.,Sriram, N., Banaji, M.R., Nosek, B.A. (2014) Reducing implicit racial preferences: I. A comparative investigation of 17 interventions. *Journal of Experimental Psychology* 143: 1765-1785.

[12] Jackson, S. M., Hillard, A. L., & Schneider, T. R. (2014) Using implicit bias training to improve attitudes toward women in STEM. *Social Psychology of Education* 17:419-438.

[13] Zawadzki, M. J., Danube, C. L., & Shields, S. A. (2012) How to talk about gender inequity in the workplace: Using WAGES as an experiential learning tool to reduce reactance and promote self-efficacy. *Sex Roles 67*: 605-616.

[14] Fine, E., Sheridan, J., Carnes, M., Handelsman, J., Pribbenow, C., Savoy, J., & Wendt, A. (2014) Minimizing the influence of gender bias on the faculty search process. *Advances in Gender Research 19*:267-289.

[15] Carnes, M., Devine, P. G., Manwell, L. B., Byars-Winston, A., Fine, E., Ford, C. E. & Sheridan, J. (2015) The effect of an intervention to break the gender bias habit for faculty at one institution: a cluster randomized, controlled trial. *Academic Medicine 90*:221-230.

[16] Valian, V. *Why So Slow? The Advancement of Women*. Cambridge, Mass., MIT Press; 2000.

[17] Richeson, J. A., & Nussbaum, R. J. (2004) The impact of multiculturalism versus color-blindness on racial bias. *Journal of Experimental Social Psychology 40*:417-423.

- Multifaceted, repeated training seems more effective than uni-dimensional training.[18]
- Bias in selection processes can be reduced by developing objective criteria before evaluating candidates, ensuring that reviewers adhere to the criteria, and discussing alignment of criteria with selections.[19]
- Reviewers rely less on implicit biases when they focus their full attention on reviewing candidates than when they multitask or have cognitive distractions.[20]

Bias Mitigation: Images and Mass Media

Repeated exposure to images and themes affects people's beliefs and behaviors. For this reason, mass-media campaigns have been used successfully to influence Americans' behaviors, including by increasing the use of designated drivers, reducing drug use, and encouraging parents and mentors to discuss pregnancy with teenaged girls. It is hence unsurprising that mass media and imagery have been shown to affect implicit bias. In an experiment in Rwanda, for example, a radio soap opera that included messages about increasing racial tolerance and reducing prejudice revealed that participants who heard the radio drama were more tolerant of intermarriage and open dissent, and exhibited more trust, empathy, and cooperation.[21] Exposing subjects to counter-stereotypes (such as descriptions or pictures of black[22] or women leaders, or asking subjects to think of their own examples of women leaders[23,24]) and training subjects to use counter-stereotypes in their evaluation of candidates.[25,26] can reduce the application of implicit racial, gender, or other bias. One study showed that the impact of implicit bias toward the elderly was reduced after subjects engaged in an exercise that had them taking the perspective of an old person[27] and a similar effect on national-origin bias was observed when subjects went through a mock process of adopting a baby from another country.[28]

Bias Mitigation: Institutional Policies and Practices

Many institutional policies were developed when the workforce looked very different from the workforce of today, and small policy changes can have large effects on worker success. Promotion timelines that conflict with women's prime child-bearing years, certain interview practices, traditions that require attendance at institutional functions on religious holidays, lack of dedicated space for lactating women, or biased criteria for hiring or performance review can all create an institution that is unwelcoming to women, people of color, people of certain sexual orientations, parents, people who are physically challenged, or people of certain religions.[29] Reviewing practices and policies with bias in mind can identify those that could disadvantage some members of the community on bases that have nothing to do with

[18] Devine, P. G., Forscher, P. S., Austin, A. J., & Cox, W. T. (2012) Long-term reduction in implicit race bias: A prejudice habit-breaking intervention. *Journal of Experimental Social Psychology* 48:1267-1278.

[19] Uhlmann, E.L. and G.L. Cohen. (2005) Constructed criteria: Redefining merit to justify discrimination. *Psychological Science* 16:474-480.

[20] Martell, R.F., (1991) Sex bias at work: The effects of attentional and memory demands on performance ratings for men and women. *Journal of Applied Social Psychology* 21:1939-60.

[21] Paluck, E. L. (2009) Reducing intergroup prejudice and conflict using the media: a field experiment in Rwanda. *Journal of Personality and Social Psychology 96*: 574-587.

[22] Dasgupta, N., & Greenwald, A. G. (2001) On the malleability of automatic attitudes: combating automatic prejudice with images of admired and disliked individuals. *Journal of Personality and Social Psychology 81*: 800-814.

[23] Dasgupta, N., & Asgari, S. (2004) Seeing is believing: Exposure to counterstereotypic women leaders and its effect on the malleability of automatic gender stereotyping. *Journal of Experimental Social Psychology 40*:642-658.

[24] Blair, I. V., Ma, J. E., & Lenton, A. P. (2001) Imagining stereotypes away: the moderation of implicit stereotypes through mental imagery. *Journal of Personality and Social Psychology 81*:828-841.

[25] Kawakami, K., Dovidio, J. F., & van Kamp, S. (2005) Kicking the habit: Effects of nonstereotypic association training and correction processes on hiring decisions. *Journal of Experimental Social Psychology 41*:68-75.

[26] Olson, M. A., & Fazio, R. H. (2006) Reducing automatically activated racial prejudice through implicit evaluative conditioning. *Personality and Social Psychology Bulletin, 32*: 421-433.

[27] Galinsky, A. D., & Moskowitz, G. B. (2000) Perspective-taking: decreasing stereotype expression, stereotype accessibility, and in-group favoritism. *Journal of Personality and Social Psychology 78*:708-724.

[28] Gulker, J. E., & Monteith, M. J. (2013) Intergroup boundaries and attitudes the power of a single potent link. *Personality and Social Psychology Bulletin 39:*943-955.

[29] NRC. (2006) *Beyond Bias and Barriers*. National Academies Press, Washington, DC.

their ability to contribute to institution's mission.

Numerous resources have been developed to assist administrators and institutional leaders in designing optimal programs for fostering a diverse community. For example, the National Science Foundation's ADVANCE program produced a suite of empirically tested tools to generate discussion and understanding of implicit bias and the institutional policies that can persist because of unexamined bias.[30]

BEYOND IMPLICIT BIAS

Most people want to be fair, but are unaware of their own biased tendencies. Introducing implicit bias into the national dialogue will change awareness of and accountability for bias, making it possible to have civil conversations without people feeling accused or blamed for diversity challenges. By making implicit bias familiar and providing visibility to practices that minimize or mitigate its effects, the Nation can reduce an important barrier to achieving the best workforce in which people are evaluated based on their abilities and accomplishments rather than on stereotypes and assumptions. Achieving an excellent, fair, and equitable workforce should be a shared American goal.

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[30] http://www.portal.advance.vt.edu/index.php
http://govinfo.library.unt.edu/npr/library/workforce-diversity.pdf; http://graphics.eiu.com/upload/eb/DiversityandInclusion.pdf
https://www.opm.gov/policy-data-oversight/diversity-and-inclusion/reports/governmentwidedistrategicplan.pdf
http://www.gao.gov/new.items/d0590.pdf