Bibliography

I. General Studies of Implicit Bias, with Higher Education Focus

Banaji, Mahzarin and Anthony Greenwald. 2013. *Blindspot: Hidden Biases of Good People*. New York: Delacorte Press. Additional information, including "Implicit Association Test" and links to Harvard's Project Implicit are available at http://blindspot.fas.harvard.edu/Book.

Abstract: In *Blindspot*, Mahzarin Banaji and Anthony Greenwald explore hidden biases that we all carry from a lifetime of experiences with Blindspot approved.inddsocial groups – age, gender, race, ethnicity, religion, social class, sexuality, disability status, or nationality. "Blindspot" is a metaphor to capture that portion of the mind that houses hidden biases. The authors use it to ask about the extent to which social groups – without our awareness or conscious control – shape our likes and dislikes, our judgments about people's character, abilities, and potential. In *Blindspot*, hidden biases are revealed through hands-on experience with the method that has revolutionized the way scientists are learning about the human mind and that gives us a glimpse into what lies within the metaphoric blindspot – the Implicit Association Test. The title's "good people" are the many people – the authors included – who strive to align their behavior with their good intentions. The aim of *Blindspot* is to explain the science in plain enough language to allow well-intentioned people to better achieve that alignment. Venturing into this book is an invitation to understand our own minds.

Davis, Shannon N., Shannon K. Jacobsen, and Melissa Ryan. 2015. "Gender, Race, and Inequality in Higher Education: An Intersectional Analysis of Faculty-Student Undergraduate Research Pairs At a Diverse University." *Race, Gender & Class* 22(3-4): 7-30. https://www.jstor.org/stable/26505348.

Abstract: This paper investigates whether and how homophily operates in one university setting. Using unique data on students nested within faculty members, we assess the extent to which there is gender and racial similarity in student-faculty undergraduate research pairs at a diverse university. We find that homophily is a less influential social force in shaping mentoring relationships than are the gendered and racialized histories and contexts of academic disciplines. Implications for the future of higher education are discussed.

Handley, Ian M., et al. "Quality of Evidence Revealing Subtle Gender Biases in Science Is in the Eye of the Beholder." *Proceedings of the National Academy of Sciences of the United States of America* 112.43(Oct. 27): 13,201-13,206. https://www.jstor.org/stable/26465753.

Abstract: Scientists are trained to evaluate and interpret evidence without bias or subjectivity. Thus, growing evidence revealing a gender bias against women—or favoring men—within science, technology, engineering, and mathematics (STEM) settings is provocative and raises questions about the extent to which gender bias may contribute to women's underrepresentation within STEM fields. To the extent

that research illustrating gender bias in STEM is viewed as convincing, the culture of science can begin to address the bias. However, are men and women equally receptive to this type of experimental evidence? This question was tested with three randomized, double-blind experiments—two involving samples from the general public (n = 205 and 303, respectively) and one involving a sample of university STEM and non-STEM faculty (n = 205). In all experiments, participants read an actual journal abstract reporting gender bias in a STEM context (or an altered abstract reporting no gender bias in experiment 3) and evaluated the overall quality of the research. Results across experiments showed that men evaluate the gender-bias research less favorably than women, and, of concern, this gender difference was especially prominent among STEM faculty (experiment2). These results suggest a relative reluctance among men, especially faculty men within STEM, to accept evidence of gender biases in STEM. This finding is problematic because broadening the participation of underrepresented people in STEM, including women, necessarily requires a widespread willingness (particularly by those in the majority) to acknowledge that bias exists before transformation is possible.

Hardin, Curtis D., and Mahzarin R. Banaji. 2013. "The Nature of Implicit Prejudice: Implications for Personal and Public Policy." In Eldar Shafir (ed.), *The Behavioral Foundations of Public Policy.* Princeton, NJ: Princeton University Press. https://www.jstor.org/stable/j.ctv550cbm.7

Abstract: For societies that derive their sense of good character on the basis of personal accomplishment and meritocracy, research on implicit prejudice poses particularly thorny problems. The research we reviewed suggests that behavior is shaped by the social jostling and "sloshing around" of the individual, unbeknownst to the person and those around her, suggesting that the problem of implicit prejudice may be especially insidious in a society that celebrates, evaluates, and is organized around individual meritocracy. The aggregation of these kinds of effects, both large and small, but systematically organized across situations and social roles, suggests at the very least the possibility that even incrementally small biases may be expressed through actions that create a large divide among people. It is our contention that locating the problem of prejudice in a few problematic individuals and designing solutions to the problem around this view is to miss the point. Once identified, we must focus on the enabling conditions that promote egalitarianism and healthy individuation.

Moss-Racusin, Corinne A., et al. 2012. "Science Faculty's Subtle Gender Biases Favor Male Students." *Proceedings of the National Academy of Sciences of the United States of America* 109.41(Oct. 9): 16,474-16,479. www.jstor.org/stable/41763373.

Abstract: Despite efforts to recruit and retain more women, a stark gender disparity persists within academic science. Abundant research has demonstrated gender bias in many demographic groups, but has yet to experimentally investigate whether science faculty exhibit a bias against female students that could contribute to the gender disparity in academic science. In a randomized double-blind study (n = 127), science faculty from research-intensive universities rated the application materials of a student—who was randomly assigned either a male or female name—for a laboratory manager position. Faculty participants rated the male applicant as significantly more competent and hireable than the (identical) female applicant. These participants also selected a higher starting salary and offered more career mentoring to the male applicant. The gender of the faculty participants did not affect responses, such

that female and male faculty were equally likely to exhibit bias against the female student Mediation analyses indicated that the female student was less likely to be hired because she was viewed as less competent. We also assessed faculty participants' preexisting subtle bias against women using a standard instrument and found that preexisting subtle bias against women played a moderating role, such that subtle bias against women was associated with less support for the female student but was unrelated to reactions to the male student These results suggest that interventions addressing faculty gender bias might advance the goal of increasing the participation of women in science.

II. Studies Specific to Letters of Recommendation

Bruland, Holly H. 2009. "Rhetorical Cues and Cultural Clues: An Analysis of the Recommendation Letter in English Studies." *Rhetoric Review* 28.4: 406-424. https://doi.org/10.1080/07350190903185064.

Abstract: Analysis of a collection of contemporary recommendation letters for admission to a PhD program in English studies revealed differences in length, level of specificity, and rhetorical appeals that applied much more strongly to candidates' acceptance status than to gender. Across both status and gender groupings, however, candidates were frequently appraised through economic metaphors, indicating a disciplinary culture that dually approaches graduate students as immediate sources of labor and as the future of the profession. Findings from these letters should promote continued conversation about disciplinary culture and clearer guidelines for those writing and requesting recommendation letters.

Dutt, Kuheli., Danielle L. Pfaff, Ariel F. Bernstein, Joseph S. Dillard, and Caryn &. Block. 2016. "Gender Differences in Recommendation Letters for Postdoctoral Fellowships in Geoscience." *Nature Geoscience* 9: 805–808. https://doi.org/10.1038/ngeo2819.

Abstract: Gender disparities in the fields of science, technology, engineering and mathematics, including the geosciences, are well documented and widely discussed. In the geosciences, despite receiving 40% of doctoral degrees, women hold less than 10% of full professorial positions. A significant leak in the pipeline occurs during postdoctoral years, so biases embedded in postdoctoral processes, such as biases in recommendation letters, may be deterrents to careers in geoscience for women. Here we present an analysis of an international data set of 1,224 recommendation letters, submitted by recommenders from 54 countries, for postdoctoral fellowships in the geosciences over the period 2007–2012. We examine the relationship between applicant gender and two outcomes of interest: letter length and letter tone. Our results reveal that female applicants are only half as likely to receive excellent letters versus good letters compared to male applicants. We also find no evidence that male and female recommenders differ in their likelihood to write stronger letters for male applicants over female applicants. Our analysis also reveals significant regional differences in letter length, with letters from the Americas being significantly longer than any other region, whereas letter tone appears to be distributed equivalently across all world regions. These results suggest that women are significantly less likely to

receive excellent recommendation letters than their male counterparts at a critical juncture in their career.

Houser, Chris, and Kelly Lemmons. 2018. "Implicit Bias in Letters of Recommendation for an Undergraduate Research Internship." *Journal of Further and Higher Education*, 42.5: 585-595. https://www.tandfonline.com/doi/full/10.1080/0309877X.2017.1301410.

Abstract: Letters of recommendation are commonly used to assess the potential of undergraduate students to be successful undergraduate research assistants/interns or their potential as graduate students. However, there is evidence to suggest that reference letters can include unconscious (or implicit) bias that can affect decisions and limit opportunities for under-represented minorities and students from non-research institutions. This study uses a text analysis software program to examine 457 letters of recommendation for undergraduate students applying to undertake international research experience to determine whether there is a statistically significant difference in the language used to describe the students accepted into the programme (n = 36 letters) compared to those who were not accepted (n = 421 letters). Results suggest that letters of recommendation for the accepted students describe the productivity of the students with greater certainty and include a greater number of quotes from student work. In comparison, the letters for those students who were not accepted into the programme include more positive emotion and describe the insight of the student, but include more words associated with discrepancy and tentative statements. Despite no statistically significant differences in grade point averages, a similar pattern was observed between male and female applicants, white and non-white applicants, and applicants from research and non-research institutions. Results suggest a need to standardise letters of recommendation to ensure that the biases are minimised and do not present a barrier to increasing diversity in undergraduate research.

Madera, Juan M., Michelle R. Hebl, and Randi C. Martin. 2009. "Gender and Letters of Recommendation for Academia: Agentic and Communal Differences." *Journal of Applied Psychology* 94.6: 1591–1599. Available: https://doi.org/10.1037/a0016539.

Abstract: In 2 studies that draw from the social role theory of sex differences (A. H. Eagly, W. Wood, & A. B. Diekman, 2000), the authors investigated differences in agentic and communal characteristics in letters of recommendation for men and women for academic positions and whether such differences influenced selection decisions in academia. The results supported the hypotheses, indicating (a) that women were described as more communal and less agentic than men (Study 1) and (b) that communal characteristics have a negative relationship with hiring decisions in academia that are based on letters of recommendation (Study 2). Such results are particularly important because letters of recommendation continue to be heavily weighted and commonly used selection tools (R. D. Arvey & T. E. Campion, 1982; R. M. Guion, 1998), particularly in academia (E. P. Sheehan, T. M. McDevitt, & H. C. Ross, 1998).

Trix, Frances, and Carolyn Psenka. 2003. "Exploring the Color of Glass: Letters of Recommendation for Female and Male Medical Faculty." *Discourse & Society*, 14.2 (March): 191-220. Available: https://doi.org/10.1177%2F0957926503014002277.

Abstract: This study examines over 300 letters of recommendation for medical faculty at a large American medical school in the mid-1990s, using methods from corpus and discourse analysis, with the theoretical perspective of gender schema from cognitive psychology. Letters written for female applicants were found to differ systematically from those written for male applicants in the extremes of length, in the percentages lacking in basic features, in the percentages with doubt raisers (an extended category of negative language, often associated with apparent commendation), and in frequency of mention of status terms. Further, the most common semantically grouped possessive phrases referring to female and male applicants (`her teaching,' `his research') reinforce gender schema that tend to portray women as teachers and students, and men as researchers and professionals.

III. Review Essays

Applebaum, Barbara. 2019. "Remediating Campus Climate: Implicit Bias Training is not Enough." *Studies in Philosophy and Education* 38.2(March): 129–141. Available: https://doi.org/10.1007/s11217-018-9644-1.

Abstract: A common remedial response to a culture of racism, sexism, homophobia and other forms of oppression on college campuses has been to institute mandatory implicit bias training for faculty, staff and students. A critical component of such training is the identification of unconscious prejudices in the minds of individuals that impact behavior. In this paper, I critically examine the rush to rely on implicit bias training as a panacea for institutional culture change. Implicit bias training and the notion of implicit bias it is grounded in is examined and the advantages and limitations of this approach is elaborated. An exclusive focus on implicit bias, it is argued, can protect ignorance rather than correct it. Similar to implicit bias, microaggressions is a concept that has played a role in campus diversity interventions. An examination of microaggression education demonstrates how it corrects for some of the pitfalls of relying on the concept of implicit bias to improve campus climate. The ambiguity that is characteristic of microaggressions, however, hints at the need to explore the type of "unknowing" that both implicit bias education and microaggression education attempt to remedy. Building on the recent scholarship around the idea of epistemic injustice, crucial insights can be gleaned about the significance of shifting the focus from lack of knowledge to a willful resistance to know. In the final section, some implications for improving campus climate are drawn out.

Greenwald, Anthony G., and Calvin K. Lai. 2020. "Implicit Social Cognition." *Annual Review of Psychology* 71:1(Jan): 419-445. Available: https://doi.org/10.1146/annurev-psych-010419-050837.

Abstract: In the last 20 years, research on implicit social cognition has established that social judgments and behavior are guided by attitudes and stereotypes of which the actor may lack awareness. Research using the methods of implicit social cognition has produced the concept of implicit bias, which has

generated wide attention not only in social, clinical, and developmental psychology, but also in disciplines outside of psychology, including business, law, criminal justice, medicine, education, and political science. Although this rapidly growing body of research offers prospects of useful societal applications, the theory needed to confidently guide those applications remains insufficiently developed. This article describes the methods that have been developed, the findings that have been obtained, and the theoretical questions that remain to be answered.

Mitchell, Gregory. 2018. "An Implicit Bias Primer." *Virginia Journal of Social Policy & the Law* 25.1: 28-57. Available: http://vjspl.org/archive/volume-25/issue-25-1/.

Abstract: The phenomenon of implicit bias is much discussed but little understood. This article answers basic conceptual and empirical questions about implicit bias, including what it is, how it is measured, what effects it may have on behavior, and whether it can be changed. Consensus now exists among implicit bias researchers that current measures of implicit bias cannot reliably identify who will or will not discriminate in any given situation and that programs aimed at changing implicit bias produce very limited effects. Despite hopes that implicit bias research would lead to new and better understandings of how and why discrimination occurs, the empirical reality is that implicit bias research has not yet improved our ability to predict and prevent discrimination.

IV. Cognition

Yu, Rongjun. 2016. "Stress Potentiates Decision Biases: A Stress-Induced Deliberation-to-Intuition (SIDI) Model. *Neurobiology of Stress* 3(June): 83-95. Available: https://doi.org/10.1016/j.ynstr.2015.12.006.

Abstract: Humans often make decisions in stressful situations, for example when the stakes are high and the potential consequences severe, or when the clock is ticking and the task demand is overwhelming. In response, a whole train of biological responses to stress has evolved to allow organisms to make a fight-or-flight response. When under stress, fast and effortless heuristics may dominate over slow and demanding deliberation in making decisions under uncertainty. Here, I review evidence from behavioral studies and neuroimaging research on decision making under stress and propose that stress elicits a switch from an analytic reasoning system to intuitive processes, and predict that this switch is associated with diminished activity in the prefrontal executive control regions and exaggerated activity in subcortical reactive emotion brain areas. Previous studies have shown that when stressed, individuals tend to make more habitual responses than goal-directed choices, be less likely to adjust their initial judgment, and rely more on gut feelings in social situations. It is possible that stress influences the arbitration between the emotion responses in subcortical regions and deliberative processes in the prefrontal cortex, so that final decisions are based on unexamined innate responses. Future research may further test this 'stress induced deliberation-to-intuition' (SIDI) model and examine its underlying neural mechanisms.