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Nudging Toward Diversity: Applying Behavioral Design to Faculty Hiring

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This narrative and integrative literature review synthesizes the literature on when, where, and how the faculty hiring process used in most American higher education settings operates with implicit and cognitive bias. The literature review analyzes the "four phases" of the faculty hiring process, drawing on theories from behavioral economics and social psychology. The results show that although much research establishes the presence of bias in hiring, relatively few studies examine interventions or "nudges" that might be used to mitigate bias and encourage the recruitment and hiring of faculty identified as women and/or faculty identified as being from an underrepresented minority group. This article subsequently makes recommendations for historical, quasi-experimental, and randomized studies to test hiring interventions with larger databases and more controlled conditions than have previously been used, with the goal of establishing evidence-based practices that contribute to a more inclusive hiring process and a more diverse faculty.

Keywords: faculty hiring, behavioral design, implicit bias

Higher education institutions have made numerous attempts to diversify the professoriate in the past 30 years. Yet the percentage of faculty identified as women in some fields or from underrepresented minority groups across fields remains stubbornly low. We use the National Science Foundation's (NSF; 2017) definition of underrepresented minorities (URMs), which includes U.S.-born individuals who are Black/African American, Hispanic, and American Indians or Alaska Natives. The NSF also notes that persons with disabilities are underrepresented in science and engineering, but the literature on faculty with disabilities is sparse. Thus, we focus primarily on individuals identified as women and from an underrepresented group in this literature review. Although the pipeline to the professoriate is weak in some cases, research shows the hiring process itself contributes to a less diverse faculty. In this literature review, we synthesize the extant

literature on when, where, and how the faculty hiring process operates and activates implicit bias in favor of candidates identified in the hiring process as men and White and against candidates identified as women and/or URMs.

It is important to note that we acknowledge the term *underrepresented minority groups* or *URMs* comes with limitations and problems. Although commonly used by higher education institutions and policymakers, the term obscures differences in educational attainment and barriers experienced by individuals from marginalized groups (Bensimon, 2016). Higher education scholars argue that the term *URM* can overgeneralize and mischaracterize the structural inequities faced by different racial and ethnic populations (Bensimon, 2016; McNair et al., 2020). Although we recognize using the term *URM* can make differences experienced by African American, Hispanic, and American Indian or Alaskan Native faculty invisible, the focus of this literature review is hiring strategies, and over the past 20 years, *URM* was the dominant term used in the majority of social science research and practice literature. We use the term while acknowledging these critiques and arguing for improved use of identity terms in future research and practice related to faculty hiring. Although we are not able to disaggregate particular experiences from every research article we reviewed because authors often used categories of majority and underrepresented, in places where the experiences of individual subgroups are possible to tease out, we have done so. Likewise, we recognize the limitations of using the terms men and women as a binary construct, as many faculty may not identify with these terms. We reference individuals who "identify as women" or "identify as men" when discussing differences in gender to accommodate for nonbinary identifying individuals. However, at times we also use the terms *women* or *men* because for the past 20 years most of the extant literature on faculty hiring has treated gender as a binary construct and used these terms in this way in their articles.

Focusing on the role of bias within traditional faculty hiring processes is warranted for several reasons. First, despite the growing diversity of undergraduate and graduate students across fields/disciplines, the diversification of faculty in terms of race and gender has been slow, and in some disciplines/fields, nonexistent (Finkelstein et al., 2016; Hill et al., 2010; NSF, 2017; D. G. Smith et al., 2012). Faculty gender disparities are most common within certain STEM fields (e.g., computer science, physics) but are also present within the social sciences and humanities (e.g., economics, philosophy; Finkelstein et al., 2016; Hill et al., 2010; NSF, 2017). The number of Black and African American, Latino, and American Indian or Alaskan Native faculty members, groups that are historically underrepresented in higher education in most fields/disciplines, has also not kept pace with the number of students from these groups earning doctoral degrees (Finkelstein et al., 2016; Gibbs et al., 2016; Institute of Medicine, 2011). Moreover, studies show that gender and racial diversity is lacking across institutional types (D. G. Smith et al., 2012), although most pronounced among doctoral-granting institutions (D. G. Smith et al., 2012; Weeden et al., 2017). To meet the diversity goals of most higher education institutions today, diverse faculty need to be hired at an enhanced rate (Bensimon et al., 2016; Marschke et al., 2007). Yet the field lacks clear, compelling, and synthesized guidance as to how to make this happen.

Second, research has long demonstrated the role of gender and racial bias in evaluations of competence, leadership, merit, and "hireability" (e.g., Biernat & Kobrynowicz, 1997; Dovidio & Gaertner, 1998; Foschi, 1996). A few studies examined the presence of racial or gender bias in faculty evaluation of resumés and curricula vitae (CVs; Moss-Racusin et al., 2012; Steinpreis et al., 1999) or in admissions processes (Milkman et al., 2015; Posselt, 2016), suggesting that the lack of faculty diversity can be attributed to bias in institutional gatekeeping processes such as hiring. Yet we lack systematic inquiry into how such bias emerges throughout the hiring process instead of within a few isolated hiring domains (e.g., in how faculty members evaluate CVs).

We begin the article by outlining the guiding framework we used to examine research, namely, System 1 and System 2 thinking (Kahneman, 2011), choice architecture (Thaler & Sunstein, 2008), and behavioral design (Bohnet, 2016). We then employ this framework to present and synthesize extant research in four phases of the hiring process: (a) framing the position and forming a search committee; (b) marketing, outreach, and recruitment; (c) evaluating candidates; and (d) short lists and final hiring decisions. In each section, we review studies on behavioral design interventions, or nudges, to reduce bias in faculty hiring. We then make recommendations for future studies to test hiring interventions.

Nudge Research: Promising Findings From Social and Behavioral Sciences

Research and theories from behavioral economics and social psychology have helped us better understand how we make decisions. Kahneman (2011) revealed two modes of thinking: System 1 and System 2. System 1 is our intuitive, automatic system, used without effort to navigate life's complexity. System 1 thinking can be beneficial, in that it can support creativity, aesthetic, humor, judgment, intuition, and empathy (Norris & Epstein, 2011) and thus assist individuals in deciphering nuances and cues that emerge during social interactions (Kahneman, 2011).

However, negative consequences of System 1 thinking that can lead to bias are still of concern. About 80% to 90% of the mind works unconsciously (Bohnet, 2016), even among the most highly educated (Banaji & Greenwald, 2013; Chapman et al., 2013). People are often unaware, or resistant to the idea, that biases are present within their own decision making (Pronin et al., 2004; Uhlmann & Cohen, 2007). For instance, social psychology research shows we cannot help but sort people into categories when we understand their gender and race: Our biases become automatically activated. Social norms and social role expectations are among the most common culprits of bias against individuals whom researchers identify as women and/or URM candidates for all jobs, including academic positions, and are well-established in the literature (e.g., Glick et al., 1988; Norton et al., 2004; Steinpreis et al., 1999). Because of this System 1 thinking, many hiring decisions are not made rationally or in ways that help us meet goals.

In contrast, System 2 thinking is based on conscious reasoning and effort and includes abstract analysis and deliberation (Kahneman, 2011). System 2 thinking can be promoted through interventions or "nudges" (Service & Gallagher, 2017; Thaler & Sunstein, 2008). A nudge is defined as a small change made in the context surrounding a decision, intended to remove or alter biases in behavior and

help individuals voluntarily make better decisions and promote better choices (Damgaard & Nielsen, 2018; Thaler & Sunstein, 2008). Nudges are subtle and intended to change behaviors and outcomes, not necessarily attitudes or perspectives. Unlike a mandate, they do not forbid individuals from pursuing their own preferences. For example, we can send timely reminders to families to notify them when financial aid applications are due, which promotes financial aid usage (Castleman & Page, 2013). Within hiring, an example of a nudge could include "blinding" application materials so that reviewers are unable to glean, and be influenced by, a candidate's gender or race when evaluating whether or not to advance the candidate into the interview pool (Goldin & Rouse, 2000).

Behavioral design research encourages organizations to empirically test whether nudges produce the desired effects and under what conditions (Bohnet, 2016). Culture and context influence how individuals receive nudges (Bovens, 2010). Within academe, the tendency toward departmental autonomy and academic freedom may make faculty resistant to "overt" nudges (Tagg, 2012). Thus, the evaluation of nudges should be done across disciplines and institutional settings and, when possible, with control and experimental groups with randomized assignment, so some causality can be attributed to interventions (Bohnet, 2016; Kahneman, 2011; Thaler & Sunstein, 2008). Indeed, there are a few controlled experiments regarding faculty hiring, both in terms of revealing bias and in terms of understanding the efficacy of interventions to reduce bias (e.g., Carnes et al., 2015; Devine et al., 2017; J. L. Smith et al., 2015). Yet conditions of most college and university hiring practices make large-scale controlled experiments difficult.

We acknowledge that many social biases are grounded in systemic and structural inequities. Critical theories reveal how institutions and their associated processes, policies, rules, and norms maintain and reproduce dominant ideologies and cultures (Acker, 1990; Delgado & Stefancic, 2001; Ladson-Billings & Tate, 1995). Within faculty hiring, critical theories alert us to how hiring practices reproduce and maintain dominant ideologies (Sensoy & DiAngelo, 2017). A critical analysis suggests that regardless of the nudges institutions put in place, faculty diversity will not improve unless institutions dismantle structural hierarchies. We therefore recognize that interventions focused on mitigating bias must be enacted alongside structural interventions, given the existing systems of power that are perpetuated in institutions. In this literature review, we bring in critical theory to acknowledge these backdrops as part of the choice environment. Yet our main focus is on "nudges" made to affect decision making of individuals in choice environments.

Method

Our literature review methods were both integrative and narrative. Our approach was narrative in that we were trying "to link together many studies on different topics, either for purposes of reinterpretation or interconnection" (Baumeister & Leary, 1997, p. 312). Narrative approaches are useful when studies are methodologically diverse and there is a desire to use theory to frame the extant data toward new meanings or hypotheses (Davies & Rizk, 2018). Our literature review used theory from behavioral economics to reunderstand extant work on faculty hiring and how the process might be improved. However, our

literature review was also integrative in that we reviewed, critiqued, and synthesized the extant literature on bias in faculty hiring and evaluation in an integrated way, across methodologies and academic disciplines such that new perspectives and ideas could be generated from our analysis (Cooper, 1982; Torraco, 2016). We focused on the following guiding questions in this review. How can System 1 biased thinking shape faculty hiring processes and outcomes? What is known about how implicit bias can be mitigated and System 2 thinking introduced? Because we wanted this literature review to be useful to search committees and those who guide them at specific times during the search, we furthermore asked, How do biases, and strategies to reduce them, play out in each key stage of a hiring process?

Consistent with integrative approaches, we developed four inclusion criteria (Table 1). First, we included studies that examined how bias emerges (or does not) in traditional faculty hiring settings across fields and disciplines. We included studies examining fields with greater and lower gender and racial/ethnic diversity, as studies show bias is pervasive across fields (e.g., Milkman et al., 2015) even though different fields have distinct challenges (e.g., Hartlep et al., 2016). We focused on "traditional" hiring practices, although we recognize many institutions use special hiring programs (e.g., target of opportunity hire programs) as diversification mechanisms that operate outside of the normal search process. We included research on both tenure and tenure track positions and nontenure track positions (however, we note that most of the research focuses on the qualifications and hiring processes for tenured and tenure track roles). Second, we included only studies conducted within the United States and written in the English language in order to capture sociopolitical context(s) that shape bias specifically within the United States. Third, we included peer-reviewed articles, books and book chapters, and reports with empirical findings (i.e., included written methods sections). Last, we focused on studies published between January 1985 and March 2018. We focused on this time period because we wanted to review the major bias and intervention research that currently informs faculty hiring practice and found 1985 to be an important milestone for the discussion of bias and faculty diversity as it is currently understood. We excluded articles that (a) examined faculty hiring without explicit attention to bias, (b) included only narrative/anecdotal accounts of bias with no systematic methods to explore the topic, (c) relied upon representation data to prove bias existed/did not exist, (d) studied bias in the faculty work environment not specific to hiring, (e) took place in international contexts or within 2-year institutions, (f) were popular media pieces, and (g) were dissertations or theses. Examples of excluded articles can be found in Supplemental Table S1 in the online version of the journal.

To find articles, we used online databases in education, psychology, and economics, including ERIC, PsycINFO, and JSTOR. We also searched Google Scholar. Our primary search term was "bias in faculty hiring." We used this term in an effort to find articles highlighting bias in the hiring process across disciplines and identity groups. We were not successful in using specific identity groups as search terms because much of the hiring literature is presented as a majority/minority issue. For example, scholars studying issues of bias in STEM fields were more likely to focus on barriers to hiring "underrepresented faculty,

TABLE 1

Inclusion and exclusion criteria

Inclusion criteria

1. Study explores bias (presence or nonpresence) in traditional faculty hiring processes at 4-year institutions, in either tenure and tenure track or nontenure position, in fields with higher or lower gender and racial diversity.
2. Study was conducted within the United States and published in the English language. Study settings needed to be U.S.-based because of the differences in higher education contexts, cultures, politics, and socioeconomic contexts that shape research and experiences of implicit bias in faculty hiring across different countries (Gelfand et al., 2011; J. A. Smith et al., 2013) or be limited to the United States in acknowledgment of the different sociohistorical contexts that shape hiring processes, and expressions of bias toward women, underrepresented minority groups, and other groups uniquely in different cultural contexts (Norton et al., 2004; Walumbwa et al., 2007).
3. Study was a peer-reviewed article, book chapter, or report with empirical findings. By empirical, we mean that the article included quantitative or qualitative data with a written methods section.
4. Study was published between January 1985 and March 2018.

Exclusion criteria

1. Articles that studied faculty hiring but without explicit focus or attention to issues of implicit bias or strategies to reduce it.
2. Studies that included narrative accounts or anecdotes of perceived potential bias in faculty hiring but did not include qualitative or quantitative methods sections or systematic methods to explore those experiences.
3. Studies that used representation data only (e.g., there are only 2 African American faculty in a college) to establish the presence of bias in faculty hiring.
4. Studies about bias in the faculty work environment not directly related to hiring.
5. Studies that took place in international contexts or within 2-year institutions.
6. Popular media pieces that discussed hiring and efforts to change hiring.
7. Dissertations or theses (choosing instead to find the articles that emerged later from them).

Inclusion criteria for studies on bias in hiring from industrial organizational and social psychology and behavioral economics

1. Study examines bias hiring outside higher education that repeatedly appears in studies of faculty hiring because the study findings appear to be influential to those studying faculty hiring (e.g., have findings perceived as generalizable or foundational to hiring of professionals generally).

faculty of color, or women" than a focus on hiring Hispanic faculty specifically. Much of the research included in our review was conducted by social scientists as a matter of practice by individuals who have tried to affect this issue, not just for an individual group but for majority and nonmajority groups. We recognize that this approach, although perhaps well intentioned initially in bringing visibility to hiring issues and biases facing multiple groups (e.g., African American,

TABLE 2

Studies included in the review

Kind of study	No. of citations
Studies on bias or bias mitigation strategies in U.S. faculty hiring[a]	
Studies demonstrating[b] bias within faculty hiring	65
Studies suggesting[c] bias within faculty hiring	32
Industrial organizational and social psychology studies on bias	57
Total studies	154

[a]Our review focused on these articles. [b]By demonstrating, we mean that the study empirically examined the presence of bias within faculty hiring. For example, there are experimental studies (e.g., Steinpreis et al., 1999) that showed faculty members prefer job candidates with male-typed names like John compared to candidates with female-typed names like Jane, even when John and Jane have identical curricula vitae. [c]By suggesting, we mean that the study empirically examined the presence of a bias that is *likely* to emerge during hiring, although it has not been explicitly linked to hiring. For instance, there are numerous articles that discussed differences in the number of publications between and men and women doctoral students (e.g., Mendoza-Denton et al., 2017), which could influence hiring decisions, although no studies have specifically linked publications and hiring.

Native American, Asian Pacific Islander), had the negative effect of obscuring specific challenges faced within those groups. Although the focus of this literature review and the nature of the research we reviewed prevent us from addressing each of the specific biases affecting each subgroup (e.g., Latina women or African American men), we see such a focus as important for future research on hiring and for training provided to faculty trying to become aware of ways to mitigate bias in hiring.

Furthermore, we collected social science articles repeatedly cited in higher education institution faculty hiring manuals and searched the reference lists of included studies for referrals to other primary research that met our inclusion criteria. We identified and collected these faculty hiring manuals by searching the websites of institutions that have been funded by the NSF to study and disseminate inclusive hiring practices. We used abstracts to do an initial screening to remove ineligible studies, and then two of the three authors did a final screening of the full texts of included articles to ensure they met criteria.

We grouped these articles into two categories. First, we found 65 studies that demonstrated the presence of bias within faculty hiring or strategies to mitigate it (Table 2). By demonstrate, we mean the study empirically examined the presence of bias within faculty hiring. For instance, articles that experimentally found gender bias in the evaluation of CVs would be included in the "demonstrates" category. Second, we found 32 articles that suggested the ways in which bias emerges in faculty hiring. By suggest, we mean that the study empirically examined the presence of a bias that is *likely* to emerge during hiring, although not proven. For example, several studies showed differences in the number of publications between scholars who researchers identified as men and women and/or White and URMs, which could bias hiring outcomes but

have not been explicitly linked to hiring results. At the end of the screening and selection process, there were 97 articles that demonstrated or suggested how bias emerges in the faculty hiring process and the strategies institutions can use to mitigate bias, drawing from inside higher education.

After identifying areas where there were few empirical findings to back up specific strategies identified in the literature as best practices, we looked to the literature from behavioral economics and social psychology. That is, if we were not able to find studies in higher education research that grounded either the presence of bias at that hiring stage or an evidence-based method to mitigate it, we used work from social psychology and behavioral economics. We searched these sources for studies establishing the presence of bias through research in other settings, or the value of a certain strategy to mitigate that bias, choosing studies often cited in higher education work. We presented these concepts as part of the review and note it is an area for future research on faculty hiring. We included 57 articles from behavioral economics and social psychology (Table 2). In total, we included in our review 154 articles about bias in hiring from inside and outside of higher education.

Once we selected pieces to be included in the review, we considered how to synthesize and organize articles. First, we drew on our own experiences as practitioners (two of the three authors) working with search committees. We also considered practices used at institutions (e.g., University of Michigan, University of Wisconsin–Madison) funded by the NSF to study and disseminate inclusive hiring practices (e.g., Fine & Handelsman, 2012; University of Michigan, 2018). These institutions have subsequently published peer-reviewed articles on their inclusive hiring efforts (e.g., Fine et al., 2014; LaVaque-Manty & Stewart, 2008). Based on these considerations, we established four key phases of the hiring process (Framing the Position and Forming the Search Committee; Marketing, Recruitment, and Outreach; Evaluating Candidates; and Short Lists and Final Decisions). Next, we reviewed each article included in the final pool and coded them into each phase, based on the findings and implications of findings described. Some articles had relevance across phases and thus were cited in multiple places. We then evaluated the relative strength of the faculty hiring literature in each phase. This evaluation became part of our critique, synthesis, and identification of areas for future research.

The Academic Hiring Process: Four Phases

In the following sections, we synthesize extant literature on four phases of the traditional faculty hiring process, critique the strengths and limitations of the methods and topics, discuss implications for hiring, and outline directions for future research in each section. We compile the ways System 1 can emerge in hiring and potential nudges to mitigate bias in Table 2 in the online materials.

Phase 1: Framing the Position and Forming a Search Committee

In Phase 1 of the traditional academic hiring process, search committees form and come together to write the job announcement, thereby setting the stage for the search.

Search Committee Composition

An important part of any search is forming a search committee who are typically responsible for recruiting candidates and conducting evaluation in the preliminary stages (Fine & Handelsman, 2012; University of Michigan, 2018). Search committees are typically led by a chair, often a more senior faculty member from within the hiring department. Additional members usually include faculty, staff, and student representatives from the department and sometimes the institution (Fine & Handelsman, 2012; University of Michigan, 2018).

Given the higher percentage of individuals identified as White and men in associate and full professor roles (NSF, 2017) and academic leadership (Johnson, 2016) in many fields and institutional types, search committees often lack diversity (D. G. Smith et al., 2004). Lack of search committee diversity invites bias into the hiring process in two ways. First, faculty hiring research showed that homogeneous groups tend to gravitate toward candidates who replicate their racial, gender, or other shared characteristics, or replicate the attributes of the person previously in the position (Bilimoria & Buch, 2010; Konrad & Pfeffer, 1991). When there are no members of an underrepresented group present in search committee proceedings, members may rely on System 1 thinking to evaluate candidates and be more inclined to hire candidates from the majority.

Second, because of the lack of diversity among senior faculty, search committee members who are women and/or from a minoritized identity are often untenured junior faculty, graduate students, or scholars from other departments who have little power in shaping the direction of the committee. Studies showed that hierarchical relationships, such as tenure status and seniority, remain dominant in dictating norms of behavior in academic settings (Cowin et al., 2012; Young et al., 2015). Thus, existing power dynamics and structures (Acker, 1990; Sensoy & DiAngelo, 2017) limit the extent to which all search committee members can influence the decision-making process.

These known biases lead many institutions to require that search committees be composed of diverse members (Fine & Handelsman, 2012; University of Michigan, 2018). Committees composed of diverse members may reduce bias from System 1 thinking by presenting differing views on prospective candidates and presenting counterstereotypic images, which can potentially increase the likelihood that the committee engages in System 2 thinking (Danowitz Sagaria, 2002; Fine et al., 2014; Gasman et al., 2011; D. G. Smith et al., 2004). Many social psychology studies showed that when diverse groups come together to make decisions, they can disrupt System 1 thinking that undermines quality decision making. For example, both women and men were found to act differently when there was a critical mass of women in the room (Babcock et al., 2017; Cohen et al., 1998).

However, few studies have explicitly linked search committee composition to reducing bias. D. G. Smith et al. (2004) analyzed results from 420 searches and found some evidence that faculty members identified as "underrepresented faculty of color" were more likely to be hired when the committee was composed of at least one faculty member from an underrepresented group (p. 133). Other historical studies showed women faculty were more likely to be recruited into departments that already had women represented among faculty (Yoder et al., 1989) or

in institutions with a greater number of women in trustee and administrator roles (Ehrenberg et al., 2012). We found a gap in the literature examining whether similar results were true for increasing hiring outcomes for faculty from URM groups. We did not find a pattern, for example, of randomized control trials wherein some search committees were gender or racially diverse, others were not, and the more diverse committees hired more diverse faculty. More studies were done retrospectively, considering outcomes from nonrandomly assigned search committees. We likewise did not find studies focusing on power dynamics within diverse committees, or facilitation of those dynamics, that could have limited or supported the positive effect of thinking by a diverse group. In sum, despite the common practice of requiring demographic diversity on search committees, there is no clear pattern of evidence that this practice shapes hiring outcomes.

Job Advertisement

Once the committee is formed, members come together to craft the position advertisement (Fine & Handelsman, 2012; University of Michigan, 2018). The job advertisement can serve as a tool that communicates the department and institution's expectations. However, the job advertisement also signals to potential candidates whether they will "fit" with the department and whether their accumulated achievements will merit advancement through the hiring process. Several types of bias can emerge as related to the job advertisement, although there is little evidence in this area.

Bias can arise from word choice in job advertisements. Research outside of higher education found that how an advertisement is written influences who applied for a role and how the candidate viewed the institution. For example, job advertisements that contained words such as *competitive* or *dominant* made jobs that were otherwise gender-neutral less attractive to candidates who identified as women (Gaucher et al., 2011) and reduced the number of women who applied to the role (Gaucher et al., 2011; McConnell & Fazio, 1996). Thus, faculty candidates responding to job advertisements may have instinctual, System 1 reactions to the way in which the job is described that suggest they would not fit with a suggested stereotype.

We found only one study that assessed the relationship between job advertisements and faculty hiring outcomes. Researchers examined the hiring outcomes at three, predominately White, research institutions and found that "underrepresented faculty of color" were more likely to be hired when the job description included qualifications such as "experience in community outreach in multi-cultural settings" (D. G. Smith et al., 2004, p. 138). Authors also found the odds of hiring URM faculty increased when job advertisements included a subdiscipline focus on diversity (e.g., an English department hiring for African American literature), which suggests that the language in the job advertisement can play a role in attracting a diverse applicant pool, although this work is now somewhat dated.

The extant literature suggests three nudges, or changes, to job advertisements that may further increase the likelihood that candidates identified as women and URMs apply for a faculty role. First, faculty identified by researchers as women and URMs were more likely to participate in community engaged and interdisciplinary scholarship (Antonio, 2002; Hurtado et al., 2012; Rhoten & Pfirman,

2007); thus, mentioning the interdisciplinary nature of a position may attract a diverse applicant pool. Second, faculty identified by researchers as women and URMs spent more time advising and teaching students, preparing for class, and engaging in high impact practices in the classroom (Antonio, 2002; Eagan et al., 2014; Hurtado et al., 2012; Umbach, 2006; Winslow, 2010), so job advertisements that include teaching and mentoring-related qualifications may also attract diverse candidates. Third, faculty identified through the hiring process as women and URMs were more attuned to the diversity climate, which can be signaled through diversity action plans, who is in leadership positions, and recruitment techniques (Avery et al., 2004; Avery et al., 2013; Avery & McKay, 2006; Goldberg & Allen, 2008; Rau & Hyland, 2003; Thomas & Wise, 1999). Several organizational and social psychology studies used experimental methods and showed that equal employment opportunity (EEO) statements in job advertisements can make the position more attractive to applicants identified as Black or African American (Highhouse et al., 1999; Slaughter et al., 2002). Thus, job advertisements that mention the institution's commitment to diversity may further enhance diversity in the applicant pool.

Phase 2: Marketing, Outreach, and Recruitment

Once the faculty announcement has been approved and publicly posted, the search committee develops a strategy to spread the word about the position (Fine & Handelsman, 2012; University of Michigan, 2018). For example, search committee members develop lists of websites and journals where their ad can be posted. They can also focus on recruitment, where individual committee members utilize their networks to identify and encourage candidates to apply. In both cases, bias can emerge, often undermining efforts to expand the applicant pool to include diverse candidates.

Marketing and Recruitment

How can bias influence the marketing process? Often, search committees deployed passive outreach strategies that involve posting the position and waiting for applications to arrive (Rynes & Barber, 1990). Standard academic marketing plans might include posting the job on the disciplinary association's email listserve or on general higher education job boards. This passive approach toward generating the applicant pool takes the onus of achieving faculty diversity away from the search committee and puts it on candidates, who must find the position and apply for it (Gasman et al., 2011). This makes it more likely candidates who are at well-resourced institutions, strategically mentored for faculty positions, and/or networked within fields will apply. Yet research on social networks and intersectionality showed that scholars who are women or who are considered URMs are less likely to access these types of institutions and networks (Kachchaf et al., 2015; Pifer, 2011; Weeden et al., 2017), and thus passive outreach may result in search committees producing less diverse applicant pools.

Recognizing that passive marketing strategies may facilitate bias, many institutions now encourage search committees to use active recruitment strategies (Fine & Handelsman, 2012; University of Michigan, 2018). Using active recruitment strategies as a nudge, search committees might send emails to their professional

networks about the open position, distribute the job advertisement to organizations that serve underrepresented groups, target outreach to scholarship/fellowships programs whose members are diverse, do targeted outreach to specific candidates found in databases, or form partnerships with institutions that have high numbers of underrepresented doctoral scholars (Gasman et al., 2011; Sheridan et al., 2010; Stassun et al., 2010). Search committees might also search for candidates in a disciplinary subfield with more diversity or seek candidates who use a methodological approach known to be used by candidates from underrepresented groups (Aguirre, 2000; Antonio et al., 2000).

We found few empirical studies that explore interventions in this area. In one retrospective study, researchers examined hiring records for tenure track searches in STEM fields ($N = 63$) at one research institution and found that search committees that posted job advertisements in outlets that targeted women increased the number of women applicants for open faculty positions (Glass & Minnotte, 2010). A few other researchers cited active recruitment as an empirical mechanism for increasing faculty diversity (e.g., Fine et al., 2014; Sheridan et al., 2010). However, the studies often occurred in contexts where active recruitment was deployed in tandem with other hiring interventions, thus making it more difficult to ascertain the impact of recruitment alone. Moreover, we found no studies that found active recruitment increased the number of candidates who were considered URM in faculty roles.

System 1 biases may inhibit committees from believing that active recruitment is a worthwhile endeavor. For example, belief biases, or myths and misperceptions about the lack of availability of diverse candidates, often invade the recruitment process. Based on this belief, search committees are wasting their time trying to recruit minority candidates, and candidates from minority groups are perceived to be privileged in this process because they can command higher salaries and other benefits (D. G. Smith et al., 1996). Such biases can reduce the committee's motivation to be active in their recruitment. Evidence shows, however, that most PhDs and postdoctoral fellows on the job market received relatively few tenure and tenure track job offers, regardless of identity characteristics (D. G. Smith et al., 1996; Trower, 2002), although work in this area is now dated. For instance, using data drawn from interviews and focus groups, one group of researchers demystified the assumption that highly qualified minority candidates receive multiple competitive offers from many top-ranked institutions (D. G. Smith et al., 1996).

We know very little about the more recent job search experiences for candidates who are identified as women and URMs. The D. G. Smith et al. (1996) study is highly cited in the academic hiring bias literature, yet we found no recent studies that replicated these results to understand how many offers recent job seekers receive and the kinds of "active recruitment" that is needed for candidates to apply. Although controversial, some recent experimental studies found women-identified candidates had an advantage in STEM faculty hiring processes (Ceci & Williams 2015; Williams & Ceci, 2015). However, these studies compared the hiring results for highly qualified men and women candidates at the assistant professor level, when evaluators knew the results were fictional; thus social desirability likely played a role in the results (Haynes & Sweedler, 2015). Moreover,

the study offered no insights into the hiring experiences for candidates who were identified as URMs. Replicating the D. G. Smith et al. (1996) study with a larger sample in a quantitative manner would provide valuable insight into the experience of real PhD job seekers and help search committees identify concrete strategies for targeted recruitment. In all, there is mixed evidence about the role of marketing and recruitment and its relationship to application or hiring outcomes. We need more empirical evidence on how messaging in job advertisements, personal recruiting, and mentoring shape who applies and who is hired using larger databases that connect search committee processes to outcomes.

Knowledge About Diversity in the Field

Bias can also emerge when search committees anchor their assumptions about diversity in the field based on inaccurate demographic data. Search committee members may believe that the PhD pipeline in their subfield has so few individuals who are women or URMs that the lack of faculty diversity in their applicant pool is inevitable (Cross, 1994; Gasman et al., 2011; Gibbs et al., 2016; D. G. Smith et al., 1996; Turner et al., 1999; Turner & Myers, 2000). However, studies found that across fields diversity among PhD earners exceeded diversity in the professoriate (Gibbs et al., 2016; National Research Council, 2010). There are fields where the pipeline defense is more plausible. However, focusing on the lack of diverse candidates in general constrains the search committee's power to find and recruit candidates from underrepresented groups who are in their field. Alternatively, a critical analysis of pipeline thinking suggests that individuals tend to put up "roadblocks" to justify and rationalize inaction, which undermines recruitment efforts (Sensoy & DiAngelo, 2017).

With this bias in mind, many institutions now provide search committees with data regarding diversity in the field and/or past hiring trends at the institution. (See examples from University of Wisconsin–Madison [Fine et al., 2014] and University of Michigan [Stewart et al., 2004; Stewart et al., 2007; Sturm, 2006], among others.) These data are likely helpful in providing the committee with context about diversity in their field. Some institutions compare the applicant pool for a faculty position with field demographics and do not allow searches to move forward if the demographics are inconsistent. Whether used as an informational or an accountability tool, how or to what extent having these data mitigates bias and encourages committees to be more active in recruitment is unclear. To understand the effect, comparisons of hiring outcomes for search committees who did and did not receive such data needs to be conducted.

Institutional Prestige, Rankings, and Networks

Institutional rankings, prestige, and networks play a role in faculty recruitment. Bias related to these factors can emerge during marketing and recruitment in a number of ways. First, multiple studies using social network analysis and national education databases (e.g., IPEDS [Integrated Postsecondary Education Data System]) consistently showed that the prestige of a candidate's doctoral program was predictive of the prestige of the institution they were hired into across fields and disciplines (e.g., Baldi, 1995; Barnett et al., 2010; Barnett & Feeley, 2011; Bedeian et al., 2010; Bronstein et al., 1986; Burris, 2004; Clauset et al., 2015;

Close et al., 2011; DiRamio et al., 2009; Fabianic, 2011; Freeman & DiRamio, 2016; Lang, 1987; Su, 2013; Terviö, 2011; Thompson & Zumeta, 1985; Way, Larremore, & Clauset, 2016; Weeden et al., 2017; Zhu & Yan, 2017). Prestige, rankings, and networks also shape candidates' views of institutions as they consider applying for faculty roles. For instance, national surveys showed that doctoral students who attended high-prestige institutions placed higher value on prestige as faculty members (Morrison et al., 2011) and qualitative interviews revealed that prestige played a factor in the decision to accept faculty positions (Trower, 2002).

Such findings could suggest a kind of affinity or conformity bias, wherein the search committee recruits only from the top institutions in their field, or candidates are biased toward institutions that are similar to their doctoral institutions. Likewise, prestige could be used as a proxy for quality, wherein the search committee assumes that candidates from some institutions are worthy of being recruited while candidates from institutions lower in the rankings are not. Moreover, search committees, particularly at the most selective institutions, may assume that all potential faculty would want to apply to their institutions (Gasman et al., 2011). Such perceptions fuel the notion that active recruitment is a waste of time.

Another way bias can emerge in the marketing and recruitment process is the reliance on search committee members' networks to spread the word about the position. Studies using social network analysis showed that academic networks tend to be fairly homogeneous (Clauset et al., 2015; Fowler et al., 2007; Hartlep et al., 2017; Way et al., 2016). Often referred to as "homophily," network theories suggested that people who share our sociodemographic identities, intrapersonal characteristics, and background attributes (e.g., doctoral institution), typically composed one's personal and professional networks (Ibarra, 1997; Kossinets & Watts, 2009; McPherson et al., 2001). That is, individuals exhibited strong preferences for people who shared qualities or background characteristics similar to their own, or in-group favoritism/bias (Gorman, 2005). Thus, search committee members may overrecruit from their alma maters and exhibit preferences for candidates who share their doctoral institution or other background characteristics (Posselt, 2016), which limit applicant pool diversity.

Many institutions attempt to raise the issue of using institutional prestige as a proxy for quality by urging search committees to examine the work of the candidate instead of their doctoral institution alone (Fine & Handelsman, 2012; University of Michigan, 2018). Because the practice of asking search committee members to rationalize decisions without using prestige proxies is not systematically employed by all committees, or used in tandem with other strategies, we do not have compelling evidence of its value independent of other strategies. However, much organizational behavior work suggests that having to rationalize decisions often nudges individuals to use System 2 types of thinking (Isaac et al., 2009; Uhlmann & Cohen, 2005) and should be considered as a future intervention in this area.

Phase 3: Evaluating Candidates

Once potential candidates are recruited or decide to apply, they submit a variety of application materials. The search committee reviews materials such as

recommendation letters, CVs, and resumés to glean information about a candidate's past professional experience and achievements, leadership potential, competence, and "fit" for the position in question (Fine & Handelsman, 2012; University of Michigan, 2018). By "fit," we refer to search committee perceptions of the individual candidate's possible fit with potential colleagues, the department or institution more broadly, and the job itself—a construct frequently observed in other research using person–organization or person–job fit assessments (Cable & Judge, 1997; Higgins & Judge, 2004; Kristof-Brown, 2000). Each type of fit may incite bias differently. Depending on the existing dynamics within departments or institutions, this bias could stem from gendered organizational elements, racial bias, or other power structures (Acker, 1990; Ladson-Billings & Tate, 1995; Sensoy & DiAngelo, 2017). This initial review process is therefore a critical period, as bias plays a role in winnowing otherwise qualified candidates from the selection process.

Letters of Recommendation

Several studies demonstrated the presence of bias in academic recommendation letters written for faculty job candidates across fields and disciplines. Studies using linguistic analysis suggested that gender bias influenced the language, content, and the length of letters, with preference given to men candidates (Dutt et al., 2016; Madera et al., 2009; Madera et al., 2019; Schmader et al., 2007; Trix & Psenka, 2003). In other words, women candidates were more likely to be described in ways that are less appealing for hiring purposes than men based on social biases that reflect System 1 thinking. Although the importance of recommendation letters varies by field, we know little about the direct impact social biases in letters have on hiring outcomes and differences across disciplines, and likewise little about differences that emerge in letters based on candidates' racial identity.

CVs and Resumés

System 1 thinking can also emerge in the way search committee members review and evaluate candidates' credentials. Experimental studies showed that faculty evaluators favored applicants they perceived to be men for faculty positions compared to applicants they perceived to be women with identical qualifications (Steinpreis et al., 1999). Similar gender bias existed in experimental evaluation of materials for lab managers (Moss-Racusin et al., 2012) and in historical analysis of academic employment patterns (Sheltzer & Smith, 2014). We found no peer-reviewed, U.S.-based studies on faculty applications that suggest similar bias exists when faculty evaluate candidates who are identified in the hiring process as URMs. However, experimental studies outside of higher education also showed that bias influenced the way reviewers evaluate CVs and resumés related to gender (Glick et al., 1988; F. L. Smith et al., 2005), race and ethnicity (Bertrand & Mullainathan, 2003; Kang et al., 2016), and sexual orientation (Tilcsik, 2011).

Productivity

While reviewing CVs and resumés, search committees typically look for indicators (e.g., grant funding, awards, number of publications) of a faculty member's

research productivity and future success (Fine & Handelsman, 2012; University of Michigan, 2018). For example, search committees may identify who served as a candidate's doctoral advisor, which was shown to be a positive predictor of future productivity in studies that examine bibliometric publication data (Pinheiro et al., 2014). However, numerous studies showed that candidates identified as women and URMs present different levels of accomplishments based on opportunity structures and social biases experienced in graduate school (Feldon et al., 2017; Lerchenmueller & Sorenson, 2018; Milkman et al., 2015; Nittrouer et al., 2018; Posselt, 2016). For example, survey studies showed that scholars identified as women and URMs had fewer publications than those identified as men and White at the end of their doctoral studies due to structural disadvantages (Lubienski et al., 2018; Mendoza-Denton et al., 2017; Pezzoni et al., 2016).

Bias can also shape who is awarded grants or whose research is recognized. One retrospective analysis of prestigious National Institutes of Health grants found that African American researchers were 10 percentage points less likely to be awarded grants (Ginther et al., 2011), while other historical studies have found gender gaps in scholarly awards (Carnes et al., 2005; Jagsi et al., 2009). Bias was also found in review and evaluation of applicants' publication records, as women faculty were more likely to face penalty for coauthorship than men (Sarsons, 2015) and were less likely to be single authors (West et al., 2013).

These findings regarding review of credentials support a range of potential issues for candidates. For example, research revealed that people often use data to confirm their preexisting preferences based on biases—even when there is no confirmatory evidence for their preference (Tversky & Kahneman, 1973, 1974). Given that candidates who are identified as White and men may have an advantage in terms of number of publications or grants they receive, search committees may engage in anchoring, wherein they believe that all candidates should have a certain number of grants based on the number that a single, White-identified male candidate possessed. This is another area where critically examining differences in power and privilege (Ladson-Billings & Tate, 1995; Sensoy & DiAngelo, 2017) is important to enhance the faculty hiring process.

Other Evaluation Measures: Assessing Candidate Competence, Brilliance, Fit, and Leadership Capacity

As committee members review candidate materials and assess them via on-campus interviews, they inevitably make judgments about candidate qualifications as scholars, potential leaders, teachers, and colleagues who "fit" (both organizationally and individually) their faculty. Studies showed that stereotypes and other social biases shape perceptions of fit (Biernat & Kobrynowicz, 1997; Hall et al., 2015; Lyness & Heilman, 2006). In addition, different characteristics are preferred within different disciplines. For example, several studies found fewer women and African American candidates in disciplines where brilliance is the preferred or expected attribute (Leslie et al., 2015; Storage et al., 2016). Another study found that when institutions included the word *leader* in their tenure criteria, fewer women faculty were advanced into tenured roles (Marchant et al., 2007). This can disadvantage the evaluation of candidates who are identified as women and URM if preferred characteristics are not typically associated

with these groups. Likewise, many experimental studies from outside of higher education showed bias existed in the evaluation of competence, qualification, and leadership potential (Biernat & Kobrynowicz, 1997; Carli et al., 2016; Dovidio & Gaertner, 1998; Eagly & Karau, 2002; Foschi, 1996, 2000; Heilman et al., 1988; Heilman et al., 2004; Heilman & Haynes, 2005; Heilman & Okimoto, 2007; Inesi & Cable, 2014; Phelan et al., 2008; Rudman & Glick, 2001; Sackett et al., 1991). Ultimately, social biases associated with who is good at something or fits with certain qualifications may influence the search committee's decisions in determining who moves on in the hiring process.

Research from outside of faculty hiring suggests several nudges institutions can use to mitigate bias during the evaluation phase. First, blind review was proven to reduce bias in the academic publication process (Budden et al., 2008; Roberts & Verhoef, 2016; Tomkins et al., 2017), as well as in organizational hiring (Goldin & Rouse, 2000). Second, studies showed that when evaluators determined the hiring criteria prior to learning about a candidate's gender, it reduced the role that social stereotypes play when reviewing candidate qualifications (Isaac et al., 2009; Uhlmann & Cohen, 2005). Third, there is evidence that evaluators who used rubrics or decision support tools to systematically review each candidate's application showed increased fairness in the evaluation process (Heilman & Martell, 1986; Isaac et al., 2009). Fourth, committees that reviewed candidate applications in pools composed of more than 25% women applicants enhanced the diversity of future hires (Bilimoria & Buch, 2010; Isaac et al., 2009). Fifth, bias is reduced when evaluators examined candidates' application materials at the same time rather than separately and sequentially (Bohnet et al., 2016). Finally, numerous studies of inclusive hiring interventions in higher education organizations showed that raising search committee members' awareness of potential biases at the evaluation stage reduced the impact of bias (Carnes et al., 2015; Devine et al., 2017; Fine et al., 2014; F. L. Smith et al., 2015; Valantine et al., 2014). However, as with other interventions, implicit bias trainings are often deployed at the same time search committees begin to use other strategies, thus making their impact difficult to understand. Overall, despite past research in this area, we found few studies specifically isolated and then tested these interventions in faculty hiring contexts. To see relative differences in outcomes, future research is needed comparing the hiring decisions of search committees that use the nudges described above and those that do not.

Phase 4: Short Lists and Final Decisions

After evaluation of candidate materials, the final steps of the faculty hiring process involve committee and hiring official decisions about a final shortlist, interviews, campus visits, job talks, and other elements that include various stakeholders, evaluators, and structures (Fine & Handelsman, 2012; University of Michigan, 2018). We found that much less research was conducted on what occurs and how bias plays a role in this final phase of the hiring process.

Short Lists

In recent years, most higher education institutions established structures and processes to ensure equity in hiring and to comply with local, state, and federal

EEO and affirmative action legislation. In addition to diversity language in the job advertisement described previously, institutions comply with EEO/affirmative action legislation by assigning equity administrators or human resources representatives to "sign off" on the search committee's search plan and confirm that there is diversity among the finalists represented on the short list (University of Michigan, 2018). However, surprisingly little research has been done on the degree to which these compliance and administrative structures help campuses move forward on diversity hiring goals.

Research on the steps taken by search committees to actually select individuals for the short list is also limited. The few studies in this area suggested that bias influences this step of the hiring process. In one qualitative study, the researcher observed junior faculty hiring committee meetings and found search committee members frequently discussed women's, but not men's, partner status in relation to their likelihood of accepting a position at the institution (Rivera, 2017). Women candidates without male partners were more likely to be advanced to the final hiring stage because they were perceived to be more "moveable" than women with partners, whereas male candidates were thought to be moveable regardless of their partner status. Some non–higher education studies have also suggested the evaluation criteria "shifted" and became more rigorous as candidates identified as women or Black advanced in the hiring process (e.g., Biernat et al., 2009; Biernat & Kobrynowicz, 1997; Phelan et al., 2008; Uhlmann & Cohen, 2005). Yet no studies within our search specifically examined these shifting criteria within the context of faculty hiring. Overall, findings in this area suggest that the objective criterion faculty use to arrive at the short list are often imbued with implicit meanings that are biased against candidates identified as women and URMs.

One nudge institutions might use to enhance diversity during this phase is requiring diversity on the short list. Quantitative studies of real-life faculty searches in STEM fields found significant relationships between the representation of candidates identified as women and URMs on the short list and the likelihood of hiring a faculty member from these groups (Bilimoria & Buch, 2010; Glass & Minnotte, 2010). In some ways, the results rise from simple probability: The odds of hiring a candidate recognized through the application process as a woman and/or URM are higher if they are represented on the short list than if they are not. However, experimental studies and evaluation of hiring policies outside of higher education showed that requiring diversity on the short list influenced hiring outcomes beyond mere probability (Proxmire, 2008; Rider et al., 2016). These studies, albeit limited, suggest that institutional leaders who hope to increase diversity among hires should require faculty search committees to have as diverse a short list as possible. Despite such policies and practices, we know little through research about whether diversifying the short list results in enhanced diversity in final hiring decisions.

Interviews

Once the short list has been developed, search committees typically invite candidates to campus for an in-person interview day (Fine & Handelsman, 2012; University of Michigan, 2018). System 1 thinking can invade on-campus interviews in multiple ways. For example, researchers in one qualitative study

video-recorded academic job talks ($N = 119$) in engineering departments and found that candidates identified as women faculty received more follow-up questions and more overall questions than men, which may negatively affect their interview experience and potential for hiring (Blair-Loy et al., 2017). Yet, other than this recent study, we found no studies on how candidates experience the campus interview process and whether these experiences negatively or positively affect their hiring prospects, and likewise none that specifically examined how aspects of race may shape that experience.

There are several other ways bias might emerge during face-to-face meetings between candidates and evaluators during faculty hiring, although all of the studies we found focus on gender bias rather than racial bias. Experimental and survey studies showed that evaluators unconsciously viewed candidates identified as women who were more attractive as less competent or qualified for scientific or leadership roles (Banchefsky et al., 2016; Heilman & Stopeck, 1985a, 1985b; Salvucci & Lawless, 2016) and penalized women who revealed they were mothers during the interview (Correll et al., 2007). The combined impact of these findings indicates that candidates identified as women may be viewed as less qualified during their interview, but they also suggest that candidates may have negative experiences during on-campus interviews that lead them to reject an offer if received. In considering the final stages of the hiring process, particularly during campus visits where candidates are meeting with a variety of stakeholders in person, it is important to acknowledge the role that race, gender, and appearance can play in perpetuating bias in evaluation.

Another way bias might emerge during the campus visit is between interviews as candidates and faculty members interact during meals, on a campus tour, or in one-on-one meetings (Fine & Handelsman, 2012; University of Michigan, 2018). For instance, during the on-campus visit, a candidate often meets one-on-one with faculty in the hiring department who are not members of the search committee. In these cases, faculty may not use an interview protocol and may not be asked to give structured feedback about the candidate using the evaluation criteria. Unscripted interactions (Ridgeway & Correll, 2004), particularly those occurring between a candidate from a minority group and an interviewer from a majority group, were shown to cause discomfort and anxiety, which can lead to discriminatory behavior on the part of the majority member and heightened awareness of the racial aspects of the interaction for the minority candidate (Avery et al., 2009; Ruggs et al., 2011).

The overwhelming recommendation in the organizational and social psychology literature for reducing bias during interviews is for search committees to use structured interview processes. Structured interview processes were shown to reduce bias related to gender or race, and against candidates who are pregnant or have a physical disability (Bragger et al., 2002; Brecher et al., 2006; McCarthy et al., 2010). Faculty search committees are generally required to use structured elements during the interview process, but there are many interactions through a campus visit that will inevitably be unstructured in nature. Thus, the on-campus interview and the unstructured interactions that occur during them seem like parts of the hiring process that are particularly susceptible to bias. We need to know more about the interview process from start to finish, the trainings required for all

individuals involved in the process, and the requirements for constructing interview questions and protocols in order to provide more data-driven strategies in this area.

Hiring Official and Offers

There is a major gap in the literature regarding the role of the hiring official (most often a department chair or sometimes a dean) in final hiring decisions, although most hiring officials often hold a high level of discretion in the final decision. Researchers acknowledged the concept of "diversity leadership" and responsibility of leaders to translate goals for diversity to recruitment and retention (Wolfe & Dilworth, 2015); however, we found no empirical studies that examine the role of department leadership in reducing bias in hiring. Our literature review excluded op-eds or nonempirical analysis of specific campus efforts, although we found many such pieces claim administrator success in moving the needle (e.g., Flaherty, 2017). Empirical studies are needed on the role of the equity administrator in upholding these policies, influencing the search committee, and contributing to a diverse short list. We should study leadership efforts to hold committees accountable for diverse short lists and examine whether administrators who make hiring decisions are trained themselves in how to use strategies to mitigate bias and use inclusive practices.

Throughout this article we critiqued the extant literature and suggested areas for future research. However, in the next section we go beyond a call for small-scale studies on specific parts of the hiring process, and instead argue for large-scale metastudies and meta-analyses.

Discussion

Four themes emerged from our review of the literature. First, there are more studies about the existence of gender bias within academic hiring than racial and other kinds of bias. This is an observation about the focus of the extant research, not an indicator that there is more gender than race or other kinds of bias. Subsequently, we know little about whether some nudges may be more or less effective at reducing gender or racial bias, and which kinds of racial bias and other bias. This is especially important because nudges are highly dependent on context and backdrop and the identities of all involved (Thaler & Sunstein, 2008). An intervention to reduce bias that may occur during a job talk for a White woman candidate could have a very different effect if the candidate is an African American woman and the audience is primarily White men. Second, there is much more research examining and proving the presence of bias in hiring than on interventions, or nudges, to mitigate bias. Third, multiple methods were used in studies of faculty bias in hiring, including experiments in social psychology, interviews, surveys of hiring officials, and analysis of extant data on search strategies used and hiring outcomes. However, the number of participants in most studies was small in comparison to the field, and few studies were longitudinal or compared one strategy for bias mitigation against another or isolated their effects. As such, nudges toward greater inclusion have not been tested with large samples and proven across different groups that might experience bias in hiring, or intersectional biases (e.g., gay Hispanic men). Fourth, in some of the best empirical work

isolating and revealing biases in lab settings, key contexts present in real hiring situations are stripped out. As such, implications of these studies are useful as evidence of bias but are not instructive for mitigation.

Although there is a compelling need to hire more diverse faculty, and many interventions to do so, there is almost no empirical meta-analysis of what works and does not with the typical controls and mechanisms found in randomized experiments. There are many reasons for this gap in the empirical literature. Faculty hiring is a human process with many intervening variables that are hard to control for, making natural experiments difficult. In the few studies conducted at institutions where half of departments in a year were given a treatment and the other half were not, the fact that the institution is taking part in the experiment suggests that organizational leaders are interested in diversity. However, this method can contaminate results by influencing the hiring processes for the nonintervention groups. Alternatively, institutions may implement diversity hiring interventions across all departments rather than segmenting out control and experimental groups. Thus, most assessments of interventions have studied pre- to post change rather than comparing departments that received the intervention to the ones that did not. Despite the difficulty in conducting empirical studies, expanding this type of research may better inform strategies for recruiting diverse faculty. Academic leaders rarely have enough concrete evidence that a particular intervention will work when persuading faculty to put it in place. Likewise, leaders may need to invest in new systems or infrastructures to deploy certain interventions (e.g., blinding CVs) and thus may need to draw upon empirical evidence to justify resource expenditures.

Second, faculty hiring processes, although regulated nationally by fair labor standards, are handled locally and institutions rarely collaborate. Most institutions keep track of hiring data in separate systems that do not communicate with other systems. Lack of systematic tracking makes keeping record of even basic statistics (e.g., the percentage of URM-identified individuals in candidate pools) difficult to understand and compare to peer institutions. Likewise, although many institutional review boards might consider approving a secondary analysis of candidate files if they were stripped of names and other identities, many institutions are reluctant to provide researchers access to any information about searches without explicit permission from applicants. If large state systems of higher education, or other affiliated groups such as the Big 10, would create some kind of linked database on faculty hiring, it would be more possible to learn differences in biases experienced by specific subgroups such as faculty who identify as gay men, African American men, or Hispanic women.

Third, as critical theorists might point out, coming to grips with the biases that emerge in faculty hiring can be a difficult process in which institutions are forced to confront inherent inequalities that are built into faculty hiring (Sensoy & DiAngelo, 2017). As Gasman (2016) argued, the reason why many faculty diversity efforts have not gained much traction is a lack of will and interest among majority faculty to hire faculty from historically underrepresented groups. These could be implicit or explicit choices. In this article, we attempted to pinpoint junctures in the hiring process wherein institutions might change some of the choice architecture (Thaler & Sunstein, 2008) around these built-in inequities. Yet there

is much work left to be done to ensure that equity is advanced in terms of not only faculty recruitment but also access and retention for all groups historically marginalized in academe.

Even so, there is much that can be done to study and improve efficiency and inclusivity in the faculty search process. We believe this based on two important stances: first, as researchers who study academic careers and reward systems, and second, as leaders of an inclusive faculty hiring initiative for two years on our own campus. The first two authors lead a faculty diversity in hiring project, where six academic colleges and over 80 search committees engaged in 10 evidence-based faculty search processes to improve diversity in hiring over a 2-year period. These dual perspectives allow us a unique vantage point of having both analyzed and critiqued the literature and worked directly with search committees to make that literature useful for actual search committees.

Based on this experience as well as this review of the literature, we identify several practices that we view as having the most promise for institutions seeking to improve inclusivity in hiring across disciplines. These interventions include (a) use of data by search committees and those who approve shortlists to contextualize the applicant pool vis-à-vis the full (disaggregated) demographics in the field, (b) committee creation and mandatory use of decision support tools (criteria rubrics), and (c) increased accountability enforced by hiring officials and equity administrators for diverse applicant pools and short lists. As with any intervention or policy, we recognize that implementation and context are key for understanding how and if these interventions will succeed.

Recommendations and Conclusion: Larger, Longer, and More Ambitious Studies on Faculty Hiring

We see several next steps for research on faculty hiring, informed by behavioral economics. First, there is much research that could be done to understand what works via retrospective or historical experiments. For instance, researchers could compare institutions that have experienced 5% to 10% increases in faculty diversity in the past 10 years or compare institutions that received NSF-ADVANCE grants to those who did not, to assess what practices/conditions helped institutions move the needle. Researchers could control for institutional type, endowment size, geographical location, and faculty demographic data disaggregated by race, ethnicity, and gender the year the awards were made. Faculty demographic data submitted to IPEDS annually could be analyzed to assess outcomes, and case study researchers could create a database of the types of interventions employed to evaluate effectiveness. Researchers could likewise disaggregate trends by field/discipline to identify whether some practices are better in fields with higher or lower faculty diversity.

Another way to study outcomes is to systematically follow doctoral graduates through the application and hiring process via institutional application and hiring records. If coordinated between the National Survey of Earned Doctorates and institutions, such life course analysis focused on the hiring process would help solve two big gaps in the literature that influence search committee member perceptions and beliefs. The first gap is understanding whether cumulative disadvantage (Moody, 2012; Valian, 1999), wherein candidates who are identified in the

hiring process as Hispanic, African American, American Indians or Alaska Natives, or other historically marginalized identity or women have less human capital in terms of influential mentors, high-pedigree degrees and awards, fellowships, and publications, or implicit bias is more influential in the lack of faculty diversity in a field. A second gap such research would fill is closely related. Higher education institutions have created data systems to keep track of the diversity of their candidates for EEO reporting purposes. Such reporting systems typically require search committee chairs or their designees to identify new applicants and their status when they leave a search (e.g., were they deemed qualified or unqualified). Yet we are aware of no systematic, national study of how individuals identified as women or of historically marginalized identities tend to fare compared to those identified as men or White candidates along the different stages of this hiring process. The University of California System appears to be the first state system with the potential to do such analysis (Carlson et al., 2017), having purchased an applicant system for all state institutions to use. However, similar studies could be done within organizations like the Big 10 Academic Alliance or the Association of American Universities to likewise share and analyze such data. Per earlier comments, allowing candidates the option to choose from nonbinary gender categories in identifying themselves, and to choose all relevant racial categories and then disaggregate the data to see distinct differences and patterns, is critical to better inform practice.

Turning from the past to the future, like our colleagues who made the "immodest proposal" of enhancing the rate at which faculty diversity is achieved (Marschke et al., 2007), we recommend a nationwide, collaborative, quasi-experimental study of faculty hiring. Modeled after Duckworth and Milkman's multiyear, multisector study of nudge interventions in health, retirement savings, and education (Dubnor, 2017), we propose a national study of nudge-like interventions to reduce bias against faculty identified as women and of historically marginalized identities. Researchers would choose interventions that are commonly used in faculty hiring that seem to us to be most promising, yet are understudied and in need of evidence to justify required implementation. One third of 4-year higher education institutions (about 500) would be invited by lottery to participate, and there would be an incentive for doing so. Each participating campus would then be randomly assigned to implement one of the five hiring practices over a 3-year period. Their success would be compared to the institutions not invited to participate by analyzing applicant, faculty representation, and new hire data across all 1,500 postsecondary 4-year institutions.

A final unresolved issue relates to how to study and treat fields with high, medium, or low representation of women and/or faculty identified as URMs. It can be argued that institutions should treat all fields the same. Implicit bias exists across STEM, the humanities, and professional fields, and social biases are present among faculty identified as men and women, White, and URM (Milkman et al., 2015). Practically, most higher education institutions would find treating search committees from different fields in different ways depending on representation ill-advised. Even so, faculty in different fields vary in the extent to which they are open to diversity issues (Milem & Hakuta, 2000; Park & Denson, 2009), different knowledge paradigms (Leslie et al., 2015; Park & Braxton, 2013), and

cultural norms (i.e., rigid vs. Loose; Gelfand et al., 2011) that shape faculty behavior across fields. Likewise, the bias search committees show to a Hispanic man may be decidedly different than to an African American woman, and given different fields emphasize different characteristics in hiring (e.g., brilliance vs. emotional and social competencies), there is reason to believe a one–size-fits-all intervention will not work. Thus, research could examine whether different approaches, such as those shaped by self-determination theory (e.g., F. L. Smith et al., 2015) or those informed by other approaches, are more or less effective in changing behavior based on discipline and based on identity group.

Every few months, *The Chronicle of Higher Education* and *Inside Higher Ed* highlight a college or university that, through some stroke of genius, luck, or serendipity, has been able to increase the diversity of its faculty (e.g., Flaherty, 2017). Typically, credit is associated with a dynamic dean, provost, or president; a new search process; a grant; or an initiative. However, little effort is made to tease apart what exactly made the difference in the zeitgeist of efforts and whether the effort is transferable, will last, or will disappear in 5 years. As social scientists, we can do better. By applying behavioral design concepts and methods to the study and implementation of faculty hiring, we can nudge higher education toward a less biased, more inclusive faculty hiring system.

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