

The Pandemic as a Portal:

Reimagining Psychological Science as Truly Open and Inclusive

Alison Ledgerwood^{1*}, Sa-kiera Tiarra Jolynn Hudson^{2*}, Neil A. Lewis Jr.^{3*}, Keith B. Maddox^{4*}, Cynthia L. Pickett^{5*}, Jessica D. Remedios^{4*}, Sapna Cheryan^{6*}, Amanda B. Diekman^{7*}, Natalia B. Dutra⁸, Jin X. Goh⁹, Stephanie A. Goodwin^{10,11}, Yuko Munakata¹, Danielle J. Navarro¹², Ivuoma N. Onyeador¹³, Sanjay Srivastava¹⁴, and Clara L. Wilkins¹⁵

*indicates co-first-authorship

¹ University of California, Davis

² Yale University

³ Cornell University

⁴ Tufts University

⁵ DePaul University

⁶ University of Washington

⁷ Indiana University

⁸ Federal University of Rio Grande do Norte

⁹ Colby College

¹⁰ Wright State University

¹¹ Stevens Institute of Technology

¹² UNSW Sydney

¹³ Northwestern University

¹⁴ University of Oregon

¹⁵ Washington University in Saint Louis

Author Note: The first eight authors share co-first authorship; subsequent authors are listed alphabetically. The authors would like to thank Katherine Weltzien, Paul Eastwick, Paige Harden, members of the academic Twitter community, ReproducibiliTea Davis, Michelle Ryan, Moin Syed, an anonymous reviewer, and the editor for their help at various stages of the paper's development.

Abstract

Psychological science is at an inflection point: The COVID-19 pandemic has already begun to exacerbate inequalities that stem from our historically closed and exclusive culture. Meanwhile, reform efforts to change the future of our science are too narrow in focus to fully succeed. In this paper, we call on psychological scientists—focusing specifically on those who use quantitative methods in the United States as one context for such conversations—to begin reimagining our discipline as fundamentally open and inclusive. First, we discuss who our discipline was designed to serve and how this history produced the inequitable reward and support systems we see today. Second, we highlight how current institutional responses to address worsening inequalities are inadequate, as well as how our disciplinary perspective may both help and hinder our ability to craft effective solutions. Third, we take a hard look in the mirror at the disconnect between what we ostensibly value as a field and what we actually practice. Fourth and finally, we lead readers through a roadmap for reimagining psychological science in whatever roles and spaces they occupy, from an informal discussion group in a department to a formal strategic planning retreat at a scientific society.

The Pandemic as a Portal: Reimagining Psychological Science as Truly Open and Inclusive

Pandemics have forced humans to break with the past and imagine their world anew. This one is no different. It is a portal, a gateway between one world and the next. We can choose to walk through it, dragging the carcasses of our prejudice and hatred, our avarice, our data banks and dead ideas, our dead rivers and smoky skies behind us. Or we can walk through lightly, with little luggage, ready to imagine another world. And ready to fight for it.

- Arundhati Roy, *The Pandemic Is a Portal*

Science, in its idealized form, is an approach: a systematic method that anyone and everyone can use to accumulate and organize knowledge about the world. But historically and in practice, science is exclusive, and U.S. psychology is no exception. Psychological science, as practiced in the United States, was built by, for, and about White, affluent, male people and their perspectives (see e.g., Berscheid, 1992; Bulhan, 2015; Guthrie, 1976; Gonzales, 2018; Ludy, 2018). Because its systems were designed to cater to one particular set of people, these systems are, to varying degrees, exclusive. Furthermore, this exclusivity not only touches, but also contorts and diminishes, all aspects of psychological science. As a consequence, our scientific culture restricts the diversity of identities and perspectives held by people who enter the field; it legitimizes practices that hoard scientific knowledge so that not everyone can access it; it burdens people who persist in the face of exclusion and hampers systemic changes that would ease their path; it de-prioritizes and delegitimizes research questions and course topics that depart from the dominant viewpoint; and it undervalues all participant perspectives outside of those reflecting a narrow slice of the human population (Bahlai et al., 2019; Cheryan & Markus, 2020; Lewis, in press; Onie, 2020; Padilla, 1994).

This paper considers the central question: How do we reimagine our discipline as fundamentally open and inclusive? The term “open science” has been used over the past decade

to characterize a reform movement comprising a number of different practices and policies, including sharing data, materials, and code, making scientific papers freely and publicly accessible, preregistering study designs and/or analysis plans, freely sharing teaching tools and educational resources, making the review process and other decision-making more transparent, and fostering post-publication peer review (e.g., McKiernan et al., 2016; Murphy et al., 2020; Tenney et al., 2020; Wolfram et al., 2020). But for the purposes of this paper, we wish to focus not on specific open science behaviors or initiatives, but rather on several of the essential goals that motivate many scientists (including many of us) to pursue these practices: Enabling anyone who would like to participate in science to do so, making scientific process and output transparent to all, and dismantling the hierarchy and entrenched power structures that privilege seniority and “insider status.”

Of course, efforts to reform psychological science are not new. Indeed, scientists have been pushing for change in academia for some time along what are often considered separate avenues, including not only the open science behaviors and initiatives described above, but also decreasing gender inequity and increasing racial diversity. Progress along each of these avenues has been slow and difficult. In this paper, we argue that progress has been slowed by the treatment of each of these avenues as separate goals, when in fact, change along these avenues align in pointing to fundamental parts of the academic enterprise that need to be interrogated, dismantled, reconceptualized, and rebuilt. Indeed, we believe that it will not be possible to fully address systemic inequities or barriers to open science in academia without fundamentally changing the culture of our institutions in terms of what we value as good and meaningful contributions to science.

Perspectives that Inform This Paper

Understanding the Past

In this paper, we will suggest that efforts to reform psychological science along any one avenue in isolation cannot fully succeed because true change can only come from considering systems of exclusion as *interlocking*. This analysis is at the core of *intersectionality*, a framework for analyzing power, inequality, and exclusion (Crenshaw, 1989). Intersectionality is often applied to understand political interventions and social movements that seek change along a single dimension (e.g., gender equity) and, in doing so, exclude people who are marginalized along multiple dimensions (e.g., women of color; Cho, Crenshaw & McCall, 2013; Warner, Settles & Shields, 2018). Because efforts to reform psychological science can be thought of as movements, intersectionality can enrich scholars' understanding of (and reinvigorate investment in) efforts to reform psychological science (Cole, 2009; Syed & Kathawalla, 2020).

Specifically, we will suggest that an intersectional analysis reveals a common origin of closed science and inequality in psychological science. In this vein, we will posit that both closed science *and* inequity in U.S. psychology originated in a scientific culture created by wealthy White male scholars to cater to their own experiences, perspectives, and needs—a culture that over-represents and over-values the experiences and perspectives of the relatively narrow set of people who created it (Clancy & Davis, 2019). Thus, it is not possible to separate a dimension of exclusion based on gender from one based on race, or socioeconomic status, or disability, or language: These dimensions are fundamentally interlocking elements of a system that was set up to promote, value, and support one very specific set of people (Feagin & Ducey, 2017; Keith, 2018). This system can be understood as radiating outward from an included and prioritized center; those whose identities position them closer to that center (e.g., a straight White woman)

experience less intense exclusion than those whose identities position them farther from that center (e.g., a queer Black woman).

Moreover, we will argue that, because systems of exclusion *work together* to uphold our current professional culture, efforts toward change will not succeed as separate movements, and will instead reproduce the exclusive systems they fail to consider. In other words, we suggest that a movement toward open science will not succeed unless, as a core objective, it seeks to address power imbalances and remedy inequality in tandem; a movement toward gender parity will not succeed unless it seeks to address other dimensions of inequality at the same time.

Understanding the Present

We believe that the time to reimagine our discipline is now. COVID-19 has created a deep and sustained disruption to the status quo that presents an opportunity for nonlinear change (Roy, 2020) and “disciplinary disruption” (Grzanka & Cole, 2021). The summer of 2020 witnessed such a “waterfall moment” in U.S. discourse around racial injustice, in which “the movement from margin to center accelerates” (Solnit, 2020) and within which there is real and urgent potential to “take audacious steps to address systemic racial inequality” (Richeson, 2020). Hundreds of thousands of women have left the U.S. labor market because COVID-19 exposed the disproportionate burdens of caring for and educating children that women face (Gupta, 2020). Women, especially women of color, make up a significant proportion of essential workers and have been risking their lives to support others and keep them alive (Robertson & Gebeloff, 2020). We must not let these calls for change pass without real and consequential action.

Table 1

A Vision for an Open and Inclusive Psychological Science. We argue that the steps described in our paper must be taken to make our science more inclusive and strong.

A future we want	How our recommendations help get there
We can build cumulatively on valuable resources and datasets that others have provided. We do not lose years of work trying to build on weak findings.	People are incentivized to collaboratively strengthen the foundation of the field.
We gain a better understanding of mind and behavior. We make substantive discoveries in underexplored domains as well as in areas we thought we knew well.	Scientists with a variety of perspectives are included in the field and enabled to ask questions informed by their vantage point. Researchers study mind and behavior across settings, systems, and cultures, allowing insights that would otherwise be impossible.
We can recruit the best people to our labs, departments, journals, and societies.	Potential applicants have been included at all stages and have not been driven out by exclusion, hostility, or assault. Past contributions are not overvalued or undervalued based on how well they fit with dominant viewpoints, allowing undistorted assessments of quality.
Our practices align with our stated values.	If we say we value diversity, human dignity, strong methods, and a cumulative understanding of mind and behavior, our incentive structures are carefully crafted to reward practices that instantiate these values.

It will not be easy for psychologists who are close to the included center of the field to take this opportunity. Indeed, as psychologists, we are especially well poised to understand the barriers to change at this moment: Our theories suggest that threats to the existing system, time pressure, and financial pressures can all create strong structural and psychological forces to resist change, cling to what we know, and prioritize personal gain (Jost et al., 2009; Kruglanski et al., 2006; Roux, Goldsmith, & Bonezzi, 2015; Wilkins et al., 2016). Nonetheless, the COVID-19 pandemic is already demanding that we pause business as usual to rethink and reconceptualize

our systems and processes, while renewed attention to racism continues to challenge some of our fundamental assumptions about how academia operates (e.g., Bellamy et al., 2020). In other words, disruptive change is already occurring, and it is up to us to steer our discipline in the context of that swiftly moving water. This paper starts to imagine a destination toward which we might steer (see Table 1).

Understanding What We Can and Cannot Speak to: Author Positionality Statement

We have written this paper to spark discussion and change in those parts of the discipline with which we are collectively familiar. We invite psychologists (and more broadly, scientists) from other areas to engage in a similar kind of self-reflection; this paper is best conceptualized as one discussion of many that could in concert guide the direction of our field. The author team's ideas about how to make psychology more open and inclusive are shaped by our own identities and experiences; collectively, our vantage points enable us to perceive some things clearly while obscuring others. We took care to create an author team that includes various career stages as well as several racial and ethnic identities, gender identities, sexual orientations, and countries of origin; in contrast, our paper does not delve into inclusion as it relates to other forms of discrimination—such as mental health and disability—because our collective experiences and perspectives do not position us particularly well to know about and speak to those dimensions. We are all psychologists and mostly social psychologists,¹ with collective experience working at both research-focused and teaching-focused institutions that are relatively well resourced and high-status. Most of us live and work in the United States and work primarily with quantitative methods; we therefore focus our discussion on this context as one of many important contexts in

¹ Note that because we are all psychologists, we are not well positioned to discuss open and inclusive science through an interdisciplinary lens (see e.g., Flis, 2019, for one example of how discussions of open science within psychology can be limited).

which to talk about reimagining science. At the same time, we recognize that U.S. psychology and quantitative psychology are themselves privileged and exclusive parts of the field.

Ultimately, if we are to successfully reimagine ourselves, we must not only dig into our local history and context (the scope of this paper) but also consider scientific oppressions more broadly (see e.g., Syed, 2021).

For the purposes of the specific discussion developed in this paper, we will use the term “our discipline” to refer specifically to psychological science as practiced in the U.S. Some of what we discuss may apply uniquely to this particular context and some may resonate more broadly, especially for the many psychological institutions that developed in a U.S. context (e.g., societies like APA and APS, as well as many scientific journals) and for those in geographical areas that share similar colonial histories (e.g., Canada, Australia, and Western Europe). For example, intersectionality can provide a useful lens for understanding how privilege and oppression operate in many countries (e.g., Ducey & Feagin, 2021; Hogan et al., 2018); likewise, some of the issues we discuss related to anti-Black racism in the United States may generalize to anti-Indigenous racism not only within the U.S. but in other countries as well. Scholars may find it useful to think about the contours of local systems of inequality (e.g., related to colonialism, class, ethnicity, skin tone, and/or immigration status), and how the history of those systems has specifically shaped their local institutions. Thus, this paper is best conceptualized as a starting point for a series of conversations that must be broader, longer, and more inclusive than any one paper.

Understanding the Problems

We begin by considering the question of why our discipline has not yet been successful in its attempts to become a truly open and inclusive science by addressing racism, gender

inequity, and closed science. There are of course many possible answers to this question, but we focus on one in particular that we think is especially important to understand and that the current societal moment in the United States may help to elucidate: the tendency to think narrowly about one issue at a time. Many attempts to make our field more open and inclusive have focused on a single system of exclusion in isolation—for example, gender wage gaps or a paywalled publication system for disseminating science—rather than grappling with the fundamentally intertwined nature of exclusive systems.

Intervention efforts geared toward addressing a single dimension of exclusion in isolation have two failings. First, they often cause or perpetuate inequities along other dimensions. For example, a university engineering department that focuses on hiring more women without also attending to racism may privilege White women over women of color (Purdie-Vaughns & Eibach, 2008; Goff & Kahn, 2013). Second, they often result in relatively small changes around the edges of our institutions and culture. For example, a university might require that faculty on hiring committees attend a workshop that covers gender bias (e.g., UC Davis Academic Affairs, 2020); a scientific society may offer funding for members of underrepresented groups to attend conferences (e.g., SPSP, 2020), and a journal might require a specific open science practice like sharing raw data whenever possible (e.g., Cognition, 2020). The isolated, small-scale, and peripheral nature of most interventions make them more feasible to implement (both in terms of resources required and amassing sufficiently broad support), but also leave untouched the foundational inequities upon which our institutions are built.²

² Relatedly, notice how each of the interventions listed in the prior sentence focus on opening metaphorical doors without paying attention to what is happening in the room beyond the door. Removing barriers to hiring women in STEM fields, supporting conference travel for underrepresented group members to attend conferences, and increasing data sharing all increase *openness* without necessarily addressing *inclusion*, or the question of whether those who want to participate in science are empowered to do so (Albornoz, 2016; Roberson, 2006). Once people step through the door to a job or a conference, will they feel like they belong and have voice in decision-making?

In this section, we will discuss how these foundational inequities stem from the history of our institutions and how they were designed to cater to a small subset of people. We draw parallels between the history of psychological science and the history of U.S. society that help highlight how setting up institutions to serve a small subset of people produce inequitable and hierarchy-perpetuating reward and support systems.

Who was our discipline designed for?

To understand how inequities have been built into our field and our institutions, it is necessary to first consider not only who has been historically excluded from the field, but also who has been historically *included*. At its inception, the discipline we know in the U.S. as psychological science was the purview of wealthy White men from Western European cultures (Keith, 2018). Early psychologists established a professional and scientific culture that catered to their experiences, needs, and values—a culture of *neoliberal individualism* (Cheryan & Markus, 2020; Salter & Adams, 2013). Neoliberal individualism emphasizes values of individual freedom, meritocracy, and identity-neutrality, values that both reflect and uphold how privileged people—wealthy White men in particular—understand the world (Salter & Adams, 2013). For example, defining the path to scientific discovery as competitive and individualist ensures that those already in power (and those connected to the powerful) are best positioned to make scientific contributions. Individualistic notions of science also champion empowerment within the system rather than changing the system itself (Kim, Fitzsimons, & Kay, 2018). Similarly, discouraging the open sharing of ideas, resources, and data keeps knowledge and, thus, power, in the hands of those privileged to already have access. Early in the history of academia, the number of papers one published was established as the measure of success (e.g., “publish or

Once people access a data file, can they understand and use it? Whose data are being shared, and are they empowered to shape the research?

perish”; Wilson, 1942)—after all, rarely did early scholars need to take time away from writing papers to care for family or to mentor students facing challenges. Their students, like the early scholars themselves, thrived in this system. Meanwhile, those who did not thrive in this system tend to be perceived as incompetent (Biernat & Kobrynowicz, 1997; Williams, 2014). There is no room for error for those on the margins of academia.

Over time, through resistance and activism, more people gained access to psychology in the U.S. (and more broadly in Canada, Australia, New Zealand, and Western Europe; Kenneth, 2018). However, social justice movements prioritized the relatively privileged members of marginalized groups, resulting in less progress than could have been achieved through more inclusive efforts. For example, the work of White, cisgender women to legitimize gender as a topic worthy of scientific study addressed gender equity in a way that excluded women who were not White, cisgender, heterosexual, and wealthy (Warner et al., 2018), thereby exposing most women to further harm. Intersectionality reveals how narrow social change efforts ultimately reproduce the inequities that they have not explicitly addressed, preserving the positions of those at the top of the hierarchy and making it harder to see the disadvantages faced by people at the intersections (Warner et al., 2018). Indeed, our modern notion of intersectionality emerged from the critical race and legal scholarship of Kimberlé Crenshaw, who described how U.S. anti-discrimination law, by treating racial discrimination claims as separate from gender discrimination claims, leaves Black women exposed to compound discrimination: Laws that address either alone simply replicate (and further hide) sexism within racism or racism within sexism (Crenshaw, 1989). Similarly, we can employ intersectionality to understand how any movement in psychology to topple the established order, if focused on only one dimension of change (e.g., advancing women in STEM, or the open science movement), will

invariably reproduce existing social hierarchies by locking out people who are marginalized along other, unconsidered dimensions of exclusion (Albornoz, 2018; Bahlai et al., 2019; Whitaker & Guest, 2020). For example, a group of people working to advance open science may naturally tend “to craft narrow solutions that just work for themselves, and for people and situations they know” unless they intentionally seek out and include a diversity of perspectives (Srivastava, 2019).

Inequitable Reward Systems

The history of the discipline reflects the broader societal context in which it developed: U.S. society was also set up to cater to wealthy White men (Kendi, 2017). These similar (and intertwined) histories gave rise to similar inequities; by observing one, we can learn about the other. For example, the onset of the COVID-19 pandemic highlighted the glaring disconnect between what work people in the United States consider valuable or “essential” and what work the society actually rewards or values. For instance, farmworkers literally allow the society to eat, and yet these “essential workers” continue to be underpaid and underprotected—they are not paid according to the value of their labor and in many cases they are denied social safety nets like access to relief checks and health insurance (Coleman, 2020). In general, the work that is actually essential for the functioning of society is also underpaid and underappreciated, in part because it is disproportionately performed by lower-status groups in society (namely, women and especially women of color; England, 2005; Stewart, 2020).

Importantly, we can take these observations and turn them inward to examine our own systems in psychological science as practiced in the U.S..³ In other words, we can ask ourselves:

³ We note that many aspects of the following discussion apply to science and academia more broadly, but we focus our attention on psychological science specifically both because that is where our own experience lies and as a specific case study and starting point for what could evolve to be a broader reimagining of academia.

(1) what is the “essential work” of our science that is valuable but not valued in hiring, promotion, and award decisions, and (2) who does this work?

The first question leads us to consider labor that is integral to the functioning of our science⁴ but that does not necessarily produce lead-authored research papers in mainstream journals (i.e., the output that is most rewarded in our discipline). Common examples of this kind of work include the “care work” of mentoring and teaching undergraduate and graduate students and “the [service] work of making the academy a better place” (Social Sciences Feminist Network Research Interest Group, 2017), both of which can overlap with the essential but often invisible work of increasing diversity and inclusion in the department, university, and/or field (Joseph & Hirschfeld, 2011; Matthew, 2016). Less common examples include under-rewarded contributions to research, many of which are critical to open and inclusive science: working on large-scale collaborations (Klein & Falk-Krzesinski, 2017); creating apps, R-packages, blog posts, and other open resources that help other researchers do their work more effectively and efficiently (Henninger & Hart, 2020); and spending time making one’s own data, code, and materials findable, accessible, and easily usable by others (Wilkinson et al., 2016). This also extends to work that researchers do to make their research more replicable, generalizable, and well grounded in formal theoretical work, to the extent that these efforts require additional time and resources to increase statistical power, carefully check results for accuracy, learn and use more sophisticated analytic and mathematical approaches, sample harder-to-recruit populations,

⁴ We focus on labor among faculty and students in this paper, but it is important to recognize that there are many other workers who are essential to our science and who are under-recognized and under-rewarded, including (but not limited to) maintenance workers, groundskeepers, construction workers, food service workers, and university staff. Within the broader category of faculty, adjunct faculty are often overlooked and underpaid. All of this valuable labor should be acknowledged and compensated accordingly with appropriate wages, job security, and benefits (e.g., health care).

and plan thoughtfully before executing a study (see e.g., da Silva Frost & Ledgerwood, 2020; Judd, Westfall, & Kenny, 2012; Luce, 1995; Navarro, in press; Nielsen et al., 2017).

Obviously, there are individual differences in who performs these various forms of valuable but under-rewarded labor, both in terms of who voluntarily takes on this work and who is *expected* to take it on. One faculty member in a department might ask to teach or be assigned to teach a particularly time-intensive core course, while another faculty member teaches something less time-intensive. However, research has also documented striking group-level disparities in who takes on this work and who is expected to take it on. On average, women faculty spend more time than men engaged in teaching (Bellas & Toutkoushian, 1999) and service, especially internal service for the university (Guarino & Borden, 2017). Women are also asked to do more teaching and service work, and often expend additional labor finding ways to decline these extra requests in a way that minimizes negative consequences (El-Alayli et al., 2018). Faculty who identify as members of underrepresented groups (e.g., people of color, LGBTIQ faculty, and first-generation faculty) are more likely to engage in work that promotes diversity and inclusion (Jimenez et al., 2019). People of color in particular are asked to do far more diversity and inclusion work than their White peers, a phenomenon dubbed “cultural taxation,” and often experience a conflict between a sense of obligation to do this work to help address inequality and knowing that it will mean less time for activities that are given greater weight in hiring and promotion decisions (Gewin, 2020; Padilla, 1994). Graduate students are asked to shoulder much of the hands-on research, teaching, and mentoring work that takes place at graduate institutions, while being paid very little for their time (Knoll, 2019); our sense is that graduate students also shoulder much of the “behind the scenes” work of learning, implementing, and helping others implement open science practices (see e.g., Hilgard, 2020) but rarely

accumulate the rewards (in terms of eminence, citations, and awards) of more prominent and senior people in the field speaking and writing about open science. And those whose identities place them at the intersections of these inequitable systems experience an especially large number of requests and workload of valuable-but-not-valued labor (Hirschfeld & Joseph, 2012; Rideau, 2019; Turner, 2002).⁵ That this work is intrinsically motivating and purpose-driven to many is beside the point; our point is that organizations, institutions, and systems benefit from such purpose-driven work without directly supporting it.⁶

Lest we fall prey to the fallacy of considering disadvantage while ignoring advantage, we must also interrogate the flipside of this line of inquiry: What kinds of work are *overvalued* in our science in terms of the extent to which they advance and nurture science as a well functioning and collective system? Those of us researchers who (for example) publish lead-authored papers in “top tier” journals may consider the value placed on such output to be normal rather than privileged, but successfully recognizing and addressing inequity necessitates acknowledging how a system *advantages* as well as disadvantages (Pratto & Stewart, 2012). While it may be challenging to call one’s own work overvalued, some of the following questions might be illuminating. Can you think of a publication in a “top tier” journal that seemed overhyped and overvalued? Have you been surprised that a particular paper lands in a top-tier journal while a similar paper meets with resounding rejection? Do your own most prestigious publications truly reflect your most valuable contributions to science? Given the varied

⁵ It is particularly difficult to get a clear picture of how faculty and students are marginalized at the intersections of stigmatized identities given that: (1) data that speak to underrepresentation and inequality are rarely disaggregated (e.g., data typically track representation by race and gender separately; e.g., SPSP, 2019) and (2) the experiences of multiply-stigmatized individuals in the academy are rarely studied in their own right (c.f., Gruber, 2020).

⁶ The same disconnect between what we ostensibly value and actually reward can be seen at the level of institutions: Teaching institutions and minority-serving institutions (e.g., community colleges, non-flagship campuses, and HBCUs) are viewed as valuable for society and yet are consistently underfunded and deprioritized (Hu, 2019; Kreighbaum, 2019; Townsend & LaPaglia, 2000).

contributions that are fundamental to the functioning and flourishing of science as a system, don't our current metrics for judging merit and excellence overvalue research output to the exclusion of teaching, mentoring, and inclusion work?

A concrete example of systemic advantage in psychological science involves the overvaluing of White participants' experiences as especially important and "normative" or generalizable to others. Social-cognitive research suggests that, by default, people in the U.S. tend to perceive Americans as White (Devos & Banaji, 2005), and people in general as straight (Lick & Johnson, 2016) and male (Bailey, LaFrance, & Dovidio, 2020), resulting in the prioritization of dominant (e.g., White) viewpoints, even within oppressed groups (e.g., women and LGBTIQ groups; Purdie-Vaughns & Eibach, 2008). Researchers are not immune to such biases. Indeed, meta-scientific research has documented staggering cultural and racial disparities in psychological samples (Arnett, 2008; Thalmeyer, Toscanelli, & Arnett, 2020). In one analysis of articles published between 2003-2007, researchers discovered that 96% of participants in research in the behavioral sciences were from North America, Europe, Australia and Israel (Henrich, Heine, & Norenzayan, 2010). The authors calculated the odds of a random U.S. undergraduate participating in research published in the *Journal of Personality and Social Psychology* as 4,000 times more likely than a randomly selected person from the vast majority of humanity living outside North America, Europe, Australia, and Israel. Another analysis found that research involving U.S. samples was less likely to specify sample characteristics in the title compared to research from other regions—unless the research involved work with racial, ethnic, and/or cultural minorities, in which case titles referred to sample characteristics (e.g., "Developmental trajectories of African American youths" but not "Developmental trajectories of White American youths;" Cheon, Melani, & Hong, 2020).

Thus, psychologists (particularly White psychologists; Roberts, Bareket-Shavit, Dollins, Goldie, & Mortenson, 2020) tend to treat the behaviors and experiences of White American participants—but not all other people—as generalizable to humankind. This unquestioned assumption leads research conducted on primarily White samples to be published in “top-tier” outlets in the field, while research conducted on primarily participants of color is tracked to more “specialized” outlets, conferring systematic advantage to researchers studying White participants; in the discipline, this is what often counts as “good science” (Grzanka & Cole, 2021; Lewis, 2021). Consider, for example, a psychology department who decides they want to hire a researcher who studies a “core” topic area with a track record of publishing in top-tier outlets: This common search strategy will privilege White academics conducting “me-search” on topics of interest to White scholars using samples of White participants.

Another reason to be concerned about these disparities is the lack of any evidence that the White American experience generalizes across humanity; if anything, White Americans, specifically, and White people from Western, educated, industrialized, rich, and democratic societies, broadly, are psychologically unusual and distinctly *non-representative* of humans in general (Clancy & Davis, 2019; Henrich et al., 2010; Nielsen et al., 2017). It is difficult to argue, then, that the over-valuing of White experience in psychology results from our desire to systematically accumulate a comprehensive understanding of mind and behavior. However, such practices can be readily understood as the product of a culture built upon interlocking systems of exclusion—one in which affluent White men could reap rewards by studying questions they found interesting and relevant about people like themselves (Clancy & Davis, 2019; Salter & Adams, 2013).

Inequitable Support Systems

Relatedly, our resource and support systems have been built within the same historical and cultural context, and therefore focus inward, on the same small set of people to whom our professional culture was designed to cater. Therefore, just as there are inequalities in who has access to social safety nets in society writ large (Lee, 2019; Logan, Minca, & Adar, 2012; Rothstein, 2017), there are inequalities in who has access to institutional resources, support systems, and safety nets in science. Women and scholars of color encounter systematic differences in mentorship, support, and inclusion in networks (Moss-Racusin, Dovidio, et al., 2012; Milkman, Akinola, et al., 2012). For example, although women have gained prominence in psychological science over the past decades, their scientific roles continue to diverge starkly from men's: Women are less likely than men to occupy tenure-track positions, they are paid less, and they carry heavier service workloads (see review by Gruber et al., 2020). Academic communities frequently exclude women and faculty of color, as demonstrated by the finding that female faculty reported greater workplace ostracism, and faculty of color reported greater exclusion from information sharing (Zimmerman, Carter-Sowell, & Xu, 2016). The exclusion from academic communities has consequences for people's sense of belonging and career decisions (e.g., Gruber et al., 2020), and also hinders success by limiting access to crucial information: For example, informal conversations with colleagues can disambiguate institutional policy and practice (Fox, 2015). And successfully navigating graduate school, the job market, the tenure track, and extramural funding all require a wealth of "insider information" that is primarily accessed through informal and formal mentoring networks. The system is designed to make this information available to some but not others.

Our Current Response is Inadequate

The inequalities noted in the prior section have accumulated over decades; without clear and decisive action to change course, the COVID-19 pandemic will amplify those inequalities. If institutions do not act now, we as a discipline not only accept past and current inequalities but choose a version of the future where these inequalities are magnified. If we fail to act, we accept a severely limited version of what our science might be. The potential loss to knowledge and innovation in psychological science is immense—particularly when the field is just beginning to understand the value of supporting collaborative knowledge (Chartier et al., 2018).

Inequalities Threaten to Worsen

One way that inequities are worsening is that the pandemic has further exacerbated the lack of institutional support for caregiving work, which disproportionately affects women—especially women without access to the level of wealth and income needed to purchase private childcare (Ranji et al., 2021). Without childcare, parents scramble to complete their own work, and mothers particularly take on larger shares of caregiving (2020 KFF Women’s Health Survey). The result is already manifesting in gender disparities in research output: For example, data across 60,000 journals show that submissions from women relative to men have declined precipitously during the pandemic and associated collapse of child care support (Matthews, 2020; see also Squazzoni et al., 2020). Relatedly, a large survey of principal investigators confirmed that scientists with young children have experienced an especially large decline in time devoted to research (Myers et al, 2020). Meanwhile, we suspect the same factors are also decreasing time available for teaching, which would be likely to exacerbate existing disparities in teaching evaluations (Bavashi, Madera, & Hebl, 2010; Mitchell & Martin, 2018). These gender disparities are likely to fall unequally across race, class, and other dimensions of inequality (Atkinson & Richter, 2020).

Yet institutional responses to address gender inequities are often insufficient and ultimately unsuccessful, as noted above. A common institutional response to the disruptions of the COVID-19 pandemic in terms of tenure and promotion is to add a year to the tenure clock (Butler, 2021). But these policies mirror and exacerbate existing disparities (Malisch et al., 2020): For example, gender-neutral policies to stop the tenure clock tend to increase productivity for men but not women, which may raise standards for tenure for everyone (Antecol, Bedard, & Stearns, 2016). Delaying the raises that come with tenure and promotion has long-term consequences for disparities in pay—particularly in economic environments where other raises are even scarcer than usual, and particularly when considering lifetime earnings and retirement benefits.

Further, institutional responses that focus only on tenure and promotion will fail at building true excellence in the future. After all, tenure and promotion policies focus only on the slim proportion of potential academics who reach those thresholds. Many others—disproportionately from groups who are underrepresented in academia—will be pushed out at much earlier stages.

Racial inequities also threaten to worsen. Even though the George Floyd protests catapulted awareness of racial injustice into everyday academic conversations, the prevailing responses still have not done nearly enough to address problems on this front. The summer of 2020 saw a plethora of task forces, consideration of renaming buildings named for avowed racists, and statements from administrators—and yet it is unclear whether any of these responses will result in lasting change to policy, practice, or resource allocation (Parry, 2020). The most common institutional response to calls for academia to confront anti-Black racism has been to issue statements proclaiming support for Black lives. These proclamations can appear to signify

progress but they do not necessarily reflect or lead to actual progress, nor do they address the problem that perceptions of progress can lead high-status group members to react defensively (Danbold & Huo, 2017; Wilkins & Kaiser, 2014). Many of these statements are written without input from Black faculty and students, or depend on Black scholars to contribute their intellectual and emotional labor without compensation or credit. At best, vague statements of inclusion can dissipate all too easily; at worst, pro-diversity statements can signal that challenges have been resolved when in fact policies continue to perpetuate inequality (Ahmed, 2012; Northwestern Department of African American Studies, 2020; Kaiser et al., 2013). If institutions are to meaningfully address racial inequities, they must take concrete actions and devote substantial resources to anti-racist work and assessing anti-racist outcomes (Boykin et al., 2020; Livingston, 2020). Intention is not good enough.

Most Responses are Too Narrow in Focus

The typical institutional responses to address inequity are inadequate because they are too narrow in focus: They focus only on (1) the short term rather than considering the long term, (2) individual-level problems and solutions rather than systemic problems and solutions, and (3) one form of institutional change (e.g., gender equity) at a time, rather than multiple (e.g., gender equity and anti-racism efforts; see also Onyeador, Hudson, & Lewis, in press). The perspective afforded by our position as psychologists may make it especially easy to understand the situational elements that prompt a short-term focus, while simultaneously making it harder to notice when institutional responses are too narrowly focused on the individual and on a single form of change at a time.

First, with respect to a short-term focus, a psychological perspective enables us to understand that crisis focuses people on the immediate present (Duckworth et al., 2013; Maier et

al., 2015). Yet, both individuals and institutions can benefit from recognizing that their actions now are a long-term investment. As Furstenberg (2020) notes in dissecting the failures of leadership in higher education: “A university is not a corporation that must maximize its profitability for the next quarterly earnings call. It is, or should be, an institution with far longer time horizons.” Indeed, these longer time horizons encompass the ideal that undergirds the premise of promotion and tenure policy: An individual’s early growth signals their future development throughout their careers. The decisions that we make now lay a foundation for the future, and ignoring inequities now will deepen fissures that threaten the entire structure.

Second, with respect to an individual focus, we are less well equipped to notice when responses only consider the level of the individual rather than the broader system or culture. Because psychology as a discipline focuses on the individual as the unit of analysis, and because U.S. psychology is steeped in assumptions of neoliberalism and individualism, psychologists often look at problems and solutions through an individual lens (Grzanka & Miles, 2016).⁷ Yet such a lens is wholly inadequate given that bias and inequity are produced and reproduced at the level of collectives, policies, systems, and culture (Cheryan & Markus, 2020; Payne et al., 2019; Salter, Adams, & Perez, 2018). We ignore historical and cultural context to our deficit. The result is that current responses tend to focus attention on what should be done at the level of the individual (e.g., allow a particular person to stop the tenure clock) rather than what could be changed at the level of structure and culture: What institutional values, norms, policies, and practices shape group and individual decisions that produce inequities?

⁷ Relatedly, psychologists often prioritize and preferentially fund subdisciplines and research areas that adopt an individual-focused lens that fits White, U.S. cultural assumptions, while devaluing and marginalizing those areas that focus attention on history, culture, and systems (e.g., cultural psychology).

Third, with respect to focusing only on one form of change at a time, the prioritized lens of our discipline tends to focus on a singular experience. As quantitatively-oriented psychologists, we aim to understand the world by omitting factors that are not of interest or by controlling for as much as possible while intervening on a single variable. This tendency to see the world in terms of separable components that can be controlled and isolated is fundamental to our discipline and makes it supremely difficult to see how systems of exclusion intersect (e.g., Betancourt & Lopez, 1993; Cole, 2009; Goff & Kahn, 2013; Remedios & Snyder, 2015). However, when we ignore how systems of exclusion intersect, we reproduce, rather than remediate, inequity (Crenshaw, 1989). For example, steps to address gender inequity in psychology (e.g., tenure clock stoppages) may prioritize the concerns of straight, White, wealthy, and healthy women while ignoring, glossing over, or relegating to a sub-category the myriad issues facing women of color, LGBTQIQ-identified women, women with chronic (rather than short-term) health conditions, and women from low SES and first-generation backgrounds. Similarly, steps to address racism in psychology (e.g., funding for underrepresented minority psychologists to attend conferences) may ignore a hostile and unwelcoming conference climate for LGBTQIQ scholars of color or the hidden curriculum faced by first-generation students of color. Some may read this and say, “well, we can’t help everyone.” To this, we say: At present, we are hardly helping *anyone*. And what’s more, we are helping the same small handful of people over, and over, again.

If we seek real change, we must widen our focus. Thus, we suggest a deep, systemic, thorough overhaul of our institutional policies, structures, and culture by reimagining both institutional and individual level assumptions and actions that flow from those assumptions.

Those institutions that are able to reshape their foundations now will be those that are the strongest, most just, and most able to thrive over the long term.

A Hard Look in the Mirror: What Do We Value and What Do We Practice?

As a discipline, we have an opportunity now to interrogate some of the fundamental assumptions baked into our institutions. Basic questions such as *what does it mean to be successful, what are we striving for, who is deserving, and what is merit*—these assumptions percolate through the way our institutions were set up, our policies and practices, the interactions people have with one another, and the beliefs that many people carry with them (Hamedani & Markus, 2019).

One of the fundamental questions we should be asking ourselves at this moment is what does it mean to be a good psychological scientist, or to contribute meaningfully to the field (Rozin, 2009)? As we teach our students in research methods courses, if we proceed without firm conceptual definitions of these constructs, it will be impossible to know what to measure, how to measure it, and how to ultimately know whether we are actually achieving our collective goals as a field. Indeed, psychologists regularly engage in conversations—at conferences and in other places such as social media—that often reveal tensions between our expressed values and common practices.

As a field, we tell students and junior faculty that they should take the time that is necessary to do careful, open, and rigorous science, but then tell them that they need increasingly large numbers of publications to earn and keep gainful employment (e.g., Frith, 2020; Pennycook & Thompson, 2018). To produce those many publications, scholars adapt their research paradigms to online formats that can cheaply and quickly be run on platforms like Mechanical Turk (Anderson et al., 2019), but then we observe that doing so perpetuates

psychology's overreliance on samples drawn from an unusual subset of societies and overgeneralization from very specific samples to human psychology and behavior writ large (Henrich et al., 2010). We have increasingly high expectations for how prepared incoming graduate students will be to "hit the ground running" to churn out publications with the ultimate goal of landing research-intensive "R1" tenure track positions, but then continually dismiss and devalue the individuals and institutions that focus on teaching and mentoring those aspiring undergraduates in the first place (Austin, 2002; Fairweather, 2005; Shortlidge & Eddy, 2018; Townsend & LaPaglia, 2000). We espouse improving people's lives as a core value of the discipline (e.g., American Psychological Association, 2020; Association for Psychological Science, 2020), but then largely ignore when our discipline actively causes real and enduring harm (e.g., trans-invalidation; torturing people; Risen, 2015; Serano, 2009). And we encourage (particularly women and minority) scholars to spend time mentoring underrepresented students in hopes of addressing the broader lack of representation problem in the field (Roberts et al., 2020), but then deny these scholars jobs, tenure, and promotion when doing so takes time away from producing the vast numbers of papers we acknowledge is an absurd expectation to begin with (Nelson et al., 2012). We have set up a system of lose-lose, "damned if you do, damned if you don't" situations that we expect people to somehow navigate successfully, and then we wonder why we have high rates of anxiety, depression (Evans et al., 2018), and burnout (Jaremka et al., 2020).

What is the purpose of our field operating in this way? Taking a step back to reread the paragraph above, it sounds like the kind of emotionally abusive hazing ritual that many of us would advocate shutting down U.S. fraternities for engaging in. In addition to the mental health crisis described in the previous paragraph, some of the other major outputs of this system

include: a mountain of irreplicable research (e.g., Klein et al., 2018), a putative science of “human” psychology that may in fact describe only a very narrow slice of humans, stimuli, and contexts (Heinrich et al., 2010; Judd, Westfall, & Kenny, 2012; Martin et al., 2019; Thalmeyer, Toscanelli, & Arnett, 2020), an overreliance and exploitation of adjunct faculty (Harris, 2019), a series of sexual assault and harassment scandals (e.g., Somerville, 2018), persistent racism that repels minoritized scholars from the field (Lewis, 2020), and overworked scholars and staff with poor mental health (Hall, Lee, & Rahimi, 2019). An honest and unflinching consideration of the current system and its consequences should lead us to stop in our tracks and consider whether alternative systems may be better paths forward.

A Roadmap for Reimagining

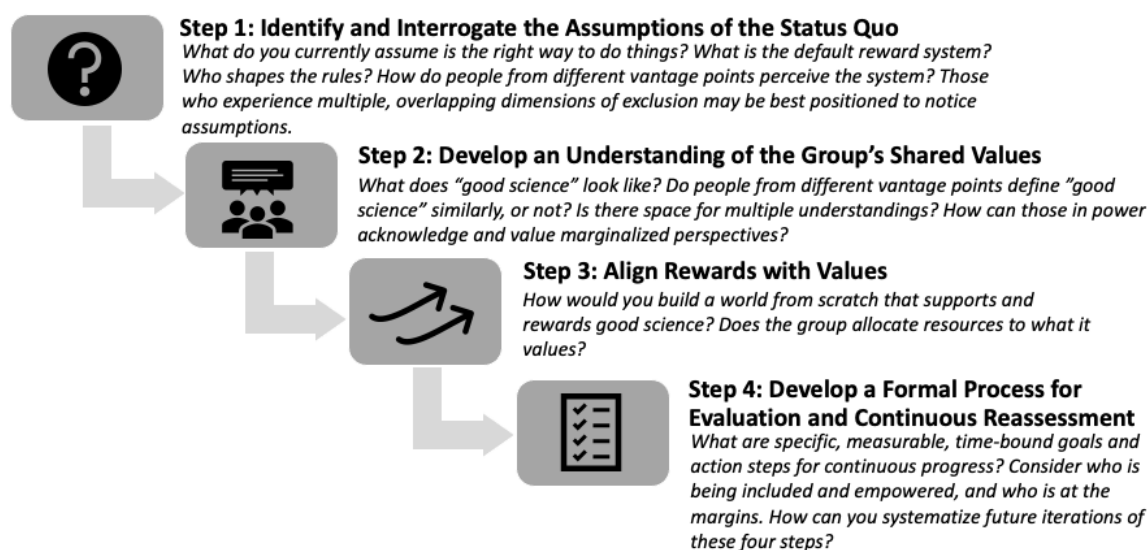
Real change will require real work that is collective, coordinated, multifaceted, and sustained. In the remainder of this paper, we describe a four-step process for reimagining our discipline’s culture, systems, and policies that could be used as a roadmap for those who choose action over inaction in this moment. We draw on psychological research, work by antiracist scholars and educators, and our own experiences as formal and informal organizational change agents.

There is no one-size-fits-all solution that will work to make science open and inclusive in every department, university, journal, and society, and different groups of scholars will have different local histories, priorities, and constraints. Instead, our goal is to provide a roadmap that could be used by collectives formed or found in many different institutional roles and contexts, from a group of faculty members taking action at the level of their department to a group of editors and board members taking action at the level of journals and societies. (Individual action can also be important and impactful; for ideas, see the Supplemental Materials.)

The process we outline could be pursued informally among a group of like-minded individuals or formally, by a department, university task force, society board, or editorial team. It could be initiated in a day-long strategic planning retreat or a series of shorter meetings, and would then need a persistent, sustained investment of time and resources to follow through. Here, we outline the general steps involved in this process (see Figure 1). Members of the co-first author team (AL, SH, NL, KM, CP, JR, SC, and AD) also engaged in the first three steps of this process ourselves in a series of conversations over Zoom, email, and a shared Google document; we therefore provide some concrete examples of what exactly each step looked like in our own conversations about reimagining the incentive structure in psychological science and academic science more broadly.

Figure 1

A Roadmap for Reimagining in Four Steps



Step 1: Explicitly Identify and Interrogate the Assumptions of the Status Quo

The first step toward reimagining the status quo is to explicitly identify and interrogate our current assumptions, because these are what hold in place our existing closed and exclusive systems. What is our local origin story: Who designed our systems and institutions, whose assumptions and experience do they reflect, and who are they designed to serve? What do we currently assume is the right way to do things? What is the default reward system? The deeper the interrogation goes, the broader the reimagining can be: It's difficult to build a creative new structure if we don't even contemplate the possibility of altering the foundation.

It can also be difficult to identify and interrogate assumptions, since assumptions often go unsaid and unconsidered (Brown-Iannuzzi et al., 2013)—especially for dominant group members who often have little practice questioning a system that works well for them (Salter et al., 2018). It is crucial to explicitly consider which vantage points are not represented and to bring them into the conversation from the beginning: Those who experience multiple interlocking dimensions of oppression are often best positioned to notice and question assumptions of the status quo (Crenshaw, 1989; Salter & Adams, 2013). Try a brainstorming session, where you first generate assumptions and then, in a separate phase, question and assess them. Spend extra time interrogating any assumption that generates responses like “but that’s the right way to do it” or “it’s always been done this way” or “that’s just how science (or tenure or publishing) works.”

Unpacking the history and power structure of universities and science in general, and of a specific institution in particular, can also help surface current assumptions and guide the reimagining process that follows. For example, as noted earlier, many universities in the U.S. were designed to educate wealthy White men to contribute to elite society. Science as we know it has both formally and informally excluded anyone who was not White or heterosexual male for

centuries (Freeman, 2018; Matthew, 2016; Reid & Curry, 2019). Our modern institutions were largely created by and for White men, and their values continue to reflect White men's priorities, preferences, and interests (Acker, 1990; Cheryan & Markus, 2020). It can be useful to map, figuratively or literally, where the power lies in a given institution or group, in order to “understand why some individuals are treated better than others, find it easier to be successful, or are more readily included” (Intersectionality Toolkit, p. 3). Understanding who our institutions have been designed to include and value helps direct our attention to the assumptions undergirding them that may no longer serve the science we have become or the science we want to become.

Example: Identifying the assumptions in our current incentive structure. In discussions among members of the co-first author team, we approached Step 1 in the following way. First, we took care to create a team with a diverse set of vantage points: We intentionally included scholars from a variety of career stages, genders, sexual orientations, and racial identities. We also took care to establish and maintain a team culture of prioritizing inclusion over urgency (e.g., acknowledging that it would probably take additional time to hear from everyone and that it was worth taking that additional time; see Centre for Community Organizations, 2019).

Then, we enumerated the assumptions that undergird decisions about who gets hired, promoted, awarded, and funded. For example, many of these decisions assume that a scholar's contribution to science can be captured by the number and/or tier of their publications, that teaching and service and work that helps other people conduct or understand research are not “real” scientific contributions, and that scientific contribution can and should be measured and rewarded at the level of the individual. We also identified several assumptions that have been

characterized as features of White supremacy culture, including assuming there is only one right way to do things instead of realizing there are multiple ways to achieve a goal, emphasizing perfectionism instead of expecting mistakes and learning from them, assuming that outcomes (quantity) are more important than process (quality), assuming that objectivity is possible in evaluating scientific contributions, and having a constant sense of urgency rather than prioritizing relationships and creating realistic plans that allow people to be successful (The Centre for Community Organizations, 2019). Academic practices that require independence instead of prioritizing interdependence also advantage researchers from higher socioeconomic statuses (Stephens, Fryberg, Markus, et al., 2012). Identifying these assumptions allowed us to think critically about whether we want to keep, discard, or revise our policies, structures, and practices as we reimagine our discipline's incentive structures.

Step 2: Develop an Understanding of the Group's Shared Values

The next step is to set aside your assumptions for a moment to articulate your values. What does “good science” look like? A group may not agree about what good science looks like and may need to make room for a plurality of values. Again, it is especially important to include voices from a range of vantage points in this process, and to value the perspectives of people who are marginalized by intersecting prejudices and who are most likely to be excluded as a result.

Example: What does “good science” mean to us? In discussions among the co-first authors, we started to think about our own collective definition of “good science” as a set of processes rather than just output and as a collective enterprise rather than an individual one. We began to develop a shared understanding of science as a collectively constructed building, where the quality of that building cannot be divorced from the quality of the processes that produced it.

The metaphor of a building is useful in multiple ways. First, we care not just about the height of a building but also about the strength of its foundation and how it was built. The height of a building is problematic if it is constructed on a weak foundation using subpar materials, secretive processes, and exploitative labor. Second, a building is constructed by multiple people in a variety of roles, all essential to the finished product. The architect, the brick maker, the brick layer—each of these individuals work together to contribute their crucial expertise to a team effort.

Discussions about valuing processes (as opposed to just outcomes) often pit two ideas against each other as if they were tradeoffs: quality versus quantity, inclusion versus excellence. Although characterizing these concepts as tradeoffs may seem accurate within our existing system, we are learning that any measure of quantity without quality or excellence without inclusion is illusory. Excellence without inclusion might mean the building gets built taller or faster, but it has a weak or shoddy foundation. Eventually, that building will topple before others with stronger foundations. Here, so-called excellence without inclusion is short-lived, and thus illusory. The excellence of the building is not just about the height of the building but about the quality of the *processes* used to construct it.

To extend the metaphor a bit, a building constructed using poor processes will eventually fall; when it falls, it will likely damage others around it, potentially causing them to fall as well if built using similar processes. The COVID and racism syndemic responses have illustrated this point by demonstrating the intricate relationship between social, economic, law enforcement, judicial, health, housing, and environmental disparities based on race and ethnicity. When one structure falls, others are threatened too.

When the scientific knowledge and structures that we create are not constructed using processes that attend to inclusivity, transparency and generalizability, the excellence we claim to have achieved is illusory. For example, the excellence of a paper conveyed by the prestige of a journal when the research fails to use processes that promote transparency is illusory (see also DORA, 2012). That work will ultimately fail to provide a useful and reliable building block for a cumulative science (Forscher, 1963; Ledgerwood, 2019). Likewise, the excellence of research conveyed by the impact factor or number of badges associated with a publication when the research it describes fails to consider the perspectives, identities, and lived experiences of a sizable portion of our population is illusory. That work will ultimately fail to describe processes or theories that will generalize (Heinrich et al., 2010; Lewis & Wai, in press; Martin et al, 2019; Roberts et al., 2020). The excellence of a course conveyed by teaching evaluations when it fails to incorporate research from a diverse array of authors is illusory. That course will exacerbate biases in what work is considered important and core to the discipline, further entrenching the mistaken assumption that historically dominant perspectives are the most essential (Skitka et al., 2020). The excellence of a scholar conveyed by the number of published articles that fails to consider the systemic disadvantages that some researchers face relative to others is illusory (Syed, 2017). That process will continue to fuel the disparate rates of attrition for researchers of color relative to White researchers, further erasing their perspectives from developing theory and research. The excellence of our science is entirely dependent on the inclusiveness of the processes we use to train, hire, and retain faculty of color. When one structure falls, the others are damaged. Our science is stronger, and ultimately advances more rapidly, when we shift to emphasize the quality of our processes and think in terms of longer timescales (an argument that aligns with the Slow Science movement; see e.g., Frith, 2020; Stengers, 2018). In other words,

we need to retrofit our structures, replacing weak processes and policies with those that attend to inclusivity, transparency and generalizability.

Furthermore, good science is constructed collectively rather than individually. As a system, science comprises people in many different roles—including students, post-doctoral scholars, researchers, teachers, mentors—as well as institutions, agencies, and the broader society in which they are all embedded. The various elements of the system work together interdependently and synergistically to build scientific knowledge (Forrester, 1968). Good science requires that individuals contribute to the flourishing of this scientific system (Pickett, 2017). Moreover, as psychologists, we are particularly well positioned to understand that the questions we ask, the methods we use to test them, and the conclusions we draw are all informed—and biased—by our own experiences, motives, and perspectives (Chaiken & Ledgerwood, 2011; Clancy & Davis, 2019; Hamilton, Sherman, & Ruvolo, 1990; Kunda, 1990); a single scientist alone can only glean one small slice of the overall picture, whereas many scientists working from a variety of perspectives can together delineate a far more comprehensive picture of the world.

Step 3: Align Rewards with Values

Having described what “good science” looks like, it is time to imagine a set of practices and policies that would reward and support it. In other words, setting aside the current system’s assumptions delineated in Step 1, how would you build a world from scratch that supports and rewards good science as described in Step 2?

The answers to this question must be contextualized within a specific institution’s history and functions. Below, we provide some concrete examples of how specific institutions might align rewards with the values described above, but we caution against jumping straight to these

solutions without engaging in deep, collective conversations about an institution's assumptions and values. Without a collective interrogation of core assumptions and articulation of shared values, ideas like the ones listed below may be doomed to fail as the new idea gets contorted to fit the prevailing culture of an institution. For example, faculty members who are simply handed a new evaluation system for hiring and promotion decisions, without ever discussing and questioning their own assumptions and values, are likely to apply their existing assumptions and values to the new evaluation system and to try to find ways to make it work like the old system did. At one of the author's institutions, a new advancement system was developed at the level of the university to more equally weigh research, teaching, and service contributions; however, without an opportunity to interrogate their own assumptions and values, many faculty within the department simply adapted the new tool to work in the same old way (e.g., seeking to reward a large number of publications by playing up that person's service contributions so that the contribution in the area still assumed to be most important would be doubly rewarded as a contribution in two areas). Thus, we suspect that if change is to occur, institutions and groups must engage in the work of collectively and inclusively reimagining themselves. At the same time, we need not assume that total consensus is a necessary precursor for change (Lewis, in press). Indeed, meaningful movement toward open and inclusive science can occur whenever those with the power to effect change (at any level, from lab to scientific society) partner with and listen to the expertise of diverse teams of experts who have directly experienced the dimensions of exclusion baked into our systems, and especially those who have experienced the intersections of multiple dimensions of exclusion.

Table 2

How to Change Psychological Science at Different Institutional Levels

	Instead of:	Imagine:
Labs	Assuming that everyone knows the “hidden curriculum”	Creating transparent policies and repositories of collective knowledge (e.g., transparent mentoring agreements; a shared “library” of resources for current and future students)
	Deciding who to hire or admit based primarily on metrics like GRE or GPA	Deciding who to hire or admit more holistically, valuing experiences and skills that enhance the lab’s inclusive excellence (e.g., cultural competence, underrepresented perspectives)
Departments	Bean-counting publications and grant dollars in hiring and promotion decisions	Metrics and judgments to assess quality of process (e.g., inclusive excellence, enhancing transparency)
	Focusing rewards on individual-level output (e.g., number of “top-tier” publications, number of citations, average teaching evaluations)	Assessing contributions to systems and infrastructure that help good science flourish (e.g., building new and inclusive networks)
Universities	Appointments that specify only a subset of categories of valued labor (e.g., a contract that specifies 50% research and 50% teaching)	Appointments that formally specify all categories of valued labor (e.g., a contract that specifies research, teaching, service, and public engagement/outreach)
	Vague or unspecified tenure and promotion criteria	Transparent rubrics for tenure and promotion that explicitly weigh various types of labor that are essential to open and inclusive science.
Journals	Publishing only traditional empirical manuscripts that report how the author(s) approached a particular research question and the analyses they decided to conduct	A new mechanism to publish open and carefully curated datasets that can in themselves make a substantial contribution to advancing collective and cumulative knowledge
	Acknowledging the importance of openness and inclusion in one-time	Editorial teams develop specific rubrics for assessing the openness and

	editorials and minor or optional changes to journal guidelines	inclusiveness of an empirical article's methods and prioritize these features in article acceptance
Societies	Ignoring diversity and open science considerations when selecting conference presenters	Explicitly weighing diversity and open science contributions when selecting conference presenters
	Conferring awards to “star” researchers on the basis of individual research output	Awards for “constellations” of researchers on the basis of collaborative contributions to the scientific system

Example: How could we assess and reward *quality of process and contributions to a collective enterprise at the level of departments, journals, and societies?* To change our systems, we need intervention at every level, and we invite readers to consider their current roles and relationships and where in the system those roles and relationships create an avenue for intervention. Individuals often have more power than they realize to enact changes in their own day-to-day, work-relevant decisions (see Supplemental Materials for narratives of change from various authors). People can also enact changes at the level of institutions when they occupy powerful roles within those institutions (e.g., department chair, journal editor, society president) and/or can form coalitions to facilitate institutional change (e.g., a group of students and/or faculty can push for departmental changes; a network of associate editors could collaborate to develop and follow open and inclusive practices that would collectively have more of an impact than any one associate editor could have on their own; see Mosley et al., 2021, to understand coalition-building as one specific approach to acting critically against anti-Black racism). Here are some examples of changes we can envision at the level of departments, journals, and societies (see Table 2 for a summary and additional levels).

Departments. Instead of bean-counting publications and grant dollars when making hiring and promotion decisions, imagine if your department, faculty, or university created metrics and judgments to assess quality of process in a scholar's contributions to a complex and collective system of science. For example, a candidate statement could directly address inclusive processes in research, teaching, and mentoring, and hiring and promotion committees could specifically assess them, in order to reward the skills and effort required to advance inclusive excellence with the "hard currency of career advancement" (Obasi, 2020). Similarly, candidate statements could directly address, and committees could specifically evaluate, the extent to which the candidate has directly engaged in work that increases transparency, replicability, and generalizability, as well as how the candidate has contributed to systems and infrastructure that help good science flourish (e.g., building new and inclusive collaborative networks; collecting and sharing valuable datasets, creating apps that help other researchers analyze their data, creating and sharing effective and engaging teaching resources). Letter-writers could be asked to address these same criteria, to offer outside perspectives on process quality. Furthermore, candidates could be asked to articulate not only what work they have done to enhance the quality of their processes but also what work they will do in the near future; that is, scholars could shift from planning the next several years of output to planning specific ways to enhance the quality of the processes they use to contribute to the collective scientific enterprise. Scholars would thus be incentivized and supported in devoting efforts to processes that support transparency, replicability, and generalizability. Indeed, developmental scientists recently proposed an ambitious project along these lines (a discipline-wide shared infrastructure to support large-scale collaborative crowdsourced studies), while noting that its success would depend upon changes to the field's incentive structures (Sheskin et al., 2020).

Journals. Instead of publishing only traditional empirical manuscripts, imagine if high impact journals created a new mechanism to publish open and carefully curated datasets, similar to the way that some journals already publish open and carefully curated sets of stimuli (e.g., De Deyne et al., 2019; Ma et al., 2015), and building on best practices developed for sharing citable datasets in data repositories (e.g., Alter & Gonzalez, 2018; Gilmore et al. 2019). Peer reviewers could evaluate a proposal for data collection and provide feedback ahead of time to maximize the informational value of the data, ensuring that they can in themselves make a substantial contribution to advancing collective and cumulative knowledge. Such a mechanism could immediately create an incentive for researchers to collect, carefully organize, and openly share data that involve more time- and effort-intensive recruitment and methods (e.g., data from samples more representative of the global majority).⁸ Meanwhile, it would provide a way for graduate students and early career scholars to attain a high impact publication while also investing time and effort in data collection; it could be constructed in a way that provided transparency about the process (rather than conferring an advantage on those with “insider information” or a connection to the editor), that provided an accessible avenue to constructive feedback (via peer review on the planned methods), and that supported collaborations between multiple institutions and nations (e.g., a collaboration between researchers at multiple small colleges to collect and combine many smaller datasets).

Further, imagine if instead of simply nodding to the importance of open and inclusive methods in editorials, editorial teams developed specific rubrics for assessing the openness and inclusiveness of an empirical article’s methods. Editorial teams could decide to prioritize the

⁸ As another example, the *Journal of Statistical Software* provides an illustration of how to reward R package development.

acceptance of articles that incorporated such methods (while de-prioritizing the acceptance of articles that do not), even when the results of such studies were not neat and tidy.

Societies. Instead of conferring awards to “star” researchers on the basis of individual research output, imagine if societies gave awards to “constellations” of researchers on the basis of collaborative contributions to the scientific system. Awards could also be used to disrupt the artificial and hierarchical separation of research productivity from the essential work of teaching, mentoring, and efforts to enhance diversity and inclusion. That is, rather than adding separate awards for teaching, service, and diversity, which are then inevitably deemed “lesser” awards within our existing culture, a society could create awards that deliberately blur the lines between these categories and instead recognize substantial contributions to the collective system of science. For example, the Society for Personality and Social Psychology recently changed an early career award from focusing solely on individual research output to one that focuses on individual and collaborative contributions to the field, including efforts related to research, teaching, open science, and service (Everett & Gaither, 2020).

Step 4: Develop a Formal Process for Evaluation and Continual Reassessment

The conversations and changes that we are urging psychological scientists to engage with need to start now, but it is equally important to recognize that they should not end. Making our science more open and inclusive must be an ongoing process that continually examines who is being included and empowered and who is at the margins. Indeed, intersectionality as a framework challenges the idea that inclusion work can ever be “done;” when we stop attending to power and inequality, the hierarchy reproduces itself. And although some individuals or groups may make limited gains in an exclusive system, the system itself will remain exclusive; power will remain, largely, in the hands of the powerful (Lorde, 1984). This process will

continue unless processes are baked into the system that will continually pull people in from the margins, which involves regularly assessing who has less input into decision-making, empowering them with voice and resources, and integrating accountability checks to ensure that policy and practice align with the organization's values.

Research in the motivation and goal pursuit literatures have long documented the importance of setting specific goals when trying to bring about difficult changes (for a review, see Locke & Latham, 2006). These principles can be applied to the current goal of making psychological science more open and inclusive; we cannot achieve those goals if we do not specify concrete ways of measuring success or failure (Carter, Onyeador, & Lewis, 2020; Freeman, 2020).

Each of the entities we just discussed—departments, journals, and societies—could set targets that would allow them to assess whether they are making meaningful progress within short, medium, and long-term time horizons. Such targets should be set using an inclusive process that incorporates input from people in currently marginalized positions, given that dominant group members can be limited by their positionality when conceptualizing appropriate targets (Danbold & Unzueta, 2020). A department could, for instance, center the voices of its marginalized (and especially multiply marginalized) group members to set a specific target of increasing the demographic diversity of its graduate students and faculty by X percent by a specific year.⁹ Having that long-term destination would allow them to determine the concrete set of actions each person and committee needs to take to achieve that goal (see also Gollwitzer, 1999), and those actions could be evaluated annually in internal departmental reviews. Similarly,

⁹ Note that such a goal is likely better suited for addressing some kinds of diversity (like racial diversity) than others (like LGBTIQ and/or disability diversity, where willingness to disclose a potentially hidden identity must be taken into account).

in the same way that researchers have conducted meta-scientific studies of both demographic representation (Roberts et al., 2020) and the adoption of open science practices in journals (Kidwell et al., 2016), journals could conduct annual self-studies and use the results to guide editorial policies and reviewer guidelines. Society boards can engage in similar reflections and adjust their operations accordingly. The broader point is that if we wish to make meaningful changes, we must (a) set concrete, time-locked goals, (b) conduct assessments to have a baseline understanding of where we are starting, and (c) plan and systemize regular future assessments to hold ourselves accountable and understand whether the changes we introduce have measurable effects on goal progress.

Conclusion

In this paper, we have called on psychological scientists to reimagine our scientific institutions and culture as open and inclusive. We have argued that action is urgent, and that a failure to act represents a choice to accept existing and newly exacerbated inequalities. Our institutions and culture are made up of and perpetuated by people; each person in the discipline occupies roles and spaces in which we can choose to accept the status quo of closed and exclusive science or take bold action to challenge it.

Of course, the people in our discipline have different values, priorities, and viewpoints, and our science can benefit from considering multiple perspectives. It will not be possible to come to a single, discipline-wide consensus on what we should value most highly or a single reward system that works equally well across every context. The process that we have proposed is intentionally a local one, meant to be grounded in the specific history, context, and constraints of a particular department, journal, society, or group. Within those local contexts, psychological scientists can engage in the work of interrogating our assumptions, making space for those who

do not currently have a seat at the table, and thinking carefully about the values held by the group as a whole. Not everyone has to agree on everything, but we do need to agree to enter into the conversation. And we need to enter it now.

References

- Acker, J. (1990). *Hierarchies, Jobs, Bodies: A Theory of Gendered Organizations*.
- Ahmed, S. (2012). *On being included: Racism and diversity in institutional life*. Duke University Press.
- Albornoz, D. (2016). Open access as inclusion: An interview with Juan Pablo Alperin. Blog post retrieved 10/23/20 from <https://www.force11.org/blog/open-access-inclusion-interview-juan-pablo-alperin>
- Albornoz, D. (2018). Reimagining open science through a feminist lens. Presented at OpenCon 2018, Toronto. Retrieved 10/23/20 from <https://medium.com/@denalbz/reimagining-open-science-through-a-feminist-lens-546f3d10fa65>
- Alter, G., & Gonzalez, R. (2018). Responsible practices for data sharing. *American Psychologist*, 73, 146.
- American Psychological Association. (2020). American Psychological Association strategic plan. Retrieved 12/8/2020 from <https://www.apa.org/about/apa/strategic-plan>
- Anderson, C. A., Allen, J. J., Plante, C., Quigley-McBride, A., Lovett, A., & Rokkum, J. N. (2019). The MTurkification of social and personality psychology. *Personality and Social Psychology Bulletin*, 45, 842-850.
- Antecol, H., Bedard, K., & Stearns, J. (2016, April). Equal but Inequitable: Who Benefits from Gender-Neutral Tenure Clock Stopping Policies? Retrieved from <http://ftp.iza.org/dp9904.pdf>
- Arnett, J. J. (2008). The neglected 95%: why American psychology needs to become less American. *American Psychologist*, 63, 602. doi: 1037/0003-066X.63.7.602.
- Association for Psychological Science. (2020). Mission and history. Retrieved 12/8/2020 from <https://www.psychologicalscience.org/about/mission-and-history>.
- Atkinson, T., & Richter, A. (2020, November 10). Pandemic Disproportionately Affects Women, Minority Labor Force Participation. Retrieved from <https://www.dallasfed.org/research/economics/2020/1110>
- Austin, A. E. (2002). Preparing the Next Generation of Faculty. *The Journal of Higher Education*, 73(1), 94-122. doi:10.1080/00221546.2002.11777132
- Bahlai, C., Bartlett, L.J., Burgio, K.R., Fournier, A.M.V., Keiser, C.N., Poison, T., & Whitney, K.S. (2019). Open science isn't always open to all scientists. *American Scientist*, 107(2), 78-83. <https://doi.org/10.1511/2019.107.2.78>
- Bailey, A. H., Lafrance, M., & Dovidio, J. F. (2020). Implicit androcentrism: Men are human, women are gendered. *Journal of Experimental Social Psychology*, 89. doi:10.1016/j.jesp.2020.103980
- Bavishi, A., Madera, J. M., & Hebl, M. R. (2010). The effect of professor ethnicity and gender on student evaluations: Judged before met. *Journal of Diversity in Higher Education*, 3(4), 245–256. <https://doi.org/10.1037/a0020763>
- Bellamy, P. L., Mosely, D. V., Green, C. E., Neville, H., Hargons, C., Lewis, J. A., Burdine, K., Whittaker, V. A., French, B. H., Steverson, D., Adames, H. Y., Busey, C., Adam, S., Mejia, J., Ross, G., Lewis, A., Lee, L., Emerson, M., Abiodun, S., Malone, N., Chavez-Duenas, N. Y., Nadal, K., Abreu, R. L., Singh, A., Chen, G., Ratliff, K. A., Prieto, C., Saldana, M., Crowley, M., Colson, A., Trochez, J., Colocado, A., Pestana, Z., Murphy, T. H., Moskal, M., Gonzalez, K. A., Wheeler, W., Scott, L. S., Bayne, H., Gravina, N., & Samanez-Larkin, G. (2020, June). Academics for Black Survival and Wellness. Online antiracist training course.
- Bellas, M. L., & Toutkoushian, R. K. (1999). Faculty time allocations and research productivity: Gender, race, and family effects. *The Review of Higher Education*, 22, 367.
- Berscheid, E. (1992). A glance back at a quarter century of social psychology. *Journal of Personality and Social Psychology*, 63, 525-543.
- Betancourt, H., & López, S. R. (1993). The study of culture, ethnicity, and race in American psychology. *American psychologist*, 48(6), 629.
- Biernat, M., & Kobrynowicz, D. (1997). Gender- and race-based standards of competence: lower minimum standards but higher ability standards for devalued groups. *Journal of Personality and Social Psychology*, 72(3), 544–557. <https://doi.org/10.1037/0022-3514.72.3.544>
- Bowleg, L. (2021). “The Master’s Tools Will Never Dismantle the Master’s House”: Ten Critical Lessons for Black and Other Health Equity Researchers of Color. *Health Education & Behavior*, 48(3), 237-249.
- Boykin, C. M., Brown, N. D., Carter, J. T., Dukes, K., Green, D. J., Harrison, T., ... & Simmons, C. (2020). Anti-racist actions and accountability: not more empty promises. *Equality, Diversity and Inclusion: An International Journal*.
- Brown-Iannuzzi, J. L., Payne, B. K., & Trawalter, S. (2013). Narrow imaginations: How imagining ideal employees can increase racial bias. *Group Processes & Intergroup Relations*, 16, 661–670.
- Bulhan, H. A. (2015). Stages of colonialism in Africa: From occupation of land to occupation of being. *Journal of Social and Political Psychology*, 3(1), 239–256.

- Butler, T. (2021, January 19). Beyond tenure clock management. Inside Higher Ed. Retrieved 5/19/21 from <https://www.insidehighered.com/advice/2021/01/19/tenure-clock-extensions-arent-enough-help-support-researchers-and-their-work#.YKVYHkDjoNs.link>
- Carter, E. R., Onyeador, I. N., & Lewis Jr, N. A. (2020). Developing & delivering effective anti-bias training: Challenges & recommendations. *Behavioral Science & Policy*, 6(1), 57-70.
- Centre for Community Organizations. (2019). White supremacy culture in organizations. Retrieved 7/16/20 from <https://coco-net.org/wp-content/uploads/2019/11/Coco-WhiteSupCulture-ENG4.pdf>
- Chaiken, S., & Ledgerwood, A. (2011). A theory of heuristic and systematic information processing. *Handbook of theories of social psychology: Volume one*, 246-166.
- Chartier, C., Kline, M., McCarthy, R., Nuijten, M., Dunleavy, D. J., & Ledgerwood, A. (2018). The cooperative revolution is making psychological science better. *APS Observer*, 31(10).
- Cheon, B. K., Melani, I., & Hong, Y. (2020). How USA-Centric Is Psychology? An Archival Study of Implicit Assumptions of Generalizability of Findings to Human Nature Based on Origins of Study Samples. *Social Psychological and Personality Science*, 11(7), 928–937. <https://doi.org/10.1177/1948550620927269>
- Cheryan, S., & Markus, H. R. (2020). Masculine defaults: Identifying and mitigating hidden cultural biases. *Psychological Review*, 127(6), 1022–1052. <https://doi.org/10.1037/rev0000209>
- Cho, S., Crenshaw, K., & McCall, L. (2013). Toward a Field of Intersectionality Studies: Theory, Applications, and Praxis. *Signs*, 38(4), 785-810. doi:10.1086/669608.
- Clancy, K. B., & Davis, J. L. (2019). Soylent Is People, and WEIRD Is White: Biological Anthropology, Whiteness, and the Limits of the WEIRD. *Annual Review of Anthropology*, 48, 169-186.
- Cognition. (2020). Guide for Authors. Retrieved 12/19/20 from <https://www.elsevier.com/journals/cognition/0010-0277/guide-for-authors>.
- Cole, E. R. (2009). Intersectionality and research in psychology. *American Psychologist*, 64, 170.
- Coleman, M. L. (2020, April 23). Essential Workers Are Being Treated as Expendable. Retrieved from <https://www.theatlantic.com/ideas/archive/2020/04/farmworkers-are-being-treated-as-expendable/610288/>
- Crenshaw, K. (1989). Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics. *University of Chicago Legal Forum*, 1989(1). Retrieved 12/14/20 from <https://chicagounbound.uchicago.edu/uclf/vol1989/iss1/8>.
- da Silva Frost, A., & Ledgerwood, A. (2020, March 4). Calibrate Your Confidence in Research Findings: A Tutorial on Improving Research Methods and Practices. <https://doi.org/10.31234/osf.io/6uxkb>
- Danbold, F., & Huo, Y. J. (2017). Men's defense of their prototypicality undermines the success of women in STEM initiatives. *Journal of Experimental Social Psychology*, 72, 57-66.
- Danbold, F., & Unzueta, M. M. (2020). Drawing the diversity line: Numerical thresholds of diversity vary by group status. *Journal of Personality and Social Psychology*, 118(2), 283.
- De Deyne, S., Navarro, D. J., Perfors, A., Brysbaert, M. and Storms, G. (2019). The Small World of Words: English word association norms for over 12,000 cue words. *Behavior Research Methods*, 51, 987-1006.
- Devos, T., & Banaji, M. R. (2005). American = White?. *Journal of personality and social psychology*, 88(3), 447–466. <https://doi.org/10.1037/0022-3514.88.3.447>
- DORA. (2012). San Francisco Declaration on Research Assessment. Retrieved 12/15/20 from <https://sfdora.org/read/>
- Ducey, K., & Feagin, J. R. (2021). *Revealing Britain's Systemic Racism: The Case of Meghan Markle and the Royal Family*. Routledge.
- Duckworth, A. L., Kim, B., & Tsukayama, E. (2013). Life stress impairs self-control in early adolescence. *Frontiers in Psychology*, 3, 608.
- El-Alayli, A., Hansen-Brown, A. A., & Ceynar, M. (2018). Dancing backwards in high heels: Female professors experience more work demands and special favor requests, particularly from academically entitled students. *Sex Roles*, 79, 136-150.
- England, P. (2005). Emerging Theories of Care Work. *Annual Review of Sociology*, 31, 381–399. <https://doi.org/10.1146/annurev.soc.31.041304.122317>
- Evans, T. M., Bira, L., Gastelum, J. B., Weiss, L. T., & Vanderford, N. L. (2018). Evidence for a mental health crisis in graduate education. *Nature biotechnology*, 36(3), 282.
- Everett, J., & Gaither, S. (2020, October 22). Early Career Committee Reports on 2020 Initiatives and Achievements. Retrieved from <https://www.spsp.org/news-center/announcements/2020-earlycareer-initiatives-achievements>
- Fairweather, J. S. (2005). Beyond the Rhetoric: Trends in the Relative Value of Teaching and Research in Faculty Salaries. *The Journal of Higher Education*, 76(4), 401-422. doi:10.1080/00221546.2005.11772290

- Feagin, J. R., & Ducey, K. (2017). *Elite White men ruling*. New York, NY: Routledge.
- Flis, I. (2019). Psychologists psychologizing scientific psychology: An epistemological reading of the replication crisis. *Theory & Psychology, 29*, 158-181.
- Forrester, J.W. (1968). *Principles of Systems*. Norwalk, CT: Productivity Press.
- Forscher, B. K. (1963). Chaos in the brickyard. *Science, 142*(3590), 339.
- Fox, M. F. (2015). Gender and Clarity of Evaluation among Academic Scientists in Research Universities. *Science, Technology, & Human Values, 40*(4), 487–515. <https://doi.org/10.1177/0162243914564074>
- Freeman, J. (2018). LGBTQ scientists are still left out. *Nature, 559*(7712), 27-28. doi:10.1038/d41586-018-05587-y
- Freeman, J. B. (2020). Measuring and Resolving LGBTQ Disparities in STEM. *Policy Insights from the Behavioral and Brain Sciences, 7*(2), 141–148. <https://doi.org/10.1177/2372732220943232>
- Frith, U. (2020). Fast lane to slow science. *Trends in cognitive sciences, 24*, 1-2.
- Furstenberg, F. (2020, May 19). University Leaders Are Failing. Retrieved from <https://www.chronicle.com/article/university-leaders-are-failing?fbclid=IwAR2ibtVTyBfF5RH6Thh-KcqQuNVVlch0-Qmg1EK8BTqVgVw4bmVqcFxLVII>
- Gender & Society, 4(2), 139–158. <https://doi.org/10.1177/089124390004002002>
- Gewin, 2020: <https://www.nature.com/articles/d41586-020-01920-6#ref-CR1>
- Gilmore, R. O., Kennedy, J. L., & Adolph, K. E. (2018). Practical solutions for sharing data and materials from psychological research. *Advances in Methods and Practices in Psychological Science, 1*, 121-130.
- Goff, P., & Kahn, K. (2013). How Psychological Science Impedes Intersectional Thinking. *Du Bois Review: Social Science Research on Race, 10*(2), 365-384. doi:10.1017/S1742058X13000313
- Gollwitzer, P. M. (1999). Implementation intentions: strong effects of simple plans. *American psychologist, 54*(7), 493.
- Gonzales, L. D. (2018). Subverting and Minding Boundaries: The Intellectual Work of Women. *The Journal of Higher Education, 89*(5), 677-701, DOI: 10.1080/00221546.2018.1434278
- Gruber, J., Mendle, J., Lindquist, K. A., Schmader, T., Clark, L. A., Bliss-Moreau, E., Akinola, M., Atlas, L., Barch, D. M., Barrett, L. F., Borelli, J. L., Brannon, T. N., Bunge, S. A., Campos, B., Cantlon, J., Carter, R., Carter-Sowell, A. R., Chen, S., Craske, M. G., ... Williams, L. A. (2020). The Future of Women in Psychological Science. *Perspectives on Psychological Science*. <https://doi.org/10.1177/1745691620952789>
- Guarino, C. M., & Borden, V. M. (2017). Faculty service loads and gender: Are women taking care of the academic family?. *Research in Higher Education, 58*(6), 672-694.
- Gupta, A. (2020, October 03). Why Did Hundreds of Thousands of Women Drop Out of the Work Force? Retrieved from <https://www.nytimes.com/2020/10/03/us/jobs-women-dropping-out-workforce-wage-gap-gender.html>
- Grzanka, P. R., & Cole, E. R. (2021). An argument for bad psychology: Disciplinary disruption, public engagement, and social transformation. *American Psychologist, 76*. Advance online publication. <https://doi.org/10.1037/amp0000853>
- Grzanka, P. R., & Miles, J. R. (2016). The problem with the phrase “intersecting identities”: LGBT affirmative therapy, intersectionality, and neoliberalism. *Sexuality Research and Social Policy, 13*, 371-389.
- Guthrie, R. V. (2004). *Even the rat was white: A historical view of psychology*. Pearson Education.
- Hamedani, M. Y. G., & Markus, H. R. (2019). Understanding culture clashes and catalyzing change: A culture cycle approach. *Frontiers in Psychology, 10*, 700.
- Hamilton, D. L., Sherman, S. J., & Ruvolo, C. M. (1990). Stereotype-based expectancies: Effects on information processing and social behavior. *Journal of Social Issues, 46*(2), 35-60.
- Harris, A. (2019, April 08). The Death of an Adjunct. Retrieved from <https://www.theatlantic.com/education/archive/2019/04/adjunct-professors-higher-education-thea-hunter/586168/>
- Henninger, F., & Hart, A. (2020, June 23). Unconf - Open Toolmakers’ Birds of a Feather Session. Retrieved from osf.io/f93b5
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences, 33*(2-3), 61-83. doi:10.1017/s0140525x0999152x
- Hilgard, J. (2020). SIPS Demographic Report. Retrieved 11/6/20 from <https://improvingpsych.org/2020/06/16/sips-demographics-report/>
- Hirshfield, L. E., & Joseph, T. D. (2012). ‘We need a woman, we need a black woman’: Gender, race, and identity taxation in the academy. *Gender and Education, 24*(2), 213-227.
- Hogan, V. K., de Araujo, E. M., Caldwell, K. L., Gonzalez-Nahm, S. N., & Black, K. Z. (2018). “We black women have to kill a lion everyday”: An intersectional analysis of racism and social determinants of health in Brazil. *Social Science & Medicine, 199*, 96-105.

- Intersectionality Toolkit* [PDF]. (2014). Belgium: The International Lesbian, Gay, Bisexual, Transgender, Queer & Intersex (LGBTQI) Youth and Student Organisation.
- Jaremka, L. M., Ackerman, J. M., Gawronski, B., Rule, N. O., Sweeny, K., Tropp, L. R., ... & Vick, S. B. (2020). Common Academic Experiences No One Talks About: Repeated Rejection, Impostor Syndrome, and Burnout. *Perspectives on Psychological Science, 15*, 519-543.
- Jimenez, M. F., Laverty, T. M., Bombaci, S. P., Wilkins, K., Bennett, D. E., & Pejchar, L. (2019). Underrepresented faculty play a disproportionate role in advancing diversity and inclusion. *Nature ecology & evolution, 3*(7), 1030-1033.
- Joseph, T. D., & Hirshfield, L. E. (2011). 'Why don't you get somebody new to do it?' Race and cultural taxation in the academy. *Ethnic and racial studies, 34*, 121-141.
- Jost, J. T., Liviatan, I., van der Toorn, J., Ledgerwood, A., Mandisodza, A., & Nosek, B. A. (2009). System justification: How do we know it's motivated? In D. R. Bobocel, A. C. Kay, M. P. Zanna, & J. M. Olson (Eds.), *The Psychology of Justice and Legitimacy: The Ontario Symposium, Vol. 11*. Hillsdale, NJ: Erlbaum.
- Judd, C. M., Westfall, J., & Kenny, D. A. (2012). Treating stimuli as a random factor in social psychology: A new and comprehensive solution to a pervasive but largely ignored problem. *Journal of Personality and Social Psychology, 103*(1), 54-69. <https://doi.org/10.1037/a0028347>
- Kaiser, C. R., Major, B., Jurcevic, I., Dover, T. L., Brady, L. M., & Shapiro, J. R. (2013). Presumed fair: Ironic effects of organizational diversity structures. *Journal of Personality and Social Psychology, 104*(3), 504-519. <https://doi.org/10.1037/a0030838>
- Keith, K. (2018). History of Psychology in Cultural Context. In K. Keith (Ed.), *Culture across the Curriculum: A Psychology Teacher's Handbook* (Culture and Psychology, pp. 95-112). Cambridge: Cambridge University Press. doi:10.1017/9781316996706.007
- Kendi, I. X. (2017). *Stamped from the beginning: The definitive history of racist ideas in America*. Random House.
- Kidwell, M. C., Lazarević, L. B., Baranski, E., Hardwicke, T. E., Piechowski, S., Falkenberg, L. S., ... & Errington, T. M. (2016). Badges to acknowledge open practices: A simple, low-cost, effective method for increasing transparency. *PLoS biology, 14*(5), e1002456.
- Klein, J. T., and Falk-Krzesinski, H.J. (2017). Interdisciplinary and collaborative work: Framing promotion and tenure practices and policies. *Research Policy, 46*, 1055-1061.
- Klein, R. A., Vianello, M., Hasselman, F., Adams, B. G., Adams Jr, R. B., Alper, S., ... & Batra, R. (2018). Many Labs 2: Investigating variation in replicability across samples and settings. *Advances in Methods and Practices in Psychological Science, 1*, 443-490.
- Knoll, A. (2019, December 5). Graduate students do the real work. Let us unionize. Undark. Retrieved 12/19/20 from <https://undark.org/2019/12/05/graduate-student-union/>.
- Kruglanski, A. W., Pierro, A., Mannetti, L., & De Grada, E. (2006). Groups as epistemic providers: need for closure and the unfolding of group-centrism. *Psychological Review, 113*, 84-100.
- Kunda, Z. (1990). The case for motivated reasoning. *Psychological bulletin, 108*(3), 480.
- Ledgerwood, A. (2019). New developments in research methods. *Advanced social psychology*.
- Lee, T. (2019, August 14). How America's Vast Racial Wealth Gap Grew: By Plunder. Retrieved from <https://www.nytimes.com/interactive/2019/08/14/magazine/racial-wealth-gap.html>
- Lewis, N. A., Jr. (2020). Open communication science: A primer on why and some recommendations for How. *Communication Methods and Measures, 14*(2), 71-82.
- Lewis, N. A., Jr. (in press). How the battle for methodological legitimacy affects public psychology. *American Psychologist*.
- Lewis, N. A., Jr. (in press). Can we achieve "equality" when we have different understandings of its meaning? How contexts and identities shape the pursuit of egalitarian goals. *Psychological Inquiry*.
- Lewis, N. A., Jr., & Wai, J. (in press). Communicating what we know, and what isn't so: Science communication in psychology. *Perspectives on Psychological Science*.
- Lick, D. J., & Johnson, K. L. (2016). Straight until proven gay: A systematic bias toward straight categorizations in sexual orientation judgments. *Journal of personality and social psychology, 110*(6), 801-817. <https://doi.org/10.1037/pspa0000052>
- Livingston, R. W. (2020, September 1). How to Promote Racial Equity in the Workplace. *Harvard Business Review*. <https://hbr.org/2020/09/how-to-promote-racial-equity-in-the-workplace>.
- Locke, E. A., & Latham, G. P. (2006). New directions in goal-setting theory. *Current Directions in Psychological Science, 15*, 265-268.
- Logan, J. R., Minca, E., & Adar, S. (2012). The Geography of Inequality: Why Separate Means Unequal in American Public Schools. *Sociology of Education, 85*(3), 287-301. <https://doi.org/10.1177/0038040711431588>

- Lorde, Audre. (1984). "The Master's Tools Will Never Dismantle the Master's House." *Sister Outsider: Essays and Speeches*. Ed. Berkeley, CA: Crossing Press. 110- 114. Retrieved 12/9/20 from https://collectiveliberation.org/wp-content/uploads/2013/01/Lorde_The_Masters_Tools.pdf
- Luce, R. D. (1995). Four tensions concerning mathematical modeling in psychology. *Annual Review of Psychology*, 46, 1–27.
- Ma, D. S., Correll, J., & Wittenbrink, B. (2015). The Chicago face database: A free stimulus set of faces and norming data. *Behavior research methods*, 47, 1122-1135.
- Maier, S. U., Makwana, A. B., & Hare, T. A. (2015). Acute stress impairs self-control in goal-directed choice by altering multiple functional connections within the brain's decision circuits. *Neuron*, 87(3), 621-631.
- Malisch, J. L., Harris, B. N., Sherrer, S. M., Lewis, K. A., Shepherd, S. L., Mccarthy, P. C., . . . Deitloff, J. (2020). Opinion: In the wake of COVID-19, academia needs new solutions to ensure gender equity. *Proceedings of the National Academy of Sciences*, 117(27), 15378-15381. doi:10.1073/pnas.2010636117
- Martin, A. R., Kanai, M., Kamatani, Y., Okada, Y., Neale, B. M., & Daly, M. J. (2019). Clinical use of current polygenic risk scores may exacerbate health disparities. *Nature genetics*, 51(4), 584-591.
- Matthew, P. A. (2016). What is faculty diversity worth to a university? *The Atlantic*. Retrieved from <https://www.theatlantic.com/education/archive/2016/11/what-is-faculty-diversity-worth-to-a-university/508334/>
- Matthew, P. A. (Ed.). (2016). *Written/unwritten: Diversity and the hidden truths of tenure*. UNC Press Books.
- Matthews D. (2020). Pandemic lockdown holding back female academics, data show. <https://www.timeshighereducation.com/news/pandemic-lockdown-holding-back-female-academics-data-show>
- McCormick-Huhn, K., Warner, L. R., Settles, I. H., & Shields, S. A. (2019). What if psychology took intersectionality seriously? Changing how psychologists think about participants. *Psychology of Women Quarterly*, 43(4), 445-456.
- McKiernan, E. C., Bourne, P. E., Brown, C. T., Buck, S., Kenall, A., Lin, J., ... & Spies, J. R. (2016). Point of view: How open science helps researchers succeed. *elife*, 5, e16800.
- Milkman, K. L., Akinola, M., & Chugh, D. (2012). Temporal Distance and Discrimination: An Audit Study in Academia. *Psychological Science*, 23(7), 710–717. <https://doi.org/10.1177/0956797611434539>
- Mitchell, K., & Martin, J. (2018). Gender Bias in Student Evaluations. *PS: Political Science & Politics*, 51(3), 648-652. doi:10.1017/S104909651800001X
- Mosley, D. V., Hargons, C. N., Meiller, C., Angyal, B., Wheeler, P., Davis, C., & Stevens-Watkins, D. (2021). Critical consciousness of anti-Black racism: A practical model to prevent and resist racial trauma. *Journal of Counseling Psychology*, 68(1), 1-16.
- Moss-Racusin, C. A., Dovidio, J. F., Brescoll, V. L., Graham, M. J., & Handelsman, J. (2012). Science faculty's subtle gender biases favor male students. *Proceedings of the National Academy of Sciences*, 109(41), 16474-16479. doi:10.1073/pnas.1211286109
- Murphy, M. C., Mejia, A. F., Mejia, J., Yan, X., Cheryan, S., Dasgupta, N., ... & Harackiewicz, J. M. (2020). Open science, communal culture, and women's participation in the movement to improve science. *Proceedings of the National Academy of Sciences*, 117(39), 24154-24164.
- Myers, K.R., Tham, W.Y., Yin, Y. *et al.* (2020). Unequal effects of the COVID-19 pandemic on scientists. *Nature Human Behavior*, 4, 880–883. <https://doi.org/10.1038/s41562-020-0921-y>
- Navarro, D. J. (in press). If mathematical psychology did not exist we might need to invent it: A comment on theory building in psychology. *Perspectives on Psychological Science*.
- Nelson, L. D., Simmons, J. P., & Simonsohn, U. (2012). Let's publish fewer papers. *Psychological Inquiry*, 23, 291-293.
- Nielsen, M., Haun, D., Kärtner, J., & Legare, C. H. (2017). The persistent sampling bias in developmental psychology: A call to action. *Journal of Experimental Child Psychology*, 162, 31-38.
- Nielsen, M., Haun, D., Kärtner, J., & Legare, C. H. (2017). The persistent sampling bias in developmental psychology: A call to action. *Journal of Experimental Child Psychology*, 162, 31-38.
- Northwestern Department of African American Studies. (2020). Retrieved 11/7/20 from <https://afam.northwestern.edu/documents/afam-email-to-president-schapiro.pdf>
- Obasi, A. I. (2020). Equity in excellence or just another tax on Black skin? *Lancet*.
- Onie, S. (2020). Redesign open science for Asia, Africa and Latin America.
- Onyeador, I. N., Hudson, S. T. J., & Lewis, Jr., N. A (in press). Moving beyond implicit bias training: Policy insights for increasing organizational diversity. *Policy Insights for the Brain and Behavioral Sciences*.
- Padilla, A. M. (1994). Research news and comment: Ethnic minority scholars; research, and mentoring: Current and future issues. *Educational Researcher*, 23(4), 24-27.

- Parry, M. (2020, July 5). Colleges Are in for a Racial Reckoning. Name Changes Are Only the Beginning. *Chronicle of Higher Education*. <https://www.chronicle.com/article/colleges-are-in-for-a-racial-reckoning-decisions-about-renaming-are-only-the-beginning>.
- Payne, B. K., Vuletic, H. A., & Brown-Iannuzzi, J. L. (2019). Historical roots of implicit bias in slavery. *Proceedings of the National Academy of Sciences*, *116*(24), 11693-11698.
- Pennycook, G., & Thompson, V. A. (2018). An analysis of the Canadian cognitive psychology job market (2006–2016). *Canadian Journal of Experimental Psychology/Revue canadienne de psychologie expérimentale*, *72*(2), 71.
- Pickett, C. (2017, April 12). Let's Look at the Big Picture: A System-Level Approach to Assessing Scholarly Merit. <https://doi.org/10.31234/osf.io/tv6nb>.
- Pratto, F., & Stewart, A. L. (2012). Group dominance and the half-blindness of privilege. *Journal of Social Issues*, *68*(1), 28-45.
- Purdie-Vaughns, V., & Eibach, R. P. (2008). Intersectional Invisibility: The Distinctive Advantages and Disadvantages of Multiple Subordinate-Group Identities. *Sex Roles*, *59*(5-6), 377-391. doi:10.1007/s11199-008-9424-4
- Ranji, U., Frederiksen, B., Salganicoff, A., & Long, M. (2021). Women, Work, and Family During COVID-19: Findings from the KFF Women's Health Survey. Retrieved 5/19/21 from <https://www.kff.org/report-section/women-work-and-family-during-covid-19-findings-from-the-kff-womens-health-survey-methodology/>
- Reid, R. A., & Curry, T. A. (2019, April 12). The White Man Template and Academic Bias. Inside Higher Education. Retrieved from <https://www.insidehighered.com/advice/2019/04/12/how-white-male-template-produces-barriers-minority-scholars-throughout-their>
- Remedios, J. D., & Snyder, S. H. (2015). Where do we go from here? Toward an inclusive and intersectional literature of multiple stigmatization. *Sex Roles*, *73*, 408-413.
- Richeson, J. (2020, July 27). Americans Are Determined to Believe in Black Progress. Retrieved from <https://www.theatlantic.com/magazine/archive/2020/09/the-mythology-of-racial-progress/614173/>
- Rideau, R. (2019). "We're just not acknowledged": An examination of the identity taxation of full-time non-tenure-track Women of Color faculty members. *Journal of Diversity in Higher Education*.
- Risen, J. (2015, April 30). American Psychological Association Bolstered C.I.A. Torture Program, Report Says. The New York Times. Retrieved 12/8/20 from <https://www.nytimes.com/2015/05/01/us/report-says-american-psychological-association-collaborated-on-torture-justification.html>.
- Roberson, Q. M. (2006). Disentangling the meanings of diversity and inclusion in organizations. *Group & Organization Management*, *31*, 212-236.
- Roberts, S. O., Bareket-Shavit, C., Dollins, F. A., Goldie, P. D., & Mortenson, E. (2020). Racial Inequality in Psychological Research: Trends of the Past and Recommendations for the Future. *Perspectives on Psychological Science*, *15*(6), 1295–1309. <https://doi.org/10.1177/1745691620927709>
- Robertson, C., & Gebeloff, R. (2020, April 18). How Millions of Women Became the Most Essential Workers in America. Retrieved from <https://www.nytimes.com/2020/04/18/us/coronavirus-women-essential-workers.html>
- Rothstein, R. (2018). *The color of law: A forgotten history of how our government segregated America*. Liveright Publishing Corporation, a division of W.W. Norton & Company.
- Roux, C., Goldsmith, K., & Bonezzi, A. (2015). On the psychology of scarcity: When reminders of resource scarcity promote selfish (and generous) behavior. *Journal of consumer research*, *42*, 615-631.
- Roy, A. (2020). The Pandemic Is a Portal. *Financial Times*. Retrieved 11/30/20 from <https://www.ft.com/content/10d8f5e8-74eb-11ea-95fe-fcd274e920ca>
- Rozin, P. (2009). What kind of empirical research should we publish, fund, and reward?: A different perspective. *Perspectives on Psychological Science*, *4*(4), 435-439.
- Salter, P. and Adams, G. (2013). Toward a Critical Race Psychology. *Social and Personality Psychology Compass*, *7*, 781-793. <https://doi.org/10.1111/spc3.12068>
- Salter, P. S., Adams, G., & Perez, M. J. (2018). Racism in the Structure of Everyday Worlds: A Cultural-Psychological Perspective. *Current Directions in Psychological Science*, *27*(3), 150–155. <https://doi.org/10.1177/0963721417724239>
- Serano, J. (2009, June 12). Psychology, Sexualization and Trans-Invalidations. Keynote lecture presented at the 8th Annual Philadelphia Trans-Health Conference. Retrieved from <http://www.juliaserano.com/av/Serano-TransInvalidations.pdf>.
- Sheskin, M., Scott, K., Mills, C. M., Bergelson, E., Bonawitz, E., Spelke, E. S., ... & Jara-Ettinger, J. (2020). Online developmental science to foster innovation, access, and impact. *Trends in Cognitive Sciences*, *24*(9), 675-678.

- Shortlidge, E. E., & Eddy, S. L. (2018, June 25). The trade-off between graduate student research and teaching: A myth? *Plos One*, *13*(6). doi:10.1371/journal.pone.0199576
- Skitka, L. J., Melton, Z. J., Mueller, A. B., & Wei, K. Y. (2020). The Gender Gap: Who Is (and Is Not) Included on Graduate-Level Syllabi in Social/Personality Psychology. *Personality and Social Psychology Bulletin*, *0146167220947326*.
- Social Sciences Feminist Network Research Interest Group. (2017). The Burden of Invisible Work in Academia: Social Inequalities and Time Use in Five University Departments. *Humboldt Journal of Social Relations*, *1*(39), 228-245. Retrieved from <https://digitalcommons.humboldt.edu/hjsr/vol1/iss39/21/>
- Solnit, R. (2020, July 13). Rebecca Solnit: The Slow Road to Sudden Change. Retrieved from <https://lithub.com/rebecca-solnit-before-the-uprising-comes-the-work/>
- SPSP. (2020). Diversity Graduate Registration Award. Retrieved 12/19/20 from <https://www.spsp.org/awards/travel-awards/diversity-fund-graduate-travel-award>.
- Squazzoni, F., Bravo, G., Grimaldo, F., Garcia-Costa, D., Farjam, M., & Mehmani, B. (Unpublished manuscript). No tickets for women in the COVID-19 race? A study on manuscript submissions and reviews in 2347 Elsevier journals during the pandemic. Retrieved 12/4/20 from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3712813
- Srivastava, S. (2019, July 9). Will this time be different?. <https://doi.org/10.31234/osf.io/9e275>
- Stephens, N. M., Fryberg, S. A., Markus, H. R., Johnson, C. S., & Covarrubias, R. (2012). Unseen disadvantage: how American universities' focus on independence undermines the academic performance of first-generation college students. *Journal of personality and social psychology*, *102*(6), 1178.
- Stewart, E. (2020, April 23). Essential workers are taking care of America. Are we taking care of them? Retrieved from <https://www.vox.com/covid-19-coronavirus-explainers/2020/4/23/21228971/essential-workers-stories-coronavirus-hazard-pay-stimulus-covid-19>
- Syed, M. (2017). Why Traditional Metrics May Not Adequately Represent Ethnic Minority Psychology. *Perspectives on Psychological Science*, *12*(6), 1162–1165. <https://doi.org/10.1177/1745691617709590>
- Syed, M., & Kathawalla, U. (2020, February 25). Cultural Psychology, Diversity, and Representation in Open Science. <https://doi.org/10.31234/osf.io/t7hp2>
- Tenney, E., Costa, E., Allard, A., & Vazire, S. (2020). Open Science and Reform Practices in Organizational Behavior Research over Time (2011 to 2019)
- Thalmayer, A. G., Toscanelli, C., & Arnett, J. J. (2020). The neglected 95% revisited: Is American psychology becoming less American?. *American Psychologist*.
- Townsend, B. K., & LaPaglia, N. (2000). Are We Marginalized within Academe? Perceptions of Two-Year College Faculty. *Community College Review*, *28*(1), 41–48. <https://doi.org/10.1177/009155210002800103>
- Turner, C. S. V. (2002). Women of color in academe: Living with multiple marginality. *The Journal of Higher Education*, *73*, 74-93.
- UC Davis Academic Affairs. (2020). STEAD Faculty Search Committee Workshops. Retrieved 12/19/20 from <https://academicaffairs.ucdavis.edu/stead>.
- Warner, L. R., Settles, I. H., & Shields, S. A. (2018). *Intersectionality theory in the psychology of women*. In C. B. Travis, J. W. White, A. Rutherford, W. S. Williams, S. L. Cook, & K. F. Wyche (Eds.), *APA handbooks in psychology*®. *APA handbook of the psychology of women: History, theory, and battlegrounds* (p. 521–539). American Psychological Association. <https://doi.org/10.1037/0000059-027>
- Whitaker, K., & Guest, O. (2020). #bropenscience is broken science. *The Psychologist*, *33*, 34-37. Retrieved 10/23/20 from <https://thepsychologist.bps.org.uk/volume-33/november-2020/bropenscience-broken-science>
- Wilkins, C. L., & Kaiser, C. R. (2014). Racial progress as threat to the status hierarchy: Implications for perceptions of anti-White bias. *Psychological science*, *25*(2), 439-446.
- Wilkins, C. L., Hirsch, A. A., Kaiser, C. R., & Inkles, M. P. (2016). The threat of racial progress and the self-protective nature of perceiving anti-White bias. *Group Processes & Intergroup Relations*, *20*, 801-812.
- Wilkinson M. D., Dumontier M., Aalbersberg IJ. J., Appleton G., Axton M., Baak A., . . . Mons B. (2016). The FAIR Guiding Principles for scientific data management and stewardship. *Scientific Data*, *3*, Article 160018. doi:10.1038/sdata.2016.18
- Williams, J. C. (2014). Double jeopardy? An empirical study with implications for the debates over implicit bias and intersectionality. *Harvard Journal of Law & Gender*, *37*, 186–242.
- Wilson, L. (1942/1995). *The Academic Man: A Study in the Sociology of a Profession* (1st Edition). Routledge.
- Wolfram, D., Wang, P., Hembree, A. et al. Open peer review: promoting transparency in open science. *Scientometrics* (2020). <https://doi.org/10.1007/s11192-020-03488-4>

Zimmerman, C. A., Carter-Sowell, A. R., & Xu, X. (2016). Examining Workplace Ostracism Experiences in Academia: Understanding How Differences in the Faculty Ranks Influence Inclusive Climates on Campus. *Frontiers in Psychology, 7*. doi:10.3389/fpsyg.2016.00753.

Supplemental Materials

The Pandemic as a Portal: Reimagining Psychological Science as Truly Open and Inclusive

Alison Ledgerwood^{1*}, Sa-kiera Tiarra Jolynn Hudson^{2*}, Neil A. Lewis Jr.^{3*}, Keith B. Maddox^{4*},
Cynthia L. Pickett^{5*}, Jessica D. Remedios^{4*}, Sapna Cheryan^{6*}, Amanda B. Diekmann^{7*},
Natalia B. Dutra⁸, Jin X. Goh⁹, Stephanie A. Goodwin^{10,11}, Yuko Munakata¹, Danielle J.
Navarro¹², Ivuoma N. Onyeador¹³, Sanjay Srivastava¹⁴, and Clara L. Wilkins¹⁵

*indicates co-first-authorship

¹ University of California, Davis

² Yale University

³ Cornell University

⁴ Tufts University

⁵ DePaul University

⁶ University of Washington

⁷ Indiana University

⁸ Federal University of Rio Grande do Norte

⁹ Colby College

¹⁰ Wright State University

¹¹ Stevens Institute of Technology

¹² UNSW Sydney

¹³ Northwestern University

¹⁴ University of Oregon

¹⁵ Washington University in Saint Louis

Supplemental Materials: Narratives of Change

When thinking about changing the system, it's easy to feel powerless, or to assume that only those in the most influential decision-making roles can make changes. Yet if we are to successfully transform the scientific system to be fundamentally open and inclusive, we need people to intervene at every level and in every role. Our paper largely focuses on how coalitions can work together to reimagine science, but individuals often have more power than they think to engage others in conversation and take action themselves. Indeed, we would argue that what varies across intersectional positions (i.e., specific locations in a societal structure that afford more or less access to structural power; McCormick-Huhn et al., 2019) is not the ability to take action but the size of the impact that those actions can have.

The question, then, is not who should take action, but where in the system you can intervene and how. Here, many of the authors have shared personal narratives about how an individual was able to effect change within a particular role and context. Our hope is that one or more of these stories inspires you to take action in your own roles and spaces.

Kiera: There are many spaces where change can happen and not all of them are easily visible. For example, as a graduate student I served on the committee for undergraduate instruction at Harvard, a committee made up of faculty, graduate students, and undergrads. I found that several decisions discussed by that committee had social justice ramifications, and I could influence those decisions by bringing up additional points that might be overlooked. For example, when discussing whether course prerequisites should be hard-coded in the system (meaning if one has not taken the prerequisite they are unable to sign up for a course), I mentioned the work on cultural capital, explaining that the majority of people who would know to ask for an exception are those who tend to be privileged. This consideration wasn't thought of by others at the table (or at least not mentioned). At that moment, I caused people to think differently about the experience of going through the concentration. Furthermore, a faculty member reached out to me months after I left that committee, saying that they appreciated my efforts to always point out hidden assumptions in the committee's decisions. They said that they try to have a "what would Kiera say" filter when making decisions in other committee spaces. The lesson I took from this experience was that you don't know who might be listening as you continue to work for change. Changing departments can happen along multiple levels and in a variety of spaces, and that should not be overlooked.

Sapna: As a professor chairing a faculty search in my department, I went back to our previous faculty search and analyzed our ratings on different criteria to see which criteria were biased against Black candidates. We then eliminated and revised those criteria for the current search (and tested all of them again to make sure they were improved).

Jin: As an assistant professor at a predominantly undergraduate institution, I have spoken with college administrators to receive additional funding to support diversity-related initiatives for underrepresented scholars within my field. When I received an external offer, I brought this up to my departmental chair and provost to negotiate a retention offer. During my meeting with the provost, I emphasized my desire to support underrepresented scholars within my field and continue my existing initiative on this front ([SEASAPP](#): South East Asian Social and Personality Psychologists). Previously, my co-organizers and I were relying on our professional society to support SEASAPP, which required applying for a grant every year that we thought was unsustainable in the long term (funding supported an annual social event with food and drinks, Lunar New Year care packages). By directly speaking to administrators at my college, I was able to secure funding and sustain diversity-related initiatives within my field. I believe other faculty (or faculty-to-be) can include such efforts into their retention offers or startup packages. If one has good relations or standing with their college administrators (or their college/ department is supportive of such initiatives), it may be worth bringing up desires to support these initiatives. Any amount of money you can secure often can go a long way in supporting underrepresented groups such as helping them pay for online studies, research supplies, or conference registrations. Other diversity-related initiatives within my field (e.g., [BlaSPR](#) and [Flourish](#)) have hosted writing retreats, sent out care packages, and sponsored professional development workshops. All these initiatives require monetary support, and faculty are particularly poised to support these initiatives individually or by garnering institutional support (from department, university, professional society, or grant agency).

Clara: It's really difficult to get people who are invested in maintaining the status quo to change precisely because they have often benefited from the way things are. There is also often resistance to change if it implies that some groups (particularly one's own) have been privileged. Other times, resistance is just a matter of not having considered a different perspective or having interrogated assumptions of the status quo. In the latter case, it can help to ask people in power (or ask yourself) probing questions to change perspective and recognize inequality. It can also help to recognize the power we do have to make a change. There are times when people *want* to do something differently, but they are unsure how.

Once my chair emailed the department to clarify the policy of not including discussions related to "systemic racism and social justice" on the listserv. The chair proposed creating a separate list for those particularly interested in those issues. This email came during a particularly difficult time of social protest. As an Associate Professor in the department I felt I had the duty to speak up on behalf of marginalized students who expressed distress about the email. I privately reminded the chair that some people in the department do not have the option of opting in or out of their chronic life experiences with racism. I also asked them to consider whose voices and perspectives were privileged by the policy and what message it sends about whose perspectives are central to the department mission. Finally, I reminded the chair about their unique position for shaping department norms. Within hours, the chair

emailed the department to reverse the policy and to welcome social justice discussions. In other words, I nudged the person to consider viewpoints other than the dominant one. This process could happen for the individual – where people ask *themselves* about potential disparate impacts of policies.

Danielle: Little acts of inclusion are sometimes the most valuable things. Transition at work was one of the most terrifying things I have done in my life. I had no idea if my colleagues would accept me. At the time my institution had no guidelines for how to manage transition in the workplace and there were no stated policies about bathroom access for transgender people. This absence led to a lot of fears at my end, and these fears were compounded by the conspicuous silence from those around me when I started transitioning. It might seem surprising, but for a long time nobody at all spoke to me about what was happening. My public appearance changed quite dramatically over a period of months (and of course everyone noticed - it was not a subtle change) yet nobody acknowledged it. It seemed as if everybody was trying hard not to see that Daniel was becoming Danielle. The silence around this was very stark from my point of view, and I became rather depressed. It was something very small that turned this around for me: during a meeting a student asked me what name and pronoun she should use when referring to me in a document. It was such a small gesture, but it was the first time anyone in my professional life openly acknowledged that something was different, and it did a lot to ameliorate my fear. My experience since then has been that it has often been those small gestures that have helped me feel accepted in my workplace. These actions aren't hard to take and anyone can do them. Another example that comes to mind was a colleague saying something nice about my nail polish. I wasn't out at the time (and frankly my nails weren't all that great) but again it had an outsized impact. It had the effect of normalising the choices I'd make about my appearance, making them part of ordinary daily life rather than a taboo subject. Little things like this can do a lot to assuage the fears that many trans people have, especially early in transition.

Jess: As an associate professor, I realized that teaching Introduction to Psychology is an opportunity to intervene at an early stage to discuss inequality in the field with students who may go on to become psychologists and shape the discipline. In addition to covering research methods typically covered in this class, I cover methods in the context of colonialism, past oppression and exclusion, and present-day exclusion and inequality. I introduce students to intersectionality as a framework for analyzing and understanding exclusion, and encourage them to think about how their own positionality may relate to their understanding of, and interest in, psychology. We also discuss how the overrepresentation of White, Western scholars in the discipline relates to the overrepresentation of White, Western participants in psychology studies. I also shared my materials on [OSF](#) for instructors who were interested. Several students of color have told me that they appreciate a professor being critical of dominant narratives in coursework. Having a professor take this

reality seriously helped them feel that they belonged in psychology and in conversations about how to improve psychology.

Alison: I think one way in which individual scientists have a remarkable degree of power to align rewards with values is in our citation practices. As Lisa Bowleg (2021) remarks, “Citations matter. They are intellectual currency that reflect your scholarly contributions to the field and are a key metric that grant proposal reviewers (and tenure and promotion committees) use to assess research impact.” Yet we know that there are racial and gender biases in citation rates. As authors, we often issue the “reward” of citations based on author eminence or what papers pop to mind easily.

With that in mind, as an author (and currently a full professor, although I could have done this earlier in my career), I have been working on diversifying my citations when I write papers. I’ve approached this in two ways. First, I sought to diversify my “mental library” of papers and authors that I knew about, since the salient stuff in my head was mostly authored by White academics and especially cis White men. To counteract this imbalance, I tried to intentionally change the default structure of how I learn about academic work. The most effective strategy I found was to use Twitter very specifically to follow voices that I am underexposed to, including Black women academics. I keep an eye out for work that seems potentially related to topics I’m writing or thinking about. When I see a potentially relevant paper or idea retweeted or referenced, I look it up. Over time, this process puts more and more work by marginalized academics (and especially Black women academics) on my radar.

Second, when writing a paper, I started paying attention to the positionality of the authors I’m citing (so just bringing into awareness the authors’ race, gender, and/or any other information I know about their positionality each time I cite a paper). As I write, I keep the goal in mind of diversifying my citations, look for opportunities to cite marginalized authors that I know about (this is where the work above came in handy for diversifying who is on my radar), and search for relevant work by marginalized authors to include wherever I can connect to it. I also refrain from citing extra papers by White authors (and especially cis White men) “for good measure” when I don’t need to (e.g., if I already have one citation for a theoretical perspective authored by a famous White author, I don’t need to add a second one, since doing so would just make the goal of diversifying citations harder). Last time I engaged in this process, the resulting paper was substantially stronger and more generative as a result, because this process helped me get out beyond the walls of a very insulated literature that only cites itself and start to make connections to extremely relevant areas of research.

Neil: As an assistant professor, whenever I teach my undergraduate course on persuasion and social influence, I always begin the course with a lecture on “how do we know what is, and is not, so.” In that lecture I walk through the history of knowledge construction

processes in the field, providing students with a framework for critically analyzing everything else I will teach them in the rest of the semester so that they can think about who was and was not included, what methods were and were not used, etc., and what all of that means for what we actually “know” in the field and still need to learn.

Stephanie: As a DEI consultant, I am actively engaged in conversations with academic leaders, faculty, students, and staff across the US (and in a few other countries) to support their efforts to do better when it comes to making higher ed more diverse, more equitable, and more inclusive. I draw heavily from my scholarship as a (social) psychologist and my teaching experience in facilitating these conversations. Some of these conversations take place in formal programming, including interactive workshops on how to “speak up” to bias in the academic workplace and classroom. Beyond the self-efficacy and skills that people gain from these workshops, there is higher value in the fact that people within a community are having a conversation about their shared values (e.g., that everyone should experience respect and inclusion in the workplace/classroom) and that bias violates those values. As psychologists, we have the skills and expertise to facilitate and foster these conversations in our classrooms, in our labs, and in our everyday interactions with our colleagues. And just as biases are cumulative, our small efforts to intervene, interrupt, and speak up can also add up to norm change.

Keith: As an associate professor at a private 4-year research-focused institution I’ve taught introductory social psychology for 20+ years. In recent years I’ve taken care to highlight the disparate representation of foundational research we discuss in class and in the text in the following way. For each study and theory discussed I include photographs of the primary researcher. At the end of the semester I put all of these photographs in a single slide, highlighting the gender and racial homogeneity in the history of the field. I contrast this with a similar image created recently of U.S. presidents. I then and then discuss the causes and consequences of inequities for the field and the US more generally. I’ll continue this practice in the future. As my course develops over time, I’ll be able to track my progress toward better inclusion, and assess my students’ impressions of my efforts, and of the field as a whole. This class represents my biased impression of my field. It’s the work I learned and loved as a student. Yours might look different. But it may be giving students a subtle impression that they have no place in your field. This was not my intent, but it might be the result. So while my field (and probably yours) doesn’t have a foundational history of representation and inclusion, instructors can still do meaningful work by calling it out, and challenging ourselves to do better. The only thing you cannot do is ignore it.

Years ago as chair of our school’s Equal Educational Opportunity Committee, I dealt with several diversity and climate-related efforts on campus. In general, we worked to make the administration and faculty more aware of the need to be involved in leading and encouraging diversity related efforts to create a more hospitable climate for students, faculty, and staff from underrepresented groups. One recommendation that was adopted by

our Dean was to start to ask faculty members to include a description of their efforts related to diversity, climate, and inclusion as a part of our yearly merit review process. The idea behind doing so was to convey to faculty the value the administration places on these efforts. Because faculty are often responsive to administrative priorities, diversity efforts into the incentive structure for faculty can increase awareness and encourage majority faculty to get involved to share the burden of this work that typically falls to members of underrepresented groups. But the effort fell short in at least two ways. First, the administration did not seem to use this information when deciding merit, and faculty learned this. Second, many did not know how to engage, and this initiative was not complemented with an increase in the availability of resources to help faculty learn and grow into these expanded roles. Efforts to change behavior need to consider a variety of causal and contributing factors and develop multi-faceted approaches to address them.

Amanda: Through many promotion & tenure and annual review discussions, it was clear to me (as a full professor participating in these discussions) that my department values collaboration in scientific research and in providing early career scholars with opportunity to develop. Yet the language of our policy did not always reflect these values. For example, our promotion and tenure policy included criteria describing contributions with words such as “autonomous.” As the Policy & Steering Committee revised departmental policies to align with other university guidelines, the committee (including members from a range of roles and ranks) took this opportunity to include descriptions such as “unique and substantive” to preserve the value of being able to demonstrate the scholar’s distinct intellectual contribution alongside the value of collaborative scientific work. We also added in language to emphasize the formative function of annual reviews: The objectives of early reviews are not only are not only to provide an evaluation about whether someone is likely to successfully gain tenure or promotion, but also to “provide assistant professors actionable feedback to improve their eventual tenure dossiers.”

Yuko: As a full professor at a research-focused university, I spoke with undergraduate students working in my lab about what they wish they had known when they first joined. What message would they share with future research assistants? Their answers surprised me. They said things like:

- “I was confused about most things when I joined the lab. You should know it’s okay if that’s how you feel.”
- “There are so many different projects. You’ll have lots of opportunities to learn and grow.”
- “Ask questions! Explore!”
- “Don’t be afraid to talk to the Lab Manager, the graduate students, Yuko, or other RAs. They are super nice and helpful and they are human too.”

Their answers surprised me because my lab group has engaged in discussions for over a year about how to create and sustain an inclusive and equitable lab environment where all individuals can bring their whole selves and thrive. Our discussions have spanned issues

that reflect our diverse identities and experiences, which include BIPOC, LBGTQIA+, first-generation college students, #metoo, neurodivergence, anxiety and depression. I thought we had communicated and demonstrated the exact messages the students suggested.

But then I realized that from my vantage point and some others', these messages probably seem so obvious that we don't emphasize them as much as we should with each new student, for whom the messages may not be at all obvious. These messages may also carry more weight coming from other undergraduates.

From this discussion, we decided to put together a letter from current research assistants to future research assistants. We will share it with each new student joining the lab. It will be a living document and the start of a conversation. We will ask each new student to reflect on the messages and keep thinking about what they will add to the letter down the road to share their perspective and experiences. All members of the lab will review the letter at the start of each year, as a reminder of the diverse vantage points in the lab and steps we can take to include and empower each student.

Sanjay: This past year I taught our yearlong, required seminar for first-year graduate students. This class is intended to help students get on a path to success. It is supposed to cover a wide range of topics, from practical matters like accessing library resources to big and broad ones like professional ethics. I inherited a great curriculum from my predecessor, but she encouraged me to be as bold as I wanted in making it my own. Moreover, I was teaching in the midst of a pandemic, carrying out the class entirely remotely, with some students not even living in Eugene. Incremental change was not going to cut it.

One of the things I really wanted to do was to integrate diversity, equity, inclusion, access, and justice throughout the course. It's not unusual nowadays to see syllabi with a "diversity day" covering how those issues connect to whatever the course is about. While it definitely is important to set aside time to make diversity the focus, I also wanted the course to reflect the fact that those issues are part of everything we do. Human subjects ethics? Open science? How to come up with a research question? The peer review system? Whatever the topic is, I wanted to make sure that a normal part of how we think and talk about everything is with an eye toward interrogating it and asking how it could be better. So whatever we were doing, I looked for readings, class activities, or guest speakers who could help do that.

I also used class time to directly address, in small but hopefully meaningful ways, some of the issues that create inequities in the academy. For example, I introduced the class to the concept of a hidden curriculum and created opportunities for students to ask (publicly or privately) about those moments when others were acting as if the student already knew something they didn't. We did a standpoint exercise, adapted from the materials that my co-author Jessica Remedios created and shared, to reflect on how our backgrounds and

identities shape the way we and others in our field do research. Sara Weston, Tamara Niella, and I created a mentoring program to provide support and connections for first-year students who would otherwise be at high risk of isolation from the department's social networks. Even though the unusual and difficult conditions of 2020 were part of what prompted me to shake things up, I learned a lot that could be useful in a "normal" year, and I hope that future iterations of the class will be more reflective, inclusive, and just as a result.