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

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Abstract

Psychological science is at an inflection point: The COVID-19 pandemic has exacerbated 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 article, 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 whom 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.

Keywords

open science, inclusive science, meta-science

> 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. (Roy, 2020, paras. 48–49)

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,

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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; Gonzales, 2018; Guthrie, 2004; 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, burdens people who persist in the face of exclusion and hampers systemic changes that would ease their path, deprioritizes and delegitimizes research questions and course topics that depart from the dominant viewpoint, and 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; McCormick-Huhn et al., 2019; Padilla, 1994).

This article considers the following 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 articles freely and publicly accessible; preregistering study designs and/or analysis plans; freely sharing teaching tools and educational resources; making review and other decision-making processes more transparent; and fostering postpublication peer review (e.g., McKiernan et al., 2016; Murphy et al., 2020; Tenney et al., 2021; Wolfram et al., 2020). For the purposes of this article, however, 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 article, 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 Article

Understanding the past

In this section, we preview several themes that are more fully developed later in the article. In this article, we suggest that efforts to reform psychological science along any one avenue in isolation cannot fully succeed because true change can come only 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 (e.g., women of color) who are marginalized along multiple dimensions (Cho et al., 2013; Warner et al., 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 suggest that an intersectional analysis reveals a common origin of closed science and inequality in psychological science. In this vein, we 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 overrepresents and overvalues 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 (SES), 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 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

Table 1. A Vision for an Open and Inclusive Psychological Science

A future we want	How our recommendations help get there
We can build cumulatively on valuable resources and data sets 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.

Note: We argue that the steps described in our article must be taken to make our science stronger and more inclusive.

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 initiated such a "waterfall moment" in U.S. discourse around racial injustice, in which "the movement from margin to center accelerates" (Solnit, 2020, para. 13) and within which there is real and urgent potential to "take audacious steps to address systemic racial inequality" (Richeson, 2020, para. 20). 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.

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 et al., 2015; Wilkins et al., 2016). Nonetheless, the COVID-19 pandemic has already demanded 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 article 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 article 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 article 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 article 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 most of us are social psychologists,[1] with collective experience working at relatively well-resourced and high-status research- and teaching-focused institutions. Moreover, the co-first-author team (the first eight authors), who did most of the initial writing, are all from the United States and work primarily with quantitative methods; we therefore focus our discussion on this context as one of many important contexts in 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 article) but also consider scientific oppressions more broadly (see, e.g., Bowleg, 2021; Syed, 2021).

For the purposes of the specific discussion developed in this article, we use the term "our discipline" to refer specifically to psychological science as practiced in the United States. 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 such as the American Psychological Association and the Association for Psychological Science, 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 within not only the United States but also 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 article is best conceptualized as a starting point for a series of conversations that must be broader, longer, and more inclusive than any one article.

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 (e.g., 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 (Goff & Kahn, 2013; Purdie-Vaughns & Eibach, 2008). 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., the UC Davis Academic Affairs [n.d.] Strength Through Equity and Diversity [STEAD] Faculty Search Committee workshops); a scientific society may offer funding for members of underrepresented groups to attend conferences (e.g., the diversity graduate travel/registration award offered by the Society for Personality and Social Psychology ([2020]), and a journal might require a specific open-science practice such as 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 on which our institutions are built.[2]

In this section, we 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.

Whom 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 United States

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 et al., 2018). Likewise, 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 articles one published was established as the measure of success (e.g., "publish or perish"; Wilson, 1942/1995)—after all, rarely did early scholars need to take time away from writing articles 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 tended 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 United States (and more broadly in Canada, Australia, New Zealand, and Western Europe; Keith, 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 Crenshaw (1989), who described how U.S. antidiscrimination 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. Likewise, we can use intersectionality to understand how any movement in psychology to topple the established order, if focused only on one dimension of change (e.g., advancing women in STEM fields 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, p. 3).

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 such as 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).

We can take these observations and turn them inward to examine our own systems in psychological science as practiced in the United States.[3] In other words, we can ask ourselves two questions: (a) What is the essential work of our science that is valuable but not valued in hiring, promotion, and award decisions; and (b) who does this work?

The first question leads us to consider labor that is integral to the functioning of our science[4] but that does not necessarily produce lead-authored research articles 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, p. 231), 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 & Hirshfield, 2011; Matthew, 2016a). Less common examples include underrewarded contributions to research, many of which are critical to open and inclusive science: working on large-scale collaborations (J. T. 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, and plan thoughtfully before executing a study (see, e.g., da Silva Frost & Ledgerwood, 2020; Judd et al., 2012; Luce, 1995; Navarro, 2021; Nielsen et al., 2017).

There are obviously individual differences in who performs these various forms of valuable but underrewarded 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 engaged in teaching (Bellas & Toutkoushian, 1999) and service, especially internal service for the university (Guarino & Borden, 2017), than do men. 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 but are 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 (Hirshfeld & Joseph, 2012; Rideau, 2021; 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? Researchers who (for example) publish lead-authored articles in "top-tier" journals may consider the value placed on such output to be normal rather than privileged, but successfully recognizing and addressing inequity necessitate acknowledging how a system *advantages* as well as disadvantages (Pratto & Stewart, 2012). Although it may be challenging to call one's own work overvalued, some of the following questions might be illuminating. Can you think of an article in a top-tier journal that seemed overhyped and overvalued? Have you been surprised that a particular manuscript lands in a top-tier journal whereas a similar manuscript meets with resounding rejection? Do your own most prestigious publications truly reflect your most valuable contributions to science? Given the varied contributions that are fundamental to the functioning and flourishing of science as a system, do 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 United States tend to perceive Americans as White (Devos & Banaji, 2005) and people in general as straight (Lick & Johnson, 2016) and male (Bailey et al., 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, metascientific research has documented staggering cultural and racial disparities in psychological samples (Arnett, 2008; Thalmayer et al., 2021). In one analysis of articles published between 2003 and 2007, researchers discovered that 96% of participants in research in the behavioral sciences were from North America, Europe, Australia, and Israel (Henrich et al., 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 with 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 et al., 2020).

Thus, psychologists (particularly White psychologists; Roberts et al., 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, whereas 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, in press; Lewis, in press). Consider, for example, a psychology department that decides it wants 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 (WEIRD) societies, broadly, are psychologically unusual and distinctly *nonrepresentative* of humans in general (Clancy & Davis, 2019; Henrich et al., 2010; Nielsen et al., 2017). It is difficult to argue, then, that the overvaluing 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 on 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 et al., 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 et al., 2012; Milkman 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, are paid less, and carry heavier service workloads (see review by Gruber et al., 2021). 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 et al., 2016). The exclusion from academic communities has consequences for people's sense of belonging and career decisions (e.g., Gruber et al., 2021) and 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 previous 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 also choose a version of the future in which 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 (Long et al., 2021). 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 childcare support (Matthews, 2020; see also Squazzoni et al., 2021). 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 (Bavishi et al., 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 et al., 2016). Delaying the raises that come with tenure and promotion has long-term consequences for disparities in pay—particularly in economic environments in which 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 or 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, prodiversity statements can signal that challenges have been resolved when in fact policies continue to perpetuate inequality (Ahmed, 2012; Northwestern University 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 antiracist work and assessing antiracist 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 (a) the short term rather than the long term, (b) individual-level problems and solutions rather than systemic problems and solutions, and (c) one form of institutional change (e.g., gender equity) at a time rather than multiple forms (e.g., gender equity and antiracism efforts; see also Onyeador et al., 2021). The perspective afforded by our position as psychologists may make it especially easy to understand the situational elements that prompt a short-term focus but simultaneously make 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 crises

focus people on the immediate present (Duckworth et al., 2013; Maier et al., 2015). However, both individuals and institutions can benefit from recognizing that their actions now are a long-term investment. As Furstenberg (2020, para. 21) noted 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: Individuals' 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 consider only 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 et al., 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?

Third, with respect to focusing on only 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 them 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 & López, 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 subcategory the myriad issues facing women of color, women who identify as LQBTIQ, women with chronic (rather than short-term) health conditions, and women from low-SES and first-generation backgrounds. Likewise, 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 LGBTIQ 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 is 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 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 assumptions about what it means to be successful, what we are striving for, who is deserving, and how merit is defined percolate through the way our institutions were designed, 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 it means 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 such as 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, n.d.) 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 publications 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., R. A. 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 (Henrich et al., 2010; Judd et al., 2012; Martin et al., 2019; Thalmayer et al., 2021); an overreliance and exploitation of adjunct faculty (Harris, 2019); a series of scandals involving sexual assault and harassment (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 et al., 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 article, 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 consequential; for ideas, see the Supplemental Material available online; it is also available at https://psyarxiv.com/gdzue.)

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 Fig. 1). Members of the co-first-author team (A. Ledgerwood, S. T. J. Hudson, N. A. Lewis, K. B. Maddox, C. L. Pickett, J. D. Remedios, S. Cheryan, and A. B. Diekman) also engaged in the first three steps of this process 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.

Step 1: Explicitly identify and interrogate the assumptions of the status quo

The basic idea. The first step toward reimagining the status quo is to explicitly identify and interrogate our current assumptions because these are what hold in place

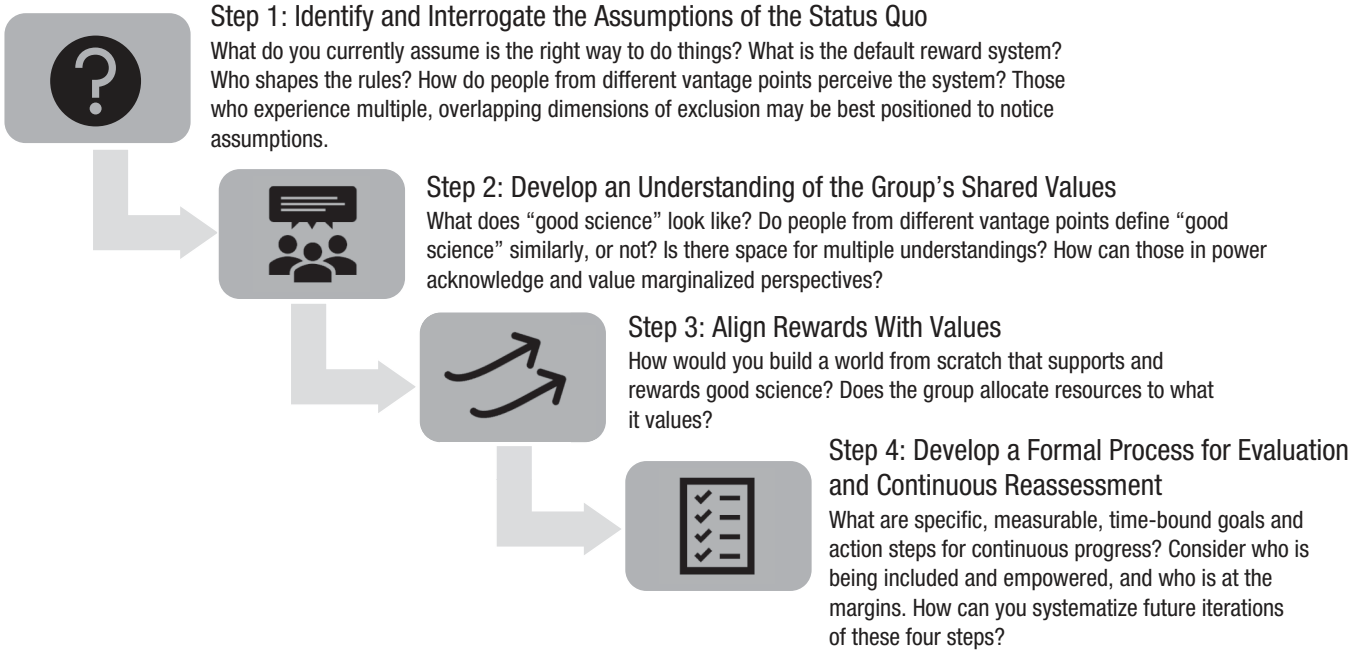

Fig. 1. A roadmap for reimagining in four steps.

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 is difficult to build a creative new structure if we do not even contemplate the possibility of altering the foundation.

It can also be difficult to identify and interrogate assumptions because 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 in which you first generate assumptions and then, in a separate phase, question and assess them. Spend extra time interrogating any assumption that generates responses such as "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 unearth current assumptions and guide the reimagining process that follows. For example, as noted earlier, many universities in the United States were designed to educate wealthy White men to contribute to elite society. For centuries, science as we know it has both formally and informally excluded anyone who was not a White, straight, cisgender man (Freeman, 2018; Matthew, 2016b; 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, to "understand why some individuals are treated better than others, find it easier to be successful, or are more readily included" (IGLYO, 2014, 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).

We then enumerated the assumptions that undergird decisions about who gets hired, promoted, awarded, and funded. For example, many of these decisions assume that scholars' contributions to science can be captured by the number and/or tier of their publications; that teaching, service, and work that help other people conduct or understand research are not "real" scientific contributions; and that scientific contributions 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 (Centre for Community Organizations, 2019). Academic practices that require independence instead of prioritizing interdependence also advantage researchers from high-SES backgrounds (Stephens 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 basic idea. 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, in which 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 only about the height of a building but also 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 brickmaker, the bricklayer—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 trade-offs: quality versus quantity, inclusion versus excellence. Although characterizing these concepts as trade-offs 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. That building will eventually 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 only about the height of the building but also 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 an article 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 (Henrich et al., 2010; Lewis & Wai, 2021; 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., 2021). 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, postdoctoral 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 et al., 1990; Kunda, 1990); a single scientist alone can glean only 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

The basic idea. 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 such as 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, 2021). 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.

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 (for narratives of change from various authors, see the Supplemental Material). 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, or 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; to understand coalition building as one specific approach to acting critically against anti-Black racism, see Mosley et al., 2021). Here are some examples of changes we can envision at the level of departments, journals, and societies (for a summary and additional levels, see Table 2).

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 to reward the skills and effort required to advance inclusive excellence with the "hard currency of career advancement" (Obasi, 2020, p. 652). Likewise, 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 data sets, 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 (i.e., 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) and noted that its success would depend on changes to the field's incentive structures (Sheskin et al., 2020).

Journals. Instead of publishing only traditional empirical articles, imagine if high-impact journals created a new mechanism for publishing open and carefully curated data sets, 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 data sets in data repositories (e.g., Alter & Gonzalez, 2018; Gilmore et al., 2018). 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] It would also provide a way for graduate students and early-career scholars to attain a high-impact publication while investing time and effort in data collection. It could be constructed in a way that (a) provides transparency about the process (rather than conferring an advantage on those with "insider information" or a connection to the editor), (b) offers an accessible avenue to constructive feedback (via peer review on the planned methods), and (c) supports collaborations between multiple institutions and nations (e.g., a collaboration between researchers at multiple small colleges to collect and combine many smaller data sets).

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 acceptance of articles that incorporated such methods (and to deprioritize 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

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 whom to hire or admit using primarily metrics such as 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 articles 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 data sets that can in themselves make a substantial contribution to advancing collective and cumulative knowledge
	Acknowledging the importance of openness and inclusion in one-time editorials and minor or optional changes to journal guidelines	Editorial teams develop specific rubrics for assessing the openness and 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	Conferring awards to "constellations" of researchers on the basis of collaborative contributions to the scientific system

Note: GPA = grade point average.

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 on motivation and goal pursuit has 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 et al., 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. Likewise, in the same way that researchers have conducted metascientific 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 article, 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.

Transparency

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Notes

1. Note that because we are all psychologists, we are not well positioned to discuss open and inclusive science through an interdisciplinary lens (for one example of how discussions of open science within psychology can be limited, see Flis, 2019).
2. Relatedly, notice how each of the interventions listed in the prior sentence focuses 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 a voice in decision-making? 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?
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.
4. We focus on labor among faculty and students in this article, but it is important to recognize that there are many other workers who are essential to our science and who are underrecognized and underrewarded, 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).
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 (a) data that speak to underrepresentation and inequality are rarely disaggregated (e.g., data typically track representation by race and gender separately; e.g., Society for Personality and Social Psychology, 2019) and (b) the experiences of multiply stigmatized individuals in the academy are rarely studied in their own right (Gruber et al., 2021).
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, nonflagship campuses, historically Black colleges and universities) are viewed as valuable for society and yet are consistently underfunded and deprioritized (Hu, 2019; Kreighbaum, 2019; Townsend & LaPaglia, 2000).
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).
8. As another example, the *Journal of Statistical Software* provides an illustration of how to reward R-package development.
9. Note that such a goal is likely better suited for addressing some kinds of diversity (e.g., racial diversity) than others (e.g., LGBTIQ and/or disability diversity, where willingness to disclose a potentially hidden identity must be taken into account).

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