

Does my work matter? Reduced sense of mattering as a source of gender disparities

Ella J. Lombard  | Sapna Cheryan

Department of Psychology, University of Washington, Seattle, Washington, USA

Correspondence

Ella J. Lombard, Guthrie Hall, Box 351525, Seattle, WA 98195, USA.

Email: ellajl@uw.edu

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Abstract

Women may experience lower rates of entry and success into certain academic and professional spaces because of their observations that their work contributions are less valued than men's. We introduce *sense of mattering* as a mechanism that may help explain women's underrepresentation in male-dominated fields and leadership roles, distinguish it from related constructs, and advance a theoretical framework for how sense of mattering may shape gender disparities. Women's professional contributions are often undervalued, and women perceive and anticipate this unfair disadvantage, which may in turn limit their success, retention, and representation in stereotypically masculine spaces and roles. Attending to sense of mattering has the potential to improve upon past attempts to reduce gender disparities by emphasizing the importance of increasing the extent to which women's contributions are recognized and valued.

KEYWORDS

belonging, bias, gender, mattering, social identity threat, STEM, stereotypes

I spent probably the first five to six years of my career trying to prove that I could be a contributing member, and that I was a valuable member of the team.

—Michelle Harris (Qtd. in Thomas et al., 2018, p. 6, on being a Black woman in computer science)

My friends coined a word: hepeated. For when a woman suggests an idea and it's ignored, but then a guy says the same thing and everyone loves it.

—Dr. Nicole Gugliucci (Physics professor, 2017, Viral tweet)

Whether they are being interrupted and talked over in meetings, not credited for their ideas, or disregarded as valuable team members, women face myriad cues that their work contributions are not valued equally to men's. Past work has examined many factors that contribute to producing and reinforcing gender disparities at work and school, including overt and covert gender bias; masculine environments; women's lower sense of belonging and lower self-efficacy; and lack of early experience with the subject matter (Cheryan et al., 2017; Dasgupta & Stout, 2014; Moss-Racusin et al., 2012). However, women may also pick up on situational cues that their work will be undervalued—that their contributions will not be highly regarded and recognized. We name, define, and provide evidence for a construct that may help explain why certain spaces remain gender-imbalanced: disparities in *sense of mattering*, or the extent to which one perceives that one's contributions and work are valued and recognized by others.

Gender disparities are important to examine because they are prevalent in society. Computer science and engineering are particularly stark examples because women's representation has remained largely constant (e.g., around 20% of computer science and engineering degrees) for the past two decades despite numerous efforts to increase it (National Academies of Sciences, Engineering, and Medicine, 2020; National Science Foundation, 2021). But gender bias is not solely a problem found in majority-men fields. While women were awarded 64% of bachelor's degrees in agricultural and biological sciences in 2020 (National Center for Science and Engineering Statistics, 2023), they are still underestimated by their male peers in undergraduate biology classrooms (Grunspan et al., 2016) and face high rates of gender bias and sexual harassment from classmates and instructors (Leaper & Starr, 2019). Furthermore, even in fields that are gender-balanced overall, women are consistently underrepresented at leadership and management levels (Haveman & Beresford, 2012). Similar dynamics are also likely at play beyond traditional professional and academic environments. For instance, women athletes are far less recognized for their accomplishments than men (Daniels, 2009; Eastman & Billings, 2000) and face staggering gender disparities in pay and playing conditions (Perras, 2019; Zerunyan, 2017). Gender disparities are prevalent in a wide variety of social contexts.

In this article, we review relevant evidence and establish sense of mattering as a novel construct that could reshape approaches to addressing gender disparities. First, we theoretically distinguish sense of mattering from related constructs and provide initial empirical support for sense of mattering. Next, we discuss evidence that women's contributions are systematically undervalued and overlooked, particularly in majority-men contexts (Bloodhart et al., 2020; Grover et al., 2017; Heilman & Haynes, 2005); that this disadvantage has professional consequences (Lincoln et al., 2012; Roth et al., 2012; Sarsons et al., 2021); and that it can be communicated by situational cues, even those in which gender bias is subtle and not immediately evident (e.g., Cortina, 2008; Joshi et al., 2020; Karpowitz & Mendelberg, 2014; Kolev et al., 2019). These cues may signal to women that their work matters less than men's. We then discuss how attending to sense of mattering promotes a focus on changing environments to better value women's contributions. This focus may in turn benefit work on other sources of gender disparities. Finally, we propose avenues for future research and opportunities for real-world intervention.

1 | DISTINGUISHING SENSE OF MATTERING FROM RELATED CONSTRUCTS

We first describe why sense of mattering may be distinct from other related constructs such as sense of belonging, purpose in life, quest for significance, distinctive treatment, psychological standing, and agentic goals. We then summarize some initial data assessing the sense of mattering construct and its relation to other commonly-studied related constructs.

1.1 | Sense of belonging

Sense of belonging involves the feeling of fit in an environment (Cohen & Garcia, 2008) and positive social attachment to others (Baumeister & Leary, 1995; Walton & Cohen, 2007). Women's lower sense of belonging in spaces in

which they are underrepresented is crucial to understanding current gender disparities (e.g., Cheryan et al., 2009; Good et al., 2012; Smith et al., 2013). Belonging uncertainty can undermine the motivation and achievement of marginalized groups (Walton & Cohen, 2007).

However, feeling a sense of belonging in a group or broader environment may be distinct from feeling that one's contributions are recognized and valued.¹ For example, imagine a player on a sports team who is well-liked and fits in with her teammates but rarely gets playing time or recognition for her athletic skills (high belonging, low mattering). Conversely, a student who takes on most of the responsibility for a group project may be highly valued for boosting the group's grade but could still feel that they don't fit in well with others in the group (low belonging, high mattering).

Some initial work suggests that belonging and mattering may be different constructs. In one paper on sense of belonging in math, some sense of mattering measures were included (e.g., "valued," "respected") and were found to be distinct from and only moderately correlated with a sense of social connection and fit (Good et al., 2012). We argue that sense of mattering and belonging should be assessed separately; receiving recognition as a worthy contributor may be an important motive that is separate from fitting in or perceiving interpersonal bonds (see "Initial empirical support for sense of mattering" below for initial data distinguishing sense of mattering from sense of belonging).

1.2 | Interpersonal and existential mattering

Feeling that one matters interpersonally and existentially is desirable and important (Gossett et al., 1996; Heintzelman & King, 2014; Marshall, 2001; Raque-Bogdan et al., 2011; Rayle, 2005; Rayle & Chung, 2007; Taylor & Turner, 2001). Interpersonal mattering has been defined as the perception that others are interested in us, rely on us, or consider us important or significant to them on a personal level (Elliott et al., 2004; Gossett et al., 1996; Marshall, 2001; Raque-Bogdan et al., 2011; Schieman & Taylor, 2001). Existential mattering, or the feeling that one's life matters more broadly, has been explored in work on meaning in life and is defined as perceiving that one's actions make a difference in the world and that one's existence has significance, importance, and value (Costin & Vignoles, 2020; George & Park, 2017).

However, sense of mattering in professional and academic contexts is different from interpersonal and existential mattering. Someone could feel that others depend on them and are interested in them as people (interpersonal mattering; Rosenberg & McCullough, 1981), or that their presence in the world is important and valuable in a broad sense (existential mattering; Costin & Vignoles, 2020; George & Park, 2017), while not feeling that others at work value or recognize their contributions. The drive to be recognized and valued for one's work may be an understudied form of mattering that is distinct from motivations to be socially significant to others or to serve a broader existential purpose.

1.3 | Other related constructs

Other constructs that we propose are related to but distinct from sense of mattering include psychological standing, agentic goals, distinctive treatment, and intragroup standing. Psychological standing, one's subjective feeling of entitlement to speak up on a social or political topic, is focused on willingness to communicate one's own opinions rather than perceptions of how one is viewed by others (Effron & Miller, 2012). Agentic goals, such as the desire for power and status, are also distinct from sense of mattering. A high sense of mattering does not necessarily mean one has a high degree of power (i.e., control over resources and outcomes related to the work; Anderson & Berdahl, 2002; Fast et al., 2012). Rather, high sense of mattering occurs when one perceives that one's contributions are fairly valued and recognized, regardless of who wields power over final decision-making. Distinctive treatment, in which others seek one out for help or expertise (e.g., "look to you for guidance;" Begeny et al., 2021), may help boost, but is likely not necessary for, sense of mattering, because professional contributions are not limited to providing assistance to others

or being considered an expert. Similarly, intragroup standing, which consists of self-perceptions of one's status within a group, overlaps with sense of mattering in that it can include the sense that one's opinions and ideas are valued, but is distinct in that it largely focuses on being regarded as a leader (e.g., "seen as a role model for others in the organization;" Begey et al., 2021). Sense of mattering may be a unique construct that influences people's participation, experiences, and success.

1.4 | Initial empirical support for sense of mattering

We conducted a preregistered study (https://osf.io/sz4qn/?view_only=97a66633ba1745918afd9269022210a3) to assess whether sense of mattering may be distinct from related constructs. Undergraduate students (121 women, 120 men) responded to items assessing anticipated sense of mattering in computer science (4 items, i.e., "How much would people in the field be generally interested in what you had to say?"; "How much would you feel like you mattered to others in the field?"; "How much would you feel valued by others in the field?"; and "How much would you feel that your contributions would be recognized by others?"; $\alpha = 0.94$); interest in computer science (e.g., "How likely are you to take computer science classes in the future?"; $\alpha = 0.94$; Cheryan, Meltzoff, & Kim, 2011); anticipated sense of belonging (e.g., "How much do you think you would belong in the field of computer science?"; $\alpha = 0.95$; Cheryan et al., 2009); anticipated success (e.g., "How successful do you think you would be/are at computer science?"; $\alpha = 0.92$; Cheryan, Siy, et al., 2011; Correll, 2001); and stereotype threat concerns (e.g., "How anxious would you be about confirming a negative stereotype about your gender in computer science?"; $\alpha = 0.94$; Cohen & Garcia, 2008; Marx et al., 2005). All items were measured on a scale from 1 (*Not at all*) to 7 (*Very much*).

As predicted, sense of mattering in computer science among undergraduates was related but not identical to anticipated sense of belonging, $r(240) = 0.54$; anticipated success, $r(240) = 0.43$; and stereotype threat concerns, $r(240) = -0.21$. We conducted a factor analysis (not preregistered) to further investigate whether these constructs are distinct. Examining a scree plot, eigenvalues, parallel analysis, and optimal coordinates all suggested a 3-factor solution for the data. A factor analysis with principal axis factoring and promax rotation showed that the items loaded onto three values that cumulatively explained 73% of the variance. The four sense of mattering items all loaded onto one factor. Interest, belonging, and anticipated success loaded onto another factor, while stereotype threat concerns comprised the final factor. All loadings of items to their respective factors were high (above 0.6) and there was no cross-loading above 0.2. These results provide initial evidence that sense of mattering is distinct from related constructs.

1.5 | Women's contributions are undervalued

Women's work is often valued less by others compared to men's. This undervaluing can take three distinct but related forms: actual work contributions being valued less coming from women than men; assumptions that women's contributions will be less valuable than men's; and lack of recognition or credit for women's contributions. All three forms of undervaluing may harm women's sense of mattering.

There are many examples of women's actual work contributions being undervalued. Women undergraduates who are randomly assigned to lead majority-men groups in math tasks are perceived as less competent by group members than when they are assigned to lead all-women groups, even when the women leaders are experienced and knowledgeable in math (Grover et al., 2017). Additionally, voicing ideas in a majority-men team setting does not predict status and leadership emergence for women, though it does for men (McClellan et al., 2018). The same work product is rated less favorably when it is said to have been completed by a woman than a man (Davison & Burke, 2000).

Women also face assumptions that their contributions will not be as valuable as men's. These assumptions are evident in cultural stereotypes that associate brilliance with men and not women (Bian et al., 2018). Qualitative

research with Black women engineers and computer scientists has also repeatedly revealed that Black women are excluded socially from study groups and team projects due to assumptions that they are less capable (Charleston et al., 2014). Even after demonstrating competency, Black women report that others continue to hold low expectations for their contributions (Thomas et al., 2018). Women are often assumed to contribute less competence and expertise than they actually do in majority-men group settings.

Women's can also face a lack of recognition or credit for their contributions. In group work on a task involving leadership and decisiveness, observers fail to recognize women's contributions relative to men's unless given specific information about the different roles that needed to be filled by each contributor in order to complete the task (Heilman & Haynes, 2005). Similarly, when undergraduates in science courses identify which classmates they study with, seek help from, find knowledgeable, and perceive to be best in the class, both women and men nominate their women peers at proportions lower than the actual success rates of women, suggesting that they under-recognize the contributions of women and over-recognize the contributions of men (Bloodhart et al., 2020). Social network analysis reveals that men over-nominate their male peers as knowledgeable in biology classes relative to actual performance, leading to a persistent gender gap in nominations (Grunspan et al., 2016). In economics, women are penalized in tenure decisions for coauthoring papers with men: While an additional coauthored paper with at least one woman predicts a slight increase in the probability of receiving tenure, an additional paper coauthored with a man has no effect in predicting tenure prospects, likely because women are under-credited for their authoring contributions relative to men (Sarsons et al., 2021). Not being recognized for one's contributions may be an especially prominent problem for Black women: Black women's contributions in group discussions are least likely to be correctly attributed to them compared to White women and Black men (Sesko & Biernat, 2010). Women are consistently ascribed less credit for their work contributions than they deserve.

Undervaluing and failing to recognize women's contributions has consequences for their access to professional opportunities, from scholarly awards (Lincoln et al., 2012) and funding allocation (Brooks et al., 2014) to promotion (Roth et al., 2012) and hiring (Moss-Racusin et al., 2012). It also may hinder their entry into certain fields; for example, students' perceptions of recognition from others strongly predicted their identification with math even when controlling for self-evaluations of competence (Cribbs et al., 2015). Similarly, women who read about a manager who interrupted and co-opted their idea reported lower sense of fit in a hypothetical work team than a neutral description or one in which the manager supported and recognized their idea (Muragishi et al., 2023). When women's contributions matter less than men's, it contributes to gender gaps in representation, leadership positions, and career achievements.

1.6 | Situational cues contribute to women's lower sense of mattering

Multiple situational cues can communicate lower sense of mattering to women. Overt gender bias, such as men expressing negative stereotypes about women's abilities, is one clear example (Logel et al., 2009; Spencer et al., 1999). However, subtler cues can also communicate that women's contributions do not matter as much as men's do. For example, selective incivility occurs when certain individuals (e.g., women) are treated with chronic, low-level disrespect and rudeness, which can perpetuate gender disparities (Cortina, 2008). Being interrupted and talked over may also reinforce women's lower sense of mattering. Women face intrusive interruption at disproportionate rates (Blair-Loy et al., 2017; Hancock & Rubin, 2014; Jacobi & Schweers, 2017; Karpowitz & Mendelberg, 2014). Some cues are especially prevalent in certain spaces. For instance, economics (Casselman, 2021) and philosophy (Haslanger, 2008; Moulton, 1983, p. 153) are examples of majority-men fields that are known for cultures of incivility in their academic spaces and discourse. Cultures of incivility may harm women's sense of mattering and subsequently their representation in certain majority-men fields.

Women are often exposed to situational cues, including those listed above, that communicate lower sense of mattering. Importantly, women often perceive these cues even before they enter majority-men fields (e.g., Bian

et al., 2018; Cheryan et al., 2009). Low sense of mattering might therefore harm women's entry and participation before they have the chance to make meaningful contributions.

Additionally, even environments where women and men are not treated any differently could unintentionally communicate a lower sense of mattering to women if those environments have cultures that privilege masculinity. To extend the interruption example from above, even if women and men are interrupted at the same rates, professional cultures in which interrupting is valued may hinder women's success more broadly because most women are socialized to refrain from intrusively interrupting others (Berdaahl et al., 2018; Cheryan & Markus, 2020; Karpowitz & Mendelberg, 2014). Valuing abstract or broad speech is another subtle example of how gendered features of the professional space can communicate a lower sense of mattering. Men tend to speak more abstractly, while women are more likely to use concrete speech (Joshi et al., 2020). While broad speech does not predict performance, it can still be rewarded in grant proposals, which may contribute to gender gaps in scientific funding (Kolev et al., 2019). Even when environments do not explicitly privilege men over women, they may foster masculine cultures in which women are more likely than men to suffer a low sense of mattering.

Perceiving negative stereotypes about women's abilities and interests could also cue women to anticipate that their contributions will matter less than men's. Concerns about being devalued (e.g., Davies et al., 2005; Murphy et al., 2007; Purdie-Vaughns et al., 2008) or stereotyped (Davies et al., 2002; Schmader et al., 2008; Shapiro & Neuberg, 2007; Steele et al., 2002) can deter individuals with marginalized identities from pursuing certain fields and can harm their success and wellbeing. Negative stereotypes may cause lower mattering for women because they anticipate that their contributions will be undervalued and underrecognized in majority-men workplaces.

Finally, being met with sanctions when one attempts to assert mattering may act as a situational cue that reinforces women's sense that their contributions are undervalued and overlooked. Gender backlash occurs when women face social and economic sanctions for violating their assigned gender role (Heilman et al., 2004; Rudman & Fairchild, 2004; Williams & Tiedens, 2016). Seeking positions of power, promoting or negotiating for oneself, or demanding to be heard may backfire for women in professional spaces. Those consequences could subsequently communicate a lower sense of mattering to women if they observe that their attempts to be recognized for their contributions only lead to being even more severely undervalued. Future work could investigate the extent to which backlash operates not only as a penalty, but as a signal that shapes women's sense of mattering.

2 | THEORETICAL CONTRIBUTIONS OF SENSE OF MATTERING

We review several examples of areas of research on gender disparities which may benefit from being investigated through the lens of sense of mattering. Specifically, we propose that (1) sense of mattering is an important construct to name, conceptualize, and measure, (2) sense of mattering is a mechanism that could help us understand why certain gender disparities persist; and (3) overlooking sense of mattering, especially in implementing interventions, may at times have unintended consequences.

2.1 | Naming, conceptualizing, and measuring sense of mattering

Establishing and measuring sense of mattering is our first theoretical contribution. Many mechanisms for gender disparities have been identified, including low sense of belonging (Cheryan et al., 2009; Dennehy & Dasgupta, 2017), low confidence (Dennehy & Dasgupta, 2017), social identity threat (Hall et al., 2015), and lack of positive interactions with men (Hall et al., 2018). While a significant body of empirical work has identified that women's work contributions are often underrecognized and undervalued, we argue that naming, conceptualizing, and measuring sense of mattering alongside other constructs is crucial to understanding and remedying gender disparities. If researchers, professional organizations, and academic institutions are aware that disparities persist because women receive cues

that their work contributions will be undervalued, they could target interventions more effectively (e.g., introducing group practices that explicitly credit each member's contributions to a product).

2.2 | Proposing sense of mattering as a mechanism

We propose that sense of mattering should be included alongside other variables for a more complete picture of why some interventions are, or are not, effective. Defining and conceptualizing sense of mattering as a potential mechanism for gender disparities in student outcomes helps us to better understand the processes by which gender disparities are produced, maintained, and can be remedied. Future work may find that some documented phenomena hypothesized to operate through other mechanisms may additionally or more powerfully be mediated by sense of mattering.

For example, sense of mattering could help explain why growth mindset interventions are effective, especially when they are endorsed at the instructor level. Past work finds that STEM faculty who hold growth mindsets of intelligence have smaller gender achievement gaps in their classes than STEM faculty who hold fixed mindsets of intelligence, and this effect is mediated by students' lower expectations that they will be stereotyped and their greater sense of belonging (Canning et al., 2022). However, instructor growth mindsets may also influence students' sense of mattering. For example, welcoming clarifying questions rather than acting as though they are slowing down the class (Yeager et al., 2022) communicates a willingness to value all contributions, not only those that are communicated with the most speed and confidence. Valuing questions from students who are less confident is especially important since students who are underrepresented often hesitate to speak up (e.g., women ask fewer questions in academic seminars than men; Carter et al., 2018). Teacher practices that communicate growth mindsets may work in part because they boost sense of mattering, especially in underrepresented students.

Another example of work that may benefit from investigating sense of mattering as a potential mechanism is research on the benefits of same-gender role models. Seeing same-gender role models increases women's self-efficacy, domain identification, and commitment to pursue STEM careers (Stout et al., 2011). This effect appears to be driven by feeling connected with the same-gender role models, which subsequently makes a future career in the field more plausible (Stout et al., 2011). An additional possibility that may operate alongside sense of connection is that seeing same-gender role models receiving recognition and respect for their expertise may also increase women students' sense of mattering (i.e., their sense that this is a field in which women's contributions can be recognized and valued). Seeing examples of successful women in the field may increase women's sense that if they pursued a similar career, their own ideas, contributions, and work would be recognized rather than dismissed.

2.3 | When overlooking sense of mattering might backfire

Interventions may backfire if women receive signals that their work is not equally valued. For example, consider the intervention of normalizing high effort expenditure to increase sense of belonging. Being concerned that one must expend more effort than one's peers to succeed predicts lower sense of belonging and motivation in majority-men fields for women but not men (Smith et al., 2013). The authors suggest that the solution is to manipulate women's perceptions of how success is achieved by emphasizing that "everyone has to put forth high effort to succeed" (Smith et al., 2013). But if a student sees her male classmates being recognized for their ideas, contributions, and successes while she struggles to be heard, valued, and rewarded for her accomplishments, the gender-blind message that everyone has to work hard may be invalidating rather than encouraging. Assuring women that everyone must expend high effort to succeed could backfire when situational cues indicate to women that not all effort is equally valued. Interventions that are perceived as ignoring existing differences by using language that implies everyone's experiences are similar may be particularly invalidating.

Another example comes from the self-efficacy literature. Some point to women's behavior, such as evaluating their performance less favorably than equally performing men (Exley & Kessler, 2019), as sources of gender disparities. One intervention strategy, therefore, is to encourage women to develop higher self-efficacy and confidence (e.g., Dickerson & Taylor, 2000; Goodwin et al., 2020; Hartman & Barber, 2020). But in some settings, increasing confidence in one's own value could intensify sense of mattering concerns by highlighting the gulf between one's capabilities and the extent to which they are recognized by others.

Neglecting the role of sense of mattering could help explain why some interventions fail, even if they effectively target important realities like women's lower sense of belonging or self-efficacy. Interventions may backfire if they do not address underlying cues that communicate that women's contributions are not valued. Interventions that aim to address women's internal perceptions must simultaneously work to change the behaviors of others, policies, and practices to more accurately recognize and value each contributor.

3 | FUTURE DIRECTIONS

Our empirical results begin to build the foundation for work on sense of mattering. Future work should continue to investigate disparities in sense of mattering and their potential consequences. Other important areas of inquiry include examining potential moderators, engaging with intersecting social identities, extending beyond traditional academic and professional contexts, and applying knowledge about sense of mattering to help close gender gaps.

3.1 | Measurement

Future work should examine what makes people feel that they matter in professional and academic contexts. Sense of mattering could be measured in terms of either current work environments or potential work environments (e.g., a field one may be interested in entering). Our work used self-report items that targeted others' interest in one's ideas (e.g., "How much would people in this field be generally interested in what you had to say?"); the sense that one would matter or be valued (e.g., "How much would you feel like you mattered to others in this field?"; "How much would you feel valued by others in this field?"); and recognition of contributions (e.g., "How much would you feel that your contributions would be recognized by others?"). Future research could more thoroughly investigate how sense of mattering can be measured. Future work could also examine whether there are distinctions between perceptions of how others value one's actual contributions; what others assume about one's potential contributions; and the extent to which one is given recognition and credit, all of which could be components of sense of mattering.

3.2 | Potential moderators

Future work should also explore potential moderators of the effect of sense of mattering and identify contexts in which gender disparities in sense of mattering may most strongly influence outcomes. For example, professional mattering concerns may emerge most when domain identification is high. Past work has established that stereotype threat's greatest effects occur when people strongly identify with the domain in which they experience the threat (Steele et al., 2002). Similarly, it may be more important for one's contributions to be valued and recognized the more one identifies with one's work.

The developmental trajectory of sense of mattering is another area for future research and is necessary for identifying optimal sites of intervention. For instance, sense of mattering could be particularly important as adolescents seek opportunities to explore, express agency, and be recognized by others (Marshall, 2001; Rayle, 2005). Conversely, perhaps the importance of sense of mattering intensifies as women become meaningful contributors within their

field and notice that their work is systematically undervalued. Future research should examine how factors such as age, position in one's career trajectory, and identification with one's work may influence whether and how strongly sense of mattering contributes to gender disparities.

3.3 | Other forms of identity and intersectionality

We have largely focused on how sense of mattering may help explain gender disparities. However, future research should examine how disparities in sense of mattering could also help explain the academic and professional experiences of Black, Indigenous, and other people of color. Work on how sense of belonging informs marginalized racial groups' underrepresentation in certain fields (e.g., Walton & Cohen, 2007) could be improved by attending to the role sense of mattering may play in career choice, success, and wellbeing. Black, Latinx, and Indigenous people may be particularly attuned to the importance of having their work contributions valued because they are forced to contend with pervasive stereotypes of unintelligence (Bergsieker et al., 2010).

Such work could also specifically examine the experiences and sense of mattering of Black women. Qualitative research finds that Black women in computer science higher education settings and careers commonly experience social isolation and assumptions of incompetence, a combination that often leads to exclusion from important collaboration opportunities with peers (Charleston et al., 2014; Thomas et al., 2018). Facing climate threats on the basis of both gender and race may compound lower sense of mattering.

Furthermore, future work could investigate how facing invisibility may accentuate the importance of sense of mattering. Indigenous groups are often intentionally omitted from public awareness (Fryberg & Eason, 2017). Black women are often rendered invisible relative to Black men and White women (Purdie-Vaughns & Eibach, 2008; Sesko & Biernat, 2010). Other identity intersections can also lead to invisibility (e.g., older gay men; Carnaghi et al., 2022). People who already lack recognition and representation based on the identities they hold may have particularly low sense of mattering.

Interrogating the role that sense of mattering disparities may play in upholding White supremacy would also enable us to examine how White people can perpetuate biases that result in lower sense of mattering for Black, Indigenous, and other people of color. For instance, the U.S. was and is built on a foundation of stolen labor and profit, most dramatically through the enslavement of Black people; Reconstruction-era backlash aimed at continuing to exploit formerly enslaved people's labor; and the resulting prison-industrial complex that continues to operate in the present day (Browne, 2007); as well as the stealing of land of Indigenous people (Akee, 2021). The U.S.'s legacy of stolen and forced labor is also a legacy of stealing credit and minimizing contributions: White people have consistently claimed the rewards of work done by Black people, Indigenous people, and other people of color. One example is cultural appropriation, in which a dominant culture co-opts and often profits from cultural traditions or features that are negatively stereotyped or stigmatized when practiced by communities of their cultural origin (Mosley & Biernat, 2021; Rogers, 2006). In workplaces and educational institutions across the U.S., enduring patterns of under-recognizing and undervaluing Black, Indigenous, and other people of color's work may function as tools of White supremacy. These patterns may communicate a lower sense of mattering to members of marginalized racial groups in predominantly White spaces. While White women may be victims of lower sense of mattering in majority-men fields, they may simultaneously be complicit in communicating lower sense of mattering to their colleagues of color. Future work should explore how sense of mattering may influence outcomes at the intersection of multiple identities, including race.

The importance of sense of mattering may also be heightened within a society that in many ways defines human worth through contributions to capitalist production (Berne et al., 2018). For many people in the U.S., survival itself is predicated on being able to work and earn enough money for necessities such as food, housing, and healthcare. In contexts like these, threats to sense of mattering may not only be social and professional, but existential. A worker whose contributions are not adequately recognized or valued may face consequences that could threaten their very survival.

Disability justice activists have argued that capitalist notions of productivity are central to the oppression and dehumanization of disabled people (Berne et al., 2018). Not only might disparities in sense of mattering reinforce White heteropatriarchy, but our societal emphasis on sense of mattering as a crucial measure of one's inherent worth may itself perpetuate ableism and other intersecting systems of oppression. The power that sense of mattering and its level of cultural importance holds in shaping the experiences of disabled people prompts a rich set of questions for further study.

Finally, transgender people and those whose genders fall under the nonbinary umbrella may be met with transphobia and backlash in professional spaces for deviating from their assigned gender roles (Dray et al., 2020). People with marginalized sexual orientations also face negative stereotypes about their competence paired with pressure to conceal their identities in the workplace (Cech & Rothwell, 2018; Cech & Waidzunus, 2011). These biases may limit the extent to which LGBTQ+ people's work contributions are recognized and respected. Future work could examine whether interventions that prioritize increasing sense of mattering through shifts to the culture of the environment could also benefit LGBTQ+ individuals.

3.4 | Intervening to close gender gaps

Future work should examine strategies for intervening on behaviors and outcomes that suggest to women that they matter less than men. Crucially, these interventions must address not only women's perceptions of mattering, but the actual mattering of their contributions. Interventions might include introducing systems that explicitly credit each group member for their contributions (see Heilman & Haynes, 2005 for evidence supporting this intervention strategy); training group members to listen to, engage with, and recognize women's ideas (i.e., microinclusions; see Muragishi et al., 2023); valuing specific speech and recognizing women's discursive contributions; reducing incivility and verbal interruptions; and auditing promotion and award systems to detect and alter biases that lead to women's accomplishments being overlooked. Such interventions may have a positive effect on people of all genders but are especially important for women in stereotypically masculine environments and roles, since women's sense of mattering in these contexts is likely to be lower than men's.

It is not sufficient to only shift women's attitudes about how much they matter without also shifting the larger context that communicates women's sense of mattering. Sense of mattering is rooted in observations of how others value or do not value one's professional contributions. Intervening by communicating to women that their contributions are fairly valued, when we know this is often not true, would be shortsighted and would likely backfire once it is clear that the cues are not aligned with reality. Perceived dishonesty or hypocrisy regarding who and what is valued can cause disenchantment and disengagement (e.g., Cha & Edmondson, 2006; Greenbaum et al., 2015). We argue that women's perceptions are rooted not in a mindset that needs to be shifted through psychological interventions, but in the reality of working in spaces typically built for men. Low perceptions of mattering might have negative consequences, but it is the reality of mattering disparities that needs to be remedied.

4 | CONCLUSION

Women's contributions are systematically undervalued in academic and professional fields, social contexts, and roles in which they are underrepresented, which may lead to gender disparities in sense of mattering. Lower sense of mattering may subsequently discourage women from pursuing and persisting in male-dominated fields and roles. Attending to sense of mattering may enrich and extend work on factors that help explain gender disparities. Furthermore, examining gender disparities through the lens of sense of mattering highlights the importance of moving beyond existing interventions that focus on women's own perceptions of their ability, belonging, and intelligence. Remedying the cues women receive that their contributions at work do not matter as much as men's may be crucial to closing gender gaps and promoting women's wellbeing and success.

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CONFLICT OF INTEREST STATEMENT

We have no conflicts of interest to disclose.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Ella J. Lombard  <https://orcid.org/0000-0002-9367-4172>

ENDNOTE

¹ Sense of belonging is sometimes conflated with aspects of sense of mattering in measurement, particularly in longer scales that include other constructs such as perceptions of bias, trust in instructors, and feeling valued and appreciated (e.g., Good et al., 2012; Moudgalya et al., 2021).

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AUTHOR BIOGRAPHIES

Ella J. Lombard is a PhD candidate in the Department of Psychology at the University of Washington. Her research examines the effects of leader and peer messages in closing gaps for underrepresented groups in professional and educational spaces. She has received many awards for her research, including the Graduate School Top Scholar Award, Alcor Summer Fellowship, and Psychology Department Scholar Merit Award from the University of Washington and the Graduate Student Poster Award and Graduate Travel Award from the Society of Personality & Social Psychology.

Sapna Cheryan is a professor of psychology at the University of Washington. Her research investigates the role of societal structures and belief systems in causing and perpetuating racial and gender inequities. She has published numerous articles on these topics in journals such as PNAS, *Psychological Science*, *Journal of Personality and Social*

Psychology, and *Psychological Review*. Her work has been cited widely in media outlets, including in the *New York Times*, *NPR*, and *Washington Post*. In 2009, Dr. Cheryan received the National Science Foundation CAREER Award. In 2012–2013, she was a visiting scholar at the Russell Sage Foundation in New York City, and in 2016–2017, was a Lenore Annenberg and Wallis Annenberg Fellow in Communication at the Center for Advanced Study in the Behavioral Sciences at Stanford University.

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