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Microinclusions: Treating Women as Respected Work Partners Increases a Sense of Fit in Technology Companies

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When people enter new work settings, we theorized that they are vulnerable to questioning whether they will be received in ways that allow them to contribute to shared goals. If so, treatment that clarifies the stance that others take toward the self, which we call microinclusions, that convey a receptivity and supportiveness to one's contributions may bolster a sense of fit. Further, in examining this question in technology contexts, we theorized that such microinclusions may be particularly impactful for women for whom underrepresentation and negative stereotypes make opportunities to contribute especially fraught. Four primary experiments (N = 1,861, $N_{\text{women in STEM}}$ = 1,430) tested this theorizing. In Experiment 1, both men and women at a large technology company anticipated greater fit in a work group described with microinclusions, yet this effect was greatest for women. Experiments 2–4 replicated this effect among women science, technology, engineering, and mathematics (STEM) professionals and college students considering a career in technology and showed that women's anticipated fit arose over and beyond socially warm treatment (Experiment 2); arose more when the microinclusion came from a man (vs. another woman; Experiment 3); and arose even when observing another woman receive a microinclusion (Experiment 4). Microinclusions also increased women's commitment to the company (Experiments 2 and 4) and reduced their anticipated experience of stereotype threat (Experiment 3). This research highlights the ambiguity women face in technology settings about whether they will be received in ways that allow them to contribute to shared work goals and the importance of treatment from coworkers that affirms this opportunity.

Keywords: gender, stereotype threat, belonging, interpersonal interactions, diversity

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> [A work environment in which I could belong is a place where] we are all working toward a common goal, sharing ideas, and collaborating regularly on how we can reach that goal. Colleagues freely offer help to people they notice are struggling.
>
> —A new employee during onboarding at a technology company

What does it mean to genuinely belong and fit in a professional context? When people enter new school or work settings, they may ask many questions relevant to their belonging and, thus, search for diverse cues that could confirm or allay these worries (Walton & Brady, 2017). Whereas much past research has focused on broad symbolic cues, we theorize that people are also sensitive to interpersonal treatment that clarifies specifically the stance that others take toward them in the context of joint work: whether others are receptive to and supportive of their contributions to shared goals or not.

Microinclusions and Gender in Technology Settings

Microinclusions are brief instances of treatment from others, especially from members of a dominant group, that clarify the stance others take toward the self in a school or work context in a

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positive way. Their importance arises from ambiguities people experience in school and works settings about how others see and relate to them. For example, one ambiguity students can face is whether critical feedback they receive on their work, especially feedback provided across a group divide characterized by negative stereotypes, reflects a good faith effort to help them improve or a negative judgment or even bias on the part of the feedback giver (Cohen et al., 1999; Cohen & Steele, 2002). When this ambiguity is resolved, such as when a teacher conveys that they give critical feedback because they believe in the student's ability to meet a high standard with further work, all students' motivation and trust improve, especially that of Black students who contend with negative stereotypes as they work with White teachers (Yeager et al., 2014, 2017; see also Griffiths et al., 2023).

When people enter a new work environment, they may also face a variety of questions relevant to their belonging and fit. One may involve whether they will be treated fairly (Colquitt, 2001; Tyler, 1989; Tyler & Smith, 1999), a second whether their goals and values are reflected within the company (A. Kristof-Brown & Guay, 2011), and a third whether they can develop informal relationships with others (Kanter, 1977). Here, we focus on a fourth ambiguity people may face as they enter technology companies: Will others receive them in ways that allow them to contribute to shared work goals? Even as all people may face this question in some form, we theorize that, in technology settings, this question may be especially pointed for women, who face underrepresentation and negative stereotypes that can give rise to concerns about gender-based marginalization. If so, even if all people respond well to treatment that affirms their opportunity to contribute to joint work, such microinclusions may be particularly important for women's sense of fit and experiences in technology companies.

Concerns about opportunities to contribute are reasonable and may be rooted in women's lived experience and observations of the experiences of other women. Consider the potential experience of a woman starting a new job at a technology company. She may wonder whether others will show her what has already been done with ongoing projects and help her learn specific protocols so she can contribute effectively. Will they listen to her ideas, honor her contributions, and see her as a collaborator with expertise to share? Or will they ignore her, treat her as having little expertise to contribute, and dismiss her as a token of a group defined by a negative stereotype?

These concerns may come to the fore most acutely when women interact with men, who may seem to characterize technology settings as a whole and who may seem most likely to view and treat women in stereotyped or marginalizing ways (Cheryan & Markus, 2020; W. M. Hall et al., 2015, 2019; Holleran et al., 2011; Logel et al., 2009; von Hippel et al., 2015). A woman may have had experience in group projects in school where men spoke more than women while delegating nontechnical or lower priority tasks to women (Campero, 2021; Meadows & Sekaquaptewa, 2011, 2013). She may have seen women have less influence than men in small groups (Chen & Moons, 2015; A. Joshi & Knight, 2015; Kelley, 1971; Keltner et al., 2003), even when they have more expertise (Thomas-Hunt & Phillips, 2004). She may have observed women being interrupted and asked more critical questions than men during talks within her engineering department (Blair-Loy et al., 2017). She may have found that "brilliance" is deemed a necessary ingredient for success in her field (S.-J. Leslie et al., 2015), yet noticed that few women seem to be regarded as brilliant (Bian et al., 2018; Chestnut et al., 2021; Good et al., 2012). She may have noticed how women are often given less credit than men in science (Ross et al., 2022). And she may have felt the press of negative stereotypes in taking a difficult math or technical test, aware that a poor score could confirm a negative stereotype in the minds of other people about women's abilities (Spencer et al., 1999). These concerns may be compounded by artifacts the woman sees in technology settings that imply that the typical technology worker is a geeky man (Cheryan et al., 2009), implying that she may need to hide aspects of her gender identity (Garr-Schultz & Gardner, 2018; Pronin et al., 2004) or otherwise contort herself to fit a masculine default to be taken seriously (Cheryan & Markus, 2020).

We theorize that these experiences, even if they do not give rise to settled mistrust, seed ambiguity for women (Walton & Cohen, 2007). Even as women enter technology settings where they hope and strive to belong and succeed, they may wonder whether they will be received in ways that will allow them to contribute to the shared goals in those settings.

Our theorizing is informed not only by past literature but by focus groups we conducted with employees at a large technology company (see Experiment 1; $N = 17$; 64.70% women; 58.80% racially minoritized group members: American or Alaska Native, Black or African American, Latino/a/e, Pacific Islander, multiracial; 52.90% technical roles: engineering, data scientist, information technology). Many focus group participants shared stories about challenges they experienced contributing at work and how those challenges led them to question their fit at the company. While both men and women described these experiences, they did so in somewhat different ways. For example, one male employee emphasized the challenges that arise from joining a fast-moving company:

> [Starting at the company is like] jumping on a moving train … You don't know where the train has been so when you do have an idea, it seems like everyone has already tried it. You also don't know where the train is going so you don't know what approaches would be beneficial. When you can't contribute to the team, it is really discouraging and makes me feel like I may not belong here. …

While women also described the challenges presented by a fast-moving and sometimes chaotic work environment, they also emphasized how they were received. As one woman of color said, "I feel like I can't contribute to my fullest potential because … my impact and ideas are not considered."

Even as microinclusions may be beneficial for both men and women, their potential to support a better experience for women in technology settings renders them particularly important. Women continue to be severely underrepresented in technology. In 2022, for instance, women represented 33.50% of Google's workforce, and women from racially minoritized groups represented only 5% of all employees (Google, 2022).

From an equity perspective, when women are pushed out or excluded from lucrative careers (National Science Board, National Science Foundation, 2020), it contributes to the gender pay gap (World Economic Forum, 2020) and lower social mobility for women. From a corporate perspective, social dynamics that deny women opportunities to contribute to shared goals at work have a direct toll in lost productivity and, thus, profits. Finally, from a societal perspective, companies like Google, Meta, Amazon, and others have expansive and ever-increasing reach in people's lives

(Bose et al., 2011; Schiebinger & Schraudner, 2011). When women are excluded from contributing their ideas and values to technology companies, it limits the perspectives when critical decisions are made. Seatbelts, for example, were developed by a majority men team and often tested using crash dummies that represented the "average" cisgendered male body and were not designed to protect a pregnant body. As a consequence, 82% of fetal deaths from car collisions during a 3-year period in the United States were, in part, due to increased blunt force trauma to the uterus from the lap belt (Pearlman & Viano, 1996; Schiebinger & Schraudner, 2011; Weiss et al., 2002). In innumerable ways inviting and including women's contributions may help technology companies better serve a diverse society (Hunt et al., 2018; Page, 2007; C. Tannenbaum et al., 2019; Woolley et al., 2010). For all these reasons, it is essential to understand how we can foster corporate technology cultures that fully include women and their contributions, improving women's professional success, and guiding and empowering companies.

Thus, we hypothesized that treatment, especially from men, that conveys to a woman in work contexts where gender-based questions around contributions are salient that, indeed, they view her as a valued colleague and contributor may increase women's sense of belonging, experience of respect and value, perceived opportunities for success, and make it more likely that they anticipate a future within the setting. We treat the composite of these and related variables as our primary outcome—a sense of fit within the work setting. A sense of fit in achievement settings is both of inherent importance and contributes to downstream motivational and performance outcomes (Cheryan et al., 2009; Gopalan & Brady, 2020; Heilman, 1983; A. L. Kristof-Brown et al., 2005; Murphy et al., 2007; Schmader, 2023; Walton & Cohen, 2007).

Conversely, we use the term *microexclusions* to refer to interpersonal treatment that confirms people's worries about the stance others take toward them in a school or work context. Given our primary focus on work contexts, we operationalize microexclusions as interpersonal treatment that triggers doubt about the stance others take toward one's contributions—such as being interrupted or having someone else take credit for your ideas. Microexclusions need not be hostile, discriminatory, or ill-intended. They might even be overtly warm and convey and induce liking but nonetheless marginalize people in a professional setting, such as warm but flirtatious and dominant behavior from men toward women in a conversation about engineering (Logel et al., 2009). We use the term microexclusion rather than microaggression to emphasize the impacts on the recipient rather than the intentions of the actor (cf. Sue, 2010). The term "micro" also does not imply that the experience for recipients is "small." Indeed, an important point of this article is that even passing interpersonal experiences can be psychologically significant and consequential (W. Hall et al., 2018; Hebl et al., 2020; King et al., 2023; Sekaquaptewa, 2019). In our experiments, we compare microinclusions to both microexclusions and treatment that is ambiguous, that is, treatment that leaves open any outstanding questions about the stance others take toward one's contributions at work. Notably, such ambiguous treatment may also be socially "inclusive"—such as being personally included in social events—but not inclusive specifically of a person's contribution to the work process itself, as we test in Experiment 2.

Our theory of microinclusions in work contexts begins with two assumptions. First, in general, we assume that people want to succeed, do well, and contribute to shared goals at work. That is, people are not merely self-interested (e.g., motivated by compensation) but responsive to opportunities to pursue a broader purpose, to create products of value, to do something creative, to work on a team, or to positively impact others through their work (J. M. Allen et al., 2015; E. R. Brown et al., 2015; Carr & Walton, 2014; Grant, 2008; Grant & Hofmann, 2011; Thoman et al., 2017; Tyler, 1989). Second, even as people have individual goals in work settings (Ryan & Deci, 2000), work environments are inherently interdependent, such that a person's opportunities typically depend, at least in part, on how others view and behave toward them (Cortina et al., 2001; Fitzsimons et al., 2015; Fitzsimons & Finkel, 2018). Thus, the stance that others take toward the self matters. It directly affects what one can accomplish. As a consequence, we theorize that, when entering new work settings, people may be attuned to interpersonal treatment that clarifies the stance others take toward one's contributions toward shared goals, particularly people from backgrounds with reason to worry that they might not be treated in ways that will allow them to contribute to shared goals.

Theoretical Background and Contributions to Belonging and Identity Threat Literature

Our approach to microinclusions advances several areas of past research. A primary contribution is to past work on belonging and identity threat. Given our focus on the stance others take toward one's contributions, it does so specifically by highlighting women's responsiveness to cues that (a) arise from dynamic interpersonal interactions; (b) involve positive treatment; (c) arise as goal pursuit begins; and (d) come primarily from outgroup members. By contrast, past research has tended to consider (a) static cues; (b) especially a vigilance to negative treatment and experiences; (c) often after goal pursuit, in response to an evaluative event; or (d) the salutary effect of interactions with ingroup members.

First, past research has emphasized relatively static cues as bases of belonging. These may involve personal connections to people in a setting (e.g., a shared birthday with a math major; Walton et al., 2012), the representation of one's group there (Murphy et al., 2007), or cues that indicate the compatibility of one's group with the setting, such as physical objects that convey the kind of person who is typical there (Cheryan et al., 2009; see also Cheryan & Markus, 2020). By contrast, we focus on dynamic patterns of interpersonal treatment. Consistent with this focus, meta-analysis finds that among the strongest predictors of students' belonging in school are perceptions of support from teachers and peers (K. Allen et al., 2018). Moreover, broad patterns of perceived "positive" and "negative" interactions with male coworkers predict daily fluctuations in women's sense of fit in science, technology, engineering, and mathematics (STEM) professional settings (W. M. Hall et al., 2015; Holleran et al., 2011). Here, we specify the kind of treatment that, we theorize, will strongly shape women's sense of fit in work contexts—namely, treatment that directly conveys inclusion of a woman in working toward the shared goals of the setting—and test its causal effect using experimental methods.

Second, whereas we focus on positive treatment, past research has strongly emphasized a vigilance to negative cues arising from the risk that one might be devalued or treated poorly based on one's identity (Abrams & Hogg, 1999; Crocker et al., 1998; Garcia & Cohen, 2011; Murphy & Taylor, 2012; Steele et al., 2002). This might include experiences that imply that one might have few

friends in a field of study (Walton & Cohen, 2007; Experiment 1), the representation of group differences on a test (Spencer et al., 1999), physical objects that imply that only a narrow "type" of person fits within a setting (Cheryan et al., 2009), gender-typed language in job ads that excludes women (Gaucher et al., 2011), or organizational diversity philosophies that seem to ignore or devalue women and racially minoritized group members' identities and experiences (Kroeper et al., 2022; Plaut et al., 2009; Purdie-Vaughns et al., 2008; Wilton et al., 2020). Such research reveals a sensitivity in people to cues that they do not fit with or belong in a setting and the negative consequence for their belonging, motivation, and performance. Similarly, research using an individual-difference approach finds that high levels of sensitivity to gender- and race-based rejection predict worse school experiences among women and African American students (London et al., 2012; Mendoza-Denton et al., 2002; Pinel, 2002). Past research examining interpersonal interactions has also emphasized negative patterns of behavior, including dominant behavior by men, which can elicit identity threat and undermine women's math performance in lab settings (F. Chang, Luo, et al., 2019; Logel et al., 2009), and uncivil treatment from colleagues, which predicts lower well-being and organizational withdrawal (Cortina et al., 2001; Miner & Cortina, 2016; Tyler & Smith, 1999). This emphasis on negative cues and treatment may seem to suggest that a lack of negative experiences is enough to increase a sense of fit. We suggest, however, that a lack of negative treatment does not equate to inclusion, particularly if the default representation of success is defined by stereotypical masculine characteristics (Cheryan & Markus, 2020).

Third, by focusing on interpersonal treatment as people *begin* goal pursuits, such as when women consider entering a new company, we complement past research that examines the importance of how men and White people respond to women and racially minoritized students *after* goal pursuit, such as in how they represent critical academic feedback (Cohen et al., 1999; Cohen & Steele, 2002; Yeager et al., 2014, 2017) or a positive exam score (Park et al., 2018; for related work, see also Park et al., 2023). This research reveals that women and racially minoritized students face an ambiguity in how evaluators interpret their past performance. Yet we theorize that people also face identity-based ambiguities when they enter achievement settings: Will they be received in ways that allow them to contribute to shared goal pursuits?

Fourth, in focusing on intergroup processes as people begin work, our approach complements past work on ingroup processes, which shows that having women mentors and working in predominately women groups can increase belonging, performance, and retention among women in STEM (Dasgupta et al., 2015; Dennehy & Dasgupta, 2017; Stout et al., 2011; Wu et al., 2022). Such work implies that working alongside men in STEM settings can undermine women's experience and motivation (W. M. Hall et al., 2015). Yet given that many STEM settings remain dominated by men (Cheryan et al., 2017; National Science Board, National Science Foundation, 2020), it is also essential to understand what kinds of treatment from men can improve women's experiences in STEM settings.

At a higher level, much past research has identified ways to mitigate psychological barriers to retain women in STEM, typically by seeking to help women navigate settings in which they face risks of negative stereotypes and marginalization (e.g., Binning et al., 2020; Miyake et al., 2010; Walton et al., 2015). It is essential to complement such efforts by learning how to improve settings themselves (Walton et al., 2023; Walton & Yeager, 2020), such as to reduce the risk that people will be treated or received in biased ways (e.g., Murrar et al., 2020; Okonofua et al., 2016; Okonofua, Harris, & Walton, 2022; Walton et al., 2021). Toward this end, microinclusions align with and draw on the allyship literature (Brooks & Edwards, 2009; K. T. Brown & Ostrove, 2013; De Souza & Schmader, 2022; Moser & Branscombe, 2022; Radke et al., 2020). Past research shows that when male allies are present in male-dominated contexts, women anticipate greater support and respect from others, and less isolation and hostility (Moser & Branscombe, 2022). In introducing microinclusions, we take a relational approach to allyship (see Knowlton et al., 2022) and isolate a specific form of proactive (vs. reactive; De Souza & Schmader, 2022) treatment men can take toward women at work, and test the casual effect of this inclusive stance on women's sense of fit using experimental methods. In doing so, we seek to point the way toward future studies that learn how to elicit such behavior from men and build toward more equitable STEM work cultures.

Overview of Experiments

In Experiment 1, we surveyed employees working in a Silicon Valley technology company. We examined gender differences in employees' extant sense of fit and, using a randomized scenario design, tested whether employees' anticipated sense of fit upon joining a new team in the company would be responsive to microinclusions or microexclusions. We hypothesized that both men's and women's sense of fit would be responsive to this treatment, but that women's sense of fit would be especially responsive, insofar as this treatment alleviates or triggers apprehension about gender-based marginalization.

In Experiment 2, we isolate the effect of microinclusions by comparing them to socially warm treatment and specific personal inclusion in work social events but not in the core processes of producing joint work itself. We hypothesized that both micro-inclusive and socially warm treatment would increase women's sense of fit; however, we expected that microinclusive treatment would produce additional benefits as it conveys most directly the stance others take toward a woman's contributions at work. We also tested whether microinclusions would increase women's commitment to the company and improve the quality of work relationships they anticipated (W. Hall et al., 2019; Holleran et al., 2011).

Experiment 3 begins to explore gender dynamics by testing whether microinclusions from a man have a greater effect on women's sense of fit than the same treatment from a woman. We also tested whether this treatment would lead women to anticipate greater fit for another woman (but not a man) in the company.

Experiment 4 extends the analysis of gender dynamics and, further, examines the effect of observed microinclusions. If, as we theorized, the threat women experience to their opportunity to contribute in technology companies operates, in part, as a function of group identity, then observing another woman, versus a man, receive a microinclusion should mitigate this threat and lead to a greater sense of fit for women even when they do not receive a microinclusion themselves (cf. Cohen & Garcia, 2005; Shapiro et al., 2013).

Finally, we close by reporting a meta-analysis to examine the effect of experiencing or observing a microinclusion from a man on women's anticipated sense of fit in technology companies across a variety of populations (i.e., real-world technology company employees, IT/STEM professionals, and advanced engineering college students).

These experiments were not preregistered; however, data, materials, and analysis code are available at: https://osf.io/enfc3/.

Behavioral Pilot Experiments

These experiments were inspired in part by two in-person behavioral experiments. These experiments were conducted while norms in psychology were changing (Simmons et al., 2011) and thus reflect the laboratory methods and smaller sample sizes of an earlier tradition (e.g., Steele & Aronson, 1995). However, we report them here because they illustrate how an inclusive stance men can take toward women in the context of joint work can mitigate women's experience of stereotype-based identity threat. Moreover, they provide a behavioral outcome, complementing the focus in our primary experiments on women's self-reported sense of fit.

In the pilot experiments, participants worked on a difficult and evaluative math test, a context that typically evokes stereotype threat for women (Spencer et al., 1999; Steele & Aronson, 1995). We manipulated whether a male confederate, behaving in the context of the experimental protocol, took an inclusive stance toward the participant as each sought to perform well on the test. (In these experiments, we conceptualize the agency in producing participants' experience of inclusive treatment as a joint product of the structure of this protocol and the confederate's behavior within it.) The primary outcome was participants' test performance, and secondarily, their feelings of connection to the confederate assessed in several ways. The experiments thus test whether an inclusive stance from a man could mitigate the effect of stereotype threat on women's math performance. While they yield results consistent with this hypothesis, given their sample size, we see the evidence they provide as suggestive rather than definitive and, accordingly, report them as pilot experiments. Full methodological details and results are reported in the online Supplemental Materials.

In each pilot experiment, participants met a male confederate (presented as another participant) and were told the study investigated "strategies and problem solving." They then went to a private room where they did several practice problems before completing the math test, which was presented as evaluative ("similar [in format] to the Scholastic Assessment Test [SAT] … helpful in diagnosing your strengths and weaknesses in math … a genuine test of your abilities and limitations"), on their own. The manipulation focused on whether the participant was treated by the confederate as a respected partner working toward the same goal to perform well on the math test, or as just another person doing the same task. The manipulation drew on a procedure developed by Carr and Walton (2014; see also Butler & Walton, 2013). In the inclusive-stance condition, the experimenter told the participant and confederate in the introductory period that they would "have a chance to share tips with one another about how to solve these kinds of problems." Then, with each person in a private room, the experimenter orchestrated an exchange of ideas about how to solve the math problems. This included a handwritten note the confederate ostensibly wrote for the participant, addressed to the participant by name ("Hey [participant's name]") and signed by the confederate ("Daniel"). It included a potentially useful but generic tip and an expression of support ("Hope this helps you too!"). In both conditions, the content of the tip was designed so it would not apply to the subsequent test. In the control condition, by contrast, the experimenter told the participant and confederate that they would "have a chance to write a strategy or receive a strategy about how to solve these kinds of problems from our general strategy pool." In the private room, participants received the same content as the "tip," but this content was typed and printed, labeled as a "strategy," and attributed to an anonymous prior participant ("Participant 167"). As will be seen, the manipulations of microinclusions in the primary experiments echo the inclusive stance manipulation in important respects, including in the exchange of "tips" to learn how to approach a technical problem.

Participants then took a 12-min math test composed of 12 challenging quantitative problems drawn from the Graduate Record Exam. All participants were highly identified with math using the same prescreening item as in Experiment 3.

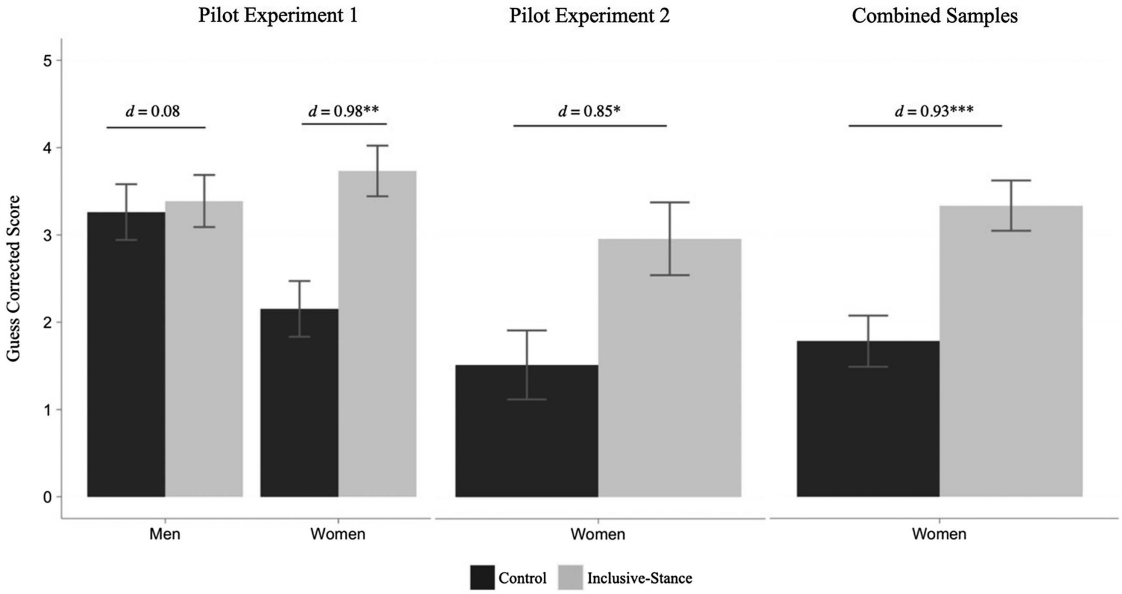
The first pilot experiment included 31 women and 30 men. The second, using the same procedure but adding several outcomes following the test, included 38 women. Because the manipulation and primary outcome were the same in the two experiments, we combined them for the primary data analyses ($N_{women} = 69$; $N_{men} = 30$). This combined sample provides 80% power to detect a medium-size effect ($d = 0.68$) at $p < .05$, an effect comparable to what has been observed in past meta-analyses of stereotype threat on test performance ($d = 0.66$; see Walton & Spencer, 2009).

As expected, controlling for SAT-math scores, women in the inclusive-stance condition performed 87% better on the math test than women in the control condition, $t(66) = 3.77$, $p < .001$, $d = 0.93$, 95% CI [0.42, 1.43]. This improvement in math performance was significant in both pilot experiments: a 96% gain in the first, $t(56) = 3.66$, $p = .001$, $d = 0.98$, 95% CI [0.42, 1.53]; and an 87% gain in the second, $t(35) = 2.51$, $p = .017$, $d = 0.85$, 95% CI [0.15, 1.53]. In the first experiment, men's performance did not vary by condition, $t(56) = 0.29$, $p = .77$, $d = 0.08$, 95% CI [−0.45, 0.60]. Thus, the experiment yielded a significant Gender × Condition interaction, $F(1, 56) = 5.59$, $p = .022$. A significant gender disparity in the control condition, $t(56) = -2.46$, $p = .017$, $d = -0.66$, 95% CI [−1.19, −0.12], was eliminated (and directionally reversed) in the inclusive-stance condition, $t(56) = 0.83$, $p = .41$, $d = 0.22$, 95% CI [−0.30, 0.75] (see Figure 1). These results remained unchanged when not controlling for SAT-math scores (see online Supplemental Material). In addition, after the test in the second experiment, women in the inclusive-stance condition reported a significantly greater sense of working together with the confederate, felt more connected to him, and perceived him as feeling more connected to her.

Although the pilot experiments are limited by the sample size, they highlight the potential importance of the stance that others, perhaps especially men, take toward women as they work in STEM contexts. When women preparing to take a math test were treated by a man as a respected partner working toward the same goal of performing well, women performed better. They also had a greater sense of working together with and connectedness to the man. Together with the focus group described in the introduction, these results motivated our focus on understanding how interpersonal

Figure 1

Math Performance Adjusted for SAT Math Scores by Condition in Behavioral Pilot Experiments



Note. Guess corrected scores for the pilot experiments were calculated by the number of correct scores minus a ¼ point deduction for each wrong answer (Steele & Aronson, 1995). Error bars represent standard errors. SAT = Scholastic Assessment Test.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

treatment that conveys the stance others take toward women's contributions affects women's sense of fit in technology contexts.

We designed the microinclusion manipulations to depict a complex social interaction in which others welcome and support women's contributions at work. By using scenario methods, we are able to clarify and elucidate the effect of this treatment on women's sense of fit in technology settings, to obtain larger sample sizes of an underrepresented and difficult-to-reach population, and to address nuanced questions, such as to compare microinclusions to mere socially warm treatment (Experiment 2).

Experiment 1: Microinclusions in a Technology Company

In Experiment 1, we surveyed employees in a technology company. First, we tested for gender disparities in employees' sense of fit and self-perceived opportunities to contribute to the company. Next, we asked employees to imagine joining a series of new teams at the company and described these, first, in a neutral way and, second, in counterbalanced order, with treatment in which coworkers either conveyed an inclusive (i.e., microinclusion) or an exclusive (i.e., microexclusion) stance toward their contributions to core work processes. We hypothesized that both men's and women's sense of fit and perceived opportunities to contribute would respond to this treatment, with more positive outcomes in the microinclusion condition. However, we also expected that women would show a greater response to this manipulation. We used a within-subjects design to mirror employees' real-world experiences joining multiple different teams over time in fast-changing technology companies (S. I. Tannenbaum et al., 2012). From this perspective, the within-subjects design is ecologically valid. It also allowed us to maximize power and opportunities to learn from a rare sample. To address concerns about priming and order effects, we also leveraged the counterbalanced order to conduct a secondary between-subjects test examining responses to just the scenario presented immediately following the neutral scenario.

To further understand employees' experiences at the company, we also assessed how realistic employees found each scenario. We expected that women, as compared to men, would find the microexclusion scenario more realistic and the microinclusion scenario less so.

Method

Participants and Recruitment

A total of 2,045 employees in a Silicon Valley technology company were invited via their company email address to participate in a study on their work experiences. The email solicitation was sent by the Head of Human Resources Department and was represented as a collaboration between the company and external researchers to better understand employees' experiences. Employees were assured of the confidentiality of their responses and informed that data would be processed by the external research team only.

Per our agreement with the company, we stopped data collection after 3 weeks and following two reminder emails. The final sample was thus determined by the response rate (44% response rate). The final sample included 897 employees (52% women; 23.86% women in technical roles; 31.88% men in technical roles; 13% racially minoritized group members; mean tenure at the company = 2.20 years; $M_{age} = 33.60$). Employee demographics were provided by the

company's Human Resources Department. This sample provides 80% power to detect a small effect size ($d = 0.19$) at $p < .05$.

Response rates were higher for women (54.44%) than for men (36.25%), $\chi^2(1) = 66.88$, $p < .001$, and for those in nontechnical (e.g., marketing, legal; 57.70%) as compared to technical roles (36.85%), $\chi^2(1) = 80.66$, $p < .001$. Tenure at the company did not predict response rates, $z = 1.48$, $p = .14$.

Experimental Design and Procedures

After providing informed consent, employees reported their extant sense of fit and self-perceived opportunity to contribute to the company. Experiment 1 also inquired about various work experiences to further understand employees' extant experiences and explore potential points for intervention, which are not of focus here. See online Supplemental Material.

Second, we implemented a 2 (gender, between-subjects) × 3 (scenario, within-subjects) study design.[1] Employees read three scenarios in which they were asked to imagine joining a new team within the company. First, there was a neutral scenario:

> Imagine that you joined a different team within [company] … It's a small team. The team uses some programs you know, and another that is pretty idiosyncratic. There is a team manager and several other members of the team.

Next, were the microexclusion and microinclusion scenarios, with the order counterbalanced. These scenarios held constant the protagonist's competence and other key elements. In each case, the protagonist describes having to learn new skills, their confidence in an approach to a problem facing the group, how this idea had to be developed, and how it ultimately succeeded. However, they differed in whether the protagonist was represented as supported by coworkers in her or his learning or not (e.g., receiving helpful tips), was listened to and credited for her or his idea or not, and was permitted to contribute to its development or not.

In the microexclusion scenario, employees read:

> The team uses some programs you know and another that is pretty idiosyncratic, with a steep learning curve. Because of this, you ask Evan, your manager, for some tips. He tells you he is busy and to figure it out on your own. You find some tips online. That helps you get going. Your team has been working to complete a project that has been underway for some time. You're working on a particular technical problem that needs to be solved with Evan. You feel good about an approach to the problem you've been looking into. You know it's promising. You start describing the approach to Evan, but he interrupts you. Later, Evan mentions an approach a lot like what you had in mind. He figures out how to use it effectively and decides to pursue the approach.

In this scenario, Evan conveys an exclusive stance toward the protagonist's contributions by not providing her or him with the tools or internal knowledge needed to learn the idiosyncratic program and by interrupting the protagonist, preventing her or him from being able to contribute to the team. It thus constitutes a microexclusion.

By contrast, the microinclusion scenario represented the protagonist as received by others in a way that allowed her or him to develop ideas and contribute toward work goals. It read:

> The team uses some programs you know and another that is pretty idiosyncratic, with a steep learning curve. Because of this, Evan, your manager, comes by and gives you some tips. That helps you get going. The team has been working to complete a project that has been underway for some time. You're working on a particular technical problem that needs to be solved with Evan. You feel good about an approach to the problem you've been looking into. You know it's promising. You start describing the approach to Evan. He listens carefully and asks you follow-up questions to learn more. You bounce ideas off each other and talk through how to use the approach for this specific problem. Together, you figure out how to use it effectively. He compliments you on the approach.

In this scenario, Evan conveys an inclusive stance toward the protagonist's contributions by providing her or him with tips needed to begin to learn the idiosyncratic program. Additionally, Evan listens to the protagonist's approach, asks questions, and works with her or him to develop the idea, and credits her or him for the idea, allowing the protagonist to contribute to the team. It thus constitutes a microinclusion.

After each scenario, employees completed items assessing the sense of fit and the opportunity to contribute they would anticipate in each workgroup. They also reported how realistic they thought each scenario was at the company.

Measures

Given time constraints with this population, the survey featured simple, face-valid, and single-item measures.

Extant Sense of Fit at the Company. Employees completed four items assessing their sense of fit at the company. These assessed *sense of belonging* (i.e., "I feel like I belong at [company]," Walton & Cohen, 2007), *experiences of respect and value* (i.e., "Overall, I feel respected/valued by other people at [company]"), and *future self* at the company (i.e., "In the future, I could see myself being successful at [company]," Markus & Nurius, 1986). All items were measured on 7-point Likert scales (1 = *strongly disagree*; 7 = *strongly agree*) and were averaged and combined into a composite sense of fit ($\alpha = 0.86$). Higher values represent a greater sense of fit in the company.

Extant Opportunity to Contribute. Employees completed a single item that assessed the opportunity they felt they had to contribute to their team at the company (i.e., "I can contribute effectively to the success of my team at [company]") on a 7-point Likert scale (1 = *strongly disagree*; 7 = *strongly agree*).

Anticipated Fit and Contribution in Response to Imagined Work Groups. After each scenario, employees completed similar items assessing their anticipated sense of fit (e.g., "If this was my experience at [company], I would feel like I belonged at [company]"; $0.93 \leq \alpha s \leq 0.94$) and opportunity to contribute (i.e.,

[1] At the request of our technology company collaborators, we included two kinds of work group scenarios, one that focused on interactions with managers and the other that focused on interactions with team members. Our partners hoped to learn about both kinds of experiences to explore potential points for intervention. Thus, the full design was a 2 (participant gender, between-subjects) × 3 (scenario, within-subjects) × 2 (manager/team, between-subjects) study design. The results reported here collapse across the manager/team variable because both variants test our core theoretical question, and the patterns of results were similar. The scenarios presented in the methods section involve the manager form because this is the form used in Experiments 2–4. See online Supplemental Material for the team condition and the results by team versus manager conditions.

"If this was my experience at [company], I would be able to contribute effectively to the success of my team at [company]") in response to each workgroup.

Perceived Realism of Scenarios. Employees were also asked how realistic each scenario was (i.e., "How realistic is this scenario at [company]?") on a 5-point Likert scale (1 = *not at all*; 5 = *extremely*).

Results

Extant Sense of Fit at the Company and Opportunity to Contribute

We conducted a linear regression to test for gender differences in employees' extant sense of fit. In line with our hypothesis, women reported lower levels of fit than men, $t(776) = -2.63$, $p = .009$, $d = -0.19$, 95% CI [−0.33, −0.05]. See Figure 2A. This gender disparity persisted in analyses controlling for tenure and job type (technical vs. nontechnical). See online Supplemental Material.

A linear regression revealed that the difference between women's ($M = 5.72$, $SE = 0.05$) and men's ($M = 5.84$, $SE = 0.05$) self-perceived opportunity to contribute to their work teams did not reach significance in this sample, $t(774) = -1.38$, $p = .17$, $d = -0.10$, 95% CI [−0.24, 0.04]. However, consistent with our theorizing, the opportunity to contribute to work teams strongly predicted employees' sense of fit at the company, $r(774) = 0.55$, $p < .001$.

Anticipated Sense of Fit and Opportunity to Contribute in Response to the Neutral, Microexclusion, and Microinclusion Work Groups

Next, we examined employees' anticipated sense of fit at the company and opportunity to contribute in response to each scenario using the linear mixed-modeling R package *lmerTest* (Version 3.1-3, Kuznetsova et al., 2017) with a random intercept for employee. The lmerTest package predicts *p* values for the fixed effects by using Satterthwait's method that can produce fractional estimates of degrees of freedom.

We first created two sets of dummy codes to test the main effect of gender, scenario, and interaction, with women and the neutral scenario as the reference groups, respectively. We then recoded the dummy codes as needed to test the full set of comparisons. See Table 1 for means and standard errors and Table 2 for full statistical reporting; *p* values and Cohen's *d* for specific comparisons are reported in the text. The analyses collapse across and do not control for, order of the microinclusion and microexclusion scenarios, as the pattern of results was similar across order for all outcomes, and was not a consistent significant predictor (see online Supplemental Material).

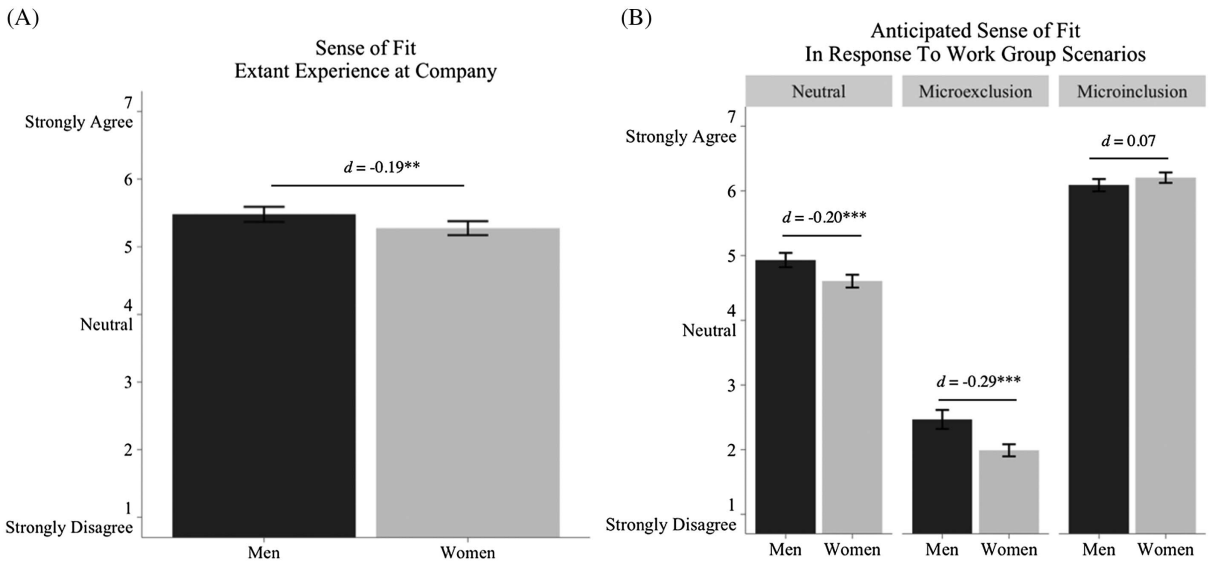
Anticipated Sense of Fit at the Company in Response to Work Groups.

Primary Analyses. There was a main effect of gender, $F(1, 1972.90) = 19.19$, $p < .001$, a main effect of scenario, $F(2, 1365.60) = 2034.99$, $p < .001$, and the predicted Gender × Scenario interaction, $F(2, 1364.20) = 19.35$, $p < .001$ (see Figure 2B). Women anticipated a lower sense of fit in the neutral scenario than men, $p < .001$, $d = -0.20$, 95% CI [−0.29, −0.11], a gender difference nearly identical in magnitude to that for employees' extant sense of fit at the company.

As predicted, both women and men anticipated a lower sense of fit in response to the microexclusion as compared to the neutral scenario. Thus, the gender disparity in sense of fit persisted, $p < .001$, $d = -0.29$, 95% CI [−0.37, −0.20]. The Gender × Scenario (neutral vs. microexclusion) interaction was not significant.

Figure 2

Sense of Fit at Tech Company (A) and Anticipated Sense of Fit in Response to Work Group Scenarios (B)



Note. The *y*-axes represent the full range of each scale. Error bars represent standard errors. See Table 2A for effect sizes for between-condition differences by gender.
$^{**}p < .01$. $^{***}p < .001$.

Table 1
Means for Additional Outcomes in Experiment 1

Outcomes (scale range)	Men			Women		
	Neutral	Microexclusion	Microinclusion	Neutral	Microexclusion	Microinclusion
Anticipated opportunity to contribute (1–7)	5.01 $(0.06)_a$	2.53 $(0.07)_b$	6.16 $(0.04)_c$	4.65 $(0.05)_d$	2.01 $(0.05)_e$	6.30 $(0.04)_c$
Perceived realism (1–5)	3.99 $(0.04)_{a,c}$	2.95 $(0.06)_b$	3.83 $(0.04)_c$	4.01 $(0.04)_a$	3.27 $(0.06)_d$	3.69 $(0.05)_{c,e}$

Note. Means with different subscripts within row differ significantly, ps $< .05$. Standard error in parentheses.

In response to the microinclusion scenario, both women and men anticipated a greater fit as compared to the neutral scenario. Notably, as predicted, this effect was greater for women than for men, as reflected in a significant Gender × Scenario (neutral vs. microinclusion) interaction. Indeed, the microinclusion directionally reversed the gender disparity in employee's anticipated fit, $p = .12$, $d = 0.07$, 95% CI [−0.02, 0.16].

Robustness Tests. As a first robustness test, we conducted the same analyses described above adding employees' extant sense of fit as a covariate. The pattern of results remained the same, with one exception. When controlling for employees' extant sense of fit, women ($M_{adj.} = 4.62$, $SE_{adj.} = 0.11$) reported greater fit than men ($M_{adj.} = 4.45$, $SE_{adj.} = 0.12$) in response to the microinclusion scenario, $p = .012$, $d = 0.11$, 95% CI [0.02, 0.20].

Second, we supplemented the within-subjects analysis with a between-subjects analysis, mitigating demand and comparison processes. That is, we dropped the scenario presented third and examined the sense of fit employees anticipated in the scenario introduced second (microinclusion or microexclusion, a between-subjects factor), controlling for the sense of fit they anticipated in response to the neutral scenario. Results were the same as in the primary analysis. There was a main effect of condition, greater fit in the microinclusion than microexclusion condition, $F(1, 658) = 1171.33$, $p < .001$, and a Gender × Condition interaction, $F(1, 658) = 13.07$, $p < .001$. While in the microexclusion condition, women anticipated lower fit ($M_{adj.} = 0.70$, $SE_{adj.} = 0.20$) than men ($M_{adj.} = 1.06$, $SE_{adj.} = 0.20$), $t(658) = -2.85$, $p = .005$, $d = -0.22$, 95% CI [−0.38, −0.07], in the microinclusion condition, women anticipated higher fit ($M_{adj.} = 4.93$, $SE_{adj.} = 0.18$) than men ($M_{adj.} = 4.72$, $SE_{adj.} = 0.19$), $t(658) = 2.21$, $p = .028$; $d = 0.17$, 95% CI [0.02, 0.33].

Anticipated Opportunity to Contribute to Work Groups. There was a main effect of gender, $F(1, 1993.50) = 18.14$, $p < .001$, a main effect of scenario, $F(2, 1358.30) = 969.06$, $p < .001$, and the predicted Gender × Scenario interaction, $F(2, 1359.70) = 17.91$, $p < .001$. Women anticipated they would have less opportunity to contribute to the team in the neutral scenario than men, $p < .001$, $d = -0.19$, 95% CI [−0.28, −0.10].

As predicted, both women and men anticipated less opportunity to contribute in response to the microexclusion compared to the neutral scenario. Thus, the gender disparity persisted, $p < .001$, $d = -0.27$, 95% CI [−0.36, −0.18]. The Gender × Scenario (neutral vs. microexclusion) interaction was not significant.

In response to the microinclusion, both women and men anticipated greater opportunity to contribute compared to the neutral scenario. As with anticipated fit, however, there was a significant Gender × Scenario (neutral vs. microinclusion) interaction. The microinclusion directionally reversed the gender disparity in anticipated opportunity to contribute, $p = .11$, $d = 0.07$, 95% CI [−0.02, 0.16].

Test of Mediation. To test whether self-perceived opportunities to contribute mediated the effect of microinclusions on employees' sense of fit, we analyzed two multilevel mediation models (one for women and one for men) with a random intercept for employee using the R package *lavaan* (Version 0.6-12; Rosseel, 2012). There was a significant indirect effect of microinclusive treatment (coded 1) compared to the neutral scenario (coded 0) on anticipated sense of fit through self-perceived opportunities to contribute for women, $z = 12.30$, $p < .001$, indirect effect = 1.57, 95% CI [1.32, 1.82]. There was also a significant indirect effect for men, $z = 3.64$, $p < .001$, indirect effect = 0.48, 95% CI [0.22, 0.73], but this was smaller than the effect for women as revealed by the significant Gender × Scenario interaction, $z = 4.51$, $p < .001$, indirect effect = 0.36, 95% CI [0.21, 0.52], consistent with the theory that opportunities to contribute are especially important for women's sense of fit. There was also a significant indirect effect of microinclusive treatment (coded 1) compared to the microexclusion scenario (coded 0) on anticipated sense of fit through self-perceived opportunities to contribute for both women, $z = 25.07$, $p < .001$, indirect effect = 3.83, 95% CI [3.53, 4.13], and men, $z = 15.21$, $p < .001$, indirect effect = 2.30, 95% CI [2.01, 3.60], with women again showing the larger effect as revealed by the significant Gender × Scenario interaction, $z = 5.60$, $p < .001$, indirect effect = 0.51, 95% CI [0.33, 0.69].

These results are consistent with the interpretation that both women and men showed an increase in their sense of fit in the microinclusion scenario because they perceived greater opportunities to contribute. They are also consistent with the interpretation that women showed a particularly large rise in their sense of fit for two reasons: both because their perception of opportunities to contribute rose in response to the microinclusion scenario (vs. neutral scenario) more than men's, and because perceived opportunities predicted a sense of fit more strongly for women than for men.

Perceived Realism

Although our primary interest in Experiment 1 was in participants' anticipated sense of fit in response to microinclusive and microexclusive treatment, we also examined how realistic employees found these scenarios to further understand their lived experience at work.

There was no main effect of gender, $F(1, 2054) = 0.06$, $p = .80$. However, there was a main effect of scenario, $F(2, 1382.30) = 91.77$, $p < .001$, and a Gender × Scenario interaction, $F(2, 1381.20) = 8.71$, $p < .001$. First, both women and men found the neutral scenario to be realistic with no gender differences, $p = .80$, $d = 0.01$, 95% CI [−0.08, 0.10].

Table 2

Regression Results for (A) Effect of Work Group Scenario Within Gender and (B) Effect of Gender Within Work Group Scenarios and Gender × Scenario Interactions in Experiment 1

A	Effect of work group scenario among women			Effect of work group scenario among men		
Outcomes (scale range)	Neutral versus microexclusion scenario	Neutral versus microinclusion scenario	Microexclusion versus microinclusion scenario	Neutral versus microexclusion scenario	Neutral versus microinclusion scenario	Microexclusion versus microinclusion scenario
Anticipated sense of fit (1–7)	$t(1383.60) = -39.22$ $p < .001$ $d = -2.11$ [−2.24, −1.98]	$t(1383.38) = 23.89$ $p < .001$ $d = 1.28$ [1.17, 1.40]	$t(1356.65) = 63.17$ $p < .001$ $d = 3.43$ [3.26, 3.60]	$t(1381.64) = -34.00$ $p < .001$ $d = -1.83$ [−1.95, −1.70]	$t(1379.11) = 15.96$ $p < .001$ $d = 0.86$ [0.75, 0.97]	$t(1355.11) = 49.44$ $p < .001$ $d = 2.69$ [2.54, 2.83]
Anticipated opportunity to contribute (1–7)	$t(1376.61) = -34.32$ $p < .001$ $d = -1.85$ [−1.98, −1.72]	$t(1376.47) = 21.27$ $p < .001$ $d = 1.15$ [1.03, 1.26]	$t(1350.70) = 55.66$ $p < .001$ $d = 3.03$ [2.87, 3.18]	$t(1373.76) = -29.74$ $p < .001$ $d = -1.60$ [−1.73, −1.48]	$t(1371.10) = 13.76$ $p < .001$ $d = 0.74$ [0.63, 0.85]	$t(1349.15) = 43.05$ $p < .001$ $d = 2.34$ [2.21, 2.48]
Perceived realism (1–5)	$t(1386.28) = -9.82$ $p < .001$ $d = -0.53$ [−0.63, −0.42]	$t(1387.57) = -4.23$ $p < .001$ $d = -0.26$ [−0.33,−0.12]	$t(1366.47) = 5.52$ $p < .001$ $d = 0.30$ [0.19, 0.41]	$t(1391.80) = -12.67$ $p < .001$ $d = -0.68$ [−0.79, −0.57]	$t(1388.81) = -1.92$ $p = .055$ $d = -0.10$ [−0.21, 0.00]	$t(1366.74) = 10.58$ $p < .001$ $d = 0.57$ [0.46, 0.68]

B	Effect of gender within work group scenario			Gender × Scenario Interactions		
Outcomes (scale range)	Neutral scenario	Microexclusion scenario	Microinclusion scenario	Neutral versus microexclusion	Neutral versus microinclusion	Microexclusion versus microinclusion
Anticipated sense of fit (1–7)	$t(1974.08) = -4.38$ $p < .001$ $d = -0.20$ [−0.29, −0.11]	$t(1976.98) = -6.34$ $p < .001$ $d = -0.29$ [−0.37, −0.20]	$t(1976.63) = 1.55$ $p = .12$ $d = 0.07$ [−0.02, 0.16]	$t(1382.54) = -1.54$ $p = .12$ $d = -0.08$ [−0.19, 0.02]	$t(1381.07) = 4.48$ $p < .001$ $d = 0.24$ [0.14, 0.35]	$t(1355.81) = 5.98$ $p < .001$ $d = 0.32$ [0.22, 0.43]
Anticipated opportunity to contribute (1–7)	$t(1993.93) = -4.26$ $p < .001$ $d = -0.19$ [−0.28, −0.10]	$t(1995.23) = -6.09$ $p < .001$ $d = -0.27$ [−0.36, −0.18]	$t(1995.02) = 1.62$ $p = .11$ $d = 0.07$ [−0.02, 0.16]	$t(1375.07) = -1.41$ $p = .16$ $d = -0.08$ [−0.18, 0.03]	$t(1373.58) = 4.35$ $p < .001$ $d = 0.23$ [0.13, 0.34]	$t(1349.86) = 5.74$ $p < .001$ $d = 0.31$ [0.21, 0.42]
Perceived realism (1–5)	$t(2054.04) = 0.25$ $p = .80$ $d = 0.01$ [−0.08, 0.10]	$t(2057.15) = 4.00$ $p < .001$ $d = 0.18$ [0.09, 0.26]	$t(2054.15) = -1.76$ $p = .078$ $d = -0.08$ [−0.16, 0.01]	$t(389.28) = 2.71$ $p = .007$ $d = 0.27$ [0.07, 0.47]	$t(1388.24) = -1.45$ $p = .15$ $d = -0.08$ [−0.18, 0.03]	$t(1366.62) = -4.11$ $p < .001$ $d = -0.22$ [−0.33, −0.12]

Note. Gender variable is dummy coded (men = 0; women = 1). The scenario variable is dummy coded such that: when comparing to the neutral scenario (coded 0), the microexclusion and microinclusion scenarios are coded 1, and when comparing to the microexclusion scenario (coded 0), the microinclusion scenario is coded 1. 95% confidence interval for Cohen's *d* in the bracket.

Although both women and men found the microexclusion to be less realistic than the neutral scenario, there was a significant Gender × Scenario (neutral vs. microexclusion) interaction. Women found the microexclusion more realistic than did men, $p < .001$, $d = 0.18$, 95% CI [0.09, 0.26].

Women also found the microinclusion less realistic than the neutral scenario. However, this was only marginally the case for men. Thus, the Gender × Scenario (neutral vs. microinclusion) interaction was marginally significant. Further, women found the microinclusion scenario marginally less realistic compared to men, $p = .078$, $d = -0.08$, 95% CI [−0.16, 0.01].

The comparison between the microexclusion and microinclusion scenarios was revealing. The Gender × Scenario (microexclusion vs. microinclusion) interaction was significant. Men found the microinclusion much more realistic than the microexclusion scenario, $p < .001$, $d = 0.57$, 95% CI [0.46, 0.68]. Women did so too but to a lesser extent, $p < .001$, $d = 0.30$, 95% CI [0.19, 0.41], suggesting that, in their lived experiences, women may not receive microinclusions as often as their male peers.

Discussion

Experiment 1, conducted with a large sample of employees at a Silicon Valley technology company, yielded two important findings. First, women reported a lower sense of fit based on their extant experiences at the company than men, a disparity that persisted even when controlling for tenure and job type. This gender difference emerged again in employees' anticipated sense of fit in response to a workgroup described in neutral terms. Moreover, when we asked employees how realistic they found the workgroup scenarios, men reported that the microinclusion scenario was much more realistic than the microexclusion scenario, a difference that women showed only more weakly. These differences speak to disparities in women's and men's lived experience working at the company.

Second, both men and women were highly responsive to interpersonal treatment that clarified the stance others took toward their contributions, that is, whether others were inclusive or exclusive of their contributions to the shared goals of a work group. But women were especially responsive. They showed particularly large gains in fit in response to the microinclusion. The greater responsivity of women is consistent with our theorizing that microinclusive treatment remedies an ambiguity women, but not men, face in technology contexts: Will their gender be a basis for marginalizing treatment? With the microinclusion, the robust gender difference in fit in employees' extant experiences at the company and in response to both the neutral and the microexclusion scenarios directionally reversed. The results provide the first evidence that microinclusions can increase employees' sense of fit at work, particularly women's sense of fit.

It is noteworthy that, even as women were more responsive than men to the microinclusion scenario, they were not more responsive to the microexclusion scenario (cf. W. M. Hall et al., 2015). Employees' sense of fit in the microexclusion condition may have begun to approach a floor, especially for women, reducing the opportunity to observe a gender difference in this response.

Interestingly, we did not find a significant difference between men's and women's reports of their extant opportunities to contribute to their teams. Upon retrospect, a potential reason involves how we measured this construct. The relevant item focused on the self ("I can contribute effectively …"), not how receptive participants perceived others to be to their contributions, which was both our interest and the focus of employee concerns in focus groups. In Experiments 2–4, we revise the measure to assess specifically the perceived receptivity of others toward one's contributions.[2]

Experiment 1 supports our theorizing that interpersonal treatment that clarifies the stance others take toward one's contributions at work affects people's sense of fit. Organizations, however, are complex and include many features that affect people's experience. For women and other minoritized individuals in STEM, one such prominent feature is the simple numerical representation of their group in the setting (M. P. Joshi & Diekman, 2022; Kroeper et al., 2022; Murphy et al., 2007). An important question for theory and application is whether microinclusions are important for women's sense of fit both in companies with a relatively high representation of women and in companies with a relatively low representation of women. For instance, if interpersonal treatment and numerical representation serve as cues to the same underlying inference, such as whether one will be able to contribute in the setting, microinclusions might not matter in settings in which women are well-represented. Conversely, if a lack of representation implies to women that their experience in a company will simply be negative, microinclusions might not matter in settings in which women are poorly represented either.

Experiment 1 did not allow us to manipulate numerical representation, as it was conducted in a real-world technology company. Therefore, in a Supplementary Experiment conducted before Experiment 2, we tested whether the effect of microinclusions among women would be robust in companies that employed few or more women.

We recruited advanced engineering undergraduate women ($N = 128$) and asked them to consider a potential technology employer randomized to a 2 (microinclusion vs. microexclusion) × 2 (low vs. higher representation of women) between-subjects design. The effect of microinclusions was strikingly robust. Women anticipated a greater sense of fit when they imagined experiencing a microinclusion versus a microexclusion and both when the company employed few women, $p < .001$, $d = 1.33$, 95% CI [0.94, 1.72], and when the company employed more women, $p < .001$, $d = 1.15$, 95% CI [0.77, 1.53]. There was no interaction. Further, the effect of the microinclusion manipulation on women's sense of fit was, if anything, larger than the effect of numeric representation, ds = 1.33,

[2] Other factors could also contribute to this null effect. One involves the social unit referenced in the measure. Whereas the measure of fit assessed fit in the company as a whole, the measure of opportunities to contribute focused on contributions on "my team at [company]." Given the uneven distribution of women and men across technical and nontechnical roles at the company (women were more often in nontechnical roles), $\chi^2(1) = 37.90$, $p < .001$, the typical woman at the company almost certainly worked, on average, on teams with more women than were represented in the company as a whole. If so, this could give rise to a better experience for women on teams as compared to in the company as a whole (Dasgupta et al., 2015; Wu et al., 2022). Our company partners did not share team-level data with us, however, which would allow us to test this directly. It is also possible that scale referencing effects contribute to the null result (see Biernat & Manis, 1994). If men have higher expectations about their opportunity to contribute, they may interpret ambiguous scale endpoints as more extreme, lowering their self-ratings relative to women.

95% CI [0.94, 1.72] and 0.68, 95% CI [0.32, 1.04], respectively. See online Supplemental Material.

The Supplementary Experiment makes two important contributions. The first is theoretical. Past research has emphasized the representation of women in STEM settings (e.g., Murphy et al., 2007; see also Dasgupta et al., 2015; Wu et al., 2022). Relying on such work, people can think of organizations simplistically as either identity-safe or identity-threatening. In showing that microinclusions matter even in technology companies that are gender diverse, we point toward the value of a more fine-grained understanding of contexts. Microinclusions matter even in more diverse settings, we theorize, because they address questions around one's opportunity to contribute directly (e.g., "I am treated as a contributor") rather than indirectly (e.g., "I assume I can contribute because other women work here"). In doing so, this approach highlights the importance of the *social process* of producing joint work, above and beyond the social context in which work is produced. The second contribution is of direct practical value. The results suggest that microinclusions can support a sense of fit among women even in organizations that are not yet diverse and, therefore, help organizations maintain and build this diversity.

Given these results and given the importance of identifying processes that can help organizations that are not yet diverse diversify, Experiments 2–4 focus on women's responses to contexts with a low representation of women. These experiments also feature between-subjects designs to address any questions about demand or comparison processes.

Experiment 2: Microinclusions Versus Socially Warm Treatment

To begin to isolate the effect of microinclusions, Experiment 2 compared microinclusions to socially warm treatment, that is, inclusion in social events but treatment that does not address the stance others take toward women's contributions at work.

Organizations often make an effort to create social opportunities for employees, including sponsoring team happy hours and other events or by creating communal spaces for "watercooler conversations" where employees can interact, connect, and develop professional and personal relationships. Indeed, socially warm treatment can help maintain work engagement, including for women (W. M. Hall et al., 2015; Holleran et al., 2011; Kanter, 1977). Thus, we theorized that both socially warm and microinclusive treatment would increase a sense of fit women working in information technology (IT) or STEM anticipated at a company.

However, our theory posits that, for women in these contexts, social inclusion cannot substitute for inclusion in work processes. If so, microinclusive treatment, which implies an inclusive stance in others toward one's contributions to shared goals, should raise women's sense of fit regardless of whether women experience specific socially warm treatment or neutral treatment. We also test whether overall microinclusive treatment has a greater effect on women's anticipated sense of fit than socially warm treatment.

In addition to examining these outcome effects, we tested whether women's perception of the receptivity of others toward their contributions would mediate this increase in fit. We also assessed women's beliefs about the quality of the relationships they would form with coworkers at the company and their commitment to the company. While socially warm treatment may affect these outcomes, we expected that microinclusive treatment would affect them more.

Method

Participants

We recruited women in the United States working in the IT or STEM work sector on Prolific. We stopped data collection after 430 responses and analyzed the data only upon completion, not during data collection. We excluded one participant who failed to meet our criteria of working in the IT or STEM work sector, and two who did not complete the manipulation materials. The final sample comprised 427 participants (15.46% racially minoritized group members; $M_{age} = 32.77$). This sample provides 80% power to detect a small to medium effect size ($d = 0.32$) at $p < .05$, an effect size far smaller than that observed for women's sense of fit in Experiment 1 ($d = 1.28$, for the comparison between the neutral and microinclusion scenarios). Participants were compensated the equivalent of $9.52/hr.

Experiment Design and Procedures

Participants were randomly assigned to read a one-page scenario in a 2 (work treatment: working separately vs. microinclusion) × 2 (social treatment: socially neutral vs. socially warm) between-subjects design. The scenario asked participants to imagine they had recently started a new position at "A-Tech," a fictitious engineering company. Each scenario included photos of employees and an office space. In all conditions, the scenarios depicted A-Tech as having a low representation of women, as is the case in engineering in general. Approximately 14% of the employees depicted were women, and the text indicated, "Most of the senior and technical leadership is male, and so are most of the people in engineering positions like yours."

The microinclusion scenario was the same as in Experiment 1. To provide a neutral control condition (rather than a microexclusion condition), we described the protagonist as working separately from (i.e., not directly interacting with) other members of their team:

> You are part of a small engineering team. Your manager is named Evan. The team uses a program that is pretty idiosyncratic with a steep learning curve. You don't know how it works and no one shows you how. But one day, you find some tips online. That helps you get going. Your team has been working to complete a project that has been underway for some time. You're working on a particular technical problem that needs to be solved. You look into an approach to the problem and think carefully about how you could use it for this specific problem. You figure out how to use it effectively. You feel good about your approach.

Thus, in both scenarios, the protagonist contributes to the team; the difference is whether she contributes by working separately or in interaction with and supported by the team manager.

To orthogonally manipulate socially warm treatment, all scenarios depicted the protagonist being invited to a team happy hour. However, in the socially neutral condition, she is invited via a generic listserv email and there is no mention of the experience at the happy hour:

> Towards the end of the workday, you receive an email from the engineering department listserv reminding everyone about the department's happy hour at the end of the week that everyone is invited to.

By contrast, in the socially warm condition, the protagonist is proactively invited by the team manager, and the happy hour is described as fun and enjoyable:

> Towards the end of the workday, you receive an email from the engineering department listserv reminding everyone about the department's happy hour at the end of the week that everyone is invited to. Soon after, you receive a follow-up email from Evan, checking in to make sure that you are on the listserv and received the invitation. You go to the happy hour, and you are sitting there with Evan and some other people on your team. It's a fun conversation and you find yourself laughing and joking with the team.

After the scenario, participants completed the manipulation checks and dependent measures.

Measures

Manipulation Checks. As a manipulation check for the microinclusion manipulation, participants completed three items (e.g., "People at A-Tech include me in the process of doing work," "People at A-Tech value my contributions to work," "People at A-Tech give me what I need to contribute at work"; 1 = *strongly disagree*; 7 = *strongly agree*; α = 0.93).

As a manipulation check for the socially warm treatment manipulation, participants completed three items (e.g., "People at A-Tech are warm toward me," "People at A-tech include me socially," "People at A-Tech are friendly with me"; 1 = *strongly disagree*; 7 = *strongly agree*; α = 0.89).

Anticipated Sense of Fit. We assessed the sense of fit using the same measures as Experiment 1 (i.e., anticipated belonging, anticipated experiences of respect and value, and future selves) but included additional items that we could not assess in Experiment 1 given time constraints. We added two items for belonging (i.e., "I would feel comfortable at A-Tech," "I would fit in well at A-Tech," Walton & Cohen, 2007; α = 0.96), and a second item for future selves, (i.e., "In the future, I could see myself taking on a leadership role in engineering at A-Tech," Markus & Nurius, 1986; r[423] = 0.69).

We also assessed five additional fit-related constructs: (a) four items assessed *belonging uncertainty* (e.g., "Sometimes I would worry that I would not belong at A-Tech," Walton & Cohen, 2007; α = 0.89) on 5-point Likert scales (1 = *not at all true*; 5 = *completely true*); (b) three items assessed anticipated *work enjoyment* (e.g., "How much would you enjoy working in engineering at A-Tech?" Walton & Cohen, 2007; α = 0.90) on 7-point Likert scales (1 = *not at all*; 7 = *very much*); (c) two items assessed *self-efficacy* (e.g., "I would feel confident that I have the ability to do well in engineering at A-Tech," Walton & Cohen, 2007; r[423] = 0.66); (d) six items assessed *trust* in the company (e.g., "I think that I would trust the manager at A-Tech to treat me fairly," adapted from Purdie-Vaughns et al., 2008; α = 0.94) on 7-point Likert scales (1 = *strongly disagree*; 7 = *strongly agree*); and (e) one item assessed self-perceived *potential to succeed* (i.e., "Please assess your potential … to succeed in engineering at A-Tech," Walton & Cohen, 2007) on a percentile scale (10% = *more potential than 10% of engineers at A-Tech*; 90% = *more potential than 90% of engineers at A-Tech*).

All items were z-scored and combined into a composite, with higher scores indicating a greater sense of fit (α = 0.97). The pattern of results was similar when we use the narrower sense of fit measure used in Experiment 1 or the broader measure including the constructs described above. The primary analyses examine the broader measure.

Perceived Receptivity to One's Contributions. We assessed participants' perception of the stance others took toward their contributions using two negatively valenced items (i.e., "My wishes do not carry much weight with other engineers at A-Tech," "Even when I voice them, my views have little sway with other engineers at A-Tech"; Chen & Moons, 2015) on 7-point Likert scales (1 = *strongly disagree*; 7 = *strongly agree*). Items were reverse-coded, averaged, and combined into a composite with higher scores indicating a greater perceived openness or receptivity of others to one's contributions, r(420) = 0.83.

Anticipated Quality of Work Relationships. We assessed the quality of the work relationships participants anticipated at A-Tech using a composite of three measures. These assessed: (a) *social climate* (e.g., "I could imagine making good friends with coworkers at A-Tech"; four items; α = 0.85), (b) *loneliness* (e.g., "I expect I would often feel left out at A-Tech," three items, reverse-coded; α = 0.94) on 7-point Likert scales (1 = *strongly disagree*, 7 = *strongly agree*), and (c) *coworker support* (e.g., "In general to what extent do you believe that other engineers at A-Tech would make an extra effort to understand problems that you are facing?"; three items, adapted from Mossholder et al., 2005; α = 0.90) on 7-point Likert scale (1 = *not at all*; 7 = *very much*). All items were combined into a single composite with higher scores indicating higher quality anticipated work relationships (α = 0.94).

Company Commitment. We assessed the commitment participants anticipated experiencing to A-Tech using a single item ("If you were offered a job at another tech company with similar pay, commute time, and work responsibilities, how likely would you be to accept the new job?") on a 5-point Likert scale (1 = *extremely unlikely*; 5 = *extremely likely*). This item was reversed-coded with higher scores indicating greater commitment.

Exploratory Measures. In addition to the primary measures described above, participants also completed several exploratory measures not of focus here (see online Supplemental Material).

Results

We created a set of dummy codes to test the main effect of work treatment (0 = *working separately*; 1 = *microinclusion*), social treatment (0 = *neutral*; 1 = *warm*), and the interaction. We then recoded as necessary to test the full set of comparisons. See Table 3, for means and standard errors.

Manipulation Checks

Microinclusion Manipulation Check. There was a large main effect of the microinclusion manipulation, $F(1, 419) = 473.15$, $p < .001$, $d = 2.13$, 95% CI [1.88, 2.36], and a smaller effect of socially warm treatment, $F(1, 419) = 6.22$, $p = .013$, $d = 0.24$, 95% CI [0.05, 0.44]. The interaction was not significant, $F(1, 419) = 0.20$, $p = .66$, $d = 0.04$, 95% CI [−0.15, 0.24]. As anticipated, women believed

Table 3
Means for Additional Outcomes in Experiment 2

Outcome (scale range: 1–7)	Socially neutral		Socially warm	
	Working separately	Microinclusion	Working separately	Microinclusion
Microinclusion manipulation check	3.42 $(0.10)_a$	6.01 $(0.06)_c$	3.73 $(0.10)_b$	6.24 $(0.07)_c$
Socially warm manipulation check	4.43 $(0.09)_a$	5.95 $(0.06)_b$	5.61 $(0.07)_c$	6.39 $(0.05)_d$
Perceived receptivity of others to one's contributions	3.51 $(0.10)_a$	5.08 $(0.11)_b$	3.82 $(0.12)_c$	5.41 $(0.10)_d$
Anticipated quality of work relationships	3.52 $(0.10)_a$	4.90 $(0.10)_c$	4.29 $(0.10)_b$	5.39 $(0.11)_c$

Note. Means with different subscripts within row differ significantly, ps $< .05$. Standard error in parentheses.

they would be included in contributing at work more in the microinclusion condition than in the working separately condition.

Socially Warm Manipulation Check. There were main effects of both socially warm treatment, $F(1, 419) = 136.27$, $p < .001$, $d = 1.14$, 95% CI [0.93, 1.35] and microinclusive treatment, $F(1,419) = 229.02$, $p < .001$, $d = 1.48$, 95% CI [1.26, 1.69]. There was also a significant interaction, $F(1, 419) = 26.48$, $p < .001$, $d = 0.50$, 95% CI [0.31, 0.70]. As anticipated, women believed that people at A-Tech were more warm and friendly in the socially warm condition than in the socially neutral condition. This effect, however, was stronger in the working separately condition, $t(419) = 11.67$, $p < .001$, $d = 1.14$, 95% CI [0.93, 1.35], than in the microinclusion condition, $t(419) = 4.34$, $p < .001$, $d = 0.42$, 95% CI [0.23, 0.62].

Anticipated Sense of Fit

There was a large main effect of the microinclusion manipulation, $F(1, 419) = 89.67$, $p < .001$, $d = 0.93$, 95% CI [0.72, 1.13], and a smaller but significant effect of socially warm treatment, $F(1, 419) = 6.13$, $p = .014$, $d = 0.24$, 95% CI [0.05, 0.43]. The interaction was not significant, $F(1, 419) = 0.17$, $p = .68$, $d = 0.04$, 95% CI [−0.15, 0.23]. Notably, the effect of microinclusive treatment was nearly fourfold larger effect than the effect of socially warm treatment. Because the scale is z-scored, we illustrate the effect on women's sense of fit by examining women's anticipated sense of belonging in the company, which yields the same pattern of results. We also illustrate the effect with women's anticipated self-efficacy, which shows that microinclusive treatment does not just affect women's perceptions of the social climate and experience but also their very confidence in their work abilities (see Figure 3).

Perceived Receptivity to One's Contributions

There was a large main effect of the microinclusion manipulation, $F(1,418) = 111.30$, $p < .001$, $d = 1.03$, 95% CI [0.83, 1.24], and a smaller effect of socially warm treatment, $F(1, 418) = 4.40$, $p = .037$, $d = 0.21$, 95% CI [0.01, 0.40]. The interaction was not significant, $F(1, 418) = 0.01$, $p = .91$, $d = 0.01$, 95% CI [−0.18, 0.20]. Microinclusive treatment had a nearly fivefold larger effect on how receptive women perceived others would be toward their contributions at work relative to socially warm treatment.

Test of Mediation

Did the perception of others' receptivity toward their contributions mediate the effect of microinclusions on women's anticipated sense of fit? To test the indirect effect, we conducted a mediational analysis with 5,000 bootstrapped samples. Our sample provides 80% power to detect medium indirect effect size in a mediation analysis (Fritz & MacKinnon, 2007). As predicted, there was an indirect effect of microinclusive treatment (0 = *working separately*; 1 = *microinclusions*) on anticipated sense of fit through the perceived reception of one's contributions, $z = 10.03$, $p < .001$, indirect effect = 0.42, 95% CI [0.34, 0.51]. There was also an indirect effect of socially warm treatment (0 = *socially neutral*; 1 = *socially warm*) but to a smaller extent, $z = 3.03$, $p = .002$, indirect effect = 0.09, 95% CI [0.03, 0.14]. The results are consistent with our theorizing that microinclusive treatment increases women's anticipated sense of fit, at least in part because it conveys that others view them as valued contributors.

Anticipated Quality of Work Relationships

Again, there was a large main effect of the microinclusion manipulation, $F(1, 419) = 88.43$, $p < .001$, $d = 0.92$, 95% CI [0.72, 1.12], and a smaller effect of socially warm treatment, $F(1, 419) = 27.08$, $p < .001$, $d = 0.51$, 95% CI [0.31, 0.70]. The interaction was not significant, $F(1, 419) = 1.76$, $p = .185$, $d = 0.13$, 95% CI [−0.06, 0.32]. Microinclusive treatment had a nearly twofold larger effect on the quality of work relationships women anticipated at the company relative to socially warm treatment.

Company Commitment

There was only a main effect of microinclusive treatment, $F(1, 419) = 59.55$, $p < .001$, $d = 0.75$, 95% CI [0.56, 0.95]. The effect of socially warm treatment was marginally significant, $F(1, 419) = 3.88$, $p = .05$, $d = 0.19$, 95% CI [0.00, 0.38]. The interaction was not significant, $F(1,419) = 0.04$, $p = .83$, $d = 0.02$, 95% CI [−0.17, 0.21] (see Figure 3).

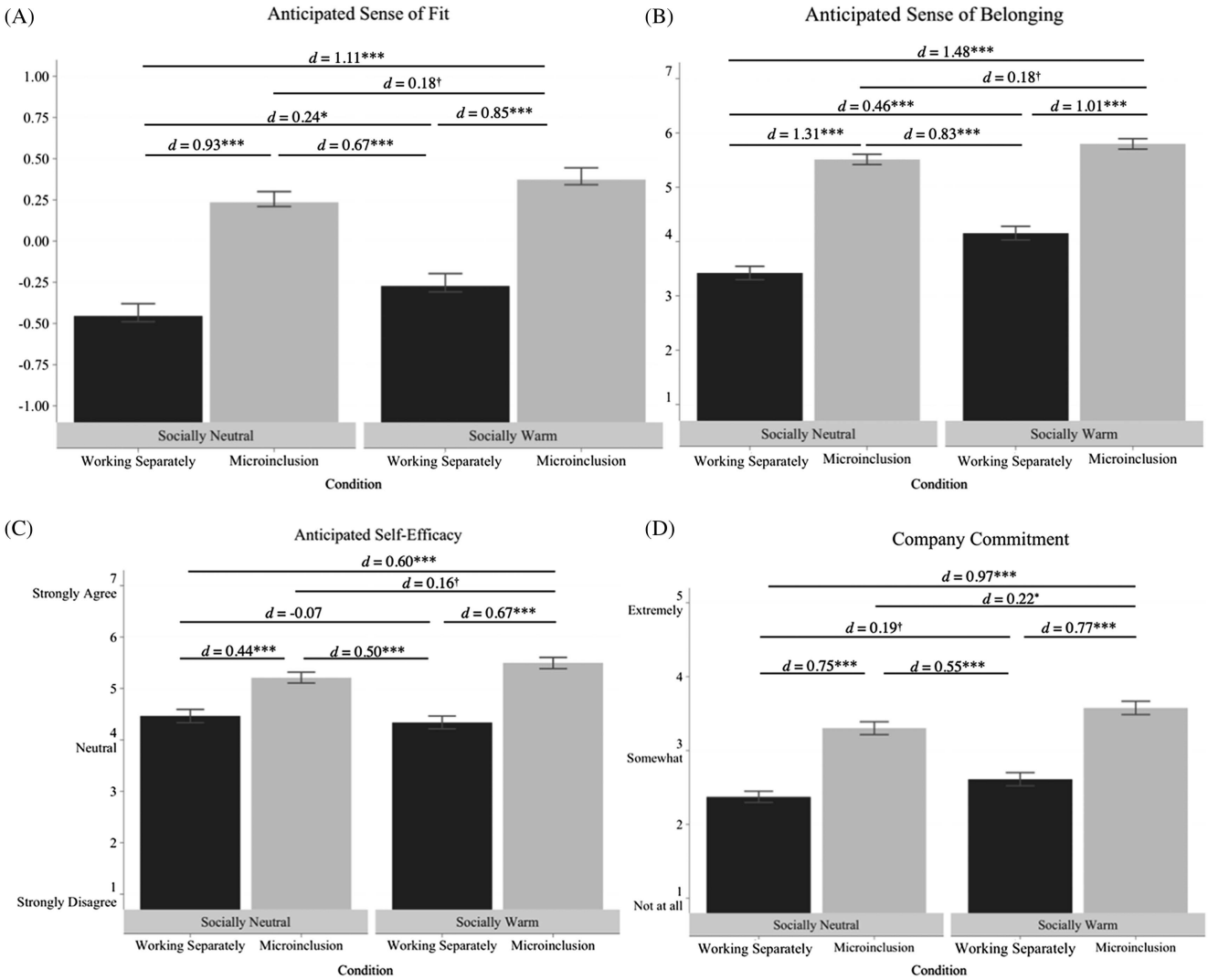
In an exploratory analysis, we tested whether the effect of microinclusive treatment on women's commitment to the company was mediated by the greater perceived receptivity of others to one's contributions and then by an increased sense of fit. We tested a sequential mediation model using 5,000 bootstrapped samples. There was a sequential indirect effect through perceptions of receptivity and sense of fit, $z = 4.86$, $p < .001$, indirect effect = 0.24, 95% CI [0.15, 0.34]. The sequential indirect effect was significant for socially warm treatment as well, but to a smaller effect, $z = 2.65$, $p = .008$, indirect effect = 0.05, 95% CI [0.02, 0.09]. See Figure 4 and online Supplemental Material for full results.

Discussion

Experiment 2 found that women anticipated a greater fit, believed that others would be more receptive to their contributions,

Figure 3

Anticipated Sense of Fit (A), Sense of Belonging (B), Self-Efficacy (C), and Company Commitment (D) by Condition in Experiment 2



Note. In (A) the scale represents standard units. In (B), (C), and (D), the *y*-axis represents the full scale. Error bars represent standard errors.
$^{*}p < .05$. $^{***}p < .001$. $^{\dagger}p < .10$.

anticipated better work relationships, and felt more committed to a company when they were treated with microinclusions. Moreover, consistent with theory, the effect of microinclusions on women's sense of fit at the company was mediated by a greater perceived receptivity in others toward their contributions. In turn, this greater sense of fit predicted higher commitment to the company.

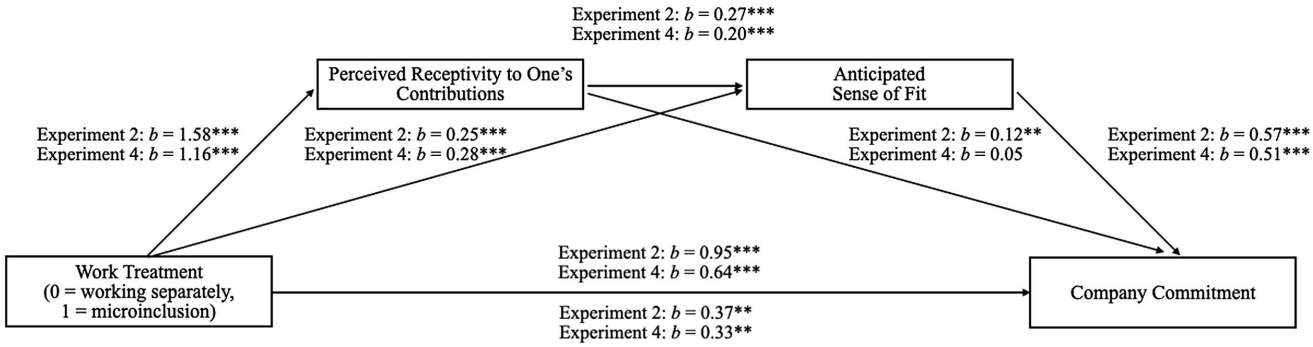
Socially warm treatment was also beneficial. These benefits, however, were smaller and, for company commitment, did not reach statistical significance. Even as social inclusion and general positive treatment are important for people's work experience (e.g., W. M. Hall et al., 2015; Holleran et al., 2011; Kanter, 1977), these results underscore the importance, at least for women in technology contexts, of how others receive their efforts to contribute to shared work goals. Thus, specific treatment that included women in the process of contributing to work (i.e., microinclusions) led to large gains in fit both when women experience socially warm treatment and when they experienced more neutral treatment.

Experiment 3: Does the Gender of the Source of the Microinclusion Matter?

Experiments 1 and 2 show that women's anticipated sense of fit is responsive to microinclusions from men. Would the same microinclusive treatment from a woman also enhance women's sense of fit? Certainly, positive experiences working with other women can be beneficial (Wu et al., 2022). Yet research suggests that men continue to function as "gatekeepers" in technology contexts and retain the power and status to create workplace cultures and define who belongs and can contribute (Akcinar et al., 2011; Cheryan & Markus, 2020). If so, their behavior may be particularly impactful. To test this question, Experiment 3 manipulated the

Figure 4

Indirect Effect of Microinclusions on Company Commitment Through Perceived Receptivity of Others to One's Contributions and Sense of Fit in Experiments 2 and 4



Note. For brevity, Figure 4 only depicts the sequential mediation for our primary independent variable of microinclusions. See online Supplemental Material for full results. On the path from the microinclusion condition to company commitment, the value above the arrow represents the direct effect, and the value under the arrow represents the effect of condition after controlling for the mediators.
** $p < .01$. *** $p < .001$.

gender of the source of microinclusive treatment. While we hypothesized that microinclusive treatment from either a man or woman would improve women's sense of fit at the company as compared to the working separately condition, we also hypothesized that the microinclusion from a man would provide the greatest benefits.

In addition to assessing participants' anticipated sense of fit, we also assessed how much women perceived the setting as a fit for another woman and for a man (see Walton & Cohen, 2007). If microinclusions convey that a work setting is simply more positive and supportive in general, then women may perceive a better fit for anyone else. If they convey that the setting is more positive and supportive for them personally, women may perceive a better fit only for themselves. But if, as we have theorized, microinclusive treatment mitigates the risk women face that their gender could be a basis of marginalization in technology settings, then microinclusive treatment from a man may increase the fit women perceive both for themselves and for another woman at the company, but not necessarily for a man. Last, while our focus remains on contexts with low representation of women, we included a higher representation condition to provide a benchmark comparison.

Method

Participants

One hundred ninety-seven women (28.40% racially minoritized group members; 18% graduate student or recent alumni; M_{age} = 20.21) from a Women in Engineering student organization and introductory psychology course participated. Results did not change when controlling for current student status (i.e., undergraduate, graduate, or alumni); therefore, analyses collapse across this factor. We stopped data collection after two academic terms and analyzed the data only upon completion of data collection. Most participants (73.10%) were either majoring or intending to major in technology-related discipline and all were highly math identified (i.e., above the midpoint on a 7-point Likert scale item, "It is important to me to do well in math"; 1 = *strongly disagree*, 7 = *strongly agree*; Spencer et al., 1999), a foundation for technology-related majors, in a prescreening survey. This sample provides 80% power to detect a small to medium effect size ($d = 0.48$) at $p < .05$. Participants were compensated with a $8 gift card or course credit.

Experiment Design and Procedures

Participants were randomly assigned to read one of four scenarios: (a) working separately in a low representation context, (b) microinclusion from a woman in a low representation context, (c) microinclusion from a man in a low representation context, or (d) working separately in a higher representation context. The first, second, and third conditions allowed us to examine the effects of a microinclusion from a woman versus a man in a low representation context relative to a control condition. The fourth condition allowed us to benchmark women's sense of fit in a low representation context to their sense of fit in a higher representation context (cf. Supplementary Experiment in online Supplemental Material).

In the first three conditions, the low representation of women at the company was operationalized as in the previous experiments. The higher representation condition depicted a greater proportion of women while still reflecting the reality that most people in leadership positions in technology and engineering are men (Google, 2022; Rangarajan, 2018). Half of the pictures of employees depicted were of women, and the text read, "Although most of the senior and technical leadership is male, early on you learn that there are a reasonable number of women in engineering positions like yours."

The working separately and microinclusion scenarios were identical to those used in Experiment 2 except that, in the microinclusion from a woman condition, the protagonist interacts with "Elizabeth" instead of "Evan." After the scenario, participants completed dependent variables.

Measures

Anticipated Sense of Fit, Perceived Receptivity to One's Contributions, and Quality of Work Relationships. Anticipated sense of fit (α = 0.95), perceived receptivity to one's contributions

(r = 0.80), and quality of work relationships (α = 0.92) were assessed using the same measures as Experiment 2.

Anticipated Fit of Another Woman and Man in the Company. After reporting on their own anticipated experiences, participants read profiles of "Sarah" and "Walter" with the order counterbalanced. Participants were told that both Sarah and Walter had recently received an offer to work at A-Tech and were considering the position. The profiles were constructed so Sarah and Walter had similar but not equivalent expertise. For example, Sarah had "interned for a couple of companies … where she contributed to several products as they moved from basic testing to release." Walter had "worked in an engineering lab on campus … [where] he developed an app and contributed to several lines of research."[3]

Participants then rated how much they believed Sarah/Walter would fit in at A-Tech along six items (e.g., "Do you think Sarah/Walter would fit in well at A-Tech?" "Do you think people at A-Tech would be interested in working with Sarah/Walter?" "Do you think that A-Tech is a company where Sarah/Walter has good prospects for success?") on 7-point Likert scales (e.g., 1 = *would not fit in at all well/not at all interested/not at all*, 7 = *would fit in extremely well/extremely interested/very much*). Items were averaged and combined into a single composite with higher scores indicating higher fit ($\alpha_{Sarah} = 0.90$; $\alpha_{Walter} = 0.90$). Participants were also asked if they would recommend each person accept the offer from A-Tech using a single item (1 = *not at all recommend*; 7 = *strongly recommend*).

Results

We first conducted analyses with the working separately/low representation context as our baseline to test the effect of microinclusions. We then recoded as necessary to test the full set of comparisons.

Anticipated Sense of Fit

Replicating past research (e.g., Murphy et al., 2007), absent information about interpersonal treatment, women anticipated a higher sense of fit in the higher as compared to low representation context, $t(193) = 2.20$, $p = .029$, $d = 0.32$, 95% CI [0.03, 0.60].

Relative to the working separately/low representation condition, the microinclusion from a man, $t(193) = 4.84$, $p < .001$, $d = 0.70$, 95% CI [0.41, 0.99], and the microinclusion from a woman, $t(193) = 3.26$, $p = .001$, $d = 0.47$, 95% CI [0.18, 0.75], increased women's anticipated sense of fit. While the effect of the microinclusion from a man was descriptively larger, the difference between the two microinclusion conditions did not reach significance, $t(193) = 1.52$, $p = .13$, $d = 0.22$, 95% CI [−0.06, 0.50].

Comparison to the higher representation condition was instructive. Women's anticipated sense of fit in the microinclusion from a man in the low representation context *exceeded* their anticipated sense of fit in the higher representation condition, $t(193) = 2.63$, $p = .009$, $d = 0.38$, 95% CI [0.09, 0.66]. Women's anticipated sense of fit in the microinclusion from a woman in the low representation context matched it, $t(193) = 1.08$, $p = .28$, $d = 0.16$, 95% CI [0.13, −0.44]. We, again, illustrate this result by examining women's anticipated sense of belonging at A-Tech and find the same pattern of results (see Figure 5). We also find the same pattern of results for self-efficacy (see online Supplemental Material, for means and statistical tests).

Perceived Receptivity to One's Contributions

As expected compared to the working separately in a low representation context, the microinclusion from a man increased women's perception of how receptive others would be to her contributions, $t(191) = 2.87$, $p = .005$, $d = 0.42$, 95% CI [0.13, 0.70]. This comparison was not significant for the microinclusion from a woman, $t(191) = 1.72$, $p = .09$, $d = 0.25$, 95% CI [−0.04, 0.53]. However, the difference between the two microinclusion conditions did not reach significance, $t(191) = 1.15$, $p = .25$, $d = 0.17$, 95% CI [−0.12, 0.45]. There was no difference between the low versus higher representation conditions, $t(191) = 1.34$, $p = .18$, $d = 0.19$, 95% CI [−0.09, 0.48]. We did not test for mediation in Experiment 3, as our sample size per condition cell did not provide enough power to reliably detect a medium effect size (Fritz & MacKinnon, 2007).

Anticipated Quality of Work Relationships

As expected and replicating Experiment 2, compared to working separately in a low representation context, the microinclusion from a man led women to anticipate higher quality work relationships, $t(193) = 4.19$, $p < .001$, $d = 0.60$, 95% CI [0.31, 0.89]. This was also the case for a microinclusion from a woman, $t(193) = 2.06$, $p = .041$, $d = 0.30$, 95% CI [0.01, 0.58], but to a lesser extent, as the difference between the two microinclusion conditions was significant, $t(193) = 2.13$, $p = .034$, $d = 0.31$, 95% CI [0.02, 0.59]. There was again no difference between the low and higher representation conditions, $t(193) = 0.56$, $p = .574$, $d = 0.08$, 95% CI [−0.20, 0.36].

Anticipated Fit of Another Woman and a Man in the Company

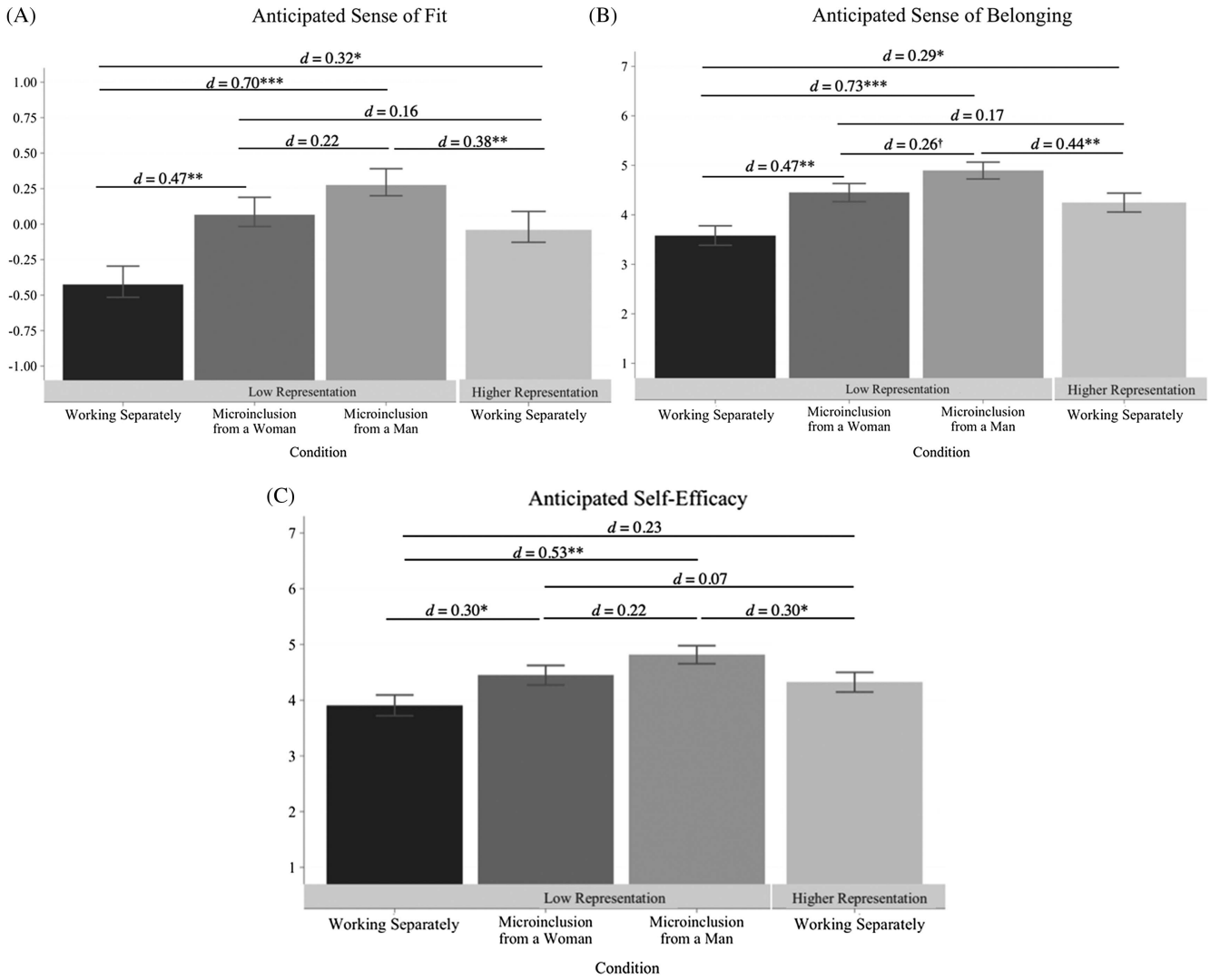
Did microinclusions convey to women that A-Tech was simply a more supportive environment in general? It does not seem so. Women perceived a strong fit for Walter at A-Tech across conditions and generally recommended that he accept an offer from the company. These outcomes did not vary comparing the low- versus higher representation of women conditions. Further, in the low representation context, women did not anticipate a greater fit for Walter nor recommend he accept an offer from the company more, with a microinclusion from either a woman or a man (see Table 4).

Did microinclusions, particularly from a man, allay a gender-based concern? Consistent with this hypothesis, this treatment led women to perceive a greater fit for specifically another woman at the company. As predicted, in the context of low representation, a microinclusion from a man increased both women's perception of

[3] To validate that the set of experiences between Sarah and Walter were similar and did not yield a difference in perceived fit, we recruited 95 Amazon MTurk workers to participate in a pilot study. In the pilot study, we replaced Sarah and Walter's names with "Person A" and "Person B." We then counterbalanced the set of experiences and associated each set with Person A and Person B in a 2 (qualifications: Set 1 vs. Set 2) × 2 (person's name in the profile: "Person A" vs. "Person B") within-subjects study design. After reading each profile, participants completed the same anticipated fit measures for Person A and Person B as in Experiment 3. There was no main effect of qualifications, no main effect of Person A versus B, nor an interaction on anticipated fit, $ps > .44$.

Figure 5

Anticipated Sense of Fit (A), Sense of Belonging (B), and Self-Efficacy (C) Results in Experiment 3



Note. In (A) the scale represents standard units. In (B) and (C), the *y*-axis represents the full scale. Error bars represent standard errors.
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$. $^{\dagger}p < .10$.

how much Sarah would fit in at A-Tech, $t(193) = 2.80$, $p = .006$, $d = 0.40$, 95% CI [0.12, 0.69], and how much women recommended that Sarah accept an offer from the company, $t(193) = 2.20$, $p = .03$, $d = 0.32$, 95% CI [0.03, 0.60]. By contrast, a microinclusion from a woman did not significantly raise the fit women anticipated for Sarah, $t(193) = 1.14$, $p = .256$, $d = 0.16$, 95% CI [−0.12, 0.45], nor increase their recommendation that she take the job, $t(193) = 1.56$, $p = .121$, $d = 0.22$, 95% CI [−0.06, 0.51]. The two microinclusion conditions differed marginally for perceived fit, $t(193) = 1.69$, $p = .092$, $d = 0.24$, 95% CI [−0.04, 0.53] but did not differ in regards to the recommendation to accept the offer, $t(193) = 0.61$, $p = .541$, $d = 0.09$, 95% CI [−0.19, 0.37].

Notably, women recommended Sarah accept the offer even more highly in the microinclusion from a man/low representation condition than in the higher representation condition, $t(193) = 2.01$, $p = .046$, $d = 0.29$, 95% CI [0.01, 0.57].

Finally, further suggesting the importance of fit, these outcomes were closely related, particularly for Sarah. The more women saw Sarah as fitting in at A-Tech the more they recommended she take the job, $r(195) = 0.76$, $p < .001$. Fully 57% of the variance in women's recommendation that Sarah accept the job was predicted by her perceived fit. The same correlation for Walter was, $r(195) = 0.56$, $p < .001$ (i.e., 26% of the variance explained).

Discussion

Experiment 3 yielded three important findings. First, we replicated the effect of microinclusive treatment from a man on women's anticipated sense of fit and the quality of work relationships women anticipated in a technology company.

Second, we found that a microinclusion from another woman in the company also increased women's sense of fit. The sense of fit

Table 4
Means for Additional Outcomes in Experiment 3

Outcome (scale ranges: 1–7)	Low representation of women		Higher representation of women	
	Working separately (n = 43)	Microinclusion from a woman (n = 49)	Microinclusion from a man (n = 57)	Working separately (n = 48)
Perceived receptivity to one's contributions	3.48 $(0.20)_{a}$	3.96 $(0.16)_{a,b}$	4.26 $(0.18)_{b}$	3.85 $(0.22)_{a,b}$
Anticipated quality of work relationships	3.67 $(0.19)_{a}$	4.11 $(0.11)_{b}$	4.54 $(0.14)_{c}$	3.79 $(0.14)_{a,b}$
Sarah's perceived fit	4.62 $(0.20)_{a}$	4.88 $(0.14)_{a,b}$	5.23 $(0.13)_{b}$	5.09 $(0.16)_{b}$
Recommend Sarah accept offer	4.47 $(0.28)_{a}$	4.96 $(0.18)_{a,b}$	5.14 $(0.19)_{b}$	4.54 $(0.23)_{a}$
Walter's perceived fit	6.02 $(0.11)_{a,b}$	5.72 $(0.12)_{a}$	6.11 $(0.10)_{b}$	5.79 $(0.11)_{a}$
Recommend Walter accept offer	5.23 $(0.20)_{a,b}$	5.33 $(0.14)_{a,b}$	5.68 $(0.14)_{a}$	5.21 $(0.20)_{b}$

Note. Means with different subscripts within row differ significantly, $ps < .05$. Standard errors in parentheses.

women reported in this condition was directionally less than when the microinclusion came from a man, but this comparison was not statistically significant. Future research may explore whether this difference is reliable with larger samples. However, from an applied perspective, it is significant that the effect of microinclusive treatment is robust both when coming from a woman and when coming from a man in male-dominated contexts.

Third, we found that microinclusions from a man led women to anticipate a greater fit for another woman in the company and to be more likely to encourage her to accept a job offer from it. Consistent with our theorizing that microinclusions can signal to women that their gender will not be a basis of marginalization at work, this effect was specific to another woman. There were no such gains in the anticipated fit of a man as, regardless of interpersonal treatment, women anticipated a strong fit for a man in the company and recommended that he accept its offer. Additionally, suggesting the particular importance of microinclusive treatment from men, the microinclusion from a woman did not significantly improve the fit women perceived for another woman in the company nor increase their encouragement that she accept its job offer.

In addition to its implications for theory, these findings begin to suggest how improved interactions for women at work, particularly with male coworkers, could accelerate the diversification of technology contexts. If companies can foster environments in which women either directly experience treatment from men that convey an inclusive stance toward women's contributions to shared work goals, not only may women's own work experience (e.g., sense of fit; Experiments 1–3) and commitment to the company improve (Experiment 2), they may also recommend the company more to other women (Experiment 3). In turn, new women employees who are recommended the company by current women employees may anticipate even greater fit at the company (see Johnson & Pietri, 2023) and, perhaps with time, creating a more gender-diverse company. Critically, these benefits can arise even in technology companies that are not yet gender diverse. They do so, we theorize, because microinclusive treatment remedies reasonable concerns women have when entering technology companies about whether others, especially men, will include them in core work processes, and thus if they will be able to contribute toward shared goals in the setting.

Experiment 4: Inferring One's Own Fit From Observing Another Woman's Experience

So far, we have shown that microinclusions increase people's and especially women's anticipated sense of fit in technology companies (Experiment 1), that this gain is notably larger compared to when women are treated warmly but not in ways that are specifically inclusive of their contributions to work goals (Experiment 2), that microinclusive treatment further gives rise to increased commitment to a company (Experiment 2), and that microinclusive treatment leads women to anticipate a better for and recommend the company more to another woman but not a man (Experiment 3).

Organizations are dynamic contexts in which people draw lessons not only from their own experiences but also from the experiences of other people they observe (Bandura, 1977; Gweon, 2021). Past research shows that observing coworkers receive uncivil work treatment can undermine well-being (Miner & Cortina, 2016). Conversely, research on collective threat finds that observing another in-group member behave in a way that could confirm a negative stereotype about one's group can elicit threat (Cohen & Garcia, 2005; Shapiro et al., 2013).

Extending Experiments 1–3, in Experiment 4, we examine the effect of observing a man or woman coworker receive microinclusive treatment at work. We hypothesized that, even as women may anticipate a greater sense of fit if they observe a male coworker receive a microinclusion, they may show an even larger effect if they see a woman receive this treatment. Observing another woman receive a microinclusion may imply not only that people take a positive stance toward others' contributions in general at the company but that they do so specifically toward women's contributions. If so, observing another woman receive a microinclusion may also reduce anticipated feelings of stereotype threat.

Method

Participants

In Experiment 4, we broadened our recruitment beyond the United States to include women working in the IT or STEM work sectors in both the United States and the United Kingdom on Prolific. We stopped data collection after 352 responses and analyzed the data only upon completion, not during data collection. Nine participants did not complete the manipulation materials and were dropped from the sample. Data from three participants was recorded twice in the survey. Therefore, we only retained the first set of responses from these participants, reducing our total sample to 340 (11.47% racially minoritized group members; M_{age} = 34.53; 74.71% United Kingdom). Country was not a consistent covariate, nor did its inclusion alter the pattern of results; thus, the results presented here do not control for this factor. This sample provides

80% power to detect a small to medium effect size ($d = 0.36$) at $p < .05$. Participants were compensated the equivalent of $9.52/hr.

Experimental Design and Procedures

Participants were randomly assigned to read a one-page scenario in a 2 (target gender: man vs. woman) × 2 (work treatment: working separately vs. microinclusions) between-subjects design. The scenarios were the same as the microinclusion and working separately scenarios in Experiment 2 except that, instead of imagining their own experience, participants imagined another person's. The scenario began, "A-Tech has a program for all new employees, where you follow someone on your team through the day during your first week at A-Tech." Participants were told that they were paired with either "Justin" (man target condition) or "Elizabeth" (woman target condition). As in Experiment 2, the scenario in Experiment 4 represented A-Tech as having a low representation of women in all conditions.

Measures

Anticipated Sense of Fit, Perceived Receptivity to One's Contributions, Anticipated Quality of Work Relationships, and Company Commitment. Anticipated sense of fit (α = 0.96), perceived receptivity to one's contributions ($r = 0.84$), anticipated quality of work relationships (α = 0.95), and company commitment were assessed using the same measures as Experiment 2.

Anticipated Stereotype Threat. We assessed the level of stereotype threat participants anticipated based on their gender using four items (e.g., "In engineering at A-Tech, I would worry that people would draw conclusions about my gender based on my performance," Cohen & Garcia, 2005) on 7-point Likert scales (1 = *strongly disagree*; 7 = *strongly agree*). Items were averaged and combined into a composite with higher scores indicating greater anticipated stereotype threat (α = 0.96).

Results

We again created a set of dummy codes to test the main effect of gender target (0 = man; 1 = woman), work treatment (0 = working separately; 1 = microinclusion), and the interaction. We then recoded as necessary to test the full set of comparisons. See Table 5 for means and standard errors.

Anticipated Sense of Fit

There were main effects of microinclusive treatment, $F(1, 336) = 83.51$, $p < .001$, $d = 1.00$, 95% CI [0.77, 1.22], and target gender, $F(1, 336) = 10.20$, $p = .002$, $d = 0.35$, 95% CI [0.13, 0.56]. Importantly, the predicted interaction was significant, $F(1, 336) = 17.31$, $p < .001$, $d = 0.45$, 95% CI [0.24, 0.67]. Compared to the working separately conditions, women's anticipated sense of fit increased when women observed either Elizabeth, $t(336) = 9.14$, $p < .001$, $d = 1.00$, 95% CI [0.77, 1.22], or Justin, $t(336) = 3.18$, $p = .002$, $d = 0.35$, 95% CI [0.13, 0.56] receive a microinclusion. However, observing Elizabeth receive a microinclusion led to a greater anticipated sense of fit than observing Justin receive a microinclusion, $t(336) = 2.69$, $p = .007$, $d = 0.29$, 95% CI [0.08, 0.51]. The pattern of results was similar on anticipated sense of belonging and self-efficacy (see Figure 6).

Perceived Receptivity to One's Contributions

There was a main effect of microinclusive treatment, $F(1,335) = 79.10$, $p < .001$, $d = 0.97$, 95% CI [0.74, 1.20], no main effect of target gender, $F(1, 335) = 2.42$, $p = .12$, $d = 0.17$, 95% CI [−0.04, 0.38], and a significant interaction, $F(1, 335) = 16.95$, $p < .001$, $d = 0.45$, 95% CI [0.23, 0.67]. Women anticipated that other people would be more receptive to their contributions when they observed Elizabeth receive a microinclusion than when they observed Justin receive one, $t(335) = 4.26$, $p < .001$, $d = 0.47$, 95% CI [0.25, 0.68].

Test of Mediation

We again conducted a mediational analysis with 5,000 bootstrapped samples. As in Experiment 2, there was an indirect effect of microinclusive treatment (0 = working separately; 1 = microinclusions) on anticipated sense of fit through the perception of others' receptivity toward contributions, $z = 6.59$, $p < .001$, indirect effect = 0.24, 95% CI [0.17, 0.31].

Anticipated Quality of Work Relationships

There were main effects of microinclusive treatment, $F(1, 335) = 89.35$, $p < .001$, $d = 1.00$, 95% CI [0.78, 1.22], target gender, $F(1, 335) = 11.61$, $p = .001$, $d = 0.36$, 95% CI [0.15, 057], and a significant interaction, $F(1, 335) = 19.60$, $p < .001$, $d = 0.47$, 95% CI [0.26, 0.68]. Women anticipated better work relationships when they observed Elizabeth than Justin receive a microinclusion, $t(335) = 2.86$, $p = .005$, $d = 0.31$, 95% CI [0.10, 0.53].

Company Commitment

There was a main effect of microinclusive treatment, $F(1, 335) = 38.78$, $p < .001$, $d = 0.66$, 95% CI [0.45, 0.87], a marginal main effect of target gender, $F(1, 335) = 3.44$, $p = .065$, $d = 0.20$, 95% CI [−0.01, 0.41], and a significant interaction, $F(1, 335) = 5.60$, $p = .019$, $d = 0.25$, 95% CI [0.04, 0.46]. Although the gain in commitment to the company among women who observed Elizabeth

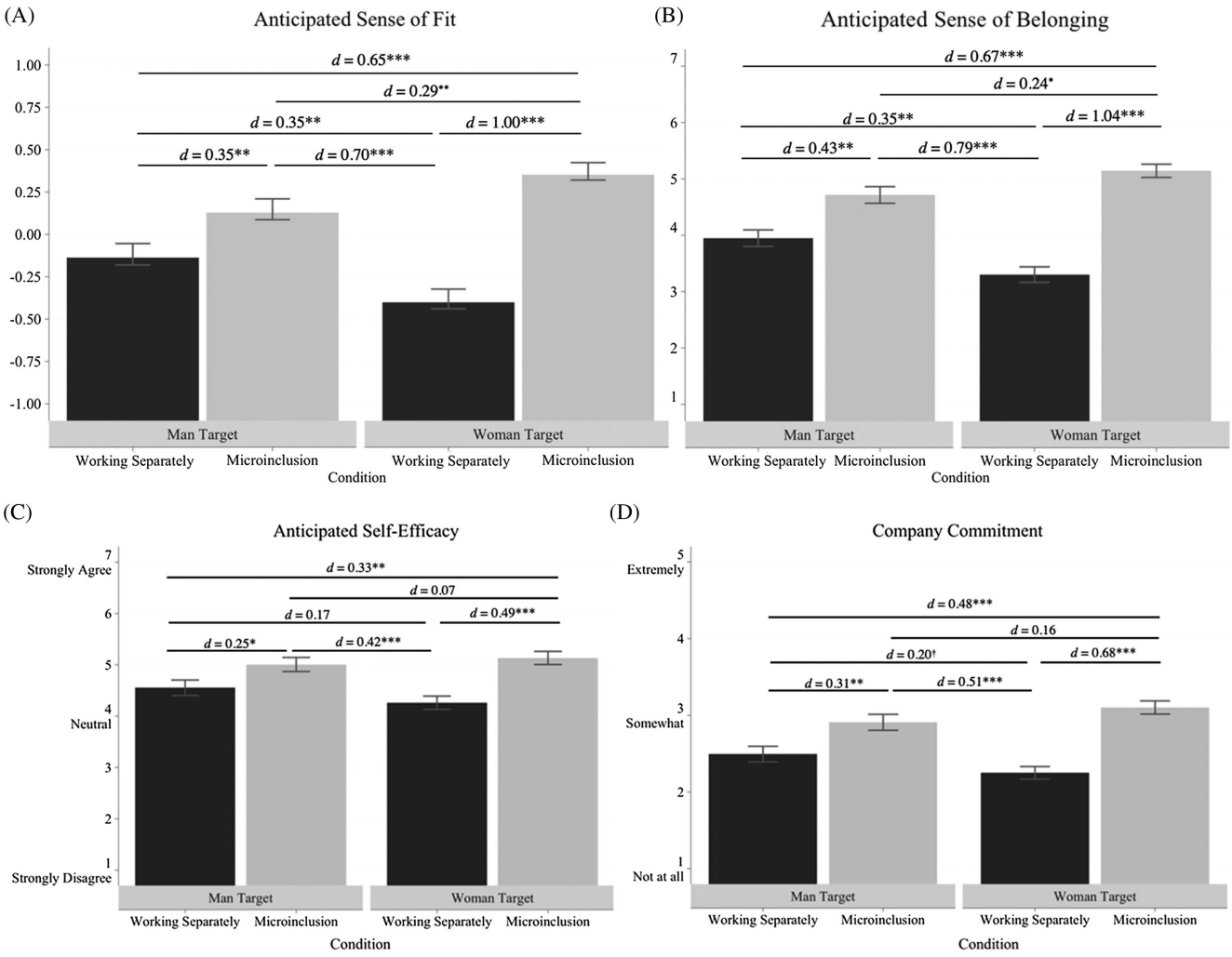
Table 5
Means for Additional Outcomes in Experiment 4

Outcome (scale range: 1–7)	Man target		Woman target	
	Working separately	Microinclusion	Working separately	Microinclusion
Perceived receptivity to one's contributions	$3.68\ (0.13)_a$	$4.26\ (0.15)_b$	$3.38\ (0.13)_a$	$5.09\ (0.13)_c$
Anticipated quality work relationships	$3.98\ (0.12)_a$	$4.47\ (0.15)_b$	$3.38\ (0.13)_c$	$4.96\ (0.13)_d$
Stereotype threat	$4.85\ (0.16)_{a,b}$	$4.90\ (0.17)_a$	$5.26\ (0.13)_a$	$4.41\ (0.18)_b$

Note. Means with different subscripts within row differ significantly, $ps < .05$. Standard error in parentheses.

Figure 6

Anticipated Sense of Fit (A), Sense of Belonging (B), Self-Efficacy (C), and Company Commitment (D) by Condition in Experiment 4



Note. In (A) the scale represents standard units. In (B), (C), and (D) the *y*-axis represents the full scale. Error bars represent standard errors.
† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

receive a microinclusion versus not, $t(335) = 6.23$, $p < .001$, $d = 0.68$, 95% CI [0.46, 0.90], was more than twice as large as the gain among women who observed Justin receive a microinclusion or not, $t(335) = 2.81$, $p = .005$, $d = 0.31$, 95% CI [0.09, 0.52], the difference between women who observed Elizabeth versus Justin receives a microinclusion did not reach significance, $t(335) = 1.50$, $p = .14$, $d = 0.16$, 95% CI [−0.05, 0.38].

We again conducted an exploratory analysis to test for a sequential indirect effect of microinclusions on company commitment through the perceived receptivity of others to one's contributions and sense of fit. As in Experiment 2, the sequential indirect effect was significant, $z = 3.88$, $p < .001$, indirect effect = 0.12, 95% CI [0.06, 0.18]. See Figure 4 and online Supplemental Material.

Anticipated Stereotype Threat

There was a main effect of microinclusive treatment, $F(1, 335) = 13.89$, $p < .001$, $d = 0.40$, 95% CI [0.19, 0.61]; a marginal main effect of target gender, $F(1, 335) = 3.29$, $p = .070$, $d = 3.29$, 95% CI [−0.02, 0.40]; and a significant interaction, $F(1, 355) = 7.65$, $p = .006$, $d = 0.29$, 95% CI [0.08, 0.50]. As expected, women who observed Elizabeth receive a microinclusion anticipated experiencing less stereotype threat at A-Tech compared to women who observed Elizabeth working separately, $t(335) = -3.73$, $p < .001$, $d = -0.41$, 95% CI [−0.62, −0.19]. This effect was not present among women who observed Justin, $t(335) = 0.21$, $p = .83$, $d = 0.02$, 95% CI [−0.19, 0.24]. Moreover, observing Elizabeth receive a microinclusion led to less anticipated stereotype threat than observing Justin receive one, $t(335) = -2.10$, $p = .037$, $d = -0.23$, 95% CI [−0.44, −0.01].

Discussion

Experiment 4 showed that merely observing another woman receive microinclusive treatment in a technology context also increased women's sense of fit, their perception that coworkers

would be receptive to their contributions, the anticipated quality of their work relationships, and their commitment to the company. This observation also led women to worry less about experiencing stereotype threat. While observing a man receive a microinclusion led to some of these improvements, these effects were smaller as reflected in significant Target Gender × Microinclusion Condition interactions and did not arise at all for gender-related anticipated stereotype threat, as predicted. The results are consistent with our theorizing that observing another woman receive microinclusive treatment conveys to women not only that the company is a place where people invite, allow, and help others contribute in general but also that others specifically include women as contributions in the work process.

Meta-Analysis

To summarize the effect of experiencing (Experiments 1–3; Supplementary Experiment) or observing (Experiment 4) a microinclusion from a man on women's anticipated sense of fit in technology companies with low numerical representation of women, we conducted a meta-analysis across all the experiments (see Figure 7).

The meta-analysis reveals two important findings. First, results show that microinclusive treatment significantly increased women's sense of fit relative to the control conditions across experiments, $z = 27.44$, $p < .001$, $d = 1.08$, 95% CI [1.00, 1.15]. Second, the results show large and consistent effects of microinclusive treatment on women's sense of fit across a variety of populations (i.e., real-world technology company employees, IT/STEM professionals, and advanced engineering college students).

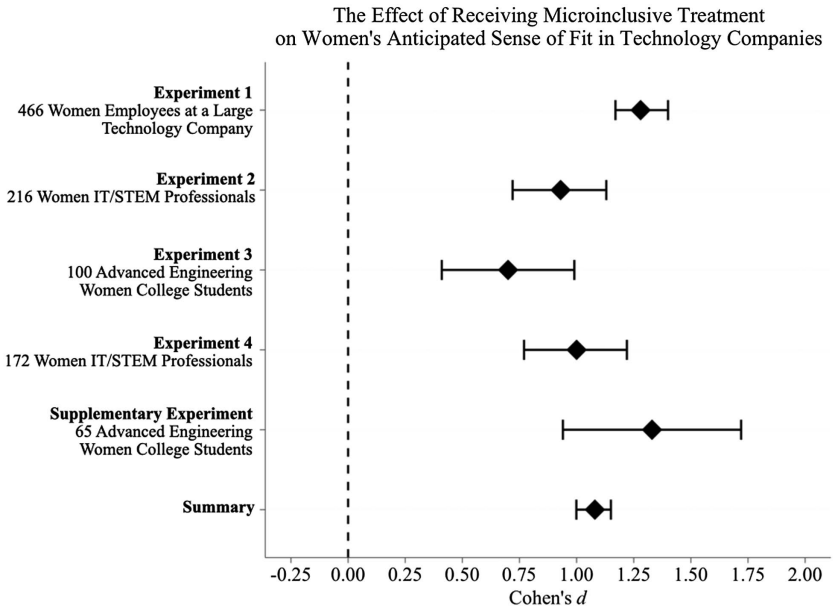
General Discussion

We theorized that a foundation of people's sense of fit in work settings is the stance others take toward their efforts to contribute to core work processes, namely whether they are treated as respected work partners, recognized as able to contribute toward shared goals, and valued and supported in doing so. Yet when people enter new professional settings, particularly settings where their group is or has been underrepresented or negatively stereotyped, they may be unsure whether coworkers will be receptive to their contributions. Focusing on women in technology contexts, we found that, consistent with this theorizing, microinclusive treatment that directly conveyed an inclusive stance toward one's contributions caused large increases in the sense of fit both women and men anticipated at a technology company. Yet even as microinclusions were beneficial for everyone, they were most beneficial for women, who have reason to worry that their contributions could be marginalized in technology contexts (Experiment 1).

The increase in women's anticipated sense of fit with microinclusions was robust across several contextual factors. It was found both among women working at a technology company considering a new team (Experiment 1), among women employed in the IT or STEM work sectors considering a new employer (Experiments 2 and 4), and among women in college contemplating

Figure 7

Meta-Analysis of Microinclusion Effects in Technology Companies With a Low Numerical Representation of Women Across Experiments



Note. Control conditions represent either the neutral (Experiment 1), working separately (Experiments 2 and 3), observing another woman working separately (Experiment 4), or microexclusion (Supplementary Experiment) scenarios that depicted the technology company with a low numerical representation of women. Sample size represents the number of participants in the two compared conditions. Bars represent 95% confidence intervals. IT = information technology; STEM = science, technology, engineering, and mathematics.

a potential technology employer (Experiment 3). The gains were also robust compared to multiple control conditions, including both microexclusion conditions (Experiment 1; Supplementary Experiment) and neutral and working separately control conditions (Experiments 1–4 and meta-analysis). They also arose both in contexts where women were poorly represented (Experiments 2–4; Supplementary Experiment) and in contexts where women were better represented (Supplementary Experiment). Furthermore, consistent with theorizing about the importance of fit in work contexts, microinclusions also increased women's commitment to the company, an effect mediated by their greater sense of fit (Experiments 2 and 4).

In addition, the results shed light on psychological process. First, the gains in women's sense of fit were consistently mediated, as predicted in our theory, by women's perception that others would be more receptive to their contributions to shared work goals (Experiments 2 and 4). Second, illustrating the specificity of the concern women face about opportunities to contribute, socially warm treatment, which did not specifically include women in work processes per se, did not produce the same gain in women's sense of fit (Experiment 2). Third, multiple streams of evidence suggest that microinclusive treatment remedied gender-based concern about marginalization: (a) the observed gains in fit were greater for women than for men in a technology company (Experiment 1); (b) women inferred when they received microinclusive treatment from a man that another woman would fit well at the company, but such treatment did not affect the fit they anticipated for a man (Experiment 3); (c) women inferred a greater fit at a company merely from observing another woman's receipt of microinclusive treatment, but not from observing a man's receipt of microinclusive treatment (Experiment 4); and (d) observing another woman receive microinclusive treatment also reduced the degree to which women worried about stereotype threat at the company (Experiment 4). Taken together, these findings suggest that microinclusive treatment of a woman, especially from a man, mitigates the concern among women that women in general will be marginalized in technology contexts as a consequence of their gender identity.

From a theoretical perspective, these findings extend our understanding of classic social identity threat and belonging research. In demonstrating the responsiveness of women to an inclusive-stance men can take toward women's contributions to core work processes, our research suggests that people who face negative stereotypes and underrepresentation in work contexts are not simply fearful that they or their group could be marginalized, judged stereotypically, or socially excluded in these settings. They are thus not just vigilant to negative cues that could confirm these fears (Cohen & Garcia, 2008; Steele et al., 2002; Walton & Cohen, 2007). They are also hopeful that they will be received and treated in ways that will allow them to work toward the shared goals in the setting and, thus, responsive to positive cues in treatment from others that could confirm this opportunity.

A second important implication is to draw a tight line between employees' sense of fit and their productivity. Sometimes, the quality of employees' experiences and their sense of fit are seen as separate from or just loosely related to their productivity, as though the former is mostly a matter of inclusion in social events or having the right employee interest groups. Yet if people's sense of fit varies directly as a function of whether they believe that others will be receptive to and value their contributions to core work processes, then when employees report lower levels of fit, it may signal inefficiency and missed opportunities for the company: that social dynamics are preventing some employees from contributing as they could to the company's core mission. Conversely, efforts to change workplaces to ensure that all can contribute may promote greater productivity and, hand-in-hand, a greater sense of fit and greater commitment to the company among employees.

Limitations and Future Directions

A primary goal of the present work was to introduce microinclusions and examine their immediate effects on women's anticipated sense of fit. Therefore, we tested a specific form of microinclusions using primarily scenario experiments. This allowed us to obtain large samples of an underrepresented and difficult-to-reach population, provided a high level of experimental control, revealed large and consistent effects, and allowed us to examine potential boundary conditions. While this approach establishes a clear conceptual foundation, it does not itself explore the nature, contexts, and variability in microinclusions. These mark important directions for future research.

Drawing on the pilot experiments, one direction is to further explore the behavioral consequences of microinclusions during interpersonal interactions. For instance, women participants and a male confederate could each work on a STEM task, manipulating whether the confederate recognizes, values, and supports the participant's contributions to a shared goal (microinclusion condition) or signals that they see themselves simply as working separately (control condition). Ideally, such studies will be carefully designed to isolate the effect of this treatment, as opposed to other factors that may covary with it (such as being in the same room, jointly working on a task, or sharing outcomes; see Carr & Walton, 2014). In addition to psychological measures (e.g., sense of fit in the context, feelings of working together with the confederate), such experiments may examine behavioral outcomes, including indices of intrinsic motivation such as women's freely chosen persistence or choice to do similar tasks in the future or their choice and enthusiasm to work with the confederate going forward. It may also be important to explore in such studies whether the man's microinclusive treatment appears freely chosen and sincere or coerced, a product only of social and procedural pressures, and/or performative (Kutlaca & Radke, 2023), and how this affects women's responses. Such studies may also test whether similar treatment from a woman produces similar effects or not, and the conditions that affect this.

Another particularly important direction for future research is understanding the psychology of men that shapes their treatment of women in STEM. The present work highlights the potential for specific patterns of behavior among men to improve women's work experience and, potentially, the productivity of teams in technology work contexts, namely behavior that includes women in substantive work processes. What prevents such inclusive behavior from men and how can we elicit it, particularly in male-dominated fields with prominent gender stereotypes? Recent research shows that men are more likely to engage in allyship behaviors when they see other men engage in such behaviors (De Souza & Schmader, 2022; see also Murrar et al., 2020). However, both past research and the present findings suggest that inclusive treatment and allyship behaviors are not always the norm for women's experience in

STEM (e.g., Knowlton et al., 2022; Meadows & Sekaquaptewa, 2011, 2013; Swim et al., 2001). For instance, in Experiment 1, women reported lower levels of fit at a technology company than men, anticipated less fit in a new work team described in a neutral manner and, as compared to men, perceived microexclusions as more realistic and microinclusions as less realistic. In combination with our experimental results showing the casual consequences of this treatment, it becomes imperative to shift men's behaviors to be more supportive and inclusive of women during shared goal pursuits.

One cause of microexclusive treatment of women in technology and other STEM contexts may be implicit gender stereotypes (e.g., Moss-Racusin et al., 2012; Schmader, 2023; Sekaquaptewa, 2019). To combat these implicit gender stereotypes, organizations have implemented initiatives such as diversity trainings and workshops. Yet, these initiatives often fall short. First, efforts to train bias out of people have typically yielded effects that are limited and short-lived at best (Lai et al., 2016; Onyeador et al., 2021; Pietri et al., 2019). For example, even if diversity trainings lead to positive changes in attitudes toward diversity, they may not consistently change behavior over time (E. H. Chang, Milkman, et al., 2019; see also L. M. Leslie, 2019). Second, emphasizing bias may risk reifying counterproductive norms or shaming men and producing defensive responses (Campbell et al., 2023; Carr et al., 2012; Goff et al., 2008). Third, the mere presence of diversity initiatives may lead employees to falsely presume an organization is fair when some employees still face marginalization and discrimination (Dover et al., 2020; Kaiser et al., 2013).

Instead, it may be helpful to "sideline bias" (Okonofua, Harris, & Walton, 2022), that is, to reduce the hold that bias can have on men's behavior by elevating positive aspects of men's self-identity for which bias would be incompatible, such as an ideal professional self. Given the importance of social norms for men's treatment of women (De Souza & Schmader, 2022), one may begin by establishing, conveying, and reinforcing community norms of inclusion and positive and mutually supportive interactions during goal pursuit (Murrar et al., 2020). Such representations may include dynamic norms that represent an increasing commitment to positive treatment (Schuster et al., 2023; Sparkman & Walton, 2019). For instance, laboratory or field studies may recruit teams of men and women engineers and randomize them to watch a video of an engineering team that manifests microinclusive interactions and/or explicitly advocates for this way of interacting as a norm and makes progress toward it, or to a control video. One could further appeal to men's (and women's) professional identity as exemplary coworkers and managers (cf. Grant & Hofmann, 2011), such as by sharing stories of admirable individuals who exemplify microinclusive treatment of both women and men at work and by inviting people to describe how they enact these values in their own interactions with colleagues in the form of advice for less experienced employees. If participating teams then took on a challenging STEM task, would teams exposed to a microinclusion norm exhibit more microinclusions, perhaps supporting team members' learning more effectively, recognizing team members' contributions more, and building more effectively on each other's ideas? Will such benefits be greatest for women in interactions with men? Will they produce greater team performance as a whole?

This approach aims to provide a clear representation of an ideal pattern of behavior, to represent it as normative, and to invite people (who may or may not be behaving in this way) to describe how they do or could realize this ideal. Past research illustrates the potential for approaches like this to prevent biased behavior including among teachers (Okonofua et al., 2016; Walton et al., 2021), parole officers (Okonofua, Goyer, et al., 2022), and professional advertisers (Tan et al., 2023). By evoking and helping people articulate positive goals and aspects of self-identity for which bias is not functional, we can displace biases as drivers of behavior, help people realize their professional ideals, and improve the experiences of those with whom they interact.

A third important direction for future research is to examine the effect of microinclusions that occur organically in organizational settings and the impact of microinclusive treatment over time for women's experiences (W. M. Hall et al., 2015, 2018, 2019; Walton et al., 2015). Using correlational daily diary methods with real-world work teams, researchers could ask employees to describe their daily interactions and test whether microinclusive treatment predicts greater work satisfaction, interest, and lower job burnout or turnover intentions (W. M. Hall et al., 2015). Furthermore, it will be particularly informative (for understanding causality) and consequential (for improving practice) if we can use experimental methods to facilitate more inclusive patterns of behavior from men in work settings and track benefits for women. Multiple studies have shown that even brief psychologically "wise" interventions, including strategies to sideline bias, can cause gains over months and years by improving patterns of social interaction and, thus, social relationships in ways that become self-reinforcing (Walton & Wilson, 2018). If we implement strategies to sideline biases in men and promote microinclusions early in a work setting, would this facilitate the inclusion of women in the core processes through which teams work together and, in turn, allow powerful recursive processes of better interpersonal dynamics, stronger work relationships, and greater learning and commitment to take hold, improving trajectories for women, teams, and companies?

A complexity in carrying out such field research is the dynamic nature of many modern work environments, including in technology contexts, where people often work with multiple teams for short times (e.g., the median length of employee tenure at the technology company for participants in Experiment 1 was 1.9 years). One way to conduct this research would be to identify male employees who are central or visible within the social and work networks in a company and randomize them to condition. Then, using social-network analyses, researchers could test whether women's level of exposure to men randomized to treatment versus control predicts a more positive experience, greater performance, and/or a longer tenure at the company over time (cf. Paluck et al., 2016).

In the present research, we have emphasized the fundamental point that microinclusive treatment conveys that coworkers are receptive to, value, and support one's contributions to shared goals at work. But in practice, this can mean many different things, and this may vary across work contexts. For example, for an employee who is new at a company, a microinclusion might mean providing the necessary tools, resources, and opportunities for them to learn so they can carry out their new role well. For an employee who has made a substantive contribution to an ongoing project, a microinclusion might mean recognizing that contribution, crediting them for it, and then critiquing, building on, or incorporating that contribution with work from others. Future research may explore the specific microinclusive acts that will be most impactful in

specific contexts. Comparisons with education contexts, which are also organized around goal pursuit but where the overarching goal typically involves learning not performance, may be informative. In education, when pejorative stereotypes imply that some students are less capable of learning than others, treatment that affirms that one is seen as having the potential to learn can be particularly important (Park et al., 2018, 2023; Yeager et al., 2014). Indeed, classrooms organized around growth and learning, rather than performance and evaluation, elicit greater performance, smaller inequalities, and higher belonging (Canning et al., 2022; Good et al., 2012; Hecht et al., 2023). However, there are many ways to create classrooms organized around growth, including changes to interpersonal communications, pedagogy, and evaluation (Trzesniewski et al., 2021). Similarly, there will be many ways to organize work contexts to elicit, value, and support contributions from everyone.

Another important question involves the nature and effect of microinclusions for other groups that may be marginalized in work settings, such as nonbinary individuals, people of color, or people with various intersectional identities. While in general, we theorize that inclusive treatment will be impactful for these groups, it may also be important to value the unique contributions particular groups may provide to ongoing work processes that draw from their group identity (e.g., how people with specific disabilities would design particular products; see Bauer & Walton, in press; Silverman et al., 2023). It is also important to recognize the potential limits of inclusive interpersonal behavior in work contexts. Such behaviors always occur in the context of broader institutional structures, including varying company policies and structures (Cheryan & Markus, 2020; Colquitt, 2001; W. Hall et al., 2018, 2022). If other structures in a company functionally deny women or others the opportunity to contribute—whether as a consequence of general disorganization, inefficient or biased distribution of work assignments, issues of pay equity, sexist promotion practices, or inadequate family leave policies—even the most inclusive treatment from peers and managers will not matter. Even if women draw initial confidence from such treatment in their opportunity to contribute, if the broader context does not afford women this opportunity, that inference is unlikely to stick (see Walton & Yeager, 2020).

Finally, future research may further inform psychological process. Past research has literally put vigilance to cues that could confirm or disconfirm identity threat at the center of process models (e.g., Cohen & Garcia, 2008). However, people are also responsive to positive events in settings in which their identity is potentially at risk (Brannon & Lin, 2021; W. Hall et al., 2018). Even a single instance of treatment that signals support for growth and belonging can matter (see also Park et al., 2018, 2023; Yeager et al., 2014). It is not clear if this responsiveness is best understood in terms of "vigilance" or another process. Future research could examine, for instance, processes such as attention and recall to compare how people make sense of patterns of interpersonal treatment that either confirm fears (e.g., microexclusions) or affirm hopes (microinclusions).

Conclusion

Psychologists have typically understood goal pursuit as an individual activity. Yet many of the most important goals people pursue are invariably interdependent (Fitzsimons et al., 2015; Fitzsimons & Finkel, 2018). One cannot build a business, forge a scientific discovery, or advance culture alone. Therefore, teams of people come together to accomplish these goals, building companies and other organizations to do more than one person can alone, along with legal structures that define and support these collectives and social norms that support coordinated goal pursuit (Kalkstein et al., 2023). It is unsurprising, then, that, at a psychological level, people have powerful mechanisms that facilitate personal motivation for goals pursued jointly with others (Carr & Walton, 2014; Kozlowski & Ilgen, 2006; Tomasello et al., 2005). Conversely, when people feel excluded from or marginalized in important goal-pursuit processes, their experience and motivation suffer (Baumeister et al., 2001; W. Hall et al., 2019; Holleran et al., 2011; Williams & Sommer, 1997). The present research suggests that how we treat each other as we work toward shared goals at work directly affects our experiences. The critical next question is how to create the mindsets, practices, and cultures that will help organizations reliably foster work environments in which everyone can contribute.

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Correction to "Digital Traces of Offline Mobilization" by Smith et al. (2023)

The following article is being corrected: Smith, L. G. E., Piwek, L., Hinds, J., Brown, O., & Joinson, A. (2023). Digital tracs of offline mobilization. *Journal of Personality and Social Psychology: Attitudes and Social Cognition*, *125*(3), 496–518. https://doi.org/10.1037/pspa0000338. Cangxiong Chen is added as the fifth author in the byline and author note. Cangxiong Chen's ORCID ID is now included in the author note. The CRediT paragraph in the author note now includes Cangxiong Chen's supporting role for the article. The first sentence of the Hypotheses section has been revised. The phrase Good Morning has been deleted from the first paragraph of the Descriptives subsection of Study 1b. The online version of this article has been corrected.

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