PRECONSCIOUS ATTENTIONAL BIAS TO REJECTION FACILITATES SOCIAL DISTANCING FOR WHITE WOMEN IN STEM CONTEXTS

Kimberly E. Chaney
University of Connecticut

Science, technology, engineering, and mathematic (STEM) contexts are imbued with identity-threat cues for women, leading to disengagement. Research on the vigilance-avoidance hypothesis suggests that individuals rapidly detect threat cues and subsequently avoid detected threats to mitigate experiencing the negative implications associated with the threat. Integrating these lines of research, the present research examined White women's preconscious attentional bias to rejection (PAB-R) and avoidance behavior (social distancing) in STEM contexts after exposure to identity-threat and identity-safety cues compared to neutral conditions. White women's PAB-R was significantly greater in response to identity-threat cues and significantly decreased in response to identity-safety cues. Moreover, greater PAB-R led to greater social distancing (Studies 1b and 2). The present studies identified PAB-R as a novel, automatic process by which identity cues were associated with avoidance for women in STEM.

Keywords: attentional bias, social distancing, vigilance, identity threat, STEM

Members of stigmatized social groups are attuned to cues within environments that signal to them whether or not they will be devalued in the context because of their stigmatized social identity (i.e., identity cues; Davies et al., 2005). As academic environments such as science, technology, engineering, and mathematic (STEM) fields are strongly associated with White men (e.g., Cheryan et al., 2011; Emerson & Murphy, 2014; Murphy et al., 2018), women are likely to scan STEM environments to detect identity cues, cues that indicate whether or not women may be devalued for their gender (Steele et al., 2002). Vigilance, or attentional bias, to identity-threatening cues (i.e., cues signaling one's identity will be tied to

---

negative outcomes) is an involuntary coping response to monitor for, anticipate, and avoid future discrimination by changing one's behavior (Hicken et al., 2013; Major & O'Brien, 2005) and occurs automatically and rapidly (Kaiser et al., 2006). Yet, research to date has not examined women's vigilance to threatening cues in identity-threatening (or identity-safe) STEM contexts.

Because frequently engaging in discrimination-related vigilance can increase stress and deplete cognitive resources (Clark et al., 2006; Himmelstein et al., 2015; Major & O'Brien, 2005), and vigilance to identity threats may contribute to women exiting STEM fields to avoid future discrimination (e.g., Lewis et al., 2016), the present research sought to examine women's vigilance to rejection in STEM contexts. As women remain highly underrepresented in many STEM fields (e.g., engineering, computer science; National Science Foundation, 2019), and identity-threat cues signal to women that they do not belong in STEM (Cheryan et al., 2009; Good et al., 2012), diminishing women's motivation (Stout et al., 2011) and leading to psychological burnout (W. M. Hall et al., 2015), the present research sought to identify a novel theoretical pathway by which identity-threat cues contribute to women's underrepresentation in STEM. Moreover, while much research on vigilance to identity cues has been conducted with self-reports, assessing vigilance is perhaps more appropriately measured via cognitive measures such as a dot-probe paradigm (Bar-Haim et al., 2007; MacLeod et al., 1986; Williams et al., 1996), providing insight into the automaticity of vigilance. As such, the present research also sought to provide a novel methodological advancement to the study of vigilance to discrimination, by operationalizing vigilance to rejection as preconscious attentional bias to cues of rejection (PAB-R).

PRECONSCIOUS ATTENTIONAL BIAS

Identity cues serve as indicators of prejudice expectations, and individuals who anticipate greater prejudice demonstrate increased attention (i.e., vigilance) to further cues of potential devaluation (Kaiser et al., 2006; Major et al., 2002; Miller & Kaiser, 2001; Steele et al., 2002). For example, after exposure to gender stereotypical commercials women demonstrated greater attention to gender stereotype words (Davies et al., 2002, 2005). Similarly, women anticipating an interaction with a sexist man demonstrated greater *preconscious* attention to sexism words (i.e., words that were presented subliminally, for 15 ms) than non-sexism threatening words (e.g., cancer; Kaiser et al., 2006). Moreover, past research on women under identity threat has demonstrated that neural networks critical to attention are biased toward negative, stereotype-confirming feedback, which can ultimately undermine later performance (Forbes & Leitner, 2014), providing evidence of attentional bias during identity threat in a testing scenario. Together, this research suggests that stigmatized individuals are prone to automatically attend to identity-threat cues and such attentional bias has been captured at preconscious levels.

While the above research focused on vigilance to indicators of, for example, sexism, the present research focused on vigilance to *rejection.* Notably, feeling that one does not belong has been identified as a key component of women avoiding or

exiting STEM fields (Cheryan et al., 2017). As identity cues signal to stigmatized group members who is welcomed or excluded in a space, the present research proposed that women would demonstrate greater vigilance to rejection, measured as PAB-R, in identity-threatening STEM contexts. Critically, attentional bias refers to the tendency to allocate attention to threat-related information rather than non-threat information (MacLeod & Mathews, 2012). PAB-R therefore refers to pref-erential attention to preconsciously presented rejection related information. That is, PAB-R reflects greater vigilance to threatening stimuli, which, in the present research were conceptualized as rejection words.

Past research has found that heightened attentional bias to rejection occurs in environments that are believed to be threatening or unwelcoming and can nega-tively impact an individual's self-confidence (Dandeneau & Baldwin, 2004; Wil-liams et al., 1996). Moreover, research on the vigilance-avoidance hypothesis has demonstrated that highly anxious individuals are more vigilant to threatening stimuli, attending to the threat cue quicker, but then are more avoidant of threat cues during longer exposures (e.g., Bogels & Mansell, 2004; Mogg et al., 2004; Ter-burg et al., 2012; Wieser et al., 2009). As such, the present research proposed that women may both rapidly detect cues of rejection in a threatening STEM environ-ment and subsequently avoid these social threats via social distancing.

SOCIAL DISTANCING

In response to identity threats, individuals may avoid or opt out of the identity-threatening context (Crocker & Major, 1989, 2003). As STEM contexts are often filled with cues that women do not belong (e.g., Cheryan et al., 2009), women may seek to avoid such identity threats by disengaging from the context. For example, women indicated decreased interest in attending an identity-threatening STEM conference compared to a non-identity-threatening STEM conference (Murphy et al., 2007). Similarly, activation of female gender stereotypes from gender stereo-typic commercials led women to avoid math items on a test and indicate less inter-est in entering quantitative fields (Davies et al., 2002). As the vigilance-avoidance hypothesis indicates that individuals are vigilant to threats in order to ultimately avoid such threat (Mogg et al., 2004), the present research proposed that vigilance to rejection cues would be associated with greater social distancing.

Termed "proxemics" (E. T. Hall, 1963) and more commonly approach/avoid-ance (Dovidio et al., 2002; Goff et al., 2008), measures of social distancing and nonverbal indicators of avoidance (e.g., seating distance, body orienting, eye gaze) capture automatic, less conscious attitudes as they are often associated with implicit (Amodio & Devine, 2006), but not explicit, measures of attitudes (Dotsch & Wigboldus, 2008; McCall et al., 2009). For example, while White Americans tend to sit farther away from Black Americans (e.g., Hendricks & Bootzin, 1976), White Americans' seat distance, but not their explicit anti-Black attitudes, is associated with aggression against Black Americans (McCall et al., 2009). Yet, social distanc-ing is not always due to prejudice or dislike toward a target but can also capture the avoidance of a potential identity threat. For example, White Americans sat farther

away from Black Americans when a "White racist" stereotype was activated compared to when it was not in an attempt to avoid fulfilling the negative stereotype of "White racist" (i.e., an identity threat; Goff et al., 2008). As such, the present research proposed that women's avoidance from a rejection cue in STEM settings could be captured in a social-distancing paradigm, such that women would select a seat farther away from a prejudiced STEM expert than from an expert whose intergroup attitudes were unknown. In the present research, it was hypothesized that sitting further away from an identity threatening professor would signal avoidance of a threat. That is, in line with the vigilance-avoidance hypothesis, it was hypothesized that women would distance themselves from someone who was expected to reject them.

IDENTITY CUES

Identity-threat cues come in many forms, such as expressions of bias, low representation of one's ingroup (Kiefer et al., 2006; Sekaquaptewa & Thompson, 2003), or environmental cues that a space is not designed for one's ingroup (e.g., masculine décor signals to women that they do not belong in computer science; Cheryan et al., 2009, 2011). While identity-safety cues, cues that signal one should *not* anticipate being devalued in a context, similarly take a wide array of forms (e.g., diversity statements, representation), research on identity-safety cues for women in STEM fields has focused a great deal on the importance of ingroup role models or experts. For example, the inoculation model proposes that increasing the presence of, and exposure to, female teachers, experts, and peers, may "inoculate" or protect women against the negative effects of gender stereotypes in such environments (Dasgupta, 2011). Indeed, exposure to female role models or experts in male-dominated STEM fields can increase women's self-efficacy, positive attitudes toward STEM, and motivation to pursue a career in that field (Stout et al., 2011; Young et al., 2013). Moreover, the presence of more women in a testing setting or having a female test administrator can mitigate the negative performance effects on math exams that occur from gender identity threats when no women are present (e.g., Inzlicht & Ben-Zeev, 2003; Marx & Roman, 2002). As such, the present research sought to examine how exposure to identity-threat cues (in the present research, expressions of bias) and identity-safety cues (in the present research, exposure to an ingroup exemplar) shifted vigilance to rejection, and in turn, social distancing.

Importantly, identity cues need not be ingroup specific. That is, individuals generally hold a lay theory of generalized prejudice (Chaney, Sanchez, & Remedios, 2021), such that they perceive multiple prejudices (e.g., racism and sexism) as stemming from a common ideology and thus, co-occurring (for review, see Chaney et al., 2019). As such, White women anticipated gender stigma from a White man who endorsed anti-Black statements (Chaney, Sanchez, Himmelstein, et al., 2021; Sanchez et al., 2017). Importantly, just as identity-threat cues transfer, so do identity-safety cues, cues that signal one should *not* anticipate being devalued in a context (Chaney et al., 2016; Chaney & Sanchez, 2018). For example, White

women in a threatening testing context perceived both an expert White woman *and* an expert Black man as less likely, compared to a White male expert, to endorse negative stereotypes about women's intelligence and less likely to create a test that produces gender bias (Chaney et al., 2018).

Thus, the present research examined vigilance and social distancing in response to both ingroup and similarly stigmatized outgroup identity-threat and identity-safety cues. In doing so, the present research affords opportunities for greater insights into the cues women may view as threatening (or not), and if these broader identity cues operate in a similar manner as ingroup identity cues, such that they effect PAB-R, signaling an automaticity to a lay theory of generalized prejudice. Notably, this additional examination of a lay theory of generalized prejudice required the present research to narrow its focus to only the study of White women to discern if PAB-R occurred in response to not only ingroup identity cues, but also similarly stigmatized outgroups.

CURRENT RESEARCH

As women continue to leave many STEM fields at high rates (Cheryan et al., 2017), identifying a mechanism that facilitates such avoidance, or distancing, from STEM fields and experts remains a critical step in identifying effective interventions. As vigilance is employed by members of stigmatized social groups in order to rapidly detect identity threats (e.g., Himmelstein et al., 2015) in order to then minimize the chances of facing those threats (Mogg et al., 2004), the present research further sought to examine vigilance to rejection, as measured by PAB-R, as an implicit, automatic process by which identity cues are associated with behavioral avoidance. Specifically, the present research examined if White women demonstrate significantly greater PAB-R, and in turn greater social distancing, when anticipating enrolling in a college STEM course with a prejudiced STEM professor compared to a STEM professor whose intergroup attitudes were unknown. As identity-safety cues mitigate concerns of stigmatization in classroom settings, in part by increasing sense of belonging (Kiefer et al., 2006; Sekaquaptewa & Thomson, 2003), and sense of belonging is critical for psychological health as well as motivation to pursue a career in that domain (Good et al., 2012; Leary & Baumeister, 2000; Smith et al., 2013), the present research also sought to examine if identity-safety cues (i.e., White woman or Black male STEM professor) served to *mitigate* PAB-R cues in a STEM context, and in turn social distancing. Finally, the present research sought to examine if White women would demonstrate greater PAB-R in response to not only ingroup identity cues, but also identity cues targeting similarly stigmatized groups. In doing so, the present research examined the breadth of cues that may increase White women's vigilance for rejection in STEM contexts.

As such, the present research, across three experimental studies, examined White women's PAB-R and social distancing in response to both a sexist and racist STEM professor (compared to a professor whose intergroup attitudes were unknown) and in response to a Black male and White female STEM professor (compared to a White male professor). This research aimed to identify a methodological

advancement in the study of identity cues by demonstrating the utility of PAB-R as a measurement of validity in predicting avoidance behavior among White women in STEM contexts. Moreover, the present research sought to provide theoretical advancement in understanding mechanisms that may impact women's decisions to leave STEM fields (i.e., vigilance) as well as demonstrate the automaticity of a lay theory of generalized prejudice. All measures, manipulations, and participant exclusions are reported, and data and materials are available: https://osf.io/r3pgw/.

STUDY 1A

Study 1a sought to determine if White women who anticipated enrolling in a STEM course with a White male professor whose Rate My Professor page indicated he had purported negative attitudes toward Black students or female students would engage in social distancing by selecting a classroom seat farther away from the professor compared to participants exposed to a professor whose intergroup attitudes were unknown. A measure of professor quality was included to ensure that manipulations of professor ideology were independent of perceived professor quality and to demonstrate that social-distancing effects were a product of identity threat, not disengagement due to low perceived professor quality.

METHOD

Participants

An a priori power analysis indicated that a sample of 159 participants was required to detect a medium effect size for a three-cell, between-subjects design with 80% power and one covariate. In anticipation of low rates of exclusion, 160 White women on MTurk participated in exchange for compensation. However, 15 participants were excluded for failing multiple instructional attention checks, leaving an analytic sample of 145 (M_{age} = 40.31, SD = 12.41; range: 20–71). A sensitivity power analysis indicated the analysis had 80% power to capture a medium effect size (d = 0.52).

Procedure

Upon providing consent, participants were asked to consider enrolling in a chemistry course and were given Dr. Scott Walter's Rate My Professor site. All participants saw one neutral review of the professor and were randomly assigned to see one negative review. Based on random assignment, the negative review indicated that the professor had made racist jokes about Black students, sexist jokes about female students, or was a bad teacher but whose intergroup attitudes were unknown. After reviewing the site, participants completed a virtual seat task and items of professor quality (in that order) before being debriefed. After the virtual seat task, participants completed manipulation check questions about the

professor's attitudes, which are reported in the Supplementary Materials. Participants perceived the sexist and racist professors as more sexist and racist than the neutral professor.

Materials

Virtual Seat Task. Participants completed a modified version of past seat selection paradigms (e.g., Goff et al., 2008). An image of a conference table and seats with the name of the professor at the head of the table was presented, with seven seats spaced evenly apart down one side of the table and labeled 1–7, with 1 being the seat closest to the professor and 7 the seat farthest away from the professor (see Figure 1). Past research has employed a line of several chairs as in the present task (Amodio & Devine, 2006; Macrae et al., 1994). Participants were instructed to consider that this was the classroom for the chemistry course they were earlier instructed to considering enrolling in and were asked to select their seat from the seven available options.[1]

Professor Quality. Lastly participants rated the professor's quality on two items ("How likely is it that the professor is . . ." "a good professor," "an engaging professor"; $r(83) = .67, p < .001$). Items were completed on a scale from 1 (*Very Unlikely*) to 7 (*Very Likely*).

RESULTS AND DISCUSSION

A one-way ANOVA examining the effect of condition on professor quality did not reveal a significant effect of condition, $F(2, 142) = 0.32, p = .73, d = 0.13$. Across conditions, participants expected low quality ($M_{sexist} = 2.79, SE = 0.20; M_{racist} = 2.76, SE = 0.19; M_{neutral} = 2.96, SE = 0.20$). Professor quality was included as a covariate in the following analyses, though results did not significantly change when the covariate was removed (see Supplementary Materials).

A one-way ANCOVA for the virtual seating task revealed a significant main effect of condition, $F(2, 141) = 6.00, p = .003, d = 0.58$. Consistent with hypotheses, LSD post-hoc tests revealed that participants indicated they would sit significantly closer to the neutral professor ($M = 5.06, SE = 0.21$) compared to the racist professor ($M = 6.00, SE = 0.21$), $t(97) = 3.20, p = .002, d = 0.65$, 95% $CI_{meandiff}$ [0.35, 1.49], and the sexist professor ($M = 5.87, SE = 0.22$), $t(92) = 2.74, p = .007, d = 0.51$, 95% $CI_{meandiff}$ [0.23, 1.41]. There was no significant difference between the sexist and racist professor conditions, $t(92) = 0.34, p = .73, d = 0.09$, 95% $CI_{meandiff}$ [−0.69, 0.49]. Thus, while reviews indicating a professor was racist or sexist did not affect the perceived quality of the professor, this did significantly influence how close White women would want to sit to the professor in a small classroom, such that White women indicated they would sit farther away from the racist and sexist professor compared to the neutral professor.

---

1. While a seminar table may not be the prototypical arrangement for a lecture course, such seating arrangements can be common in discussion sessions, upper-level seminars, or lab meetings.

FIGURE 1. Image used for virtual seating task, Studies 1a, 1b, and 2. Color image presented in the Supplementary Materials.

STUDY 1B

Study 1b sought to replicate the effect of professor reviews on social distancing and examined the effect of a STEM professor's racism or sexism on White women's PAB-R. As past research has demonstrated that people sit farther away from someone they do not like (Mehrabian, 1968), a measure of liking of the professor was included to ensure the present effects were due to identity threat and not a liking penalty.

METHOD

Participants

An a priori power analysis for a three-cell between-subjects design with one covariate indicated a required sample size of 175 participants based on the effect size from previous research using a PAB task (d = 0.59; Chaney, 2020) and 95% power. In case of exclusions, an intended data collection stop point was set at 200. In all, 201 participants who identified as White women during a large prescreen survey completed the in-lab study. However, eight did not identify as White during the session, one did not identify as a woman during the session, and eight did not perceive the professor to be a White man (five in the control condition, two in the sexism condition; five indicated professor was a Black man, two indicated

professor was a Latino man, one indicated professor was a White woman). Moreover, four participants were less than 50% accurate on the PAB-R task and were excluded, leaving a final sample size of 180 participants (M_{age} = 18.37, SD = 0.81; range: 18–23 years). A sensitivity power analysis indicated the sample had 80% power to capture a medium effect size (d = 0.47).

Procedure

The manipulations of the professor's Rate My Professor site were identical to Study 1a. After reading the reviews and indicating the professor's race and gender, participants completed a task of PAB-R, the virtual seating task from Study 1a, measure of comfort in the class, and a measure of liking in this order. Lastly, participants were probed for suspicion before being debriefed.[2]

Materials

PAB-R Task. Participants completed a modified dot-probe task. Specifically, participants were informed that, "During this task you will be required to identify the side of the screen an arrow appears on while ignoring distractors. Your task is to focus on a central fixation cross ('+'), after which distractor words and nonwords will appear on both the right and left side of the screen. After the distractors, an arrow will appear behind either the right or left distractor." Participants then learned the keys they should press if the arrow appeared on the left or right side of the screen and were informed that they should respond as quickly as possible. Participants completed six practice trials during which they received accuracy feedback followed by 180 test trials with no feedback.

Each trial began with a fixation cross (1,000 ms) which was followed by the presentation of two words, one to the left of the screen and the other to the right of the screen (40 ms). These words were replaced by masks (10 ms), which were either novel words or random letter strings. These masks were then removed, and an arrow appeared on either the left or the right side of the screen for 150 ms, and participants' task was simply to indicate, with a corresponding key, which side of the screen the arrow had appeared on. Participants had 1,500 ms to respond (see Figure 2 for sample trial). Critically, half of the trials (90) were neutral trials, that is, both of the words were non-social, threatening cues (e.g., virus), while the other half of the trials (90) were critical trials, as one of the words was a rejection cue (e.g., unwanted), and the other a non-social, threatening cue. On the critical rejection trials, the arrow always appeared on the opposite side of the screen as the rejection cue (antisaccade rejection threat trial), while on neutral trials the side of the screen the arrow appeared on was random. The masks included randomly generated five- to six-letter strings and neutral words (e.g., circle).

---

2. In Studies 1b and 2, participants completed a measure of perceived social dominance orientation of the professor after being probed for suspicion. Results are reported in the Supplementary Materials for brevity.
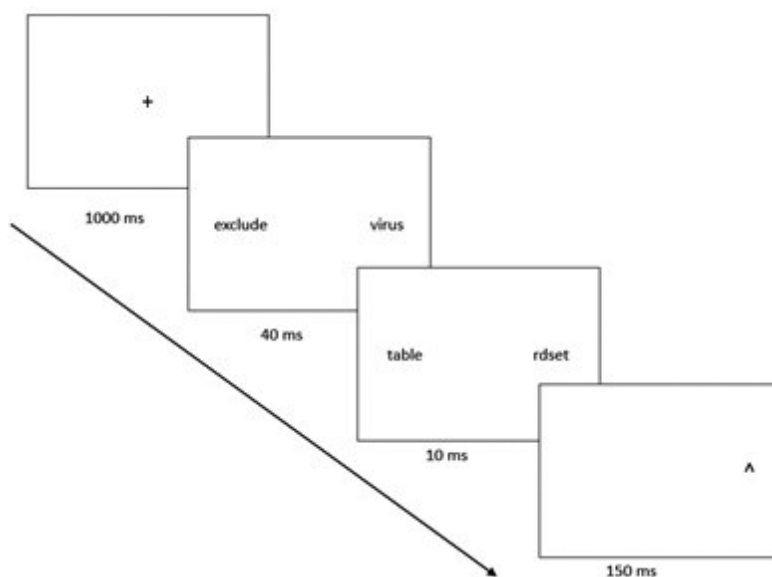
FIGURE 2. Sample rejection trial in PAB to rejection task.

The non-social, health-threat words were adapted from Kaiser et al. (2006) and the rejection-threat words were adapted from Dandeneau and Baldwin (2004) and Baldwin and Sinclair (1996). These words were pretested in a separate sample of 30 White women on MTurk (M_{age} = 38.53, SD = 12.39; range: 20–67). Pretest participants indicated on a scale from 1 (*Not at all*) to 7 (*Very*) how threatening they found several words, including six health-threat words (e.g., disease) and six rejection words (e.g., exclude).[3] Repeated-measure ANOVAs were conducted comparing ratings of the six health-threat words that did not significantly differ from each other, $F(5, 145)$ = 1.81, p = .11, d = 0.51, and the six rejection words that did not significantly differ from each other, $F(5, 145)$ = 0.60, p = .70, d = 0.29. Mean threat levels were computed separately for the health and rejection words, and a paired samples t-test indicated that these word sets did not significantly differ in how threatening they were, $t(29)$ = 1.31, p = .20, d = 0.27. Means for words and composite measures are reported in Table 1 and reveal that these words were rated as moderately threatening (M_{health} = 4.42, SD = 1.43, $M_{rejection}$ = 4.17, SD = 1.67). All data were collected prior to January 2020.

Following other dot-probe data-cleaning practices, reaction times for incorrect response trials were removed from analyses (e.g., Richeson & Trawalter, 2008). Mean reaction times were computed for all correct antisaccade rejection threat trials and all correct neutral trials. An attentional bias score was calculated by subtracting the average latency on neutral trials from the average latency on antisaccade

---

3. Sexism-threat words were also included in the pretest for a separate project.

TABLE 1. Pretest of PAB Words Reported Threat

		M	*SD*
Health	**Overall**	4.42	1.43
	Disease	4.60	1.75
	Infection	4.60	1.65
	Virus	4.67	1.65
	Diabetes	4.17	1.70
	Sick	4.10	1.75
	Illness	4.37	1.63
Rejection	**Overall**	4.17	1.67
	Unwanted	4.10	2.06
	Reject	4.23	1.96
	Exclude	4.40	1.83
	Shunned	4.23	1.94
	Disliked	3.97	1.77
	Isolated	4.10	1.97

rejection threat trials, such that greater scores indicate greater attentional bias to rejection cues. As such, higher values indicate that participants had a bias to direct attention toward the spatial location of the threat stimuli (i.e., vigilance) more rapidly than toward neutral stimuli, such that response latencies were longer to detect the arrow that appeared on the opposite side of the screen as the threat stimuli on antisaccade threat trials.

Anticipated Classroom Comfort. Participants were asked to consider being enrolled in a class with this professor, and indicated how comfortable they would be "raising your hand in class," "speaking in class," and "attending the professor's office hours" on a scale from 1 (*Not at all*) to 7 (*Very*), $\alpha = 0.83$.

Liking. Participants responded to three items ($\alpha = 0.60$) regarding how much they would like the professor, such as "Would you enjoy an interaction with Professor Scott Walters?," on a scale from 1 (*Not at all*) to 7 (*Very much*).

Results and Discussion

A one-way ANOVA on liking of the professor did not reveal a significant effect of condition, $F(2, 177) = 1.91$, $p = .15$, $d = 0.29$, and liking was low across conditions ($M_{racist} = 2.14$, $SE = 0.10$; $M_{sexist} = 2.14$, $SE = 0.10$; $M_{neutral} = 2.39$, $SE = 0.11$). Yet, liking was controlled for in all following analyses following the proposed analytic plan. As such, all analyses were conducted with one-way ANCOVAs (three-cell,

professor: neutral, racist, sexist) controlling for liking, though results do not significantly change when liking is removed from analyses. See Supplementary Materials.

The ANCOVA on PAB-R revealed a significant main effect of condition, $F(2, 176) = 4.12$, $p = .018$, $d = 0.43$. Consistent with hypotheses, LSD post-hoc analyses revealed that participants demonstrated significantly less PAB-R in the neutral professor condition compared to the racist professor condition, $t(114) = 2.48$, $p = .01$, $d = 0.44$, 95% $CI_{meandiff}$ [2.50, 20.12], and sexist professor condition, $t(117) = 2.86$, $p = .01$, $d = 0.53$, 95% $CI_{meandiff}$ [2.24, 19.65]. There was no significant difference between participants in the racist and sexist professor conditions, $t(120) = 0.08$, $p = .93$, $d = 0.02$, 95% $CI_{meandiff}$ [−8.88, 8.16]. See Table 2. For the first time, the present study demonstrated White women engaged in significantly greater PAB-R when imagining enrolling in a chemistry class with a racist or sexist White male professor compared to a professor whose intergroup attitudes were unknown but was negatively reviewed.

The ANCOVA for virtual seating revealed a significant main effect of condition, $F(2, 176) = 7.25$, $p = .001$, $d = 0.57$. LSD post-hoc analyses revealed that participants indicated they would sit significantly closer to the neutral professor than the racist professor, $t(114) = 2.40$, $p = .02$, $d = 0.44$, 95% $CI_{meandiff}$ [0.12, 1.08], and the sexist professor, $t(117) = 4.00$, $p < .001$, $d = 0.63$, 95% $CI_{meandiff}$ [0.43, 1.39]. There was no significant difference between the racist and sexist professor conditions, $t(120) = 1.31$, $p = .19$, $d = 0.23$, 95% $CI_{meandiff}$ [−0.16, 0.78].

The ANCOVA on classroom comfort revealed a significant main effect of condition, $F(2, 176) = 7.97$, $p < .001$, $d = 0.60$. LSD post-hoc analyses revealed that participants indicated greater comfort in a class with the neutral professor compared to the racist professor, $t(114) = 2.52$, $p = .013$, $d = 0.45$, 95% $CI_{meandiff}$ [0.11, 0.94], and sexist professor, $t(117) = 4.10$, $p < .001$, $d = 0.66$, 95% $CI_{meandiff}$ [0.41, 1.23]. There was no significant difference in classroom comfort between the racist and sexist professor conditions, $t(120) = 1.49$, $p = .14$, $d = 0.26$, 95% $CI_{meandiff}$ [−0.70, 0.10]. Replicating and extending Study 1, White women indicated they would sit farther away from the racist or sexist professor and anticipated being less comfortable in a class with the racist or sexist professor compared to the professor whose intergroup attitudes were unknown.

To test the vigilance-avoidance hypothesis as it relates to identity threat for White women in a STEM context, mediation analyses controlling for liking were conducted. As past research has demonstrated that individuals demonstrate greater vigilance in order to identify threats that they then avoid (Mogg et al., 2004; Terburg et al., 2012), and it is unclear why individuals avoiding an interaction or context would lead to greater vigilance of that avoided context, the present research specifically sought to examine the effect of condition on social distancing via PAB-R, and not the effect of condition on PAB-R via social distancing. Additionally, participants completed the PAB-R task prior to the social-distancing task, and it would be unlikely for participants to be considering selecting a seat in a classroom prior to, or during, the PAB-R task.

TABLE 2. Descriptive Statistics by Condition, Study 1b

	Sexist M (SE)	Racist M (SE)	Neutral M (SE)
PAB-R	4.25 (3.02)	4.62 (3.10)	−6.69 (3.19)
Virtual seating	4.81 (0.16)	4.50 (0.17)	3.89 (0.18)
Classroom comfort	2.72 (0.14)	3.02 (0.15)	3.55 (0.15)

Analyses revealed that condition (−1 = neutral professor; 1 = racist professor) significantly predicted PAB-R, $p = .025$, 95% CI_B [0.69, 10.29], which in turn significantly predicted seat choice, $p = .006$, 95% CI_B [0.004, 0.02], and the indirect effect of condition on seat choice was significant (see Figure 3). Similarly, condition (−1 = control, 1 = sexist professor) significantly predicted PAB-R, $B = 3.79$, $SE = 1.28$, $p = .004$, 95% CI_B [1.24, 6.33], which in turn significantly predicted seat choice, $B = 0.01$, $SE = 0.01$, $p = .02$, 95% CI_B [0.002, 0.03]. The indirect effect was significant, $B = 0.05$, $SE = 0.03$, 95% CI_B [0.01, 0.13].[4]

These findings were independent of liking of the professor, suggesting that social distancing from a racist or sexist professor demonstrated in the virtual seat measure was not simply an indicator of liking or a product of rejecting the biased professor. Rather, social distancing was a product of threat avoidance, as demonstrated in the mediation model; White women's vigilance to rejection was heightened when anticipating an interaction with a racist or sexist STEM professor, which was in turn associated with greater social distancing. The present study is thus the first to support a vigilance-avoidance process for women in STEM, highlighting one mechanism by which outgroup prejudice may hinder the retention of White women in STEM classrooms.

STUDY 2

Past research has demonstrated that attentional bias to rejection cues is malleable, such that a training paradigm significantly ameliorated attentional bias to rejection cues, which in turn resulted in less self-reported stress, increased confidence, and greater work performance (Dandeneau et al., 2007; Hertel & Mathews, 2011). As such, Study 2 sought to examine if White women's PAB-R may be ameliorated through identity-safety cues, specifically examining White women who anticipated enrolling in a STEM course with a White male, White woman, or Black male professor. Previous research has demonstrated that White women perceived White women and Black male experts as identity-safety cues in testing contexts (Chaney et al., 2018). It was proposed that exposure to either an expert White woman or Black man would *decrease* White women's PAB-R compared to a White male expert, and in turn buffer against White women's avoidance.

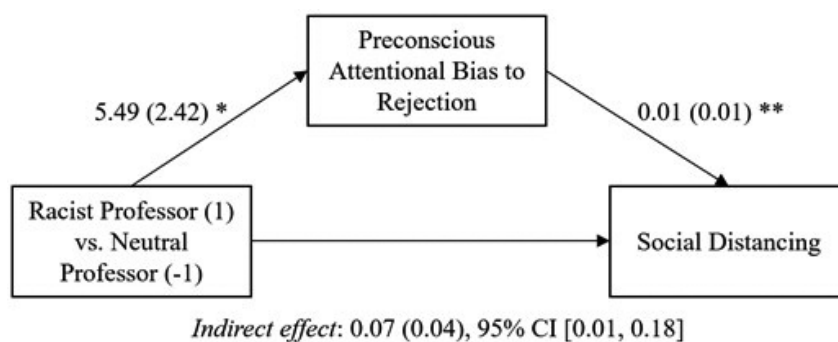4. See Supplementary Materials for alternative exploratory mediation analyses.

FIGURE 3. Mediation model of the effect of a racist versus neutral White male professor on White women's social distancing mediated by PAB-R, Study 1b. * $p < .05$, ** $p < .01$.

METHOD

Participants

Based on an a priori power analysis of a three-cell between-subject study with 80% power and a medium effect size, the analytic sample size of 159 was suggested and a data collection stop point was set at 180 to account for anticipated exclusions. While 180 White women undergraduates completed the in-lab study, 28 were excluded for performing with less than 50% accuracy on the PAB-R task. As all participants correctly indicated the professor's race and gender and no participants failed the instructional attention check items, the final analytic sample was 152 White women (M_{age} = 18.84, SD = 1.19). A sensitivity power analysis indicated that the final sample had 80% power to capture a medium effect ($d = 0.50$).

Procedure

As in Study 1b, participants were asked to anticipate enrolling in a chemistry class with a professor and read a review from the professor's Rate My Professor site. All participants saw one neutral review, and participants were randomly assigned to learn that the professor was either Scott Walters, Sarah Walters, or Jamal Williams. After reading the reviews and completing questions about the review, participants indicated the professor's race and gender. All participants indicated that Scott Walter was a White man, Sarah Walters was a White woman, and Jamal Williams was a Black man. Next, participants completed the Study 1b PAB-R task, the virtual seating measure, and the measure of comfort in the class ($\alpha = 0.74$). Lastly, participants were probed for suspicion before being debriefed.

RESULTS AND DISCUSSION

A one-way ANOVA for the PAB-R was significant, $F(2, 149) = 4.58$, $p = .012$, $d = 0.50$. Consistent with hypotheses, LSD post-hoc tests revealed that participants

demonstrated significantly greater PAB-R when imagining enrolling in a STEM course with a White male professor than with a Black male professor, $t(99) = 2.54$, $p = .012$, $d = 0.47$, 95% $CI_{meandiff}$ [2.50, 20.09], and with a White woman professor, $t(99) = 2.69$, $p = .008$, $d = 0.53$, 95% $CI_{meandiff}$ [3.24, 20.83]. PAB-R did not significantly differ between the Black male and White female STEM professor conditions, $t(100) = 0.16$, $p = .87$, $d = 0.04$, 95% $CI_{meandiff}$ [−8.01, 9.49]. Identity-safety cues (e.g., Black male or White female expert) resulted in less PAB-R in a threatening STEM context. See Table 3.

The ANOVA for the virtual seat choice task was significant, $F(2, 149) = 6.72$, $p = .002$, $d = 0.60$. LSD post-hoc tests revealed that participants indicated they would sit significantly farther away from the White male STEM professor than from the Black male STEM professor, $t(99) = 4.21$, $p < .001$, $d = 0.69$, 95% $CI_{meandiff}$ [0.39, 1.34], and from the White woman STEM professor, $t(99) = 2.53$, $p = .013$, $d = 0.49$, 95% $CI_{meandiff}$ [0.13, 1.09]. Seat choice did not significantly differ between the Black male and White female conditions, $t(100) = 1.05$, $p = .29$, $d = 0.22$, 95% $CI_{meandiff}$ [−0.22, 0.73].

The ANOVA for classroom comfort was significant, $F(2, 149) = 3.29$, $p = .040$, $d = 0.42$. LSD post-hoc tests revealed that participants anticipated greater classroom comfort in the Black male STEM professor condition than the White male STEM professor condition, $t(99) = 2.55$, $p = .012$, $d = 0.52$, 95% $CI_{meandiff}$ [0.12, 0.98]. Unexpectedly, anticipated classroom comfort in the White female STEM professor condition did not significantly differ from either the Black male STEM professor condition, $t(100) = 1.59$, $p = .11$, $d = 0.32$, 95% $CI_{meandiff}$ [−0.08, 0.78], or the White male STEM professor condition, $t(99) = 0.92$, $p = .36$, $d = 0.18$, 95% $CI_{meandiff}$ [−0.63, 0.23]. Thus, White women demonstrated less avoidance behavior when anticipating enrolling in a course with a Black male, but not a White female, professor compared to a White male professor.

A mediation analysis examining the effect of condition (−1 = White man, 1 = Black man) on social distancing via PAB to rejection was conducted. Condition significantly predicted PAB-R, $p = .02$, 95% CI_B [−10.40, −0.89], which in turn significantly predicted seat choice, $p = .017$, 95% CI_B [0.002, 0.02]. The indirect effect of condition on social distancing was significant (see Figure 4). Similarly, a mediation analysis indicated the effect of condition (−1 = White man, 1 = White woman) significantly predicted PAB-R, $B = −6.02$, $SE = 2.25$, $p = .009$, 95% CI_B [−10.48, −1.55], which in turn significantly predicted seat choice, $B = 0.01$, $SE = 0.01$, $p = .017$, 95% CI_B [0.002, 0.02]. The indirect effect was significant, $B = −0.08$, $SE = 0.05$, 95% CI_B [−0.19, −0.001].[5] These findings suggest that identity-safety cues ameliorated White women's automatic, preconscious vigilance to rejection in threatening STEM contexts, resulting in less avoidance.

GENERAL DISCUSSION

STEM contexts often include cues for women that they do not belong and may be devalued because of their gender (e.g., Cheryan et al., 2009). As such, it was

---

5. Alternative mediation models are presented in Supplementary Materials.

TABLE 3. Descriptive Statistics by Condition, Study 2

	White woman	Black man	White man
	M (SE)	M (SE)	M (SE)
PAB	−7.99 (3.13)	−7.26 (3.13)	4.04 (3.16)
Virtual seating	3.43 (0.17)	3.18 (0.17)	4.04 (0.17)
Classroom comfort	4.07 (0.15)	4.42 (0.15)	3.87 (0.16)

proposed that White women would demonstrate greater PAB-R in identity-threat-ening STEM contexts. Vigilance, or attentional bias, to identity-threatening cues is an involuntary coping response to monitor for, anticipate, and avoid future dis-crimination by changing one's behavior (Hicken et al., 2013; Major & O'Brien, 2005) and occurs automatically and rapidly (Kaiser et al., 2006). As such, it was further proposed that White women would employ avoidance from identity-threatening STEM contexts, due in part to heightened vigilance to rejection cues. Indeed, White women demonstrated greater PAB-R when imagining taking a course with a sexist or racist White male STEM professor compared to a White man whose intergroup attitudes were unknown (Study 1b). Moreover, greater PAB-R was associated with greater social distancing, such that White women indicated they would sit far-ther away from either the racist or sexist STEM professor (Studies 1a and 1b) and reported less anticipated comfort speaking up in class or attending office hours, compared to the neutral White male STEM professor (Study 1b).

As frequently engaging in discrimination-related vigilance can increase stress, placing highly vigilant individuals at a greater risk for negative health outcomes (Clark et al., 2006; Himmelstein et al., 2015) and utilizes working memory, a limited resource that is critical for performance (see Major & O'Brien, 2005), Study 2 sought to ameliorate White women's PAB-R. In Study 2, White women demonstrated

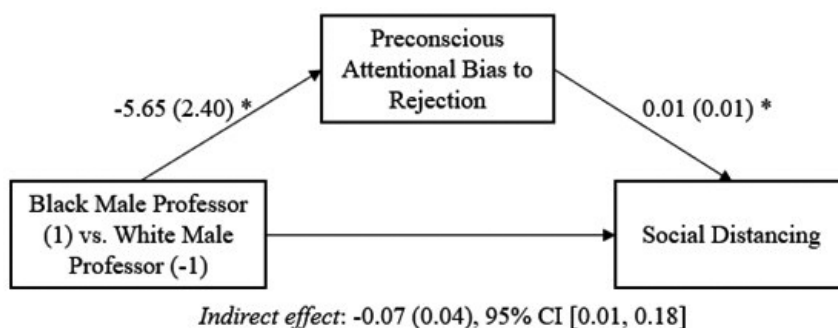Indirect effect: -0.07 (0.04), 95% CI [0.01, 0.18]

FIGURE 4. Mediation model of the effect of a Black male versus White male professor on White women's social distancing mediation by PAB to rejection, Study 2. *p < .05.

significantly less PAB-R when anticipating taking a STEM course with a Black male or White female expert compared to a White male expert, which was in turn associated with less social distancing and greater comfort in the classroom (Study 2). The present research is thus the first to demonstrate an automatic vigilance response to rejection (PAB-R) in response to identity-threat cues for White women in STEM contexts, offering theoretical insight into the processes contributing to STEM disengagement. Moreover, the present research provides a methodological contribution to research in stigma by identifying PAB-R as a measure of vigilance to cues of rejection.

While the present demonstrations of PAB-R were all within STEM contexts, future research should consider baseline measures of PAB-R as an individual difference variable that may influence the extent to which individuals are sensitive to identity cues. For example, just as past research has demonstrated that individuals who are higher in trait anxiety demonstrate greater PAB-R (e.g., Mogg et al., 2004), it is possible that women, for example, who report having experienced greater sexism in the past may show higher levels of PAB-R. Higher baseline levels of PAB-R may result in important individual differences in identity-threatening contexts, including for women's working memory, social distancing, and cardiovascular reactivity. Additionally, while the present research recruited only White women as it was initially designed to examine identity cue transfers, the present effects are expected to replicate in a sample of Black or Latina women. Such effects of identity threat on PAB-R and social distancing may be even greater in those cases, as Black and Latina women anticipate *both* racism and sexism from a single identity-threat cue (Chaney, Sanchez, & Remedios, 2021). Nevertheless, future research is strongly encouraged to examine the unique experiences of marginalized women of color as Black women pursue STEM majors at higher rates than White women (O'Brien et al., 2015).

Notably, the present measure of social distancing was not a pure behavioral measure, as participants merely indicated which seat they would select from an online image and were not physically choosing a seat in a classroom. Past research has measured social distancing in virtual reality paradigms (Dotsch & Wigboldus, 2008) and using seat-selection paradigms such as the one employed in Study 1b and Study 2 (van den Berg & Cillessen, 2015). As such, I propose that the present measure of social distancing did capture a more automatic process associated with a behavioral outcome, but I encourage future research to examine social distancing in an in-person setting. The present research therefore provides evidence that White women attempted to avoid or mitigate identity threat by behaviorally (though virtually) sitting farther away from a potential perpetrator, due in part to increased vigilance to threat cues, supporting the vigilance-avoidance hypothesis in a novel STEM context.

Such social distancing in response to identity threats in order to avoid facing rejection highlights a coping process that may ultimately lead to disengagement from STEM contexts. Specifically, by acting to avoid facing prejudice, individuals may be self-selecting out of such contexts. While sitting farther away from a

professor may not suggest disengagement, seat choice was negatively associated with classroom comfort, such that sitting farther away from a sexist or racist professor (Study 1b) or White male STEM professor (Study 2) was associated with decreased comfort attending office hours and participating in class. Similarly, while sitting further away from the prejudiced professor may not immediately decrease experiences of discrimination, individuals may further seek to mitigate interacting with the professor by not attending office hours or class, for example, thus decreasing exposure to identity-threatening environments. As such, the present research provides new insights into the processes that may lead to women's disengagement from STEM contexts.

Importantly, the present demonstration of social distancing in response to identity threat appears to have been driven by avoidance of threat, as liking and professor quality of the target did not significantly change the effect of social distancing (Studies 1a and 1b), and PAB-R mediated the effects of condition on social distancing (Studies 1b and 2). While the present research sought to rule out not liking a biased professor as the mechanism for PAB-R and social distancing by measuring liking of the professor in Study 1b, future research should further examine mechanisms of this process. That is, while past research has found that (dis)liking a biased perpetrator did not account for self-reported stigma or impacts of identity threat on working memory or cardiovascular reactivity (Chaney et al., 2018, 2021; Sanchez et al., 2017), future research should be conducted to elucidate the present proposed mechanisms. For example, future research may demonstrate that women high in rejection sensitivity demonstrate the greatest PAB-R in response to anticipated sexism or demonstrate that White men do not show PAB-R in response to a sexist or racist professor. Such research will be important for further validating the impact of identity cues on attentional biases and women leaving STEM fields.

CONCLUSION

The present research is the first to demonstrate women's PAB-R in STEM contexts. White women demonstrated significantly greater PAB-R in the face of identity threat, and this shift in attention was associated with social distancing, such that White women demonstrated avoidance in the face of identity threat. White women's PAB-R was ameliorated when identity-safety cues were present, however. The present research thus integrates research on attentional bias, social distancing, and lay theories in order to expand past research on the association between vigilance and avoidance that has implications for the behavior of White women in STEM contexts.

REFERENCES

Amodio, D. M., & Devine, P. G. (2006). Stereotyping and evaluation in implicit race bias: Evidence for independent constructs and unique effects on behavior. *Journal of Personality and Social Psychology*, *91*(4), 652–661.

Baldwin, M. W., & Sinclair, L. (1996). Self-esteem and "if . . . then" contingencies

of interpersonal acceptance. *Journal of Personality and Social Psychology*, *71*(6), 1130–1141.

Bar-Haim, Y., Lamy, D., Pergamin, L., Baker-mans-Kranenburg, M. J., & Van IJzendoorn, M. H. (2007). Threat-related attentional bias in anxious and nonanxious individuals: A meta-analytic study. *Psychological Bulletin*, *133*(1), 1–24.

Bogels, S. M., & Mansell, W. (2004). Attention processes in the maintenance and treatment of social phobia: Hypervigilance, avoidance and self-focused attention. *Clinical Psychology Review*, *24*, 827–856.

Chaney, K. E. (2020). *Examining the automaticity of a lay theory of generalized prejudice: Vigilance facilitates social distancing for White women in STEM contexts* (Unpublished doctoral dissertation). Rutgers University, New Brunswick, NJ.

Chaney, K. E., & Sanchez, D. T. (2018). Gender-inclusive bathrooms signal fairness across identity dimensions. *Social Psychological and Personality Science*, *9*(2), 245–253.

Chaney, K. E., Sanchez, D. T., Himmelstein, M. S., & Manuel, S. K. (2021). Lay theory of generalized prejudice moderates cardiovascular stress responses to racism for White women. *Group Processes and Intergroup Relations*, *24*(6), 998–1015.

Chaney, K. E., Sanchez, D. T., & Maimon, M. R. (2019). Stigmatized-identity cues in consumer spaces. *Journal of Consumer Psychology, 29*(1), 130–141.

Chaney, K. E., Sanchez, D. T., & Remedios, J. D. (2016). Organizational identity safety cue transfers. *Personality and Social Psychology Bulletin*, *42*(11), 1564–1576.

Chaney, K. E., Sanchez, D. T., & Remedios, J. D. (2018). We are in this together: How the presence of similarly stereotyped allies buffer against identity threats. *Journal of Experimental Social Psychology*, *79*, 410–422.

Chaney, K. E., Sanchez, D. T., & Remedios, J. D. (2021). Dual cues: Women of color anticipate both gender and racial bias in the face of a single identity cue. *Group Processes and Intergroup Relations*, *24*(7), 1095–1113.

Cheryan, S., Meltzoff, A. N., & Kim, S. (2011). Classrooms matter: The design of virtual classrooms influences gender disparities in computer science classes. *Computers & Education*, *57*(2), 1825–1835.

Cheryan, S., Plaut, V. C., Davies, P. G., & Steele, C. M. (2009). Ambient belonging: How stereotypical cues impact gender participation in computer science. *Journal of Personality and Social Psychology*, *97*(6), 1045–1060.

Cheryan, S., Ziegler, S. A., Montoya, A. K., & Jiang, L. (2017). Why are some STEM fields more gender balanced than others? *Psychological Bulletin*, *143*, 1–35.

Clark, R., Benkert, R. A., & Flack, J. M. (2006). Large arterial elasticity varies as a function of gender and racism-related vigilance in black youth. *Journal of Adolescent Health*, *39*(4), 562–569.

Crocker, J., & Major, B. (1989). Social stigma and self-esteem: The self-protective properties of stigma. *Psychological Review*, *96*(4), 608–630.

Crocker, J., & Major, B. (2003). The self-protective properties of stigma: Evolution of a modern classic. *Psychological Inquiry*, *14*(3-4), 232–237.

Dandeneau, S. D., & Baldwin, M. W. (2004). The inhibition of socially rejecting information among people with high versus low self-esteem: The role of attentional bias and the effects of bias reduction training. *Journal of Social and Clinical Psychology*, *23*(4), 584–603.

Dandeneau, S. D., Baldwin, M. W., Baccus, J. R., Sakellaropoulo, M., & Pruessner, J. C. (2007). Cutting stress off at the pass: Reducing vigilance and responsiveness to social threat by manipulating attention. *Journal of Personality and Social Psychology*, *93*(4), 651–666.

Dasgupta, N. (2011). Ingroup experts and peers as social vaccines who inoculate the self-concept: The stereotype inoculation model. *Psychological Inquiry, 22*(4), 231–246.

Davies, P. G., Spencer, S. J., Quinn, D. M., & Gerhardstein, R. (2002). Consuming images: How television commercials that elicit stereotype threat can restrain women academically and professionally. *Personality and Social Psychology Bulletin*, *28*(12), 1615–1628.

Davies, P. G., Spencer, S. J., & Steele, C. M. (2005). Clearing the air: Identity safety moderates the effects of stereotype threat on women's leadership

aspirations. *Journal of Personality and Social Psychology*, *88*(2), 276–287.

Dotsch, R., & Wigboldus, D. H. (2008). Virtual prejudice. *Journal of Experimental Social Psychology*, *44*(4), 1194–1198.

Dovidio, J. F., Kawakami, K., & Gaertner, S. L. (2002). Implicit and explicit prejudice and interracial interaction. *Journal of Personality and Social Psychology*, *82*(1), 62–68.

Emerson, K. T. U., & Murphy, M. C. (2014). Identity threat at work: How social identity threat and situational cues contribute to racial and ethnic disparities in the workplace. *Cultural Diversity and Ethnic Minority Psychology*, *20*(4), 508–520. https://doi.org/10.1037/a0035403

Forbes, C. E., & Leitner, J. B. (2014). Stereotype threat engenders neural attentional bias toward negative feedback to undermine performance. *Biological Psychology*, *102*, 98–107.

Goff, P. A., Steele, C. M., & Davies, P. G. (2008). The space between us: Stereotype threat and distance in interracial contexts. *Journal of Personality and Social Psychology*, *94*(1), 91–107.

Good, C., Rattan, A., & Dweck, C. S. (2012). Why do women opt out? Sense of belonging and women's representation in mathematics. *Journal of Personality and Social Psychology*, *102*(4), 700–717.

Hall, E. T. (1963). A System for the notation of proxemic behavior 1. *American Anthropologist*, *65*(5), 1003–1026.

Hall, W. M., Schmader, T., & Croft, E. (2015). Engineering exchanges: Daily social identity threat predicts burnout among female engineers. *Social Psychological and Personality Science, 6*(5), 528–534.

Hendricks, M., & Bootzin, R. (1976). Race and sex as stimuli for negative affect and physical avoidance. *Journal of Social Psychology*, *98*, 111–120

Hertel, P. T., & Mathews, A. (2011). Cognitive bias modification: Past perspectives, current findings, and future applications. *Perspectives on Psychological Science*, *6*(6), 52–536.

Hicken, M. T., Lee, H., Ailshire, J., Burgard, S. A., & Williams, D. R. (2013). "Every shut eye, ain't sleep": The role of racism-related vigilance in racial/ethnic disparities in sleep difficulty. *Race and Social Problems*, *5*, 100–112.

Himmelstein, M. S., Young, D. M., Sanchez, D. T., & Jackson, J. S. (2015). Vigilance in the discrimination-stress model for Black Americans. *Psychology & Health*, *30*(3), 253–267.

Inzlicht, M., & Ben-Zeev, T. (2003). Do high-achieving female students underperform in Private? The implications of threatening environments on intellectual processing. *Journal of Educational Psychology, 95*(4), 796–805. https://doi.org/10.1037/0022-0663.95.4.796

Kaiser, C. R., Vick, S. B., & Major, B. (2006). Prejudice expectations moderate preconscious attention to cues that are threatening to social identity. *Psychological Science*, *17*(4), 332–338.

Kiefer, A., Sekaquaptewa, D., & Barczyk, A. (2006). When appearance concerns make women look bad: Solo status and body image concerns diminish women's academic performance. *Journal of Experimental Social Psychology*, *42*(1), 78–86.

Leary, M. R., & Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer theory. *Advances in Experimental Social Psychology*, *32*(1–62). https://doi.org/10.1016/S0065-2601(00)80003-9

Lewis, K. L., Stout, J. G., Pollock, S. J., Finkelstein, N. D., & Ito, T. A. (2016). Fitting in or opting out: A review of key social-psychological factors influencing a sense of belonging for women in physics. *Physical Review Physics Education Research*, *12*(2), 020110.

MacLeod, C., & Mathews, A. (2012). Cognitive bias modification approaches to anxiety. *Annual Review of Clinical Psychology*, *8*, 189–217. https://doi.org/10.1146/annurev-clinpsy-032511-143052

MacLeod, C., Mathews, A., & Tata, P. (1986). Attentional bias in emotional disorders. *Journal of Abnormal Psychology*, *95*(1), 15–20.

Macrae, C. N., Bodenhausen, G. V., Milne, A. B., & Jetten, J. (1994). Out of mind but back in sight: Stereotypes on the rebound. *Journal of Personality and Social Psychology*, *67*(5), 808–817.

Major, B., & O'Brien, L. T. (2005). The social psychology of stigma. *Annual Review of Psychology*, *56*, 393–421.

Major, B., Quinton, W. J., & McCoy, S. K. (2002). Antecedents and consequences of attributions to discrimination: Theoretical and

empirical advances. *Advances in Experimental Social Psychology*, *34*, 251–330.

Marx, D. M., & Roman, J. S. (2002). Female role models: Protecting women's math test performance. *Personality and Social Psychology Bulletin, 28*(9), 1183–1193. https://doi.org/10.1177/01461672022812004

McCall, C., Blascovich, J., Young, A., & Persky, S. (2009). Proxemic behaviors as predictors of aggression towards Black (but not White) males in an immersive virtual environment. *Social Influence*, *4*(2), 138–154.

Mehrabian, A. (1968). Relationship of attitude to seated posture, orientation, and distance. *Journal of Personality and Social Psychology*, *10*(1), 26–30.

Miller, C. T., & Kaiser, C. R. (2001). A theoretical perspective on coping with stigma. *Journal of Social Issues*, *57*(1), 73–92.

Mogg, K., Bradley, B., Miles, F., & Dixon, R. (2004). Brief report time course of attentional bias for threat scenes: Testing the vigilance-avoidance hypothesis. *Cognition and Emotion*, *18*(5), 689–700.

Murphy, M. C., Kroeper, K. M., & Ozier, E. M. (2018). Prejudiced places: How contexts shape inequality and how policy can change them. *Policy Insights from the Behavioral and Brain Sciences, 5*(1), 66–74. https://doi.org/10.1177/2372732217748671

Murphy, M. C., Steele, C. M., & Gross, J. J. (2007). Signaling threat: How situational cues affect women in math, science, and engineering settings. *Psychological Science*, *18*(10), 879–885. http://doi.org/10.1111/j.1467-9280.2007.01995.x

National Science Foundation, National Center for Science and Engineering Statistics. (2019). *Women, minorities, and persons with disabilities in science and engineering: 2019*. Special report NSF. https://ncses.nsf.gov/pubs/nsf19304

O'Brien, L. T., Blodorn, A., Adams, G., Garcia, D. M., & Hammer, E. (2015). Ethnic variation in gender-STEM stereotypes and STEM participation: An intersectional approach. *Cultural Diversity and Ethnic Minority Psychology*, *21*(2), 169–180.

Richeson, J. A., & Trawalter, S. (2008). The threat of appearing prejudiced and race-based attentional biases. *Psychological Science*, *19*(2), 98–102.

Sanchez, D. T., Chaney, K. E., Manuel, S. K., Wilton, L. S., & Remedios, J. D. (2017). Stigma by prejudice transfer: Racism threatens White women and sexism threatens men of color. *Psychological Science*, *28*(4), 445–461.

Sekaquaptewa, D., & Thompson, M. (2003). Solo status, stereotype threat, and performance expectancies: Their effects on women's performance. *Journal of Experimental Social Psychology*, *39*(1), 68–74.

Smith, J. L., Lewis, K. L., Hawthorne, L., & Hodges, S. D. (2013). When trying hard isn't natural: Women's belonging with and motivation for male-dominated STEM fields as a function of effort expenditure concerns. *Personality and Social Psychology Bulletin*, *39*(2), 131–143.

Steele, C. M., Spencer, S. J., & Aronson, J. (2002). Contending with group image: The psychology of stereotype and social identity threat. *Advances in Experimental Social Psychology*, *34*, 379–440.

Stout, J. G., Dasgupta, N., Hunsinger, M., & McManus, M. A. (2011). STEMing the tide: Using ingroup experts to inoculate women's self-concept in science, technology, engineering, and mathematics (STEM). *Journal of Personality and Social Psychology*, *100*(2), 255–270.

Terburg, D., Aarts, H., & van Honk, J. (2012). Memory and attention for social threat: Anxious hypercoding-avoidance and submissive gaze aversion. *Emotion*, *12*(4), 666–672.

van den Berg, Y. H., & Cillessen, A. H. (2015). Peer status and classroom seating arrangements: A social relations analysis. *Journal of Experimental Child Psychology*, *130*, 19–34.

Williams, J. M. G., Mathews, A., & MacLeod, C. (1996). The emotional Stroop task and psychopathology. *Psychological Bulletin*, *120*(1), 3–24.

Wieser, M. J., Pauli, P., Weyers, P., Alpers, G. W., & Mühlberger, A. (2009). Fear of negative evaluation and the hypervigilance-avoidance hypothesis: An eye-tracking study. *Journal of Neural Transmission*, *116*(6), 717–723.

Young, D. M., Rudman, L. A., Buettner, H. M., & McLean, M. C. (2013). The influence of female role models on women's implicit science cognitions. *Psychology of Women Quarterly, 37*(3), 283–292.

SUPPLEMENTARY MATERIAL

TABLE S1. Study 1a Overall Correlations and Descriptive Statistics by Condition

	1	2	3	M_{racist} (SE)	M_{sexist} (SE)	$M_{neutral}$ (SE)
1. Virtual Seat				6.00_a (0.21)	5.89_a (0.29)	5.02_b (0.27)
2. Treat Women Students	–.37**			3.22_a (0.20)	2.11_b (0.21)	5.09_b (0.20)
3. Treat Black Students	–.30*	.62**		1.82_a (0.20)	3.67_b (0.21)	5.02_c (0.20)
4. Professor Quality	–.28*	.40**	.35**	2.76_a (0.19)	2.79_a (0.20)	2.96_a (0.19)

Note. *p < .05; **p < .01. Means that do not share a subscript significantly differ at p < .05.

Study 1a Manipulation Checks

Participants indicated how likely it was the professor would treat women and Black students fairly on two items each ("How likely is it that the professor treats…" "female [Black] students fairly," "male and female [Black and White] students equally,'" $rs(83) > .88, ps < .001$). Items were completed on a scale from 1 (*Very Unlikely*) to 7 (*Very Likely*).

To ensure that manipulations successfully manipulated perceptions of intergroup attitudes and that manipulations of the strength of negative attitudes towards Black students and women students did not significantly differ a 3 (condition) × 2 (treatment perception: women, Black students) mixed ANCOVA with treatment as a within-subject factor was conducted. The mixed ANCOVA revealed a main effect of condition, $F(2, 141) = 68.14, p < .001, d = 1.96$, no effect of treatment, $F(1, 141) = 1.09, p = .30, d = 0.18$, and a significant condition × treatment interaction, $F(2, 141) = 79.51, p < .001, d = 2.12$. Simple effect analyses by treatment revealed a significant main effect of condition on treatment of female students, $F(2, 141) = 65.10, p < .001, d = 1.92$. LSD post-hoc tests revealed that participants anticipated the sexist professor would treat female students significantly worse ($M = 2.14, SE = 0.19$) than the neutral professor ($M = 5.03, SE = 0.18$), $t(92) = 9.86, p < .001, d = 1.97$, 95% $CI_{meandiff}$ [2.38, 3.40] and the racist professor ($M = 3.26, SE = 0.18$), $t(92) = 3.79, p < .001, d = 0.78$, 95% $CI_{meandiff}$ [0.62, 1.63]. Consistent with

hypotheses, White women anticipated the racist professor would treat female students significantly worse than the neutral professor, $t(97) = 6.83$, $p < .001$, $d = 1.29$, 95% CI$_{meandiff}$ [1.27, 2.26].

Moreover, simple effects of condition on treatment of Black students revealed a significant effect of condition, $F(2, 141) = 75.68$, $p < .001$, $d = 2.07$. LSD post-hoc tests revealed participants anticipated that the racist professor would treat Black students worse ($M = 1.85$, $SE = 0.18$) than the neutral professor ($M = 4.97$, $SE = 0.18$), $t(97) = 12.05$, $p < .001$, $d = 2.37$, 95% CI$_{meandiff}$ [2.61, 3.62], and the sexist professor ($M = 3.69$, $SE = 0.19$), $t(92) = 4.31$, $p < .001$, d 1.41, 95% CI$_{meandiff}$ [1.32, 2.35]. Moreover, participants expected the sexist professor to treat Black students worse than the neutral professor, $t(92) = 6.78$, $p < .001$, $d = 0.85$, 95% CI$_{meandiff}$ [0.77, 1.80].

Study 1a Analyses Without Covariate

A one-way ANOVA for the virtual seating task revealed a significant main effect of condition, $F(2, 142) = 6.37$, $p = .002$, $d = 0.60$. LSD post-hoc tests revealed that participants indicated they would sit significantly closer to the neutral professor ($M = 5.02$, $SE = 0.21$) than the racist professor ($M = 6.00$, $SE = 0.21$), $t(98) = 3.37$, $p = .001$, $d = 0.67$, 95% CI$_{meandiff}$ [0.39, 1.57], or the sexist professor ($M = 5.89$, $SE = 0.22$), $t(93) = 2.87$, $p = .005$, $d = 0.55$, 95% CI$_{meandiff}$ [0.26, 1.66]. There was no significant difference between the sexist and racist professor conditions, $t(93) = 0.37$, $p = .72$, $d = 0.08$, 95% CI$_{meandiff}$ [–0.72, 0.50].

To ensure that manipulations successfully manipulated perceptions of intergroup attitudes and that manipulations of negative attitudes towards Black students and women students did not significantly differ a 3 (condition) × 2 (treatment: women, Black students) mixed ANOVA with treatment as a within-subject factor was conducted. The mixed ANOVA revealed a main effect

of condition, $F(2, 142) = 55.97$, $p < .001$, $d = 1.78$, no effect of treatment, $F(1, 142) = 0.90$, $p = .76$, $d = 0.06$, and a significant condition × treatment interaction, $F(2, 142) = 79.41$, $p < .001$, $d = 2.12$. Simple effect analyses by treatment revealed a significant main effect of condition on treatment of female students, $F(2, 142) = 53.72$, $p < .001$, $d = 1.74$. LSD post-hoc tests revealed that participants anticipated the sexist professor would treat female students significantly worse ($M = 2.11$ $SE = 0.21$) than the neutral professor ($M = 5.09$, $SE = 0.20$), $t(93) = 9.90$, $p < .001$, $d = 2.02$, 95% $CI_{meandiff}$ [2.40, 3.56] and the racist professor ($M = 3.22$, $SE = 0.20$), $t(93) = 3.83$, $p < .001$, $d = 1.37$, 95% $CI_{meandiff}$ [0.53, 1.69]. Consistent with hypotheses, White women anticipated the racist professor would treat female students significantly worse than the neutral professor, $t(98) = 6.90$, $p < .001$, $d = 0.78$, 95% $CI_{meandiff}$ [1.31, 2.43].

Moreover, simple effects of condition on treatment of Black students revealed a significant effect of condition, $F(2, 142) = 66.14$, $p < .001$, $d = 1.93$. LSD post-hoc tests revealed participants anticipated that the racist professor would treat Black students worse ($M = 1.82$, $SE = 0.20$) than the neutral professor ($M = 5.02$, $SE = 0.20$), $t(98) = 12.60$, $p < .001$, $d = 2.41$, 95% $CI_{meandiff}$ [2.65, 3.75], and the sexist professor ($M = 3.67$, $SE = 0.21$), $t(93) = 6.79$, $p < .001$, $d = 1.40$, 95% $CI_{meandiff}$ [1.28, 2.41]. Moreover, participants expected the sexist professor to treat Black students worse than the neutral professor, $t(93) = 4.33$, $p < .001$, $d = 0.88$, 95% $CI_{meandiff}$ [1.28, 2.41].

Study 1a Exploratory Mediation Analysis

While we proposed that social distancing would be predicted by more automatic measures, an exploratory mediation analysis was conducted examining the effect of the racist (1) versus the neutral (–1) professor on social distancing via treatment of women while controlling for professor quality. Condition was significantly associated with negative treatment of women,

$B = 0.96$, $SE = 0.16$, $p < .001$, 95% CI$_B$ [0.65, 1.28]; however, seat choice was not significantly associated with treatment of women, $B = 0.10$, $SE = 0.09$, $p = .25$, 95% CI$_B$ [–0.08, 0.28]. Additionally, the indirect effect of condition on seat choice was not significant through treatment of women, $B = 0.10$, $SE = 0.08$, 95% CI$_B$ [–0.04, 0.25].

FIGURE S1

TABLE S2. Study 1b Overall Correlations

	1	2	3	4
1. Precon. Atten. Bias (Rejection)				
2. Virtual Seat	.23*			
3. Classroom Comfort	–.04	–.40**		
4. Liking	–.04	–.34**	.45**	
5. Perceived SDO	.15*	.34**	–.28**	–.20**

Note. *$p < .05$; **$p < .01$.

PAB-R Word Pre-test

These words were pre-tested in a separate sample of 30 White women on MTurk (M_{age} = 38.53, SD = 12.39; range: 20–67). Pre-test participants indicated on a scale from 1 (*Not at all*) to 7 (*Very*) how threatening they found several words, including six health threat words (e.g., disease) and six rejection words (e.g., exclude)[1]. Repeated-measure ANOVAs were conducted comparing ratings of the six health threat words which did not significantly differ from each other, $F(5, 145) = 1.81$, $p = .11$, $d = 0.51$, and the six rejection words which did not significantly differ from each other, $F(5, 145) = 0.60$, $p = .70$, $d = 0.29$. Mean threat levels were computed separately for the health and rejection words, and a paired samples t-test indicated that these word sets did not significantly differ in how threatening they were, $t(29) = 1.31$, $p = .20$, $d = 0.27$. Means for words and composite measures are reported in manuscript Table 1 and reveal that these words were rated as moderately threatening ($M_{health} = 4.42$, $SD = 1.43$, $M_{rejection} = 4.17$, $SD = 1.67$).

Study 1b Additional Measure

Participants completed the eight-item SDO scale (Ho et al., 2015) as they believed the evaluator would complete it (Sanchez et al., 2017) on a scale from 1 (*Strongly oppose*) to 7 (*Strongly favor*), ($\alpha = 0.89$). This measure was completed after being probed for suspicion but before being debriefed.

The ANCOVA for perceived SDO revealed a significant main effect of condition, $F(2, 176) = 99.05$, $p < .001$, $d = 2.12$. LSD post-hoc analyses revealed that participants perceived the neutral professor ($M = 3.72$, $SE = 0.11$) as significantly lower in SDO than the racist professor ($M = 5.65$, $SE = 0.11$), $p < .001$, $d = 2.14$, 95% $CI_{meandiff}$ [1.62, 2.23], and the sexist professor (M

---

[1] Sexism threat words were also included in the pre-test for a separate project.

= 5.57, SE = 0.10), p < .001, d = 2.08, 95% CI$_{meandiff}$ [1.54, 2.15]. There was no significant difference between the racist and sexist professor conditions, p = .59, d = 0.12, 95% CI$_{meandiff}$ [–0.21, 0.38].

Study 1b Analyses Without Covariate

A one-way ANOVA on preconscious attentional bias to rejection was significant, $F(2, 177)$ = 4.27, p = .017, d = 0.44. LSD post-hoc analyses revealed that participants demonstrated significantly less preconscious attentional bias to rejection when imagining enrolling in a course with a STEM professor whose intergroup attitudes were unknown (M = –6.72, SE = 3.16) compared to a racist STEM professor (M = 4.63, SE = 3.08), $t(115)$ = 2.60, p = .01, 95% CI$_{meandiff}$ [2.64, 20.06], and compared to a sexist STEM professor (M = 4.27, SE = 3.01), $t(118)$ = 2.53, p = .013, 95% CI$_{meandiff}$ [2.38, 19.60]. Preconscious attentional bias to rejection did not significantly differ in the racist and sexist STEM professor conditions, $t(121)$ = 0.08, p = .93, 95% CI$_{meandiff}$ [–8.86, 8.13].

A one-way ANOVA on seat choice was significant, $F(2, 177)$ = 9.08, p < .001, d = 0.64. LSD post-hoc analyses revealed that participants selected seats significantly closer to the STEM professor whose intergroup attitudes were unknown (M = 3.79, SE = 0.19) compared to the racist STEM professor (M = 4.55, SE = 0.18), $t(115)$ = 2.93, p = .004, 95% CI$_{meandiff}$ [0.25, 1.27], and compared to the sexist STEM professor (M = 4.86, SE = 0.18), $t(118)$ = 4.00, p < .001, 95% CI$_{meandiff}$ [0.56, 1.57]. Seat choice did not significantly differ in the racist and sexist STEM professor conditions, $t(121)$ = 1.22, p = .23, 95% CI$_{meandiff}$ [–0.19, 0.81].

A one-way ANOVA on classroom comfort was significant, $F(2, 177)$ = 9.84, p < .001, d = 0.67. LSD post-hoc analyses revealed that participants indicated significantly greater classroom comfort in a course with the STEM professor whose intergroup attitudes were

S7

unknown ($M = 3.66$, $SE = 0.17$) compared to with the racist STEM professor ($M = 2.97$, $SE = 0.16$), $t(115) = 3.01$, $p = .003$, 95% CI$_{meandiff}$ [0.24, 1.15], and compared to with the sexist STEM professor ($M = 2.67$, $SE = 0.16$), $t(118) = 4.21$, $p < .001$, 95% CI$_{meandiff}$ [0.54, 1.43]. Classroom comfort did not significantly differ between the sexist and racist STEM professor conditions, $t(121) = 1.30$, $p = .19$, 95% CI$_{meandiff}$ [–0.74, 0.15].

A one-way ANOVA on perceived SDO was significant, $F(2, 177) = 103.67$, $p < .001$, $d = 2.17$. LSD post-hoc analyses indicated participants perceived the STEM professor whose intergroup attitude were unknown ($M = 3.70$, $SE = 0.11$) as significantly lower in SDO than the racist STEM professor ($M = 5.66$, $SE = 0.11$), $t(115) = 4.11$, $p < .001$, 95% CI$_{meandiff}$ [1.66, 2.27], and the sexist STEM professor ($M = 5.58$, $SE = 0.11$), $t(118) = 4.00$, $p < .001$, 95% CI$_{meandiff}$ [1.58, 2.18]. Perceived SDO did not significantly differ between the sexist and racist STEM professor conditions, $t(121) = 0.54$, $p = .59$, 95% CI$_{meandiff}$ [–0.38, 0.22].

Study 1b Alternative Mediations

While we again proposed that preconscious attentional bias would facilitate identity threat transfer for more automatic outcomes, such as social distancing, and perceived SDO would facilitate identity threat transfer for more explicit, self-report outcomes, exploratory parallel mediation analyses were conducted examining both preconscious attentional bias and perceived SDO as mediators. Two parallel mediation analyses were conducted examining the effect of condition (–1 = neutral professor; 1 = racist professor) on (1) seat choice and (2) classroom comfort, via preconscious attentional bias to rejection and perceived SDO. In all analyses, condition significantly predicted preconscious attentional bias to rejection, $B = 5.49$, SE

= 2.42, $p = .025$, 95% CI$_B$ [0.69, 10.29], and perceived SDO, $B = 0.97$, $SE = 0.08$, $p < .001$, 95% CI$_B$ [0.80, 1.14].

Preconscious attentional bias to rejection significantly predicted seat choice, $B = 0.01$, $SE = 0.01$, $p = .006$, 95% CI$_B$ [0.004, 0.02], and perceived SDO marginally predicted seat choice, $B = 0.26$, $SE = 0.14$, $p = .056$, 95% CI$_B$ [–0.01, 0.52]. The indirect effect of condition on seat choice was significant through preconscious attentional bias to rejection, $B = 0.07$, $SE = 0.04$, 95% CI$_B$ [0.01, 0.18], and through perceived SDO, $B = 0.25$, $SE = 0.12$, 95% CI$_B$ [0.02, 0.50]. As such, perceived SDO was unexpectedly also a significant mediator, such that White women perceived the racist professor as significantly higher in SDO and this was associated with greater social distancing compared to participants in the neutral, control condition.

An identical parallel mediation analysis replacing seat choice with classroom comfort revealed that neither preconscious attentional bias to rejection, $B = -0.001$, $SE = 0.004$, $p = .77$, 95% CI$_B$ [–0.01, 0.01], nor perceived SDO, $B = -0.01$, $SE = 0.11$, $p = .93$, 95% CI$_B$ [–0.24, 0.22], significantly predicted classroom comfort. As such, the indirect effect of condition on classroom comfort was not significant through preconscious attentional bias to rejection, $B = -0.01$, $SE = 0.02$, 95% CI$_B$ [–0.05, 0.02], nor through perceived SDO, $B = -0.01$, $SE = 0.15$, 95% CI$_B$ [–0.29, 0.28].

TABLE S3. Study 2 Overall Correlations and Descriptive Statistics by Condition

	1	2	3	$M_{\text{Black Man}}$ (SE)	$M_{\text{White Woman}}$ (SE)	$M_{\text{White Man}}$ (SE)
1. Prec. Attentional Bias (Rejection)				-7.26_a (3.13)	-7.99_a (3.13)	4.04_b (3.16)
2. Virtual Seat	.35**			3.18_a (0.17)	3.43_a (0.17)	4.04_b (0.17)
3. Classroom Comfort	−.25**	−.19*		4.42_a (0.15)	4.07_{ab} (0.15)	3.87_b (0.16)
4. Perceived SDO	.18*	.09	−.20*	2.62_a (0.14)	2.98_{ab} (0.14)	3.27_b (0.14)

Note. $**p < .01$; $*p < .05$. Means that do not share a subscript significantly differ at $p < .05$.

Study 2 Additional Measure

After being probed for suspicion, participants completed the same measure of perceived SDO as in Study 2 ($\alpha = 0.88$). The one-way ANOVA for perceived SDO of the professor was significant, $F(2, 149) = 5.51$, $p = .005$, $d = 0.54$. LSD post-hoc tests indicated that participants perceived the Black male professor ($M = 2.62$, $SE = 0.14$) as significantly lower in SDO than the White male professor ($M = 3.27$, $SE = 0.14$), $t(99) = 3.38$, $p = .001$, $d = 0.52$, 95% $CI_{meandiff}$ [0.26, 1.03], but not the White female professor ($M = 2.98$, $SE = 0.14$), $t(100) = 1.84$, $p = .07$, $d = 0.32$, 95% $CI_{meandiff}$ [–0.84, 0.03]. There was no significant difference in perceived SDO in the White woman and White male STEM professor conditions, $t(99) = 1.47$, $p = .14$, $d = 0.18$, 95% $CI_{meandiff}$ [–0.09, 0.68].

Study 2 Alternative Mediation Analysis

A parallel mediation analysis was conducted to examine the effect of condition (–1 = White male professor; 1 = Black male professor) on seat choice via preconscious attentional bias to rejection and perceived SDO. Condition significantly predicted preconscious attentional bias to rejection, $B = -5.65$, $SE = 2.40$, $p = .02$, 95% CI_B [–10.40, –0.89], and perceived SDO, $B = -0.32$, $SE = 0.10$, $p = .001$, 95% CI_B [–0.51, –0.13]. Preconscious attentional bias to rejection predicted seat choice, $B = 0.01$, $SE = 0.01$, $p = .018$, 95% CI_B [0.002, 0.02], but perceived SDO did not significantly predict seat choice, $B = -0.03$, $SE = 0.13$, $p = .82$, 95% CI_B [–0.29, 0.23]. While the indirect effect of condition on seat choice was significant through preconscious attentional bias to rejection, $B = -0.08$, $SE = 0.04$, 95% CI_B [–0.18, –0.004], but not through perceived SDO, $B = 0.01$, $SE = 0.04$, 95% CI_B [–0.06, 0.11].

A second parallel mediation analysis was conducted to examine the effect of condition (–1 = White male professor; 1 = Black male professor) on classroom comfort via preconscious attentional bias to rejection and perceived SDO. Condition significantly predicted preconscious

attentional bias to rejection, $B = -5.65$, $SE = 2.40$, $p = .02$, 95% CI_B [-10.40, -0.89], and perceived SDO, $B = -0.32$, $SE = 0.10$, $p = .001$, 95% CI_B [-0.51, -0.13]. Preconscious attentional bias to rejection predicted classroom comfort, $B = -0.01$, $SE = 0.01$, $p = .026$, 95% CI_B [0.02, -0.001], but perceived SDO did not significantly predict classroom comfort, $B = -0.15$, $SE = 0.11$, $p = .18$, 95% CI_B [-0.37, 0.07]. While the indirect effect of condition on classroom comfort was significant through preconscious attentional bias to rejection, $B = 0.06$, $SE = 0.04$, 95% CI_B [0.003, 0.15], but not through perceived SDO, $B = 0.05$, $SE = 0.04$, 95% CI_B [-0.02, 0.15]. This pattern of effects does not match the findings in Study 1b examining preconscious attentional bias and perceived SDO as mechanisms of identity cue transfer as it relates to classroom comfort and is the first mediation suggesting preconscious attentional bias predicts explicit, self-report measures of identity safety. This result is thus interpreted cautiously, and future research should continue to explore the relationship between preconscious attentional bias and self-report measures.