

Research Article

Prejudice Expectations Moderate Preconscious Attention to Cues That Are Threatening to Social Identity

Cheryl R. Kaiser,¹ S. Brooke Vick,² and Brenda Major²

¹Michigan State University and ²University of California, Santa Barbara

ABSTRACT—Two studies examined whether chronic and situational expectations about being stigmatized predict attention toward cues that are threatening to social identity. In Study 1, women's chronic expectations about experiencing sexism were positively associated with their attention toward subliminal cues threatening to their social identity. In Study 2, women were vigilant toward subliminal cues threatening to their social identity when the experimental situation conveyed that their gender was devalued, but not when the experimental situation promoted value and respect for their gender. Women were vigilant toward consciously presented cues threatening to their social identity regardless of the attitudes the experimental context conveyed toward their group. These studies have important theoretical and practical implications for understanding the psychological experience of possessing a devalued social identity.

that members of stigmatized groups develop belief systems about being devalued and that these expectations cause them to become especially alert or vigilant for signs of devaluation (Major, Quinton, & McCoy, 2002; Miller & Kaiser, 2001; Steele, Spencer, & Aronson, 2002), a predicament Steele et al. (2002) dubbed *social-identity threat* (see also Major & O'Brien, 2005). Social-identity threat can be triggered by situational cues signaling that one's identity is viewed negatively and by individual differences that make some individuals particularly sensitive to these cues or even render them chronically threatened. It is important to note that social-identity threat is not inevitable and does not occur when environmental cues signal that other people value and respect one's social group (a situation known as *identity safety*) or among individuals who chronically believe that other people respect their social group (Davies, Spencer, & Steele, 2005; Steele et al., 2002).

PREJUDICE EXPECTATIONS AS AN ANTECEDENT OF SOCIAL-IDENTITY THREAT

Alertness is the first step the ego takes for self-defense. It must be on guard. Sometimes the sensitiveness develops to an unreal pitch of suspicion; even the smallest cues may be loaded with feeling. It is not uncommon among Jews to report a special sensitization to the sound "eu." (Allport, 1954/1979, pp. 144–145)

As Allport noted 50 years ago, individuals belonging to stigmatized, or socially devalued, groups may become especially attentive to cues that their social identity is discredited. Recently, scholars have revisited Allport's observation by arguing

Prejudice expectations (i.e., anticipation of facing devaluation because of one's social identity) can influence attentiveness toward cues that are threatening to one's social identity (Major et al., 2002; Steele et al., 2002). Prejudice expectations can be assessed with individual difference constructs such as stigma consciousness (expecting to be stereotyped; Pinel, 1999) and prejudice apprehension (anxious expectations about prejudice; Mendoza-Denton, Page-Gould, & Pietrzak, 2005). Prejudice expectations can also be situationally activated with cues alerting individuals to the possibility of devaluation (e.g., Crocker, Voelkl, Testa, & Major, 1991; Inzlicht & Ben-Zeev, 2000). Research demonstrates that individuals who chronically expect social-identity-based devaluation or who are in situa-

Address correspondence to Cheryl R. Kaiser, Department of Psychology, Michigan State University, East Lansing, MI 48824, e-mail: kaiserc6@msu.edu.

tions in which those expectations are salient are particularly likely to notice social-identity-based devaluation, whereas individuals who chronically anticipate little devaluation or who are in situations that signal identity safety are less likely to notice identity-based devaluation (Major et al., 2002).

MEASURING ATTENTION TO CUES THAT ARE THREATENING TO SOCIAL IDENTITY

Typically, attention toward cues that are threatening to social identity is assessed with self-reports of perceived devaluation (e.g., Branscombe, Schmitt, & Harvey, 1999; Kaiser & Miller, 2001a; Major, Quinton, & Schmader, 2003). However, self-reports of attention to devaluation are problematic. First, they can be biased by self-presentational concerns about the social ramifications of expressing the perception of prejudice (Kaiser & Miller, 2001b) and by motivational concerns to avoid perceiving prejudice (Crosby, 1984; Major et al., 2002). Second, self-reports do not disentangle attention toward cues that are threatening to social identity from interpretation of events as due to social identity, and cues that are threatening to social identity may be attended to outside of conscious awareness. Finally, self-reports of perceived devaluation share substantial method variance and overlap in negative affectivity with individual difference variables typically used as predictors of perceived devaluation (Major et al., 2002). Thus, it is important to examine attention toward cues that are threatening to social identity with measures better suited for capturing attentional processes.

In this investigation, we drew upon research on cognitive models of emotion to understand attention toward cues that are threatening to social identity. Research in this tradition often employs dual-task attention paradigms, like the emotional Stroop task, to assess attention to emotionally relevant life concerns (see Williams, Mathews, & MacLeod, 1996, for a review). In the emotional Stroop task, participants view words (some of which represent emotionally relevant life concerns) written in a variety of colors and are instructed to identify each word's color. If attention is drawn toward the content of emotional words, respondents experience cognitive interference, which causes impaired performance in naming the color of emotional words relative to control words. On emotional Stroop tasks, people with a variety of emotional concerns, including clinical and trait levels of anxiety, posttraumatic stress disorder, and panic disorder, show cognitive interference for words that are semantically related to their current concern or diagnosis (Williams et al., 1996). Furthermore, these effects are particularly pronounced when stimulus words are presented subliminally, presumably because respondents cannot control subliminal attention (MacLeod & Hagan, 1992; Mogg, Bradley, Williams, & Matthews, 1993; Williams et al., 1996).

When these research findings are applied toward understanding stigma, it suggests that individuals who chronically expect to face prejudice or who are in situations in which those

expectations are salient should show enhanced attention toward cues that are threatening to social identity, whereas individuals who do not chronically anticipate prejudice or who are in identity-safe environments should not show this pattern of attentional bias. Indeed, Davies, Spencer, Quinn, and Gerhartstein (2002; Davies et al., 2005) demonstrated that women were quicker to recognize consciously presented gender-stereotype-relevant words than neutral words after watching commercials that displayed women stereotypically; this difference did not emerge when they watched commercials that displayed women counterstereotypically. Though these results provide evidence that exposure to sexist commercials activates gender stereotypes, Davies et al. did not examine nonconscious attention, nor did they examine attention to words that are threatening to social identity or individual differences in prejudice expectations. Thus, the present investigation provides novel and critical tests of the social-identity-threat perspective.

HYPOTHESES

We hypothesized that women who chronically expect to face prejudice or who are in situations in which these expectations are salient will display increased preconscious attention toward stimuli that are threatening to social identity, whereas women who are low in chronic prejudice expectations or who are in identity-safe situations will not show this pattern of vigilance.

STUDY 1

Method

Participants and Prescreening

Participants were 37 predominantly White (94.6%) undergraduate women who were between the ages of 17 and 25 and participated in exchange for research credit. In the days prior to the study, they completed two Web-based measures of prejudice expectations (stigma consciousness and chronic perceptions of sexism).

Stigma consciousness was assessed with Pinel's (1999) Stigma Consciousness Questionnaire. Sample items include "Stereotypes about women have not affected me personally" (reverse-scored) and "Most men do not judge women on the basis of their gender" (reverse-scored). Chronic perceptions of sexism were assessed with five items, such as "I experience discrimination because of my gender" and "I personally have been a victim of gender discrimination." Endpoints for both scales were 0 (*strongly disagree*) and 6 (*strongly agree*; α s = .86 and .94, respectively).

Generating Stimulus Words

To select stimulus words, we asked 10 undergraduate women to evaluate a large list of words. For each word, they indicated whether they knew its meaning, the extent to which it was threatening (1 = *not at all threatening*, 7 = *very threatening*),

TABLE 1
Description of the Stimulus Words

Word block	Rating			
	Representative of sexism	Representative of illness or injury	Representative of household objects	Threatening
Social identity threatening	6.45 _a (0.36)	1.36 _b (0.34)	1.06 _b (0.16)	5.04 _y (0.61)
Illness or injury threatening	1.13 _b (0.16)	6.60 _a (0.20)	1.00 _b (0.00)	4.61 _y (0.82)
Nonthreatening	1.23 _b (0.36)	1.05 _b (0.11)	6.44 _a (0.22)	1.10 _z (0.16)

Note. Standard deviations are in parentheses. For the representativeness ratings of each word block and for the ratings of perceived threat, means that do not share a subscript differ significantly ($p_{\text{rep}} > .96$).

and the extent to which it was representative of each of three categories: “sexism,” “illness/injury,” and “household objects” (1 = *not at all representative*, 7 = *very representative*). The sexism words were candidates to be used as the stimuli threatening social identity, the illness-injury words were candidates for a control type of threatening stimuli (to control for attention to threat more generally), and the household-objects words were candidates for the nonthreatening stimuli.

From this list, we selected 10 words for each category. All raters reported that they knew the definition of these words. We selected the words such that average word length was equivalent across the three categories. In addition, the sexism and illness-injury words were rated as equally threatening and as more threatening than the household-objects words (see Table 1). Finally, all words were rated as representative of their respective category and unrepresentative of the other categories.¹ The selected social-identity-threatening words were *ho*, *bitch*, *whore*, *sexist*, *devalue*, *hooters*, *demeaning*, *prejudice*, *chauvinist*, and *harassment*. The illness-threatening words were *mono*, *virus*, *cancer*, *stroke*, *disease*, *diabetes*, *infection*, *pneumonia*, *bronchitis*, and *concussion*, and the nonthreatening words were *broom*, *stove*, *table*, *carpet*, *dresser*, *cupboard*, *curtains*, *microwave*, *tupperware*, and *corkscrew*.

Laboratory Session

Participants were met by a male or female experimenter,² who escorted them to a cubicle equipped with a computer running MediaLab and DirectRT software (Jarvis, 2004a, 2004b) and a 15-in. CRT monitor. Participants learned that they would complete a computer task that involved identifying the color of letter strings by pressing color-coded keyboard keys.

In the Stroop task, the 30 words were presented in each of four colors (red, yellow, blue, and green), for a total of 120 trials that were presented in a unique random order. Each trial started with

¹We did not match words for frequency of usage because many sexism words are not included in books tracking these statistics, nor do these books account for differential exposure to these words among devalued groups. Because we were interested in the effects of manipulations and individual differences on attention, rather than absolute differences between word categories, frequency norming was not essential for addressing our questions.

²The experimenter's sex was unrelated to all dependent measures.

the foveal presentation of a fixation point for 1,000 ms. This point was then replaced with a stimulus word presented for 15 ms. The word was then backward-masked with a like-colored string of consonants matched for word length. The consonant string remained on the monitor until the participant responded. The participant completed 30 practice trials that involved identifying the color of number words. After the practice trials, the experimenter left the cubicle, and the participant began the task.

After participants completed this task, they completed an awareness check, so that we could be sure they were unable to detect the stimulus words. Each trial started with a 1,000-ms fixation point. This point was replaced with either a stimulus word (on 30 trials) or one of the original masks (on 30 trials) for 15 ms. The word or original mask was then backward-masked by a string of consonants (stimuli were presented in various colors). Participants pressed a key labeled “No” or “Yes” to indicate whether or not they saw a real word prior to the consonant string, which remained on the screen until a response was made. At the conclusion of the awareness check, participants were probed for suspicion and debriefed.

Results

Data Processing

We eliminated reaction times (RTs) less than 300 ms or greater than 3,000 ms, outlying RTs greater than 3 standard deviations from each participant's mean, and RTs on trials with incorrect responses. These criteria resulted in the exclusion of 4.2% of RTs. Because RT data are positively skewed, we log-transformed the RTs prior to analyses.

Awareness Check

To assess potential awareness of the subliminal words, we examined participants' accuracy at distinguishing between real words and nonwords on the awareness check. Participants could not accurately detect the presence of real words (48.8% accuracy), $t(35) = -1.23$, $p_{\text{rep}} = .80$. Additionally, no participant reported suspicion about exposure to subliminal words, and accuracy was unrelated to prejudice expectations and color-naming RTs for all three word categories ($p_{\text{rep}} < .80$).

Did Prejudice Expectations Predict Attention to Cues That Threaten Social Identity?

Because stigma consciousness and chronic prejudice perceptions were highly correlated, $r(37) = .69$, $p_{\text{rep}} = .997$, we aggregated these measures into a prejudice-expectations composite. We then computed partial correlations to examine whether this composite predicted attention, as indexed by RT, to each of the three word categories. Each analysis controlled for attention to the two word categories that were not being predicted (see Kunda, Davies, Adams, & Spencer, 2002).

As predicted, there was a positive and reliable partial correlation between prejudice expectations and attention toward words that are threatening to social identity, $r(33) = .33$, $r^2 = .11$, $p_{\text{rep}} = .92$. In contrast, prejudice expectations did not reliably predict attention to illness-threatening words, $r(33) = -.22$, $r^2 = .05$, $p_{\text{rep}} = .82$, or nonthreatening words, $r(33) = -.10$, $r^2 = .01$, $p_{\text{rep}} = .65$ —in fact, these correlations were negative.

Discussion

Study 1 demonstrates that chronic expectations of sexism predict increased attention toward subliminally presented cues that threaten social identity. This study is the first empirical investigation linking self-reports of prejudice expectations with non-self-report measures of attention to cues that threaten social identity.

We next sought to replicate these findings with an experimental manipulation of prejudice expectations. Additionally, because there is inconsistency in the literature with regard to whether cognitive interference is more pronounced on subliminal or conscious computerized Stroop tasks (Williams et al., 1996), we included both subliminal and conscious stimuli in our second experiment so our results could contribute to this debate.

STUDY 2

Method

Participants were 35 predominantly White (97%) undergraduate women ($M = 19.23$ years, $SD = 1.18$) who received \$10 for participation. A female experimenter escorted participants to a cubicle and explained that the study involved two computerized tasks assessing reaction time and problem solving, and a group task with another participant. Participants learned that the other participant (actually fictitious) was already completing preliminary surveys. The experimenter then left, feigned conversation with the fictitious participant, and returned with surveys purportedly completed by that person. Participants were then left alone for 3 min with these surveys to get a “sense” for their partner. The surveys included demographic information conveying that the partner was a 19-year-old man who held either sexist (in the identity-threat condition) or nonsexist (in the identity-safety condition) attitudes toward women. In the iden-

tity-threat condition, he indicated strong agreement with statements such as “Women should not earn the same amount of money in certain fields because they do not have the same abilities as men” and “I could not work for a female boss because women can be overly emotional.” In the identity-safety condition, he strongly disagreed with these statements. These items were embedded among filler responses.

The experimenter then reentered the cubicle and provided participants with instructions for completing the Stroop task, which was conducted with SuperLab 2.0 software (Cedrus, 1999) on a computer with a 16-in. CRT monitor. Responses were made using a response box with four colored keys. Participants viewed the 30 words from Study 1 in all four colors, but in this experiment words were presented in separate category blocks, and the order of these blocks was counterbalanced across participants. Additionally, participants viewed each category block under both subliminal (15-ms exposure, as in Study 1) and conscious (stimuli remained on the screen until participants responded) conditions (order was counterbalanced). With these changes, participants completed 240 trials.

After completing the Stroop task, participants completed an awareness check (which was identical to the awareness check in Study 1, although in this study only real words were presented), rated the extent to which their partner seemed sexist (0 = *strongly disagree*, 6 = *strongly agree*), and were probed for suspicion and debriefed. One participant raised suspicion about whether the partner was real and was excluded from all analyses.

Results

Manipulation Check

The manipulation of partner’s attitude was successful, $F(1, 32) = 304.77$, $\eta^2 = .91$, $p_{\text{rep}} = .997$. Participants in the identity-threat condition ($M = 5.17$, $SD = 0.86$) rated him as more sexist than those in the identity-safety condition ($M = 0.25$, $SD = 0.78$).

Data Processing

To eliminate errors and reduce the influence of outlying RTs, we employed the procedures described for Study 1 (2.1% of the RTs were eliminated). Though we ran analyses with log-transformed data, we present untransformed scores here to ease interpretation.

Awareness Check

On average, participants accurately detected the presence of words less often (49.12%) than would be predicted by chance alone, $t(33) = -0.28$, $p_{\text{rep}} = .58$. Additionally, no participant reported suspicion about exposure to subliminal words. Experimental condition was unrelated to performance on the awareness check, and awareness was unrelated to RT on the Stroop task ($p_{\text{rep}} < .77$).

Do Environments Characterized by Social-Identity Threat and Social-Identity Safety Affect Attention?

We conducted a 2 (social-identity condition: threat or safety) \times 3 (word type: social identity threatening, illness threatening, or nonthreatening) \times 2 (word presentation: subliminal or conscious) analysis of variance (ANOVA) with repeated measures on the last two factors. This analysis revealed a main effect of word type, $F(2, 64) = 4.78$, $\eta^2 = .13$, $p_{\text{rep}} = .96$; a main effect of word presentation, $F(1, 32) = 9.94$, $\eta^2 = .24$, $p_{\text{rep}} = .98$; and a Word Type \times Word Presentation interaction, $F(2, 64) = 4.75$, $\eta^2 = .13$, $p_{\text{rep}} = .96$. These effects were qualified by the predicted three-way Word Type \times Word Presentation \times Social-Identity Condition interaction, $F(2, 64) = 5.00$, $\eta^2 = .23$, $p_{\text{rep}} = .97$. We probed the interaction with separate Word Type \times Social-Identity Condition ANOVAs for subliminal and conscious presentation.

Subliminal Attention. The 2 (social-identity condition) \times 3 (word type) ANOVA examining attention to subliminal words revealed a Word Type \times Social-Identity Condition interaction, $F(2, 64) = 4.64$, $\eta^2 = .13$, $p_{\text{rep}} = .96$. No other effects were reliable ($p_{\text{reps}} < .79$). Paired t tests examining the differential attention to the three word categories within each social-identity condition revealed that when participants anticipated interacting with a sexist man, they allocated more attention to cues that are threatening to social identity ($M = 598.88$ ms, $SD = 92.26$) than to illness-threatening cues ($M = 577.73$ ms, $SD = 79.64$), $t(17) = 3.39$, $\eta^2 = .40$, $p_{\text{rep}} = .98$. Attention toward the nonthreatening cues was intermediate and not significantly different from attention to either the social-identity-threatening or the illness-threatening cues ($M = 583.90$ ms, $SD = 72.38$), $t(17) = 1.48$, $\eta^2 = .11$, $p_{\text{rep}} = .84$, and $t(17) = -1.19$, $\eta^2 = .08$, $p_{\text{rep}} = .79$, respectively.

Though at first glance it seems surprising that participants did not attend more to cues that threaten social identity than to nonthreatening cues, this may have occurred because in the context of an interaction with a sexist man, household objects (the nonthreatening word category—e.g., *stove*, *broom*, *microwave*) were associated with domestic tasks such as cooking and cleaning, which are typically sex-typed. In retrospect, these nonthreatening words may not have provided the best comparison. However, we included the illness-threatening words to provide a strong comparison condition that controlled for attention to threat more generally. Thus, the fact that participants attended more to the words that threaten social identity than to the illness-threatening words indicates that social-identity threat was indeed a concern to these women.

When the women anticipated interacting with a nonsexist man, they did not differentially attend to subliminal cues threatening social identity ($M = 602.97$, $SD = 63.52$), relative to illness-threatening cues ($M = 614.98$, $SD = 59.33$), $t(15) = -1.56$, $\eta^2 = .16$, $p_{\text{rep}} = .85$, or nonthreatening cues ($M = 614.54$, $SD = 65.08$), $t(15) = -1.21$, $\eta^2 = .09$, $p_{\text{rep}} = .79$, and

attention to the latter two word categories did not differ, $t(15) = 0.05$, $\eta^2 = .00$, $p_{\text{rep}} = .51$. It is interesting that in this condition, the least amount of attention was allocated toward the cues threatening social identity. Safe expectations about the situation resulted in an absence of the vigilance that occurred when the women expected an interaction with a sexist man.

Conscious Attention. The ANOVA examining attention to conscious words revealed a significant main effect of word type, $F(2, 64) = 8.51$, $\eta^2 = .21$, $p_{\text{rep}} = .99$; participants overall attended more to the cues threatening social identity ($M = 637.56$, $SD = 95.46$) than to both illness-threatening cues ($M = 617.56$, $SD = 83.58$) and nonthreatening cues ($M = 610.75$, $SD = 75.16$; η^2 s $> .21$, $p_{\text{reps}} > .95$), and attention to the latter two word categories did not differ ($\eta^2 = .03$, $p_{\text{rep}} = .77$). The Word Type \times Social-Identity Condition interaction was not reliable, $F(2, 64) = 1.34$, $\eta^2 = .04$, $p_{\text{rep}} = .78$, indicating that patterns of conscious attention did not differ in the two social-identity conditions.

Discussion

Experiment 2 conceptually replicates Study 1 and further demonstrates that situationally induced prejudice expectations moderate attention to subliminal cues that are threatening to social identity. When participants anticipated interacting with a sexist man, they displayed increased attention to such cues compared with equally threatening illness cues. Illness-threatening words provided an extremely strong control condition as they accounted for attention to threat more generally. Thus, the results suggest that the women were attentive to cues threatening their social identity. The women also attended somewhat less to the nonthreatening words than to the words threatening social identity ($p_{\text{rep}} = .84$). Our choice of “neutral” words referring to many gender-typed household objects may have resulted in increased sensitivity to these words when the women anticipated interacting with a sexist man.

This study is consistent with work on identity safety, as the women were not vigilant toward subliminal cues threatening social identity when the environment promoted safe social-identity expectations (in this case, an interaction with a nonsexist man). Indeed, if anything, these women showed a pattern of differentially screening out subliminal cues that were threatening to their social identity.

When the words were presented consciously, cues that were threatening to social identity attracted the most attention, both when the women expected to interact with a sexist man and when they expected to interact with a nonsexist man. This suggests that when women have the opportunity to modulate their attention, they are attentive to very clear cues that threaten their social identity. These results are conceptually consistent with research showing that individual differences in prejudice expectations moderate recognition of sexism-related threatening

cues only when those cues are ambiguous, not when they are blatant (Major et al., 2003; see also Snyder & Ickes, 1985).

GENERAL DISCUSSION

Drawing on Allport's seminal insights (1954), we hypothesized that individuals who chronically anticipate being a target of prejudice, or who find themselves in situations in which these concerns are salient, are vigilant for cues that their social identity is under threat. Our research findings were consistent with this hypothesis. We found that individuals with chronic or situationally induced concerns about prejudice preconsciously screen their environment for signs of identity devaluation. In contrast, individuals who are chronically or temporarily unconcerned with threats to their social identity do not engage in this pattern of preconscious attention. To our knowledge, this work provides the first empirical evidence that chronic and situational prejudice expectations affect preconscious attention to cues that are threatening to social identity. We found that blatant and unambiguous threats to social identity attracted attention regardless of beliefs about prejudice. Thus, prejudice expectations are of little utility in understanding attention to this type of information (Major et al., 2003; Snyder & Ickes, 1985).

Our findings raise interesting questions about the predicament of possessing a devalued social identity. They suggest that stigmatized individuals are vulnerable to experiencing automatic social-identity threat, which can cause them to become attentionally vigilant toward cues threatening their identity. Because attention is a limited resource, attention allocated toward cues that are threatening to social identity comes at the expense of attention that could be allocated toward other tasks (Muraven & Baumeister, 2000; Schmader & Johns, 2003). For example, employees who perceive their co-workers as prejudiced may find their attention drawn toward subtle threats to their social identity in the workplace, and this diverted attention could impair their job performance. Our findings also suggest that identity-safe environments can eliminate vigilance for subtle cues that one's social identity is devalued.

Our data provide support for Allport's (1954/1979) observation that members of stigmatized groups can become "on guard" for signs of subtle identity devaluation. They further elaborate on this observation, however, by demonstrating that vigilance for threats to social identity is not universal among members of devalued groups, nor does it occur in all situations. Rather, sensitivity to cues that are threatening to social identity varies, depending on characteristics of the individual, features of the situation, and the salience of the threatening cues.

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