Research Article

Prejudice From Thin Air

The Effect of Emotion on Automatic Intergroup Attitudes

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ABSTRACT—*Two experiments provide initial evidence that specific emotional states are capable of creating automatic prejudice toward outgroups. Specifically, we propose that anger should influence automatic evaluations of outgroups because of its functional relevance to intergroup conflict and competition, whereas other negative emotions less relevant to intergroup relations (e.g., sadness) should not. In both experiments, after minimal ingroups and outgroups were created, participants were induced to experience anger, sadness, or a neutral state. Automatic attitudes toward the in- and outgroups were then assessed using an evaluative priming measure (Experiment 1) and the Implicit Association Test (Experiment 2). As predicted, results showed that anger created automatic prejudice toward the outgroup, whereas sadness and neutrality resulted in no automatic intergroup bias. The implications of these findings for emotion-induced biases in implicit intergroup cognition in particular, and in social cognition in general, are considered.*

Since the heyday of frustration-aggression and scapegoating theories of prejudice (e.g., Dollard, Doob, Miller, Mowrer, & Sears, 1939), social psychologists have recognized that intergroup relations, and the stereotypes and prejudices that inevitably accompany them, are influenced by perceivers' emotional states. As in the case of attitudes more generally, emotions have been found to influence when, and to what extent, people express positive or negative attitudes toward, and beliefs about, members of in- and outgroups (Bodenhausen, Mussweiler, Gabriel, & Moreno, 2001; Fiske, 1998; cf. Petty, DeSteno, & Rucker, 2001). For example, anger and happiness are known to enhance heuristic processing of social information that, in turn, exacerbates stereotypic judgments of outgroups (Bodenhausen, Sheppard, & Kramer, 1994; Tiedens & Linton, 2001). Sadness, however, has been shown to promote systematic processing of information that, in turn, decreases stereotypic judgments (Lambert, Khan, Lickel, & Fricke, 1997). These and similar findings have led to wide acceptance of the view that specific emotions can influence people's beliefs about social groups.

It is important to note, however, that thus far, the growing corpus of research on emotion and intergroup cognition has focused exclusively on the effects of emotion on self-reported, or explicit, judgments of social groups (for a review, see Bodenhausen et al., 2001). Such judgments involve conscious deliberation and are, therefore, clearly under perceivers' voluntary control. Indeed, if people suspect that incidental emotion may unduly influence an unrelated judgment, they often correct for the perceived bias (Lambert et al., 1997; cf. DeSteno, Petty, Wegener, & Rucker, 2000). Moreover, happy individuals, who typically engage in heuristic processing, are able to process systematically when instructed to do so (Queller, Mackie, & Stroessner, 1996) or when counterstereotypic information motivates them to do so (Bless, Schwarz, & Wieland, 1996). Such control, however, is not available for all types of judgments, especially automatic ones (Banaji & Dasgupta, 1998; Greenwald & Banaji, 1995). In the domain of intergroup cognition, automatic attitudes stand as an unconscious analogue to self-reported or conscious attitudes; that is, they represent evaluations of social groups whose initiation and modification typically operate without volitional control (Fazio & Towles-Schwen, 1999; Greenwald & Banaji, 1995). Understanding the conditions that lead to the formation and exacerbation of automatic prejudice is important not only because of its pervasiveness, but also because of accumulating evidence that automatic prejudice does not remain confined to mental life—it diffuses into people's behavior toward outgroup members (Dovidio, Kawakami, & Gaertner, 2002; Fazio, Jackson, Dunton, & Williams, 1995; McConnell & Leibold, 2001).

We believe that people's emotional states at the time of intergroup judgment ought to influence their automatic evaluations of social groups by moderating or even creating intergroup biases outside of awareness. This hypothesis stems from a functional view of emotions as phenomena designed to increase adaptive responding to environmentally significant stimuli (Damasio, 1994; Keltner & Gross, 1999; LeDoux, 1996).[1] From an adaptiveness standpoint, it seems

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[1]The influence of emotion on cognition and behavior is theorized to produce adaptive responses that prepare organisms to meet environmental challenges. However, the influence of emotions may also diffuse into new situations; that is, a preexisting or incidental emotion may influence interactions with a subsequent target (cf. Bodenhausen et al., 2001; Petty et al., 2001). Any biases that stem from the influence of incidental emotions on judgments of subsequent targets need not represent an adaptive response.

reasonable to expect that specific emotions should facilitate people's ability to evaluate social groups quickly and automatically, as well as slowly and carefully. We predict that to the extent that outgroups often signify sources of conflict, competition, or blockage of goals (Brewer & Brown, 1998; Neuberg & Cottrell, 2002), and to the extent that emotions help individuals meet environmental challenges by activating goal-driven action tendencies (Frijda, 1986; LeDoux, 1996), emotions that prepare organisms to meet challenges related to conflict or competition (e.g., anger) should bias automatic intergroup evaluations in accord with these functional goals.

EMOTION AND AUTOMATIC INTERGROUP ATTITUDES

Although no evidence directly bears on this hypothesis, findings from three lines of research lend credence to the idea that emotion ought to shape automatic attitudes toward social groups. First, cognitive neuroscience research has begun to identify subcortical structures involved in automatic evaluative appraisals of social groups (Phelps et al., 2000) and has found these structures to be reciprocally linked to both cortical and subcortical regions of the brain involved in the experience of emotion (Ochsner, Bunge, Gross, & Gabrieli, 2002). Such reciprocal pathways suggest not only that automatic appraisals of particular stimuli can trigger emotion, but also that extant emotional states can influence subsequent appraisals. Given these linkages, it is possible that an emotional state renders individuals more vigilant against certain threats in the environment and that such vigilance modulates subsequent automatic evaluations of relevant social stimuli. Because automatic evaluations facilitate rapid responses when strategic analysis is unavailable, it seems reasonable to expect that these responses may be an important medium through which emotions allow organisms to meet environmental challenges; for example, certain emotion-driven automatic responses may act as the first line of defense against threatening stimuli.

Second, the functional view of emotion readily extends into the realm of intergroup relations. Recent work has begun to find that appraisals of social groups evoke specific emotional states, goals, and action tendencies that facilitate the successful negotiation of group interactions (Mackie & Smith, 2002). Given this link between social groups and specific emotions, it is conceivable that the experience of such emotions, even when their source is incidental to intergroup relations, may influence people's perceptions of in- and outgroups in accord with their functional significance.

Finally, for emotion-based moderation of automatic intergroup attitudes to occur, such attitudes must show some degree of flexibility. Recent research has supported this view, providing evidence that automatic beliefs and attitudes toward groups are not as immutable as previously theorized, but rather are quite sensitive to external cues such as social context (Dasgupta & Greenwald, 2001; Wittenbrink, Judd, & Park, 2001). Consequently, emotion, given its context-relevant signaling value, ought to act as an internal cue capable of moderating automatic intergroup attitudes.

EXPERIMENT 1

We used a minimal-group procedure to provide an initial test of the hypothesis that specific emotions can bias automatic attitudes toward social groups. Minimal groups provided a clean assessment of the primary hypothesis because participants had no preexisting attitudes or emotional reactions toward them. Thus, any automatic preference for one group over another could be interpreted as a new attitude.[2] To the extent that outgroups signify sources of conflict and competition, they may evoke feelings of anger and contempt (cf. Brewer & Brown, 1998; Neuberg & Cottrell, 2002). We propose that just as anger can originate from current interactions with groups, so may incidental feelings of anger from an unrelated situation affect automatic appraisals of social groups in a subsequent situation because the emotion signals a hostile environment and prepares individuals to act accordingly. Specifically, we propose that incidental feelings of anger are likely to increase automatic bias against an outgroup because anger increases negativity toward the outgroup, decreases positivity, or both. According to a functionalist perspective, the emergence of outgroup bias should be specific to feelings of anger as opposed to other negative emotions that are typically less relevant to intergroup relations (e.g., sadness). To examine this hypothesis, we assigned participants to minimal groups, induced one of three emotional states (i.e., anger, sadness, neutrality), and then assessed participants' automatic attitudes toward these groups with an evaluative priming task.

Method

Participants

A community sample of 87 New York City residents (50 females, 37 males) participated in exchange for $10.

Manipulations and Measures

Creation of Minimal Groups. To create minimal groups, we had participants complete a bogus personality test in which they estimated the frequency of various events (e.g., "How many people ride the New York subway every day?"). After they completed the test, the computer ostensibly analyzed their responses and informed them that they were either an "overestimator" or an "underestimator." In reality, each participant had been randomly assigned to one of these two groups. To ensure that participants remembered their group membership throughout the experiment, we instructed them to wear wristbands designating their group: red wristbands for underestimators and blue ones for overestimators. Participants were then shown pictures of 6 ingroup members and 6 outgroup members.[3] The backdrops of these pictures were color-coded red for underestimators and blue for overestimators. By matching participants' wristbands to the color of the photographs, we sought to make group membership readily recognizable by a visually salient characteristic.

Assessment of Automatic Intergroup Attitudes. An evaluative priming task was used to measure automatic intergroup attitudes (elements of this priming task were borrowed from Fazio et al., 1995, and Payne, 2001). In the first block of 12 trials, participants categorized the pictures of in- and outgroup members that they had seen previously during the minimal-group assignment procedure as belonging to the

[2]There is debate about whether evaluative biases captured by response latency measures ought to be interpreted as personal attitudes or as cultural associations learned by exposure to particular stimulus pairings in the environment (Karpinski & Hilton, 2001). The evaluative biases captured in the present experiments cannot be attributed to cultural associations given that the target stimuli were experimentally created minimal groups.

[3]Individual pictures assigned to the overestimator and underestimator groups were counterbalanced.

ingroup ("us") or outgroup ("them"). These images were presented one at a time in a random order and later served as target stimuli. In the second block of 12 trials, participants learned to classify valenced words as good or bad; these later served as primes. The third block of 24 trials allowed participants to practice the standard evaluative priming procedure. In each priming trial, several stimuli were presented in rapid succession in the following order: (a) an orienting stimulus (*) for 500 ms, (b) a word prime for 200 ms, (c) a target picture for 200 ms, and (d) a gray mask that stayed on screen until participants pressed the appropriate key on a computer keyboard to indicate whether the target picture belonged to their ingroup ("us") or outgroup ("them"). A 500-ms pause separated individual trials. Participants were instructed to attend to all stimuli presented on screen, but to categorize only the pictures. For each trial, the prime and target were selected randomly from a pool of 12 primes and 12 targets. Once practice was over, participants experienced the emotion induction (described in the next paragraph). They then completed two blocks of 45 data-collection trials each, received a second round of the emotion induction, and finally completed two more blocks of 45 data-collection trials (total of 180 critical trials).

Emotion Induction. The emotion-induction task was introduced as a study of people's memories. Participants were asked to write in detail about an autobiographical event from the past that had made them very angry, very sad, or emotionally neutral (control condition). The duration of the initial writing task was 4 min. Participants were told that they would have an opportunity later to continue writing about their memory. In the second round of the induction procedure, participants were told to continue writing from where they had left off for another 2 min.[4]

Emotion Manipulation Check. Emotional states were assessed using 5-point adjective rating scales known to tap sadness and anger (DeSteno et al., 2000). The anger subscale consisted of *angry*, *annoyed*, *frustrated*, and *irritated* ($\alpha = .90$). The sadness subscale consisted of *sad*, *gloomy*, and *down* ($\alpha = .91$).

Procedure

Participants arrived at the lab for what they thought was an experiment on people's personalities. They first completed the minimal-group assignment task, which they believed to be a measure designed to determine their personality type. Immediately following this manipulation, participants completed the evaluative priming task, which served as a measure of their automatic attitudes toward the ingroup and outgroup. This task was introduced as a measure of "hand-eye coordination" that was allegedly necessary to serve as a baseline because of individual differences in people's speed of responding to visually presented stimuli. As noted earlier, the emotion induction was embedded before the first and again before the third data-collection blocks of this priming task. After the priming task, participants completed an emotion-manipulation check and were debriefed. All data were collected and instructions and stimuli presented via computer using MediaLab (Jarvis, 2002) and Inquisit (Draine, 2000).

[4]To avoid confounding the anger induction with the priming of information related to intergroup conflict, we screened participants' responses for memories that were intergroup in nature. None of the memories involved intergroup themes; all were interpersonal.

Results and Discussion

Manipulation Check

The emotion manipulations were successful in producing the expected 3 (emotion-induction condition) × 2 (emotion rating) interaction, $F(2, 85) = 15.04$, $p < .001$. That is, participants in the angry condition reported more anger ($M = 3.32$) than sadness ($M = 2.57$), $t(30) = 3.01$, $p < .01$, $d = 0.54$; participants in the sad condition reported more sadness ($M = 3.28$) than anger ($M = 2.36$), $t(24) = 3.35$, $p < .01$, $d = 0.67$. Neutral participants reported low levels of both emotions ($M_{\text{sadness}} = 1.40$, $M_{\text{anger}} = 1.53$).

Automatic Attitudes Toward Social Groups

A 3 (emotion) × 2 (prime) × 2 (target) mixed analysis of variance revealed that the experience of specific emotional states differentially influenced automatic attitudes toward the target groups, as indicated by the three-way interaction, $F(2, 85) = 2.50$, $p = .08$ (see Fig. 1).[5] A Prime × Target interaction emerged among angry participants, indicating that, as predicted, the outgroup became a strongly valenced attitude object, $F(1, 30) = 4.95$, $p = .03$, $d = 0.57$.[6] More specifically, angry participants were slower to associate positive attributes than negative attributes with the outgroup, $t(30) = 2.35$, $p = .03$, $d = 0.42$. There was no difference in the speed with which they associated positive versus negative attributes with the ingroup ($t < 1$), indicating a neutral evaluative stance toward this group. Moreover, as expected, no intergroup bias (i.e., Prime × Target interaction) emerged for neutral or sad participants (Fs < 1.3). These data suggest that anger exerted a functional influence on automatic attitudes and, in so doing, created automatic prejudice where none had previously existed. However, before placing confidence in this finding, we wanted to attempt a cross-method replication, especially given that the omnibus test of the three-way interaction did not reach the conventional level of statistical significance.

EXPERIMENT 2

In this experiment, we used a different measure to assess the effect of emotion on automatic attitudes—the Implicit Association Test (IAT). We used the IAT for two reasons. First, it provided the opportunity to conduct a cross-method validation of the findings of Experiment 1. Evaluative priming and the IAT share several commonalities: (a) Both tasks assume that if an attitude object evokes a particular evaluation, it will facilitate responses to stimuli that are evaluatively congruent versus neutral or incongruent, and (b) both tasks interpret response facilitation as a measure of the strength of association between the object and attribute (Bargh, Chaiken, Govender, & Pratto, 1992;

[5]Analyses involving response latencies were conducted using log-transformed values to normalize the distributions. For easier interpretation, however, we present descriptive statistical information using the millisecond metric.

[6]We were agnostic about whether increased intergroup bias would be driven by less positivity or greater negativity toward the outgroup. Previous work on automatic prejudice in particular, and automatic evaluations in general, has typically relied on the existence of significant Prime × Target interactions, as opposed to absolute comparisons of response latencies across different types of trials, to indicate the existence of an evaluative bias because such individual comparisons can be compromised by confounding factors that differentially influence responses to specific types of stimuli (see Bargh, Chaiken, Govender, & Pratto, 1992; Duckworth, Bargh, Garcia, & Chaiken, 2002; Fazio et al., 1995; Glaser & Banaji, 1999; Klauer, Rossnagel, & Musch, 1997).

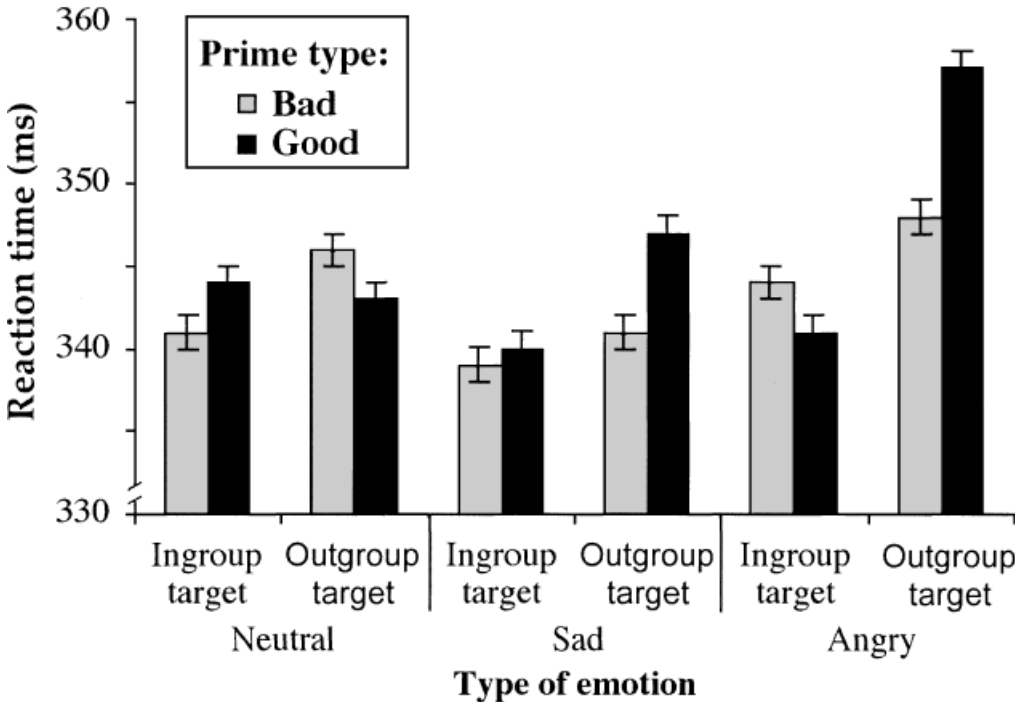

Fig. 1. Reaction time in the evaluative priming task (Experiment 1) as a function of emotion, prime, and target. Error bars represent standard errors.

Dasgupta, McGhee, Greenwald, & Banaji, 2000; Fazio, Sanbonmatsu, Powell, & Kardes, 1986; Greenwald, McGhee, & Schwartz, 1998). However, there are procedural differences between these two tasks. Thus, replicating Experiment 1 using the IAT would demonstrate the robustness of the predicted effect. Second, some data suggest that compared with priming techniques, the IAT may be more sensitive to individual and group differences and somewhat more reliable across time (Bosson, Swann, & Pennebaker, 2000). We therefore expected that this task might be better able to capture the predicted pattern of emotion-induced moderation of intergroup bias.

Method

Participants

Eighty-one students (51 females, 30 males) participated in this experiment in partial fulfillment of requirements for a psychology course.

Procedure and Measures

The procedure and measures used were identical to those of Experiment 1 with two exceptions: Automatic attitudes were assessed using an IAT instead of evaluative priming, and participants' self-reported attitudes toward the ingroup and outgroup were also measured to ensure the success of the minimal-group manipulation.

In the IAT task, participants first completed three practice blocks during which they categorized four types of stimuli (pictures representing in- and outgroup members and positive and negative words) using two designated response keys. Specifically, participants classified (a) valenced words for 20 trials, (b) pictures of in- and outgroup members for another 20 trials, and then (c) all four types of stimuli simultaneously (20 trials). These practice tasks were counterbalanced such that half the participants learned to categorize ingroup and good stimuli using the same key and outgroup and bad stimuli using a different key. The remaining participants learned the opposite stimulus pairing. Participants then completed the first round of emotion induction, which was followed by a data-collection block of the IAT that was identical to the last practice block, only longer (50 trials).

Next, additional practice was given so that participants could learn to categorize stimuli in the combination opposite to what they had learned before. During this practice, they first classified pictures of in- versus outgroup members using response keys opposite to those they had used previously (20 trials). Next, they classified all four types of stimuli simultaneously such that, for example, those participants who had previously paired ingroup with good and outgroup with bad learned to associate ingroup with bad and outgroup with good (20 trials). Participants then completed another round of emotion induction to reinstantiate their feeling state, followed by a second data-collection block of the IAT (50 trials). Next, participants reported their attitudes toward the groups using a five-item, 7-point semantic differential scale (*unintelligent-intelligent*, *bad-good*, *unpleasant-pleasant*, *dishonest-honest*, *awful-nice*); their responses were averaged into a single attitudinal index ($\alpha = .87$). Participants' emotional states were assessed at the end as in Experiment 1.

Results and Discussion

Manipulation Checks

The emotion manipulations were successful, as indicated by the Emotion Induction × Emotion Rating interaction, $F(2, 79) = 13.14$, $p < .001$. Participants in the sad condition reported more sadness ($M = 3.63$) than anger ($M = 2.98$), $t(25) = 2.89$, $p < .01$, $d = 0.57$; participants in the angry condition reported more anger ($M = 3.64$) than sadness ($M = 3.21$), $t(27) = 2.46$, $p = .02$, $d = 0.46$. Neutral

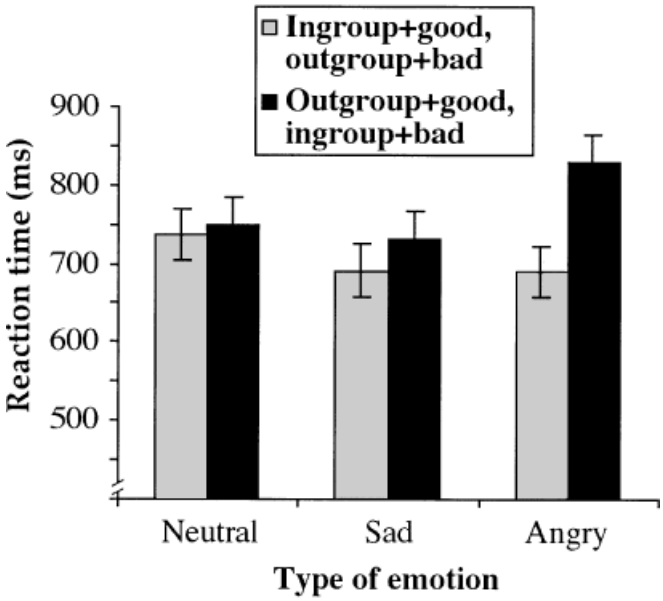

Fig. 2. Reaction time in the Implicit Association Test (Experiment 2) as a function of emotion and stimulus pairing. Error bars represent standard errors.

participants reported low levels of both emotions ($M_{sadness} = 1.57$, $M_{anger} = 2.05$).

Analysis of participants' self-reported attitudes verified the success of the group-assignment procedure. As in previous minimal-group research, participants reported more positive attitudes toward their ingroup ($M = 4.90$) than their outgroup ($M = 4.46$), $F(1, 79) = 11.21$, $p = .001$, $d = 0.75$.[7]

Automatic Attitudes Toward Social Groups

Automatic attitudes were measured as the differential speed with which participants classified outgroup with good stimuli and ingroup with bad stimuli compared with the reverse combinations; larger difference scores correspond to stronger bias against the outgroup relative to the ingroup. Participants' emotional states differentially biased their intergroup evaluations, $F(1, 79) = 4.03$, $p < .05$, $d = 0.54$.[8] As shown in Figure 2, only participants in the angry condition showed strong automatic prejudice against the outgroup and relative preference for the ingroup, $t(27) = 3.32$, $p < .01$; those in the sad and neutral conditions showed no intergroup bias (both ts < 1). Further analyses revealed that the interaction effect was driven by slower responses to outgroup + good/ingroup + bad classifications for participants in the angry condition compared with those in the neutral and sad conditions, $F(1, 79) = 3.91$, $p = .05$. Response latencies for ingroup + good/outgroup + bad classifications did not differ significantly across emotion conditions ($F < 1$). Thus, as in Experiment 1, anger created automatic outgroup bias where none had previously existed.

GENERAL DISCUSSION

Using different measures of automatic attitudes, two experiments support our contention that incidental feelings of anger can create automatic prejudice against outgroups. Because this effect was not produced by a different negative emotion that is functionally less relevant to intergroup cognition (e.g., sadness), the results are inconsistent with a simple valence-based interpretation of emotional bias. We believe that anger, because of its basic association with intergroup competition and conflict, evoked a psychological readiness to evaluate outgroups negatively vis-à-vis ingroups, thus creating an automatic prejudice against the outgroup from thin air. To our knowledge, the present findings stand as the first evidence that specific emotions are capable of shaping people's automatic evaluations toward social groups in accordance with their functional value.

In everyday life, anger-induced psychological readiness is likely to prepare one to deal rapidly with possible aggression or resource competition. Although the exact mechanism underlying this exacerbation of prejudice remains unknown at present, we speculate that it is likely to involve the activation of emotion-specific action tendencies and the accompanying cascade of physiological and psychological sequelae that result from the occurrence of specific emotional states (cf. Frijda, 1986; LeDoux, 1996). Given this functional view, it seems plausible that the ability of extant emotional states to bias automatic evaluation may not be limited to intergroup cognition, but may occur for many types of automatic appraisals. Emotions, in each case, might function to shunt automatic appraisals toward goal-specific outcomes.

It is important to note, however, that anger may not be the only negative emotion that can influence automatic attitudes toward known social groups. Although anger is a fundamental emotion associated with intergroup conflict, it is clear that negative feelings toward different outgroups do indeed vary in emotional tone. Envy, fear, disgust, or some other negative emotion may be a salient component of an individual's phenomenological experience with a specific outgroup, depending on that outgroup's power, status, or other qualities in relation to the perceiver's ingroup (Mackie & Smith, 2002). Thus, an important goal of future research is to determine if other discrete emotions associated with specific groups can alter automatic attitudes toward those groups even when these emotions are evoked by an unrelated source. At present, however, the current findings extend previous research on the interplay between emotion and intergroup relations into a new realm by providing evidence that emotions are capable of shaping automatic attitudes relevant to one of the central adaptive challenges in contemporary society—negotiating intergroup interactions.

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[7]Emotional states did not moderate self-reported attitudes. Given that emotion was not induced a third time before assessment of these attitudes, we do not consider the effect of emotion on self-reported attitudes to be comparable to the effects derived from the IAT. Even though some differences in emotion remained at the end of the experimental session, the magnitude of these differences no doubt dissipated over time.

[8]This F test represents a doubly centered interaction contrast specifying greater bias among angry participants compared with sad and neutral participants (cf. Abelson & Prentice, 1997).

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