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The Regulation of Explicit and Implicit Race Bias: The Role of Motivations to Respond Without Prejudice

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Three studies examined the moderating role of motivations to respond without prejudice (e.g., internal and external) in expressions of explicit and implicit race bias. In all studies, participants reported their explicit attitudes toward Blacks. Implicit measures consisted of a sequential priming task (Study 1) and the Implicit Association Test (Studies 2 and 3). Study 3 used a cognitive busyness manipulation to preclude effects of controlled processing on implicit responses. In each study, explicit race bias was moderated by internal motivation to respond without prejudice, whereas implicit race bias was moderated by the interaction of internal and external motivation to respond without prejudice. Specifically, high internal, low external participants exhibited lower levels of implicit race bias than did all other participants. Implications for the development of effective self-regulation of race bias are discussed.

Researchers have long been interested in why people respond with prejudice against those who are different (e.g., in their ethnicity, gender, or sexual orientation). Even with changes to social norms, which now discourage expressions of prejudice, and changes in many people's self-reported attitudes, prejudice is still a major factor in contemporary American society. One explanation for the persistence of prejudice, even among those who renounce prejudice, may simply be that responding without prejudice is sometimes difficult. To respond without prejudice toward outgroup members, an individual must overcome years of exposure to biased and stereotypical information that is likely to influence responses toward out-group members (Devine, 1989). The control of prejudice, like the successful completion of any complex behavior, may require the development of effective regulatory strategies (Devine & Monteith, 1993, 1999; Monteith, 1993; Monteith, Asburn-Nardo, Voils, & Czopp, in press; Plant & Devine, 2001a). If so, then only those who have developed such strategies are likely to be successful in their efforts to respond without prejudice. If we can uncover the factors that determine who is more or less effective at responding without bias, we will be better equipped to aid others in successful elimination of prejudice.

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Self-Regulatory Processes in Prejudice Reduction

Devine (1989; Devine & Monteith, 1993) argued that prejudice reduction is a multistep process. One must first consciously decide that responding in biased or nonegalitarian ways is inappropriate and then adopt nonprejudiced beliefs and personal standards. Next, these nonprejudiced standards must be internalized and integrated into one's self-concept. However, developing the personal motivation to overcome prejudice does not guarantee that people will respond without bias across all response domains (Monteith, Devine, & Zuwerink, 1993). The controllability of the response domain appears to be critical. That is, despite disavowing prejudice consciously and responding without prejudice on easily controllable explicit self-report measures, many people who report being low in prejudice show bias on responses that are less amenable to control. For example, when race bias is assessed with implicit measures, which theoretically bypass conscious control, bias is often observed even among those who claim to be nonprejudiced (e.g., Blair, 2001; Devine, 1989; Fazio, Jackson, Dunton, & Williams, 1995; Greenwald & Banaji, 1995; Greenwald, McGhee, & Schwartz, 1998). According to this perspective, the final step in the prejudice reduction process is to bring these less

easily controllable responses in line with the nonprejudiced personal standards.

Devine and Monteith (1993) argued that developing the skills for overcoming prejudice is particularly challenging (see also Kawakami, Dovidio, Moll, Hermsen, & Russin, 2000). In their research, Devine, Monteith, and colleagues (e.g., Devine, Monteith, Zuwerink, & Elliot, 1991; Monteith et al., 1993; Monteith & Voils, 1998; Zuwerink, Monteith, Devine, & Cook, 1996) have repeatedly found that many but not all low-prejudice people report that they sometimes respond with more bias toward members of stigmatized groups than they believe they should. When these people violate their nonprejudiced values, they feel compunction or guilt. These feelings act as a cue for the need to correct one's responses, thereby facilitating prejudice reduction (Monteith, 1993; Monteith et al., in press). More specifically, guilt instigates a set of self-regulatory processes designed to reduce the discrepancy between current responses and internalized, nonprejudiced standards. From this perspective, prejudice reduction requires that one learn to effectively regulate the expression of bias.

Although this analysis has been fruitful in identifying the processes involved in reducing personal prejudice, its ability to address broader issues concerning the regulation of prejudiced responses is limited in two ways. First, the analysis is silent on identifying who among the low-prejudice individuals is and is not likely to violate their nonprejudiced standards, particularly on the more difficult-to-control responses (but see Monteith & Voils, 1998). Second, the analysis focuses on personal motivation to respond without prejudice to the exclusion of external or normative factors that may also discourage prejudice. Addressing both sets of issues may be necessary in determining who is likely to show effective regulation of bias across a broad array of measures, ranging from the more controllable (i.e., explicit) to the less controllable (i.e., implicit).

Self-Determination and Self-Regulation

In developing a theoretical analysis of who may be more or less effective at the self-regulation of prejudice, we turned to general theories outlining the processes of internalizing goals or values (e.g., Collins, 1977; Deci & Ryan, 1985, 2000; Kelman, 1958; Meissner, 1981; Ryan & Connell, 1989). According to these theories, the more internalized or self-determined a goal or value is, the more successful people are at responding consistently with the goal or value. Taking this approach, Ryan and Connell (1989) suggested that the classes of reasons people generate for pursuing behaviors can be meaningfully placed along a continuum of self-determination. *External* reasons, for example, refer to concerns about approval from others and reflect low levels of self-determination. Those who regulate their behavior for external reasons are unlikely to do so in the absence of pressure from others. Reflecting higher levels of self-determination, *introjected* reasons comprise both internal (i.e., self-approval) and external (i.e., approval from others) motivations for pursuing goals and values. People with introjected reasons for regulation are more likely to maintain their regulation than are those with external reasons alone, but this type of regulation is argued to be unstable and, as such, does not typically lead to highly effective regulation of behavior. Effective regulation for those with introjected reasons is likely to break down under challenging circumstances, as when a response is difficult to control. *Identified* reasons reflect more fully internalized motivations for pursuing behavior that have been integrated into the self-concept. According to Deci, Ryan, and colleagues, identified reasons should be associated with greater autonomy and commitment, resulting in more effective regulation of goal-directed behavior (see Deci & Ryan, 2000, for a review). In support of this overarching conceptualization, the empirical literature shows that behavior motivated out of more self-determined (identified) reasons leads to more effective strategies for goal attainment and greater long-term efficacy of self-regulatory efforts (e.g., Grolnick & Ryan, 1987; Ryan, Rigby, & King, 1993; Williams, Grow, Freedman, Ryan, & Deci, 1996; Williams, Rodin, Ryan, Grolnick, & Deci, 1998) as well as greater attitude–behavior consistency (Koestner, Bernieri, & Zukerman, 1992).

Motivations to Respond Without Prejudice, Self-Determination, and the Regulation of Prejudice

Self-determination theory highlights the importance of assessing the more internal versus external motivations underlying people's regulatory efforts. Similar concerns are evident in recent work that focuses on assessing alternative sources of motivation to respond without prejudice (Plant & Devine, 1998). Recognizing the complexity of the reasons why people may respond without prejudice, Plant and Devine (1998) argued that people could be motivated to respond without prejudice for internal (personal) reasons or for external (normative) reasons. Consistent with Devine and Monteith's (1993) theorizing about prejudice reduction, Plant and Devine argued that internal motivation to respond without prejudice arises from internalized, personally important nonprejudiced beliefs (i.e., the self sets the standard against which one's prejudice-relevant responses are evaluated). In recognition of the changes in normative mandates proscribing prejudice (Blanchard, Lilly, & Vaughn, 1991; Monteith, Deneen, & Tooman, 1996), Plant and Devine argued that external motivation to respond without prejudice derives from a desire to avoid negative reactions from others if one were to respond with prejudice (i.e., others impose the standard against which one's prejudice-relevant responses are evaluated). Plant and Devine developed the Internal and External Motivation to Respond Without Prejudice Scales (the IMS and EMS, respectively) to assess these alternative sources of motivation.

The IMS assesses personal motivation to respond without prejudice and includes items such as "I attempt to act in nonprejudiced ways toward Black people because it is personally important to me" and "Being nonprejudiced toward Black people is important to my self-concept." The EMS focuses instead on external pressure to respond without prejudice and includes items such as "If I acted prejudiced toward Black people, I would be concerned that others would be angry with me" and "I attempt to appear nonprejudiced toward Black people in order to avoid disapproval from others." Plant and Devine (1998) conducted a series of studies in which they showed that the scales are reliable and provided evidence regarding the scales' convergent, discriminant, and predictive validity. For example, they demonstrated that scores on the IMS were highly correlated with traditional measures of prejudice, including the Attitude Towards Blacks scale (ATB; Brigham, 1993) and the Modern Racism Scale (MRS; McConahay, 1986), such that higher

levels of internal motivation were associated with lower prejudice scores. The EMS, in contrast, was only modestly correlated with traditional prejudice measures, such that high levels of external motivation were associated with higher prejudice scores. In addition, only a small correlation was found between the EMS and measures of social evaluation (e.g., Leary's, 1983, Interaction Anxiety Scale) or social desirability (e.g., Crowne & Marlowe, 1960), suggesting that the EMS assesses a specific concern with how prejudiced responses will be evaluated rather than a general concern with social evaluation. Moreover, the IMS and EMS were found to be largely independent (average $r = -.14$).[1] Thus, individuals can be motivated to respond without prejudice primarily for internal reasons, primarily for external reasons, or for both internal and external reasons, or they may not be motivated to respond without prejudice for either reason.

There are clear conceptual parallels between the sources of motivation to respond without prejudice captured by Plant and Devine's (1998) measures and Ryan and Connell's (1989) continuum of self-determination. That is, we can similarly place people along a continuum of self-autonomy and internalization with regard to their internal and external motivations to respond without prejudice to predict their likely effectiveness at responding without race bias. For example, people who report being primarily externally motivated to respond without prejudice (i.e., low IMS, high EMS) should be very low in self-determination. In contrast, individuals who are motivated primarily by internal reasons to respond without prejudice (i.e., high IMS, low EMS) should seem to parallel those with identified reasons for regulation and should be very high in self-determination. Those who are motivated for both internal and external reasons, conceptually analogous to Ryan and Connell's introjected category, should possess intermediate levels of self-determination or autonomy. Finally, individuals who are not motivated to respond without prejudice for either internal or external reasons possess no self-determination.

Consistent with this reasoning, Plant and Devine (1998) demonstrated that those who are primarily motivated to respond without prejudice for external reasons (low IMS, high EMS) only regulated expressions of prejudice (i.e., gave low-prejudice responses) on an explicit measure of race bias when in the presence of others who they assumed to be nonprejudiced. When they provided their responses in private, these people reported high levels of race bias. Participants who parallel Ryan and Connell's (1989) introjected (high IMS, high EMS) and identified (high IMS, low EMS) categories reported low levels of bias on the explicit measure in both public and private. However, on the basis of self-determination theory (see Deci & Ryan, 2000, for a review), people with introjected and identified reasons for regulating their behavior should differ in the effectiveness of their regulatory efforts. Differences in regulatory efficacy between people with introjected and identified reasons are likely to emerge as the responses become increasingly difficult to control. Specifically, whereas those with introjected reasons may be able to regulate responses that are easy to control, such as on explicit measures of race bias, their regulatory efforts may fail them when responses are hard to control, such as on implicit measures of race bias. In contrast, those with identified reasons should be able to effectively regulate their responses regardless of the relative ease or difficulty of controlling the responses.

Our recent work provides indirect support for this reasoning. For example, Plant and Devine (1998) found that the magnitude of violations from personal standards differed as a function of respondents' external motivation to respond without prejudice. Most important for the present set of issues, among high IMS participants, those who also scored high on the EMS reported being more likely to violate their personal standards (i.e., respond with prejudice) compared with their more self-determined (i.e., high IMS, low EMS) counterparts (Plant & Devine, 1998; also see Plant & Devine, 2000; Plant, Devine, & Brazy, 2002). However, more direct evidence would be provided by an examination of the effectiveness of people's regulatory efforts across behaviors that vary in their ease of controllability. To this end, the present set of studies examine the magnitude of race bias revealed by easy-to-control self-report measures of prejudice and more difficult-to-control implicit measures of race bias as a function of the source of people's motivation to respond without prejudice.[2] In all three studies, we assess explicit race bias using Brigham's (1993) ATB, a highly reliable and valid measure. To assess implicit race bias, we use a sequential evaluative priming procedure in Study 1 (Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Fazio et al., 1995) and the Implicit Association Test (IAT; Greenwald et al., 1998) in Studies 2 and 3. By including both explicit and implicit measures in these studies, we are able to test specific predictions derived from the synthesis of the Plant and Devine (1998) and the Deci and Ryan (2000) formulations.

Specifically, we anticipated that the most highly self-determined individuals (i.e., high IMS, low EMS) would be the most effective at regulating race bias. Thus, they should respond with low levels of race bias on both the explicit and the implicit measures. As such, these may be the people who, according to Devine and Monteith's (1993) conceptualization, have developed the ability to effectively respond in accordance with their nonprejudiced standards. People who are motivated to respond without prejudice for both internal and external reasons were not expected to show bias on the easily controllable self-report measures, but because they are lower in self-determination, they were expected to show bias on the more difficult-to-control implicit measures. From Devine and Monteith's perspective, these individuals should be especially vulnerable to responding in ways that violate their nonprejudiced

[1] Internal and external motivation to respond without prejudice scales have now been developed for motivation to respond without sexism (Klonis & Devine, 2000), homophobia (K. Lemm, personal communication, August 11, 1999), and prejudice toward fat people (Buswell & Devine, 2000). In all cases, the internal and external scales were independent. Consistent with the previous work, in the studies reported in the present article, the average correlation between the IMS and EMS was $-.11$ (see also Plant & Devine, 2001a; Plant et al., 2002).

[2] Throughout this article, we deliberately avoid referring to the race bias indicated by implicit measures as a *prejudiced* response or an indicator of racial attitude, though many take these indicators to reflect racial attitudes (e.g., Fazio et al., 1995; Greenwald et al., 1998). In our view, prejudice refers to people's consciously endorsed beliefs (Devine, 1989). People's responses across levels of controllability may not always be consistent with those beliefs (Devine et al., 1991; Monteith et al., 1993). Although the presence of implicit bias may contribute to discriminatory behavior, we feel that it is important to distinguish such biases from explicitly held prejudiced attitudes and beliefs.

standards when control is difficult. Those who are low in internal motivation to respond without prejudice, regardless of their level of external motivation, were expected to respond with bias on both explicit and implicit measures. Primarily externally motivated people (i.e., low IMS, high EMS) are unlikely to regulate bias when responding under private conditions in which there is no threat of social disapproval and thus were expected to exhibit bias on both implicit and explicit measures. Those without either type of motivation (i.e., low IMS, low EMS) are not particularly concerned with responding without prejudice and, thus, should not regulate bias under any circumstances. According to Devine and Monteith's theorizing, those who are low in internal motivation to respond without prejudice have not developed the personal motivation required to begin the prejudice reduction process.

Study 1

In Study 1, participants completed the ATB as the explicit measure of race bias and a sequential evaluative priming task (e.g., Dovidio et al., 1997; Fazio et al., 1995) as the implicit measure of race bias. In the priming task, attitude objects (e.g., photographs of Blacks) served as primes and were followed by positive or negative target words (e.g., *pleasant* and *awful,* respectively). The speed with which targets were judged to be good or bad was taken as an indicator of the strength of the association between attitude objects and their evaluations in memory. The assumption is that if an attitude object evokes a negative (or positive) evaluation, it should facilitate the response to subsequently presented, evaluatively negative (or positive) information. According to Fazio et al. (1995), implicit race bias is indicated by the extent to which the response to a prime–target pairing (e.g., Black face–negative word) is facilitated relative to baseline. Overall, we expected that high IMS participants would show less race bias on the explicit measure than would low IMS participants and that high IMS, low EMS participants would show less implicit race bias than would participants from other IMS–EMS groups.

Method

Participants and design. Participants were 123 introductory psychology students (47% female, 94% White[3]) who participated individually in exchange for course credit. Participants completed the IMS ($\alpha = .81$), EMS ($\alpha = .82$), and ATB ($\alpha = .88$) as part of a mass testing session early in the semester. Participants indicated their agreement with the IMS and EMS items on 9-point scales ranging from 1 (*strongly disagree*) to 9 (*strongly agree*). After appropriate reverse coding of items, participants' scores on the IMS and EMS items were averaged within each scale. Hence, scores on the IMS and EMS ranged from 1 to 9, with higher scores reflecting higher levels of the relevant motivation. Participants were selected on the basis of median splits of the IMS ($Mdn = 8.2$; high IMS, $M = 8.86$; low IMS, $M = 5.70$) and EMS ($Mdn = 4.6$; high EMS, $M = 7.03$; low EMS, $M = 2.24$). Consistent with previous work, the IMS and EMS were uncorrelated ($r = -.06$). For the ATB, participants indicated their agreement with statements on 5-point scales ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Sample ATB items include "Black and white people are inherently equal" and "It would not bother me if my new roommate was black." After appropriate reverse scoring of items, participants' responses were averaged across the items to produce the final ATB score. Scores on the ATB could range from 1 to 7, with higher scores indicating lower levels of prejudice. Several weeks after the mass testing session, individuals who met the selection criteria for IMS and EMS were contacted by phone and invited to participate. The overall design was a 2 (IMS: high vs. low) × 2 (EMS: high vs. low) between-subjects factorial. Participants were run individually, and the experimenter was unaware of their IMS, EMS, and ATB scores.

Procedure. On arriving at the session, the participant was greeted by a White experimenter who asked him or her to complete a consent form and then described the computer task. The experimenter explained that a series of pictures of faces would appear on the screen, each followed by a word, and that the participant's task was to decide whether the word could be described as good or bad by pressing the labeled right or left *shift* key. The participant was instructed to make the good/bad judgment as quickly and accurately as possible. In addition, in keeping with Fazio et al. (1995), the participant was told to pay special attention to each picture because a recognition test for the faces would follow the computer task. When the task was completed, the participant was informed that the recognition task would be skipped for that session. The experimenter then gave a funneled debriefing to probe for suspicion regarding the experimental hypotheses and to describe the intent of the study. The participant was then thanked and dismissed.

Materials. Primes consisted of neutral images from the International Affective Picture System (IAPS; Center for the Study of Emotion and Attention, 1995), used in an initial block of trials to establish baseline response latencies,[4] and faces of Black, White, and Asian males, used in experimental trials. Asian faces were included to allow us to test for the possibility that significant findings involving the IMS and EMS were specific to Blacks, as opposed to out-groups generally, and to distract participants from the specific interest in Black versus White comparisons.[5] The neutral images were pictures of mundane objects—for example, a towel, a bowl, or a light bulb—and were selected according to normative ratings to be low in arousal and without affective valence. The face pictures displayed neutral expressions and were digitized at 640 × 500 pixels. In pretests, these pictures were not judged to differ in attractiveness between race types. Each prime was presented only once throughout the experiment.

Target words consisted of 16 positive and 16 negative adjectives not directly related to stereotypes of Black or White Americans. Positive target words were *agreeable, appealing, attractive, beautiful, charming, delightful, desirable, enjoyable, favorable, fabulous, great, likeable, loveable, pleasant, superior,* and *wonderful.* Negative target words were *annoying, awful, bothersome, dangerous, disgusting, disturbing, gross, horrible, inferior, irritating, offensive, repulsive, rotten, sick, terrifying,* and *upsetting.*

Sequential priming task. The sequential priming task was conducted on a personal computer (Pentium II, 300 MHz) using DMDX software (Forster & Forster, 2000).[6] Stimuli were presented on a 17 in. (43.18 cm) Viewsonic monitor (GS771) with a refresh rate of 85 Hz. Primes were presented for 338 ms, followed by a 22-ms interstimulus interval and then the target word. Thus, target words were presented at a stimulus onset asynchrony of 350 ms. The timing of stimulus presentations was confirmed using a Hewlett Packard digital oscilloscope (Model 54510B) fitted with a photo-pin diode that measured changes in phosphorescence on the monitor

[3] No Black participants were run in the experiment. However, 6 of the participants failed to report their ethnicity on their demographic questionnaire.

[4] Neutral IAPS pictures were selected as baseline primes because they were perceptually more similar to faces than are nonpictorial stimuli (e.g., a character string, as in Fazio et al., 1995).

[5] Implicit bias for Asian faces was not observed. In addition, IMS × EMS ANOVAs conducted for responses to Asian primes paired with positive and negative targets revealed no significant effects (all Fs < 1.00).

[6] The experiments were run using the DMDX software developed at Monash University and at the University of Arizona by K. I. Forster and J. C. Forster. For more information on this software, visit the DMDX homepage at http://psy1.psych.arizona.edu/~jforster/dmdx.

screen associated with stimuli. The first block of trials was designed to establish baseline reaction times for each target word and consisted of 64 trials in which each target was paired twice with a different neutral prime. In the second block, consisting of 24 trials, faces were presented as primes in a quasi-random order. Four negative and four positive words were paired with faces from each of the three race types. Four practice trials, in which neutral pictures were used as primes and two positive and two negative words served as targets, preceded Block 1. The practice trial stimuli were not used in either the baseline or the experimental trials.

Data reduction and processing. We followed the procedures detailed by Fazio et al. (1995) for data reduction and processing. All response latencies were log transformed to reduce the amount of skew typically found in distributions of reaction time data (Fazio, 1990). Next, responses for trials in which target words were misclassified were considered errors and were removed from analyses, resulting in the exclusion of 5.61% of responses. In addition, responses that occurred outside of a 300-ms to 2,000-ms time window were also omitted from analyses. These omissions accounted for an additional 1.74% of responses. We calculated baseline scores by averaging the two neutral prime response latencies for each word. We then subtracted the average face prime response latency for each word from the baseline score for the same word, such that higher scores indicated greater facilitation (as in Fazio et al., 1995). Valid responses to similar trials were then averaged to yield a facilitation score for each face type.

Data from 8 of the original 123 participants were excluded from analyses. These omissions resulted either because the participant expressed suspicion and guessed the experimental hypothesis (2 participants) or because his or her average facilitation score for one or more conditions was greater than three standard deviations from the mean (6 participants). Excluded participants were equally distributed across the four IMS/EMS groups.

Results

In what follows, we first examine the magnitude of explicit race bias reported on the ATB as a function of IMS and EMS. Because this measure was collected confidentially, we expected that only high IMS participants would report low levels of explicit race bias. Next, we examined the moderating effect of participants' IMS and EMS scores on levels of implicit bias. Specifically, we tested the hypothesis that high IMS, low EMS participants would respond with less implicit bias than would all other participants, as would be expected if their responses are more autonomous and self-determined than the responses of other participants.

Magnitude of explicit race bias. Participants' scores on the ATB were submitted to a 2 (IMS: high vs. low) × 2 (EMS: high vs. low) between-subjects analysis of variance (ANOVA). The means for the full analysis are presented in Table 1. This analysis revealed the anticipated main effect for IMS, $F(1, 111) = 86.89$, $p < .001$, such that high IMS participants reported less race bias ($M = 6.18$, $SD = 0.45$) than did the low IMS participants ($M = 4.80$, $SD = 1.06$). In addition, the analysis revealed a main effect of EMS, $F(1, 111) = 6.83$, $p < .02$, such that high EMS participants reported somewhat more race bias ($M = 5.28$, $SD = 1.01$) than did the low EMS participants ($M = 5.68$, $SD = 1.09$). Although the effect of EMS was small relative to that of IMS, this finding is consistent with previous work showing that high EMS individuals report slightly more prejudiced attitudes than do their low EMS counterparts (e.g., Plant & Devine, 1998). The interaction was not significant, $F(1, 111) = 0.66$, $p = .42$.

Facilitation score analyses. We conducted an initial analysis to determine whether, overall, participants showed implicit race bias toward Blacks, as has been found in previous research (e.g., Devine, 1989; Fazio et al., 1995). To this end, participants' facilitation scores were submitted to a 2 (prime: White vs. Black face) × 2 (target: positive vs. negative word) repeated measures ANOVA. The analysis revealed a main effect for prime, $F(1, 114) = 23.52$, $p < .001$, such that greater facilitation was observed following pictures of Blacks ($M = 0.02$, $SD = 0.17$) compared with Whites ($M = -0.04$, $SD = 0.16$). This effect, however, was qualified by a significant Prime × Target interaction, $F(1, 114) = 5.31$, $p < .03$. To examine the nature of this interaction, we analyzed facilitation scores for Black and White trials separately for positive and negative target words. The simple main effect analysis for negative target words produced a prime effect, such that negative words were facilitated more when paired with Black faces ($M = 0.03$, $SD = 0.16$) compared with White faces ($M = -0.06$, $SD = 0.15$), $F(1, 114) = 23.18$, $p < .001$. In contrast, facilitation scores did not differ when positive target words were paired with Black faces ($M = 0.01$, $SD = 0.18$) compared with White faces ($M = -0.02$, $SD = 0.17$), $F(1, 114) = 1.95$, $p = .17$.[7] Together, these findings conceptually replicate previous work showing that White Americans, on average, possess some degree of implicit race bias toward Blacks (Devine, 1989; Dovidio et al., 1997; Fazio et al., 1995; Greenwald et al., 1998).

Moderating effect of IMS and EMS on facilitation scores. We next tested the hypothesis that the magnitude of implicit bias is moderated by participants' sources of motivation to respond without prejudice. Because our initial results suggest that participants responded differently to the positive and negative target words, we analyzed responses to positive and negative target words separately. We first conducted a 2 (IMS: high vs. low) × 2 (EMS: high vs. low) ANOVA on participants' facilitation scores for the Black–negative trials. This analysis produced a significant IMS × EMS

Table 1
Attitude Towards Blacks Scores as a Function of Internal and External Motivation to Respond Without Prejudice

Study and score	High IMS		Low IMS	
	Low EMS	High EMS	Low EMS	High EMS
Study 1				
M	6.31	6.04	5.04	4.54
SD	0.44	0.41	1.18	0.85
Study 2				
M	5.94	5.86	5.19	4.66
SD	0.70	0.47	0.69	0.78
Study 3				
M	6.12	5.92	5.38	4.96
SD	0.64	0.54	0.88	0.79

Note. IMS = internal motivation to respond without prejudice; EMS = external motivation to respond without prejudice.

[7] Following Fazio et al. (1995), we also examined whether this pattern was moderated by participants' prejudice level as indicated on the ATB. Consistent with Fazio et al.'s (1995) findings, the effect for the 2 (prime: White vs. Black) × 2 (target: positive vs. negative) × 2 (ATB: high vs. low) effect, tested using a mixed-factorial ANOVA, was not significant, $F(1, 113) = 1.79$, $p = .18$, suggesting that prejudice level did not moderate the magnitude of implicit race bias.

interaction, $F(1, 111) = 5.43$, $p < .03$. The means are displayed in Figure 1. A planned comparison was used to test the specific prediction that high IMS, low EMS participants would exhibit less facilitation of negative words following Black faces than would participants in the other three IMS/EMS groups (Rosenthal, Rosnow, & Rubin, 2000). In support of this prediction, high IMS, low EMS participants exhibited less facilitation of negative words following Black primes ($M = -0.05$, $SD = 0.12$) compared with all other groups ($M = 0.05$, $SD = 0.17$), $F(1, 111) = 10.10$, $p < .005$. Pairwise comparisons showed that high IMS, low EMS participants' facilitation scores were significantly lower than were those of each of the other three IMS/EMS groups (all Fs > 4.65, ps $< .04$). Furthermore, no differences in facilitation scores were observed between these three groups (all Fs < 1.00). It is worth noting that subsidiary analyses showed that scores of high IMS, low EMS participants were significantly lower than zero, $t(30) = -2.29$, $p < .04$, introducing the possibility that, for these participants, responses to negative words were actually inhibited following Black face primes. Scores of participants in the other three groups were significantly greater than zero, $t(88) = 3.00$, $p < .005$.

To ensure that individual differences in responses to Black–negative pairings reflected an implicit bias toward Blacks and not a negative bias toward faces in general, we repeated IMS × EMS analyses of Black–negative responses using analysis of covariance with responses to White–negative pairings as the covariate.[8] This analysis produced effects for the covariate, $F(1, 110) = 12.62$, $p < .001$, and the IMS × EMS interaction, $F(1, 110) = 4.93$, $p < .03$. The pattern of adjusted means for the interaction effect was similar to that produced by the IMS × EMS ANOVA reported above. We also repeated the planned comparison predicting that high IMS, low EMS participants would show less facilitation of Black–negative pairings while we controlled for responses to White–negative pairings. This analysis produced a significant effect, $F(1, 111) = 8.29$, $p < .005$. The adjusted mean facilitation score for high IMS, low EMS participants ($M = -0.04$, $SE = 0.03$) was lower than the mean score for participants in the other groups ($M = 0.05$, $SE = 0.02$). Pairwise comparisons indicated that the adjusted facilitation scores for high IMS, low EMS participants were significantly lower than were scores for high IMS, high EMS participants ($M = 0.05$, $SE = 0.03$) and low IMS, low EMS participants ($M = 0.07$, $SE = 0.03$), ps $< .03$, and marginally lower than were scores for low IMS, high EMS participants ($M = 0.03$, $SE = 0.03$), $p = .06$. The adjusted mean scores of these three latter groups did not differ (ps $> .44$).

Responses to Black–positive pairings did not differ as a function of either IMS or EMS (Fs < 2.30, ps $> .13$) or their interaction, $F(1, 111) = 2.81$, $p = .10$. Furthermore, a planned contrast comparing responses to Black–positive pairings of high IMS, low EMS participants with the scores of other participants did not yield a significant effect ($F < 1$). As suggested by our initial set of analyses, responses to positive target words did not appear to be sensitive to implicit race bias.

Discussion

Consistent with both predictions and previous work (e.g., Plant & Devine, 1998), the results of the current study demonstrate that high IMS participants were less likely to respond with race bias on the explicit self-report measure than were the less self-determined low IMS participants. In addition, examination of the magnitude of implicit race bias revealed that high internal, low external participants exhibited much lower levels of implicit race bias than did participants with all other combinations of IMS and EMS. This finding is consistent with our expectation that high internal, low external people are more self-determined and, hence, less likely to respond with race bias on difficult-to-control measures. These findings, taken together, suggest that people with high internal and high external motivation to respond without prejudice are effective at regulating their behavior on easily controllable explicit measures but not on the more difficult-to-control implicit measures (i.e., they respond with implicit race bias). Low IMS participants, regardless of their level of EMS, did not regulate bias on either the implicit or the explicit measure.

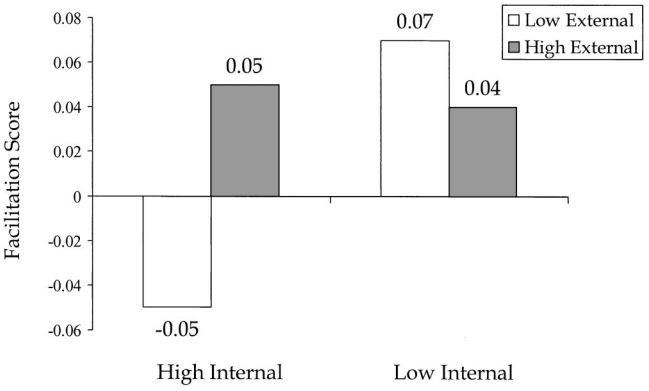

Figure 1. Facilitation scores on the sequential priming task as a function of Internal and External Motivation to Respond Without Prejudice (Study 1). Facilitation scores are response latencies to target words following Black primes subtracted from baseline latencies.

The present work suggests that considering participants' self-reported levels of internal and external motivation to respond without prejudice may help in identifying those who are likely to show low (i.e., high internal, low external participants) and high (i.e., all other participants) levels of implicit race bias. However, a potential limitation of this study is that it used only one measure of implicit race bias. Our confidence in making inferences about the observed patterns would be buttressed if they were replicated using an alternative measure of implicit race bias, as some research has questioned whether different implicit measures assess the same construct (Bosson, Swann, & Pennebaker, 2000; Brauer, Wasel, & Niedenthal, 2000). Study 2 was designed to replicate the findings of Study 1 using Greenwald et al.'s (1998) race-based IAT as an alternative measure of implicit race bias.

Study 2

In the present study, participants with varying levels of internal and external motivation to respond without prejudice completed the ATB and Greenwald et al.'s (1998) IAT, a dual categorization

[8] An important assumption of ANCOVA is that the covariate is unrelated to the independent variables. An IMS × EMS ANOVA on responses to White–negative pairings produced no significant effects (ps $> .19$), thereby complying with this assumption.

task that measures the strength of associations stored in memory. This particular version of the IAT measures implicit race bias by assessing people's tendency to associate positive evaluations with White people and negative evaluations with Black people. The basic premise of the IAT is that it is easier for people to categorize two concepts using the same response key if the concepts are evaluatively congruent than if they are evaluatively incongruent. In completing the IAT, participants make timed responses to two critical sets of trials. For congruent trials, Black names (e.g., Latisha) are paired with unpleasant words (e.g., *agony*) and White names (e.g., Heather) are paired with pleasant words (e.g., *lucky*). In contrast, for incongruent trials, Black names are paired with pleasant words and White names are paired with unpleasant words. The difference in response times for congruent and incongruent trials represents participants' level of implicit race bias (the IAT effect). Greenwald et al. suggested that, to the extent that participants more strongly associate Black names with negative words and White names with positive words than the reverse pairings, they are manifesting implicit race bias.

We anticipated that participants' responses to the ATB would replicate those of Study 1. We also predicted that, to the extent that both the IAT and sequential evaluative priming tasks index similar underlying implicit biases, as in Study 1, participants who are high in internal and low in external motivation would show lower levels of bias on the IAT than would participants with any other combination of internal and external motivation to respond without prejudice.

Method

Participants and design. Eighty-two introductory psychology students (56% female, 94% White) participated individually in exchange for extra course credit. Participants completed the IMS ($\alpha = .79$), EMS ($\alpha = .77$), and ATB ($\alpha = .88$) as a part of a mass testing session early in the semester. As in Study 1, the correlation between the IMS and the EMS was small and negative ($r = -.11$). In the present study, we used slightly more stringent participant selection criteria. Specifically, participants were considered eligible for the study only if their responses fell into the top or bottom 30% of the IMS (high IMS $M = 8.59$; low IMS $M = 6.23$) and EMS (high EMS $M = 5.85$; low EMS $M = 3.06$) distributions. Several weeks after the mass testing session, participants who met the selection criteria were contacted by phone and invited to participate. The overall design was a 2 (IMS: high vs. low) $\times$ 2 (EMS: high vs. low) between-subjects factorial.

Apparatus and procedure. The IAT was administered on a Pentium laptop computer using the IAT program for Windows, created by Shelly D. Farnham in Anthony G. Greenwald's laboratory. Participants came into the laboratory individually and completed the IAT program. A White experimenter who was unaware of participants' IMS, EMS, and ATB scores first asked participants to complete a consent form indicating that the study involved a computer task. The experimenter then described the task and the layout of the keyboard. Participants were encouraged to respond as quickly and accurately as possible throughout the task. The experimenter left the room while participants completed the IAT. After finishing the IAT, participants were debriefed, thanked, and dismissed.

IAT program. The program began by providing instructions for how to complete the IAT. Participants were told that their task was to categorize each stimulus presented on the screen on the basis of whether it was a pleasant or unpleasant word in some sets of trials and a name more typical of Black or White people in other sets of trials. Fifteen stimuli from each category (pleasant words, Black names, etc.) were selected from Greenwald et al. (1998). Prior to beginning the trials, participants were given the opportunity to remove any of the stimuli that they felt did not fit with its respective category.

Participants completed seven blocks of trials in one of two counterbalanced orders. For one of the orders, the first block had participants categorize words as unpleasant (right response key) or pleasant (left response key). In the second set of trials, participants categorized Black (right key) and White (left key) names. For the third block, participants completed a practice set for the congruent trials of the dual categorization task where unpleasant words and Black names were categorized together with the right key and pleasant words and White names were categorized together with the left key. The fourth block used the same format as the third and consisted of the critical set of 40 congruent trials. Next, the placement of the Black and White category labels was switched. Participants completed a set of practice trials to become familiar with the new format, in which Black names were categorized with the left key and White names were categorized with the right key. The sixth block was a practice set for the incongruent trials of the dual categorization task whereby pleasant words and Black names were categorized with the left key and unpleasant words and White names were categorized with the right key. The seventh and final set repeated the procedure of the sixth block and contained the critical 40 incongruent trials. The second counterbalanced order of blocks was similar, but the Black names were first categorized with the left key and the White names with the right key, so that the first set of critical trials was incongruent and the second set was congruent.[9] For all trials, if participants failed to accurately categorize the stimulus (i.e., pressed the wrong response key), a red *X* appeared below the stimulus word and remained until a correct answer was given. If the participant gave a correct response, a green *O* appeared below the stimulus word for the 150-ms duration of the intertrial interval. The speed of response to each trial was recorded in milliseconds.

Results

Magnitude of explicit race bias. Participants' scores on the ATB were submitted to a 2 (IMS: high vs. low) $\times$ 2 (EMS: high vs. low) between-subjects ANOVA (see Table 1). The analysis revealed, consistent with the findings from Study 1, a main effect for IMS, $F(1, 78) = 43.91$, $p < .001$, such that high IMS participants reported less race bias ($M = 5.90$, $SD = 0.59$) than did low IMS participants ($M = 4.91$, $SD = 0.78$). Also consistent with Study 1, the main effect of EMS was significant, $F(1, 78) = 4.36$, $p < .05$, such that the high EMS participants ($M = 5.31$, $SD = 0.87$) reported more race bias than did the low EMS participants ($M = 5.62$, $SD = 0.78$). The IMS $\times$ EMS interaction was not significant, $F(1, 78) = 2.28$, $p = .32$.

Magnitude of the IAT effect. In preparing data for analyses, we followed Greenwald et al.'s (1998) guidelines for data reduction when using the IAT. First, prior to analyses, response latencies for each trial in the critical blocks were examined, and extreme response latencies were recoded. Specifically, latencies of below 300 ms were recoded to 300 ms, and latencies of above 3,000 ms were recoded to 3,000 ms. Our analyses focused on response latencies to the congruent and incongruent blocks of trials. By taking the average latency across the 40 trials for each of these blocks, we created an average congruent latency and an average incongruent latency. Finally, each participant's average latencies across the congruent and incongruent trials were log transformed for data analysis. Participants' average log latencies for the congruent trials were subtracted from their average log latencies for the incongru-

[9] Participants' responses to the IAT were not affected by the trial order.

ent trials to create an IAT score for each participant. Consistent with Greenwald et al.'s suggestions, all IAT analyses were conducted on the log-latency IAT scores, but for ease of interpretation we report the untransformed mean IAT scores.

Participants' IAT scores were submitted to a 2 (IMS: high vs. low) × 2 (EMS: high vs. low) between-subjects ANOVA. This analysis revealed a main effect of IMS, $F(1, 78) = 7.34$, $p < .009$, such that high IMS participants responded with lower IAT scores ($M = 270.39$, $SD = 165.82$) than did low IMS participants ($M = 374.65$, $SD = 205.70$). This main effect was qualified, however, by a significant IMS × EMS interaction, $F(1, 78) = 8.50$, $p < .006$. These means are displayed in Figure 2. As in Study 1, a planned comparison supported our specific hypothesis, such that high IMS, low EMS participants responded with lower IAT scores ($M = 206.02$, $SD = 114.77$) than did all other participants ($M = 359.10$, $SD = 197.41$), $F(1, 80) = 16.57$, $p < .001$. Further pairwise analyses indicated that high IMS, low EMS participants responded with less bias on the IAT than did participants from each of the other IMS/EMS groups (all ps $< .007$). Moreover, none of the other three groups differed from each other in magnitude of the IAT bias (all ps $> .25$).

To parallel the subsidiary analyses reported in Study 1, we also examined the extent to which participants' IAT scores differed from zero. In contrast to Study 1, in this study, high IMS, low EMS participants' implicit bias as measured by the IAT was significantly greater than zero, $t(21) = 2.16$, p = .04. Not surprisingly, all other participants' IAT scores were also significantly greater than zero (all ts > 4.24, ps $< .002$).

To explore why the high IMS, low EMS participants responded with lower levels of bias on the IAT, we examined the latencies for congruent and incongruent trials separately. Smaller IAT scores could occur because of slower responses on the congruent trials or faster responses on the incongruent trials. The overall 2 (IMS: high vs. low) × 2 (EMS: high vs. low) × 2 (trial: incongruent vs. congruent) mixed-model ANOVA with trial as the repeated measure is conceptually equivalent to the analysis presented above. However, this analysis revealed an additional main effect of trial, such that, consistent with Greenwald et al.'s (1998) findings, participants responded more quickly to the congruent trials ($M = 791.28$, $SD = 232.86$) than to the incongruent trials ($M = 1{,}107.44$, $SD = 154.81$), $F(1, 78) = 372.46$, $p < .001$. To explore our key concerns, we conducted separate planned comparisons on the congruent and incongruent latency scores, comparing the high IMS, low EMS participants with the other participants. Examination of the latency scores from the congruent trials revealed that high IMS, low EMS participants were marginally slower on the congruent trials ($M = 858.70$) than were the other participants ($M = 764.99$), $F(1, 80) = 3.28$, $p = .07$. Examination of the latency scores from the incongruent trials revealed that the high IMS, low EMS participants responded somewhat more quickly on the incongruent trials ($M = 1{,}064.72$) than did the other participants ($M = 1{,}124.09$), although this difference was not significant, $F(1, 80) = 1.63$, $p = .20$. All means for the congruent and incongruent trials can be found in Table 2. Thus, the high IMS, low EMS participants' relatively low levels of implicit bias were most clearly revealed when we examined the overall IAT scores (i.e., the difference between the congruent and incongruent trials).

To explore the possibility that high IMS, low EMS participants' lower IAT scores reflected some form of strategic effort to control their responses on the task, we also examined error rates. Although people are not typically able to fake the IAT effect (Kim, 2001), error rates (i.e., increased numbers of miscategorizations on the dual categorization task) have been shown to increase when respondents attempt to control their responses on the IAT.[10] Therefore, we examined the number of errors made during the congruent and incongruent trials using a 2 (IMS: high vs. low) × 2 (EMS: high vs. low) × 2 (trial: incongruent vs. congruent) mixed-model ANOVA with trial as the repeated measure. This analysis revealed a significant main effect of trial, such that, overall, participants responded with fewer errors on the congruent trials ($M = 1.54$, $SD = 1.34$) than on the incongruent trials ($M = 2.46$, $SD = 2.07$), $F(1, 78) = 19.66$, $p < .001$. However, this main effect was

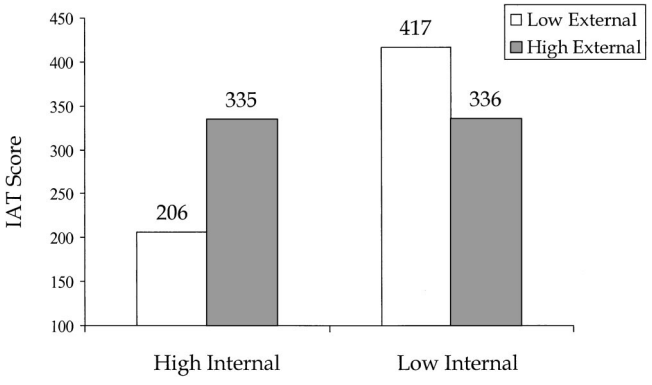

Figure 2. Implicit Association Test (IAT) scores as a function of Internal and External Motivation to Respond Without Prejudice (Study 2).

Table 2
Latencies for Congruent and Incongruent Trials for Studies 2 and 3 as a Function of Source of Motivation to Respond Without Prejudice

Study and measures	High IMS		Low IMS	
	Low EMS	High EMS	Low EMS	High EMS
Study 2				
Latencies				
Congruent	858.70	743.88	732.25	819.85
Incongruent	1,064.72	1,078.64	1,149.08	1,156.75
Errors				
Congruent	2.00	1.39	1.41	1.28
Incongruent	1.95	2.52	3.71	1.83
Study 3				
Latencies				
Congruent	868.67	798.38	841.94	784.62
Incongruent	928.68	1,004.22	998.68	918.24
Errors				
Congruent	1.75	1.17	1.84	1.65
Incongruent	4.60	2.61	3.74	3.95

Note. Latencies are in milliseconds. IMS = internal motivation to respond without prejudice; EMS = external motivation to respond without prejudice.

[10] We thank an anonymous reviewer for suggesting this possibility.

qualified by a significant IMS × EMS × Trial interaction, $F(1, 78) = 10.76$, $p < .003$. All means from this interaction can be found in Table 2. To explore the nature of this interaction, we conducted planned comparisons to determine whether high IMS, low EMS participants responded with different numbers of errors on congruent and incongruent trials than did other participants. The analysis of the errors on the incongruent trials revealed that high IMS, low EMS participants made fewer errors ($M = 1.95$) than did other participants ($M = 2.69$), although this effect was not significant, $F(1, 80) = 1.86$, $p = .18$. The analysis of the errors on the congruent trials indicated that high IMS, low EMS participants made a marginally higher number of errors ($M = 2.00$) than did the other participants ($M = 1.39$), $F(1, 80) = 3.05$, $p = .09$.

Discussion

The primary goal of Study 2 was to replicate the findings of Study 1 using the IAT as an alternative measure of implicit race bias. The results of Study 2 replicate those of Study 1 with regard to both the explicit and the implicit measures of race bias. As in Study 1, high IMS participants reported lower levels of race bias on the ATB than did low IMS participants. In addition, high IMS, low EMS participants had lower levels of implicit race bias than did participants with all other combinations of IMS and EMS.

Given that these results have been replicated with two alternative implicit measures, our confidence in the moderating effects of IMS and EMS on implicit race bias is increased. Although high IMS, low EMS individuals respond with less race bias than do all others, the process by which they regulate their race bias on the difficult-to-control implicit measures is unclear. For example, it is possible that when race-relevant cues are present, high IMS, low EMS individuals prevent the expression of race bias through effortful regulation requiring cognitive resources. Alternatively, their low levels of race bias may reflect either the absence of strong associations linking Blacks with negative evaluations or the fact that they have developed highly efficient or automatized control mechanisms that prevent the expression of race bias (Monteith, 1993; Moskowitz, Gollwitzer, Wasel, & Schaal, 1999). Although an analysis of IAT error rates in Study 2 provides initial support for the latter possibility, a more direct test for this explanation would involve a manipulation that directly usurps cognitive resources. This type of manipulation would disrupt participants' regulatory efforts and result in the expression of race bias. However, to the extent that the associations have been weakened or the control mechanism is automatized, a manipulation that usurps cognitive resources should not reduce participants' effectiveness at regulating the expression of race bias, and little race bias should be observed. Teasing apart these possibilities was the primary goal of Study 3.

Study 3

In Study 3, we replicated the basic procedure of Study 2. However, half of the participants were required to perform a cognitively demanding task while completing the measure of implicit race bias (i.e., IAT). We introduced an additional change to Study 3 to explore the generalizability of the findings from Study 2. Instead of using typical Black and White names to reflect racial category membership, we used faces of Black and White men, similar to Study 1. Invariably, the Black names are less familiar to White participants than are the White names. Although recent work suggests that differential familiarity does not underlie the IAT effect (Dasgupta, McGhee, Greenwald, & Banaji, 2000; Greenwald et al., 1998; Ottaway, Hayden, & Oaks, 2001), using faces to represent racial group membership provides the opportunity to replicate the basic findings from Study 2 using a different and perhaps more compelling indicator of racial category.

Method

Participants, design, and procedure. Seventy-seven introductory psychology students (60% female; 100% White) participated individually in exchange for extra course credit. The design was a 2 (IMS: high vs. low) × 2 (EMS: high vs. low) × 2 (cognitive busyness: busy vs. not busy) between-subjects factorial. Participants completed the IMS ($\alpha = .81$), EMS ($\alpha = .80$), and ATB ($\alpha = .89$) as a part of a mass testing session early in the semester. As in Study 2, participants were considered eligible for the study if their responses fell into the top or bottom 30% of the IMS (high IMS $M = 8.87$; low IMS $M = 6.33$) and the EMS (high EMS $M = 6.11$; low EMS $M = 2.48$) distributions and if they had completed the ATB in the mass testing session. The IAT was run using Inquisit software (Greenwald et al., 1998). One participant's IAT score was an outlier, and it was removed from analyses.

The procedure was identical to that of Study 2 except for the introduction of the cognitive busyness manipulation for half of the participants and the modification of the instructions necessitated by the use of Black and White faces rather than Black and White names in the IAT. Stimuli consisted of three Black and three White faces, matched for attractiveness (Malpass, Lavigueur, & Weldon, 1974), and 10 pleasant and unpleasant words selected from Greenwald et al. (1998).

Cognitive busyness task. In the busy condition, the participant listened to an audio tape while he or she completed the IAT program. On the tape, a woman read a list of letters at a speed of about one letter per second. The participant was instructed to listen specifically for the letter *T*. Each time the participant heard a *T* he or she was supposed to say the word *now* so that the experimenter could record whether the participant was accurately monitoring the letters. The *T*s occurred quasi-randomly throughout the list of letters, occurring on average at every 10th letter. The experimenter recorded the participant's mistakes.

Results

Manipulation check. We anticipated that if the cognitive busyness task was successful, then, overall, participants in the busy condition would respond more slowly on both the congruent and the incongruent trials. Participants' response latencies were submitted to a 2 (cognitive busyness: busy vs. not busy) × 2 (block: congruent vs. incongruent) mixed-model ANOVA with block as the repeated measure. The analysis revealed an effect of cognitive busyness, $F(1, 69) = 13.72$, $p < .001$, such that participants who were busy ($M = 978.86$, $SD = 220.68$) responded more slowly on both the congruent and the incongruent trials than did those who were not busy ($M = 811.54$, $SD = 128.77$). This analysis indicated that the cognitive busyness manipulation had its intended effect of taxing participants' processing resources. Although some participants missed one or more of the target stimuli (*T* error rate $M = 1.06$), error rates were unrelated to the IAT effect and were not systematically related to participants' level of IMS and EMS (all rs $< .19$).

Magnitude of explicit race bias. Participants' scores on the ATB were submitted to a 2 (IMS: high vs. low) × 2 (EMS: high

vs. low) between-subjects ANOVA (see Table 1). Cognitive busyness was not included in this analysis because it was manipulated only in the experimental session that took place several weeks after the mass testing sessions, during which ATB scores were obtained. The analysis revealed a main effect for IMS, $F(1, 73) = 26.65$, $p < .001$, such that high IMS participants reported less race bias ($M = 6.02$, $SD = 0.60$) than did low IMS participants ($M = 5.14$, $SD = 0.85$). In addition, the analysis revealed a marginal main effect of EMS, $F(1, 73) = 5.54$, $p = .06$, such that high EMS participants reported somewhat more race bias ($M = 5.41$, $SD = 0.83$) than did low EMS participants ($M = 5.78$, $SD = 0.84$). Consistent with Studies 1 and 2, the IMS × EMS interaction was not significant, $F(1, 73) = 0.44$, $p = .51$.

Magnitude of the implicit race bias. The data were prepared for analysis in the same fashion as in Study 2. Participants' IAT scores were submitted to a 2 (IMS: high vs. low) × 2 (EMS: high vs. low) × 2 (cognitive busyness: busy vs. not busy) between-subjects ANOVA. The analysis on IAT scores revealed a main effect of EMS, such that high EMS participants responded with higher IAT scores ($M = 172.53$, $SD = 163.83$) than did low EMS participants ($M = 107.74$, $SD = 149.85$), $F(1, 69) = 6.89$, $p < .02$. In addition, replicating the findings reported in Study 2, the analysis revealed a significant IMS × EMS interaction, $F(1, 69) = 5.68$, $p < .03$ (see Figure 3). This effect was not qualified by the three-way interaction ($F < 1.00$), suggesting that the manipulation of busyness did not alter the pattern of the IMS × EMS interaction. As in Studies 1 and 2, a planned comparison supported our specific hypothesis such that high IMS, low EMS participants had lower IAT scores ($M = 61.94$, $SD = 170.78$) compared with all other participants ($M = 163.46$, $SD = 148.15$), $F(1, 76) = 10.33$, $p < .005$. Further pairwise analyses indicated that high IMS, low EMS participants responded with less bias on the IAT than did participants from each of the other IMS/EMS groups (all ps $< .04$). Moreover, none of the other three groups differed from each other in magnitude of the IAT bias (all ps $> .14$). As in Studies 1 and 2, we also examined the extent to which participants' IAT scores differed from zero. In the present study, high IMS, low EMS participants' implicit bias, as measured by the IAT, was not significantly greater than zero, $t(19) = 1.62$, $p = .12$. However, all other participants' IAT scores were significantly greater than zero (all ts > 4.39, ps $< .001$).

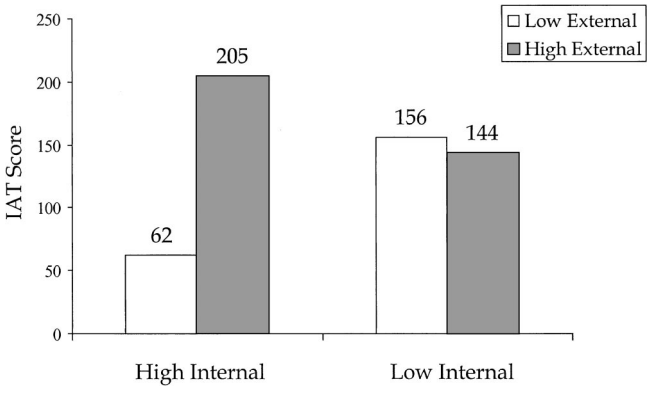

Figure 3. Implicit Association Test (IAT) scores as a function of Internal and External Motivation to Respond Without Prejudice (Study 3).

As in Study 2, to further understand why the high IMS, low EMS participants were responding with less biased scores on the IAT, we examined the latencies for congruent and incongruent trials separately. The overall 2 (IMS: high vs. low) × 2 (EMS: high vs. low) × 2 (cognitive busyness: busy vs. not busy) × 2 (trial: incongruent vs. congruent) mixed-model ANOVA with trial as the repeated measure is conceptually equivalent to the analysis presented above using the IAT scores (i.e., difference between incongruent and congruent trials). However, this analysis revealed an additional main effect of trial, such that, consistent with Greenwald et al.'s (1998) findings, participants responded more quickly to the congruent trials ($M = 824.45$, $SD = 180.32$) than to the incongruent trials ($M = 963.77$, $SD = 213.52$), $F(1, 69) = 70.60$, $p < .001$. To directly test our key hypothesis, we conducted separate planned comparisons on the congruent and incongruent latency scores comparing the high IMS, low EMS participants with the other participants. Examination of the latency scores from the congruent trials revealed that high IMS, low EMS participants were marginally slower on the congruent trials ($M = 868.67$) than were the other participants ($M = 807.67$), $F(1, 76) = 3.10$, $p = .08$. Examination of the latency scores from the incongruent trials revealed that the high IMS, low EMS participants responded slightly, although not significantly, faster on the incongruent trials ($M = 928.68$) than did the other participants ($M = 971.27$), $F(1, 76) = 0.52$, $p = .47$. All means for the congruent and incongruent trials can be found in Table 2.

As in Study 2, we examined the number of errors made during the congruent and incongruent trials using a 2 (IMS: high vs. low) × 2 (EMS: high vs. low) × 2 (trial: incongruent vs. congruent) mixed-model ANOVA with trial as the repeated measure. This analysis revealed a significant main effect of trial, such that, overall, participants responded with fewer errors on the congruent trials ($M = 1.61$, $SD = 0.92$) than on the incongruent trials ($M = 3.75$, $SD = 4.35$), $F(1, 69) = 20.58$, $p < .001$. There were no other significant main effects or interactions. Hence, high IMS, low EMS participants did not commit more errors on the IAT than any other group of participants.

Discussion

The goals of Study 3 were to examine the effect of cognitive busyness on participants' IAT performance and to replicate the key findings from Study 2 with faces rather than Black and White names as IAT stimuli. It is notable that although the cognitive busyness manipulation produced the overall effect of slowing participants' responses, it did not moderate the pattern of implicit race bias. That is, high IMS, low EMS participants showed significantly lower levels of implicit race bias than did all other participants, regardless of the cognitive busyness manipulation. These findings suggest that the low levels of race bias among high internal, low external individuals are not a result of effortful control. This conclusion is further supported by our finding that error rates were not elevated among high IMS, low EMS participants, as would be expected if they were trying to control their responses on the IAT. Whether their low levels of race bias reflect the weakening of associations of Blacks with negative evaluations or highly efficient, automatized control mechanisms cannot be determined with the present data. We discuss these issues more fully in the General Discussion. With regard to the expression of

explicit prejudice, the present findings replicate the results of the first two studies.

In the present study, as in the previous two studies, we also examined the extent to which the high internal, low external participants' implicit race bias scores differed from zero. Theoretically, a score of zero would reflect the absence of bias. In contrast to Study 2, we found that the magnitude of high internal, low external participants' IAT scores did not differ from zero. Although the pattern of scores was identical in Studies 2 and 3, we suspect that differences in the stimuli (faces compared with names as cues to group membership) may be responsible for the difference between Studies 2 and 3. In Study 1, high internal, low external participants' facilitation scores were significantly below zero. We encourage caution in interpreting these findings, as establishing appropriate baselines is a notoriously difficult endeavor. However, it is clear from the pattern that emerged across the three studies that high IMS, low EMS participants consistently showed substantially lower implicit race bias than did all other participants.

General Discussion

The present work integrates recent developments in the assessment of alternative motivations to respond without prejudice with self-determination theory to advance specific predictions concerning who is likely to show effective regulation of race bias across explicit (easy to control) and implicit (difficult to control) responses. A central thesis of self-determination theory is that the more internalized and autonomous the reasons underlying people's regulatory efforts are (i.e., absence of external contingencies or mandates), the more successful they are at regulating their responses relevant to the goal or value. We suggested that the joint consideration of internal and external motivation to respond without prejudice permits the identification of differing levels of autonomy with regard to the regulation of race bias. The findings from three studies that examine participants' explicit and implicit race bias as a function of their level of internal and external motivation to respond without prejudice strongly support our predictions.

First, as expected, in all three studies, participants' scores on the explicit measure of race bias varied as a function of their level of internal motivation to respond without prejudice. Specifically, those with low levels of internal motivation to respond without prejudice reported higher levels of explicit race bias than did their high internal counterparts. These findings suggest that when responses are easy to control, those with high levels of personal motivation to respond without prejudice are able to do so (see also Plant & Devine, 1998; Plant et al., 2002). Also consistent with our previous findings, highly externally motivated individuals reported slightly higher levels of explicit race bias than did their low external counterparts.

Second, across all three studies, the findings with regard to the theoretically more difficult-to-control implicit responses were strikingly consistent, despite the use of two alternative measures of implicit bias. Specifically, we expected that participants who reported high levels of internal motivation and low levels of external motivation and, thus, were theoretically highly autonomous would be the most effective at regulating expressions of race bias, even on difficult-to-control responses. Consistent with our expectations, these individuals responded with lower levels of implicit race bias than did all other participants.

These findings may help to refine Devine and Monteith's (1993) prejudice reduction model. We argued previously that in understanding the effective regulation of prejudice and prejudice reduction, it is important to identify who among low-prejudice individuals is and is not particularly vulnerable to violating their nonprejudiced personal standards (Devine & Monteith, 1993). Devine and Monteith's model focuses rather exclusively on motivation to respond without prejudice that stems from personal (internal) reasons. In the present work, we argue that it is important to broaden our conceptualization to consider not only internal but also external sources of motivation to respond without prejudice.

Following in the tradition of self-determination theory, we proposed that the source of one's motivation appears to be more important than the amount of motivation (see Ryan, Sheldon, Kasser, & Deci, 1996). Our findings suggest that people who regulate their prejudice for primarily internal reasons are more effective than others in responding without race bias across behaviors that vary in their controllability. However, if the amount of motivation were the crucial determinant of the efficacy of control efforts, then those who are high in both internal and external motivation should be the most effective in responding without prejudice. Although such individuals are clearly motivated to respond without prejudice, the combination of being both internally and externally motivated is associated with less effective regulatory efforts, at least in terms of the theoretically more difficult-to-control (i.e., implicit) responses. These findings are also consistent with some of our previous work, which indicates that among high internal participants, those who are also high in external motivation to respond without prejudice are more likely to report prejudice-relevant discrepancies than are those who are low in external motivation (Plant & Devine, 1998; Plant et al., 2002).

We hasten to add that we do not believe that the fact that individuals who are high in both internal and external motivation to respond without prejudice sometimes respond with bias should cast doubt on the sincerity of their nonprejudiced responses to explicit measures. Quite to the contrary, these individuals may be those Devine and colleagues (Devine et al., 1991; Devine & Monteith, 1993) have identified as vulnerable to prejudice with compunction. Indeed, Plant and Devine (1998) found that these individuals' prejudice-relevant discrepancies result in guilt, a form of self-imposed punishment. Although they have renounced prejudice at the conscious level, they continue to experience less easily controlled forms of race bias that are at odds with their nonprejudiced beliefs (see also Wilson, Lindsey, & Schooler's, 2000, conceptualization of dual attitudes). Devine et al. (1991; Devine & Monteith, 1993) suggested that fully overcoming the prejudice habit presents a formidable task that is likely to involve a great deal of internal conflict over time as one develops the ability to control such unwanted prejudiced responses (Devine et al., 1991; Zuwerink et al., 1996).

Although we have identified those people who appear to be fairly effective in regulating expressions of implicit race bias, a priority for future research is to identify the processes or circumstances that enable high internal, low external individuals to regulate the expression of race bias more effectively. How is it, for example, that these people managed to show low levels of race bias across both the explicit and the implicit measures? Our results

argue against the possibility that they were exerting effortful control processes to reduce the expression of prejudice on the implicit measures. In Study 3, we introduced a cognitive busyness manipulation that theoretically should have disrupted any control efforts that required cognitive resources. Even when cognitively taxed, the high internal, low external participants reported much lower levels of bias on the implicit measure than did any of the other participants.

In a recent study investigating psychophysiological processes of race bias, we further examined the possibility that high internal, low external people use controlled processes to reduce their levels of race bias (Amodio, Harmon-Jones, & Devine, 2002). This research used the startle eyeblink response as an indicator of basic affective processes associated with amygdala activity. In this work, we manipulated the interval between the presentation of the stimulus (e.g., Black faces) and the introduction of the startle probe (e.g., blast of white noise), such that control was very unlikely (e.g., 400 ms) or possible (4,000 ms). We found that high IMS, low EMS participants showed less startle modulation in response to Black faces at either interval compared with all other participants, who showed evidence of startle modulation at both intervals. These findings conceptually replicate the present work and suggest that the ability of high internal, low external individuals to more effectively regulate race bias extends to the difficult-to-control physiological indicators of race bias.

One possible explanation for the low levels of race bias among the high internal, low external individuals is that they have learned to reduce prejudicial associations either by weakening the strength of these associations (Devine, 1989; Devine & Monteith, 1993; Monteith, 1993; Monteith et al., in press) or by preventing their activation (Moskowitz et al., 1999; Moskowitz, Salomon, & Taylor, 2000). For example, Moskowitz et al. (1999) argued that individuals who are chronically concerned with responding in egalitarian ways have become so well practiced at inhibiting stereotypes that such inhibition is initiated preconsciously. Moskowitz et al. suggested that the presence of cues associated with Blacks initiates preconscious, goal-directed control to prevent the activation of stereotypic knowledge. Although Moskowitz et al.'s work has focused exclusively on stereotype activation, whereas our work has focused on implicit measures of evaluative bias, the conceptual parallels may prove to be important. Future work is needed to sort out the exact processes by which increasing autonomy enables the relatively more effective regulation of race bias.

An alternative possibility is that high internal, low external individuals' low levels of race bias reflect the fact that implicit forms of race bias were simply never acquired. Although these individuals would be highly autonomous and self-determined in regulating their behavior according to their nonprejudiced standards, they would not have had to go though the arduous process of developing controlled strategies to overcome race bias. In light of the mixed evidence regarding the absolute existence of race bias among high IMS, low EMS participants across the three studies, we can neither strongly support nor refute this possibility.

The present findings may help to address an issue that has been a topic of considerable debate in the literature, specifically, the relation between implicit and explicit forms of race bias. Devine (1989), for example, argued that people who report low and high levels of prejudice on explicit measures are equally likely to show evidence of automatic or implicit race bias. Recent studies, however, have shown that not all people are equally prone to implicit race bias (e.g., Fazio et al., 1995; Lepore & Brown, 1997; Moskowitz et al., 2000; Wittenbrink, Judd, & Park, 1997). However, to date, it has not been clear how to identify exactly who is likely or unlikely to show bias at the implicit level. That is, standard self-report measures of attitudes, such as the ATB or MRS, have not been effective in identifying who is likely to control the expression of prejudice on implicit measures of race bias. Our findings suggest that those who are motivated to respond without prejudice for both internal and external reasons may be most likely to show a pattern of dissociation between explicit and implicit indicators of race bias. Specifically, these individuals tend to report low levels of bias on explicit measures but, unlike high internal, low external individuals, respond with high levels of bias on implicit measures. Our hope is that exploring the role of the alternative sources of motivation to respond without prejudice will facilitate progress on understanding these issues.

We did not expect those who are primarily externally motivated to respond without prejudice or those who are not motivated for either internal or external reasons to regulate the expression of race bias on explicit or implicit measures. Because all measures were collected under private conditions, minimizing the threat of social disapproval, those who are primarily externally motivated (i.e., low IMS, high EMS) were not expected to regulate the expression of race bias on either explicit or implicit measures. These individuals' form of regulation is clearly external and is likely to emerge only when they are under the surveillance of others. Consistent with this reasoning, our previous work demonstrated that when explicit attitude responses were supplied under public conditions, participants regulated their expression of bias to conceal it from others (Plant & Devine, 1998; Plant et al., 2002). It is not surprising that those who were not motivated to respond without prejudice (i.e., low IMS, low EMS) expressed race bias. From Devine and Monteith's (1993) perspective, people who are low in internal motivation to respond without prejudice have not developed the personal motivation needed to begin the prejudice reduction process. Instilling this type of motivation continues to be an extremely challenging endeavor for social psychologists (see Devine, Plant, & Buswell, 2000).

At present, we know very little about the developmental sequence of internal and external motivation to respond without prejudice. We believe that it is important to examine such issues from a longitudinal perspective. For example, it may be that, as the internalization theorists suggest, external motivation precedes the development of internal motivation (e.g., Collins, 1977; Kelman, 1958; Meissner, 1981; Ryan & Connell, 1989). Indeed, this was the logic underlying changes in norms proscribing prejudice. This belief has been echoed in recent theorizing suggesting that to discourage expressions of prejudice, it is critical to cultivate "personal and societal norms that speak against the appropriateness of stereotyping" (Bodenhausen & Macrae, 1998, p. 43). Although such external motivation may be an important first step, creating internal motivation to respond without prejudice may be necessary to sustain efforts to respond without prejudice over time, particularly in the absence of any immediate external pressures to respond without prejudice. The internalization theorists suggest that, as the motivational influence shifts from external to internal, control efforts are increasingly self-determined and effective.

Conclusion

The current work argues that in understanding the prejudice reduction process, it is useful to consider the regulation of race bias along a continuum of responses, varying in controllability from the most explicit to the most implicit. Our hope is that, by identifying individual differences in people's regulatory effectiveness for both explicit and implicit expressions of race bias, we can enhance our understanding of the steps that must be taken in the prejudice reduction process. The present conceptualization allows us to identify individuals at different stages in the prejudice reduction process, marked by the sources of motivation impelling them to regulate expressions of prejudice. The message emerging from this analysis suggests that the effective regulation of prejudice is a complex process of goal acceptance and self-determination that, although difficult, is for many eventually realized.

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