Available online at www.sciencedirect.com
SCIENCE DIRECT
Journal of Experimental Social Psychology 42 (2006) 406–412
Journal of Experimental Social Psychology
www.elsevier.com/locate/jesp

Regulatory focus and executive function after interracial interactions

Sophie Trawalter [a], Jennifer A. Richeson [b,*]

[a] Dartmouth College, USA
[b] Department of Psychology, Institute for Policy Research, Northwestern University, 2029 Sheridan Road, Evanston, IL 60208, USA

Received 22 September 2004
Available online 2 December 2005

Abstract

Recent research finds that interracial interactions can negatively impact executive function. The present study examined whether regulatory focus may moderate this effect. Specifically, prior to an interracial interaction, 45 White female students were told either to try to have a positive interracial exchange (promotion focus), avoid prejudice (prevention focus), or given no instruction (control). After the interaction, participants completed the Stroop color-naming task, which assessed executive attentional task performance. Results revealed that participants in the prevention and the no instruction, control conditions performed worse on the Stroop than participants in the promotion condition. The findings suggest that promoting positive contact through active engagement rather than prejudice avoidance attenuates the previously documented negative effects of interracial contact on cognitive functioning.

Keywords: Regulatory focus; Interracial contact; Executive function; Interracial interactions; Self-regulation; Ego-depletion

Introduction

Although interracial interactions are increasingly frequent in today's society, they remain a source of anxiety for many individuals, even evoking a state of physiological threat in some (Blascovich, Mendes, Hunter, Lickel, & Kowai-Bell, 2001; Stephan & Stephan, 1985, 2001). Interracial interactions have been found to be difficult for White individuals to navigate, in part, due to concerns about appearing prejudiced during the interaction (Devine & Vasquez, 1998; Monteith, 1993; Monteith, Ashburn-Nardo, Voils, & Czopp, 2002). Specifically, research suggests that interracial interactions are especially likely to heighten concerns about appearing prejudiced (Vorauer, Hunter, Main, & Roy, 2000; Vorauer & Kumhyr, 2001), and prompt efforts to avoid doing so (Plant, 2001), for members of dominant racial groups. To avoid appearing prejudiced, furthermore, White individuals have been found to regulate their thoughts, emotions, and behaviors (e.g., Devine, 1989; Monteith et al., 2002; Monteith, 1993; von Hippel, Silver, and Lynch, 2000; Vorauer et al., 2000; see also Crandall and Eshleman, 2003 for a review).

Recent research suggests that these self-regulatory efforts may come with a cognitive cost. Drawing on limited resource models of executive attention (Baumeister, Muraven, & Tice, 2000; Engle, 2002; Engle, Conway, Tuholski, & Shisler, 1995; Muraven & Baumeister, 2000), Richeson and Shelton (2003) predicted that if interracial contact instigates self-regulatory effort, then White individuals should perform more poorly on tasks that require executive attentional capacity after interracial, compared to after same-race, contact (Richeson & Shelton, 2003). Indeed, White participants performed more poorly on the Stroop color-naming task—a task that requires participants to draw upon central executive resources in order to override pre-potent responses—following an interracial compared to a same-race interaction (Richeson & Shelton, 2003). Furthermore, the impairment effect has been linked to self-regulatory effort during interracial contact (Richeson et al., 2003; Richeson & Trawalter, 2005). For instance, employing functional magnetic resonance imaging (fMRI) methods, Richeson et al. (2003) found that the individuals

* Corresponding author.
E-mail address: jriches@northwestern.edu (J.A. Richeson).

0022-1031/$ - see front matter © 2005 Elsevier Inc. All rights reserved.
doi:10.1016/j.jesp.2005.05.008

who were most impaired on the Stroop task after interracial contact were also those who revealed the greatest activation in executive control brain regions during the presentation of photographs of Black individuals. Moreover, in three studies Richeson and Trawalter (2005) manipulated the self-regulatory demands of an interracial interaction and found that increasing demands resulted in increased Stroop impairment after the interaction, whereas reducing demands resulted in attenuated Stroop impairment after the interaction. Taken together, this work suggests that self-regulation during interracial interactions can result in impaired performance on subsequent tasks requiring executive function.

One potential implication of this line of work is that individuals should not attempt to regulate their thoughts, affect, and behavior during interracial interactions, at least, if they are not willing to accept the potential cognitive side effect. This implication is particularly troubling because it suggests that attempting to control the expression of prejudice during interracial interactions may come with negative consequences for individuals. But, research has shown, quite convincingly, that such self-regulatory efforts are integral to the ultimate elimination of prejudiced attitudes (e.g., Devine & Monteith, 1993; Monteith, 1993; Monteith et al., 2002). Furthermore, interpersonal contact with a member of a different race is the "gold standard" prescription for prejudiced intergroup attitudes (Pettigrew, 1998; Pettigrew & Tropp, 2000). In light of this work, it is important to consider how individuals can foster positive interracial contact experiences, without suffering the negative cognitive consequences associated with self-regulatory control. The purpose of the present study was to investigate this problem.

Regulatory focus: Avoiding prejudice or approaching positive contact

Given the potentially negative cognitive effects of interracial interactions, how should individuals behave during interracial interactions to reap the benefits of positive contact? To address this question, we turned to the literatures on regulatory focus, motivation, and goal attainment. According to regulatory focus theory (Higgins, 1997, 1998), there are two separable approaches to goal fulfillment: promotion and prevention focus. These strategies are related to those characterized in the motivation literature as approach and avoidance, respectively (Atkinson & Litwin, 1960; Carver & Scheier, 1990, 1998). The cognitive processes associated with the promotion and prevention regulatory foci create different goals and standards, yielding different cognitions, emotions, and behavioral outcomes. Though both serve to attain successful outcomes, a promotion focus emphasizes the presence or absence of positive outcomes whereas a prevention focus emphasizes the presence or absence of negative outcomes (Higgins, 1997). Moreover, individuals with a promotion focus approach desired end-states by engaging in goal-relevant behaviors and flexible, explorative cognitive processing, whereas individuals with a prevention focus avoid undesired end-states by withdrawing from, avoiding, and becoming particularly vigilant to relevant behaviors, and engaging in rigid, vigilant cognitive processing (Higgins, Roney, Crowe, & Hymes, 1994). Pertinent to the present work, for instance, the strength of individuals' chronic prevention focus predicted their tendency to avoid outgroup members (Shah, Brazy, & Higgins, 2004).

Against the backdrop of this research, attempting to avoid the expression of prejudice could be considered a prevention-focused strategy for successfully navigating interracial interactions (see also, Plant & Devine, 2004). That is, preventing the expression of prejudice is likely to lead individuals to suppress thoughts, affect, and behavior, as well as to monitor for the presence of prejudiced-related thoughts, affect, and behavior (e.g., Macrae, Bodenhausen, Milne, & Jetten, 1994). In other words, attempting to avoid prejudice instigates cognitive processes that require effortful self-regulation designed to prevent an undesired end-state. Consequently, consistent with limited resource models of executive attention (Muraven & Baumeister, 2000), attempting to prevent the expression of prejudice should temporarily deplete inhibitory task performance. By contrast, because it is associated with approaching a desired end-state and more flexible cognitive processing, rather than vigilant monitoring of thoughts, affect, and behavior to avoid negative outcomes, a promotion-focused self-regulatory strategy should be less likely to deplete executive attentional capacity. Hence, promotion-focus may offer a partial remedy for the depletion of executive capacity by interracial contact. The purpose of the present study was to examine this possibility.

Present study

The present study compared the effects of promotion- and prevention-focus strategies for interracial contact on subsequent inhibitory task performance. Specifically, prior to an interracial interaction, White participants were explicitly told either to *prevent* the expression of prejudice, *promote* a positive interracial exchange, or they were given no instruction. Similar to previous research (e.g., Richeson & Shelton, 2003), participants completed an inhibitory response task (i.e., the Stroop color-naming task) after the interaction, to measure executive functioning. We predicted that individuals who engaged in the interracial interaction with a prevention-focus goal would be relatively more impaired on the Stroop task compared to participants who engaged in the interracial interaction with a promotion-focus goal. Moreover, given that previous research by Richeson and Shelton (2003) observed the impairment of Stroop performance after interracial contact even without explicitly instructing participants to attempt to avoid prejudice, we predicted that participants not explicitly provided with a regulatory focus strategy would default to a prevention-focus frame. Thus, we predicted that participants in the no-instruction control condition would reveal

performance on the Stroop task similar to participants in the prevention condition, and, furthermore, that both groups would perform worse than participants in the promotion condition.

Method

Participants and design

Forty-five White American female undergraduates consented to participate in this study for partial course credit. Participants interacted with one of two Black female experimenters under one of three randomly assigned instructions. One-third of the participants were given *prevention*-focused instructions regarding the interracial interaction, another third were given *promotion*-focused instructions regarding the interracial interaction, whereas the final third received no instructions (*control* condition). Thus, the study was a between-subjects one-way design with three levels (regulatory focus instruction: prevention, promotion, and control).

Measures

Operation-span task

The operation-span task assesses working memory capacity—that is, individual differences in executive attentional resources (La Pointe & Engle, 1990; Turners & Engle, 1989). The task requires participants to evaluate the veracity of a mathematical equation (e.g., IS (16/4) + 2 = 10?). After making a response, a word is presented on the screen. After a series of equations followed by words constituting a set, participants are asked to recall the words for that set.

In the present study, we created an operation-span task with 18 sets. Each set contained 3, 4, or 5 equations, each followed by a word. The sets, equations, and words, were randomized without replacement. Participants were asked to read the equations, respond to the equations, and read the words aloud, therefore disallowing rehearsal of the words during the sets. Participants controlled the word presentations with their response to the equations; that is, a word appeared on the screen for 2 s immediately following their response to an equation. After 1 s, another equation appeared on the screen. At the end of each set, a text box appeared on the screen and prompted participants to recall all of the words for that set. Participants then typed in the words in the text box before proceeding to the next set. Working memory capacity is calculated as the number of words recalled from among the sets recalled perfectly (La Pointe & Engle, 1990; Schmader & Johns, 2003). In the present task, the possible range of scores was 0–72.

Stroop

The Stroop task in the present study was conducted with a color-coded four-button response box. Instructions explained that participants were to report the correct color in which a stimulus word that itself was the name of a color (e.g., red), or string of *X*s, appeared as quickly as they could by pressing the appropriate key on the response box. Color names or control "*X*s" appeared on the screen one at a time, in one of the following four colors: red, yellow, green, or blue. Each word or control stimulus appeared for a maximum of 2000 ms, preceded by a fixation cross (+). The ITI was 1500 ms. The task consisted of 32 practice trials followed by 7 blocks of 12 trials each, for a total of 84 experimental trials. *Incompatible* trials were those in which the color name appeared in a color other than its semantic meaning (e.g., "red" in blue type). *Control* trials, in contrast, were those in which the "XXXX"-string appeared in blue type. Interference scores were calculated by subtracting latencies associated with control trials from latencies associated with incompatible trials.

Procedure

The procedures were adapted from Richeson and Shelton (2003). Participants were first greeted by a White experimenter who escorted them to a laboratory testing room where they began a study ostensibly examining "Serial Cognition: the influence of one cognitive task on a subsequent task with a delay between the two." In previous studies investigating the cognitive impairments following interracial contact, participants completed the Implicit Association Test (IAT: Greenwald, McGhee, & Schwartz, 1998) as the first cognitive task prior to the interracial interaction. However, recent research suggests that the IAT may increase the salience of race and concerns about race bias in participants (see Frantz, Cuddy, Burnett, Ray, & Hart, 2004; Monteith, Voils, & Ashburn-Nardo, 2001), magnifying the observed cognitive impairments following interracial contact. Hence, participants in the present study completed a working memory-span task instead of the IAT.

Thus, the first cognitive task was an adapted version of the operation-span task, a test of working memory capacity developed by La Pointe and Engle (1990) and Turner and Engle (1989). Upon completion of the operation-span task, the experimenter asked participants to help with the creation of stimulus materials for an unrelated study examining race relations during the "delay period." The experimenter then added, "In the past, we've noticed that interracial interactions are relatively unfamiliar for Dartmouth students and that Dartmouth students therefore find it difficult to engage in them." Following this remark, the experimenter instructed participants to adopt one of three regulatory focus strategies to have a successful interaction (described more fully in a subsequent section). After, the experimenter accompanied participants to a different testing room where they engaged in the ostensibly unrelated session with a Black experimenter.

During this "delay task," participants were asked to provide their opinions on several topics, one of which was relevant to race (e.g., campus diversity), and were videotaped while doing so. The videotaping session lasted approximately 7 min. After this session, participants were met by

the original experimenter and taken back to the original testing room where they performed a Stroop (1935) color-naming test that measured inhibitory performance. After the Stroop task, participants were debriefed, probed for suspicion, and then released.

As mentioned previously, participants were provided with one of three instructions regarding how to engage the interracial interaction to manipulate their regulatory focus. Specifically, participants in the *prevention*-focused condition were told, "It is important to the study that you avoid appearing prejudiced in any way during the interaction." By contrast, participants in the *promotion*-focused condition were told, "It is important to the study that you approach the interaction as an opportunity to have an enjoyable intercultural dialogue." A *control* group was not given any instructions regarding the interracial interaction. Similar to the logic of the research reviewed previously, the promotion-focused instruction was expected to yield less effortful self-regulation during the interracial interaction compared to the prevention-focused instruction, and, therefore, result in less Stroop interference afterwards.

Results

Preliminary results

Working memory span

Consistent with previous research (La Pointe & Engle, 1990; Schmader & Johns, 2003), working memory capacity was assessed as the number of words recalled from sets recalled perfectly. Scores in the present sample ranged from 6 to 61 ($M = 53$).

Stroop

Consistent with the procedures detailed in Richeson and Shelton (2003), error trials (2.5%) were recoded as missing, then Stroop latencies greater than 2.5 *SD* above the mean (i.e., times >1300 ms) were re-coded as 1300 ms and latencies <200 ms were re-coded as 200 ms. These outliers constituted 2.4% of the observations. The trimmed latencies were not log-transformed, however, because they were approximately normally distributed (Shapiro–Wilk's $W = .959$, $p > .10$). Stroop interference scores were calculated by subtracting mean RTs for responses to control trials from mean RTs for responses to incompatible trials. Greater values reflect greater Stroop interference, but *worse* task performance. Stroop interference scores in the present sample ranged from −46.9 to 192.4 ($M = 70.1$).

Primary results

All participants accurately reported the regulatory-focus instructions they received. We conducted a one-way (regulatory focus instruction: prevention, promotion, control) Analysis of covariance (ANCOVA), controlling for individual differences in working memory capacity. The adjusted means for each experimental condition are diagrammed in Fig. 1. Consistent with predictions, results revealed a main effect of regulatory focus instruction, $F(2, 41) = 3.86$, $p = .03$, $r = .29$. Participants who were given promotion-focused instructions for the interracial interaction performed better than participants who were given prevention-focused instructions or no instructions on the Stroop task. Participants in the prevention-focused and control conditions performed equally well. A planned contrast testing our a priori prediction that participants in the promotion condition would be significantly less impaired on the Stroop task compared to participants in either the prevention or the control condition was also statistically reliable, $t(41) = 2.78$, $p < .01$, $r = .40$.

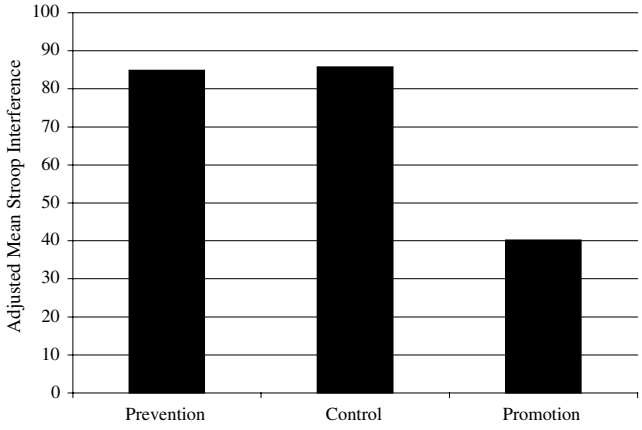

Fig. 1. Adjusted mean Stroop interference by regulatory focus condition.

Discussion

The goal of the present research was to examine whether regulatory focus might offer a remedy for the previously observed depleting effects of interracial contact. Specifically, the present work considered whether a promotion orientation for an interracial interaction might yield different outcomes than a prevention orientation. Consistent with previous research suggesting that these two types of self-regulatory focus often yield divergent outcomes, we found that participants with a promotion focus were less impaired on the Stroop color-naming task after interracial contact than were participants with a prevention focus. Moreover, the promotion focus participants also performed better on the Stroop task than participants who were not provided with a regulatory frame whose performance did not differ from prevention focus participants. Taken together, the results suggested that regulatory focus does moderate the extent to which interracial contact exhausts executive attentional resources. In other words, these data suggest that cognitive depletion is not an inevitable consequence of interracial contact.

The present study offers a number of practical and theoretical implications. First, the results suggest that the default strategy of many White individuals for interracial

contact may be a prevention focus—namely, prejudice avoidance. Recall that the Stroop performance of prevention focus participants did not differ from that of control participants. This prevention default explanation is consistent with recent research by Vorauer et al. (2000) and Vorauer and Kumhyr (2001) noting that members of dominant groups are particularly concerned about appearing prejudiced to stigmatized interaction partners. Recent research employing cognitive neuroscience methods also suggests that prevention may be a default strategy for many White individuals when they encounter ethnic minorities. For instance, studies employing functional magnetic resonance imagining (fMRI) technology have found heightened neural activity in brain regions thought to subserve cognitive control in White participants when they are presented with photographs of Black individuals, but not when they are presented with photographs of other White individuals (Cunningham et al., 2004; Richeson et al., 2003). This neural activity indicative of controlled processing was not evident, however, when the faces of Black individuals were presented to White participants subliminally (Cunningham et al., 2004). In other words, only when White participants were able to consciously perceive the Black faces, and thus aware of the possible need for cognitive control, were they likely to engage in controlled processing, perhaps, to suppress reactions associated with prejudice.

Considered in tandem with the results of the present study, this work suggests that the default mode of preventing prejudice may need to be disrupted somewhat to foster more positive contact experiences. Specifically, the present study suggests that prejudice reduction and diversity interventions that involve an increase in interracial contact may need to consider the regulatory frames with which individuals enter those contact situations. To the extent that individuals enter the interactions with prevention, rather than promotion, foci, they may be less likely to benefit maximally from the encounter.

The present results also suggest several future directions for research on interracial contact. Specifically, how might regulatory focus influence other dynamics of intergroup encounters? As mentioned previously, there is some evidence to suggest that individuals with a chronic prevention focus avoid outgroup members (Shah et al., 2004). Based on this research one might also predict that individuals who enter interracial interactions with a prevention focus may be particularly likely to display avoidant nonverbal behavior that might be interpreted as negativity from one's interaction partner. Furthermore, the results of the present study suggest that attempting to avoid the expression of prejudice during interracial interactions may make individuals particularly likely to express stereotypes and prejudicial views after the interaction. That is, depleted individuals should find it harder to suppress stereotypical thinking (Macrae et al., 1994). Thus, on some occasions and for some individuals, interracial contact may actually increase rather than decrease prejudice and stereotyping, at least as a short-term consequence.

Moreover, although the present findings suggest that a promotion focus may lead to more positive cognitive outcomes for White individuals during interracial interactions, does the ethnic minority interaction partner also benefit? Previous research has found that Blacks report enjoying interactions more with Whites who are concerned about appearing prejudiced than with Whites who are not concerned (Shelton, 2003). One explanation for this finding is that under some circumstances White individuals put forth more effort and are more engaged in interracial interactions when they are concerned about appearing prejudiced. In turn, these efforts make the interaction more enjoyable for the Black interaction partners (Shelton & Richeson, in press; Shelton, Richeson, Salvatore, & Trawalter, 2005). Future research should explore whether becoming more engaged in an interracial interaction in response to concern about appearing prejudiced, rather than becoming more inhibited and avoidant, stems from a promotion focus, leading to positive outcomes for both the self and one's partner. Given the benefits of promotion focus revealed in the present study, we predict that both participants and their partners will perceive the interaction to be more enjoyable, while also sparing individuals' executive attentional capacities.

Although the findings of the present study are enticing, their interpretation must be limited for several reasons. First, we only included female participants in the present study. We do not know whether participant sex moderates this effect, but a sample that includes both male and female participants should be examined in future work. Previous research on the depletion of executive function by interracial contact has not found sex differences, however (Richeson & Shelton, 2003; Richeson et al., 2003; Richeson & Trawalter, 2005). Furthermore, the present work included relatively scripted interactions with confederates rather than naïve participants. These aspects of the methods could influence the depletion effect and should be examined in future work. In addition, the participants were all students at a relatively liberal, New England college. Their level of motivation to behave in egalitarian ways may differ from participants in other regions, and it is possible that both motivation and regulatory focus were influential in generating the observed effects. Last, it is possible that our manipulation of regulatory focus affected the extent to which individuals were focused on the self, in addition to their regulatory focus.[1] Given that vigilant monitoring of one's affect, thoughts, and behavior requires self-focus, undermining self-focus should also result in a reduction in self-regulatory effort during interracial interactions, and, consequently, attenuate the executive dysfunction experienced afterward. In other words, altering regulatory focus may influence cognitive depletion during interracial contact by undermining the extent to which individuals can engage

[1] We thank an anonymous reviewer for pointing out this alternate explanation.

in self-focused processing. Future research should examine this possibility, as well as attempt to dissociate the effects of regulatory focus and self-focus.

Despite these limitations, the present study offers a potential remedy for the depletion of executive attentional resources by interracial contact. The findings suggest that active engagement may be a more cognitively beneficial strategy to use during interracial interactions than prejudice avoidance. Moreover, the present work suggests that regulatory focus may offer valuable insights into factors that make interracial contact rewarding rather than depleting.

Acknowledgments

This research was supported by a Rockefeller Center Faculty Fellowship from Dartmouth College, NSF Grant #0132420, NIMH Grant #MH63913, support from the Russell Sage Foundation, and a visiting fellow award from RICSRE at Stanford University, each awarded to the second author. Portions of this work were presented at the 2004 meeting of the New England Association of Social Psychologists and the 2005 Meeting of the Society for Personality and Social Psychology. We thank Shermaine Jones and Sorochi Esochaghi for help with data collection.

References

Atkinson, J. W., & Litwin, G. H. (1960). Achievement motive and test anxiety conceived as motive to approach success and motive to avoid failure. *Journal of Abnormal and Social Psychology, 60*, 52–63.

Baumeister, R. F., Muraven, M., & Tice, D. M. (2000). Ego depletion: A resource model of volition, self-regulation, and controlled processing. *Social Cognition, 18*, 130–150.

Blascovich, J., Mendes, W. B., Hunter, S. B., Lickel, B., & Kowai-Bell, N. (2001). Perceiver threat in social interactions with stigmatized others. *Journal of Personality and Social Psychology, 80*, 253–267.

Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. Cambridge: University Press.

Carver, C. S., & Scheier, M. F. (1990). Principles of self-regulation: Action and emotion. In E. T. Higgins & R. M. Sorrento (Eds.), *Handbook of motivation and cognition: Foundation of social behavior* (Vol. 2, pp. 3–53). New York: Guilford Press.

Crandall, C. S., & Eshleman, A. (2003). A justification-suppression of the expression and experience of prejudice. *Psychological Bulletin, 129*, 414–446.

Cunningham, W. A., Johnson, M. K., Raye, C. L., Gatenby, J. C., Gore, J. C., & Banaji, M. R. (2004). Separable neural components in the processing of black and white faces. *Psychological Science, 15*, 806–813.

Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology, 56*, 5–18.

Devine, P. G., & Monteith, M. J. (1993). The role of discrepancy-associated affect in prejudice reduction. In D. M. Mackie & D. L. Hamilton (Eds.), *Affect, cognition, and stereotyping: Interactive processes in group perception* (pp. 317–344). San Diego, CA: Academic Press.

Devine, P. G., & Vasquez, K. A. (1998). The rocky road to positive intergroup relations. In J. L. Eberhardt & S. T. Fiske (Eds.), *Confronting racism: The problem and the response* (pp. 234–262). Thousand Oaks, CA: Sage Publications.

Engle, R. W. (2002). Working memory capacity as executive attention. *Current Directions in Psychological Science, 11*, 19–23.

Engle, R. W., Conway, A. R. A., Tuholski, S. W., & Shisler, R. J. (1995). A resource account of inhibition. *Psychological Science, 6*, 122–125.

Frantz, C. M., Cuddy, A. J. C., Burnett, M., Ray, A., & Hart, A. (2004). A threat in the computer: The race implicit association test as a stereotype threat experience. *Personality and Social Psychology Bulletin, 30*, 1611–1624.

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The implicit association task. *Journal of Personality and Social Psychology, 74*, 1464–1480.

Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist, 52*, 1280–1300.

Higgins, E. T. (1998). Promotion and prevention: Regulatory focus as a motivational principle. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 30, pp. 1–46). San Diego, CA: Academic Press.

Higgins, E. T., Roney, C., Crowe, E., & Hymes, C. (1994). Ideal versus ought predilections for approach and avoidance: Distinct self-regulatory systems. *Journal of Personality and Social Psychology, 66*, 276–286.

La Pointe, L. B., & Engle, R. W. (1990). Simple and complex word spans as measures of working memory capacity. *Journal of Experimental Psychology: Learning, Memory, & Cognition, 16*, 1118–1133.

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

Monteith, M. J. (1993). Self-regulation of prejudiced responses: Implications for progress in prejudice-reduction efforts. *Journal of Personality and Social Psychology, 65*, 469–485.

Monteith, M. J., Ashburn-Nardo, L., Voils, C. I., & Czopp, A. M. (2002). Putting the breaks on prejudice: On the development and operation of cues for control. *Journal of Personality and Social Psychology, 83*, 1029–1050.

Monteith, M. J., Voils, C. I., & Ashburn-Nardo, L. (2001). Taking a look underground: Detecting, interpreting, and reacting to implicit racial biases. *Social Cognition, 19*, 395–417.

Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources. Does self-control resemble a muscle? *Psychological Bulletin, 126*, 247–259.

Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology, 49*, 65–85.

Pettigrew, T. F., & Tropp, L. R. (2000). Does intergroup contact reduce prejudice? Recent meta-analytic findings. In S. Oskamp (Ed.), *Reducing prejudice and discrimination: The Claremont symposium* (pp. 93–114). Mahwah, NJ: Erlbaum.

Plant, E. A. (2001). *Approach and avoidance regulatory concerns for interracial interactions*. Unpublished Doctoral Dissertation, University of Wisconsin, Madison.

Plant, E. A., & Devine, P. G. (2004). *Regulatory concerns for interracial interactions: Approaching egalitarianism versus avoiding over bias*. Unpublished Manuscript. Florida State University.

Richeson, J. A., Baird, A. A., Gordon, H. L., Heatherton, T. F, Wyland, C. L., Trawalter, S., & Shelton, J. N. (2003). An fMRI investigation of the impact of interracial contact on executive function. *Nature Neuroscience, 6*, 1323–1328.

Richeson, J. A., & Shelton, J. N. (2003). When prejudice does not pay: Effects of interracial contact on executive function. *Psychological Science, 14*, 287–290.

Richeson, J. A., & Trawalter, S. (2005). Why do interracial interactions impair executive function. A resource depletion account. *Journal of Personality and Social Psychology, 88*.

Schmader, T., & Johns, M. (2003). Converging evidence that stereotype threat reduces working memory capacity. *Journal of Personality and Social Psychology, 85*, 440–452.

Shah, J. Y., Brazy, P. C., & Higgins, E. T. (2004). Promoting us or preventing them: Regulatory focus and manifestations of intergroup bias. *Personality and Social Psychology Bulletin, 30*, 433–446.

Shelton, J. N. (2003). Interpersonal concerns in social encounters between majority and minority group members. *Group Processes and Intergroup Relations, 6*, 171–186.

Shelton, J. N., & Richeson, J. A. (in press). Interracial interactions: A relational approach. *Advances in Experimental Social Psychology*.

Shelton, J. N., Richeson, J. A., Salvatore, J., & Trawalter, S. (2005). Ironic effects of racial bias during interracial interactions. *Psychological Science, 16*, 397–402.

Stephan, W. G., & Stephan, C. W. (1985). Intergroup anxiety. *Journal of Social Issues, 41*, 157–175.

Stephan, W. G., & Stephan, C. W. (2001). *Improving intergroup relations*. Thousand Oaks, CA: Sage.

Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology, 18*, 643–662.

Turner, M. L., & Engle, R. W. (1989). Is Working memory capacity task dependent? *Journal of Memory and Language, 28*, 127–154.

von Hippel, W., Silver, L. A., & Lynch, M. E. (2000). Stereotyping against your will: The role of inhibitory ability in stereotyping and prejudice among the elderly. *Personality and Social Psychology Bulletin, 26*, 523–532.

Vorauer, J. D., Hunter, A. J., Main, K. J., & Roy, S. A. (2000). Meta-stereotype activation: Evidence from indirect measures for specific evaluative concerns experienced by members of dominant groups in intergroup interaction. *Journal of Personality and Social Psychology, 78*, 690–707.

Vorauer, J. D., & Kumhyr, S. M. (2001). Is this about you or me? Self- versus other-directed judgments and feelings in response to intergroup interaction. *Personality and Social Psychology Bulletin, 27*, 706–709.