Social Cognition, Vol. 23, No. 4, 2005, pp. 336-352

AFRICAN AMERICANS' IMPLICIT RACIAL ATTITUDES AND THE DEPLETION OF EXECUTIVE FUNCTION AFTER INTERRACIAL INTERACTIONS

Jennifer A. Richeson and Sophie Trawalter
Dartmouth College

J. Nicole Shelton
Princeton University

Previous work has found that white individuals who harbor negative racial attitudes toward blacks are particularly likely to be depleted of executive attentional resources after interracial contact. The present study investigated whether engaging in interracial interactions also depletes the executive resources of black individuals as a function of their racial attitudes toward whites. Black participants completed an unobtrusive measure of racial attitudes, engaged in either an interracial or same–race interaction, and then completed an inhibitory response task to assess executive functioning. Similar to previous research, results revealed that blacks' racial attitudes predicted the extent to which they were impaired on the inhibitory response task after an interracial, but not after a same–race, interaction. Specifically, the more ingroup favoritism individuals revealed on the attitude measure, the more depleted of attentional resources they were after

---

Jennifer A. Richeson & Sophie Trawalter, Dartmouth College; J. Nicole Shelton, Princeton University. This research was supported by a Rockefeller Center Faculty Fellowship from Dartmouth College, NSF grant #0132420, & NIMH grant #MH63913 to the first author and a grant from the Russell Sage Foundation to the first and third authors. Portions of this manuscript were prepared while the first and third authors were Visiting Fellows at the Research Institute for Comparative Studies in Race and Ethnicity at Stanford University. The authors would like to thank Natalie Hornak, Randall Brown, Shermaine Jones, Brian Sylvester, Kurt Peters, Andrea Stier, & Mark Williams for help with data collection.

Correspondence should be addressed to Jennifer A. Richeson, Department of Psychological and Brain Sciences, Dartmouth College, 6207 Moore Hall, Hanover, NH, 03755. Electronic mail may be sent to jriches@dartmouth.edu.

the interracial interaction. Taken together, these results suggest that interracial interactions can be cognitively costly for members of both racial majority and minority groups.

Despite increasing racial diversity in many social arenas in contemporary U.S. society, interracial interactions have been found to be awkward and often distressing (e.g., Blascovich, Mendes, Hunter, Lickel, & Kowai–Bell, 2001; Devine & Vasquez, 1998; Ickes, 1984; Stephan & Stephan, 2001). For instance, several studies have shown that interracial interactions induce threat, as indexed cardiovascularly, in members of nonstigmatized groups (e.g., Blascovich, et al., 2001; Mendes, Blascovich, Lickel, & Hunter, 2002). In addition to being distressing, interracial interactions have recently been found to impair the inhibitory task performance of white individuals, especially if they harbor relatively high levels of racial bias (Richeson et al., 2003; Richeson & Shelton, 2003). Specifically, white individuals performed worse on the Stroop color–naming paradigm—a measure of response inhibition—after interacting with a black confederate, compared to after interacting with a white confederate; and the extent of subsequent impairment was moderated by individuals' scores on a test of implicit racial bias.

Evidence is building to suggest that resource depletion might account for the impact of interracial contact on executive function for white individuals (Richeson et al., 2003; Richeson & Trawalter, 2005). That is, limited resource models of executive function argue that engagement in one task that requires executive control—including conscious self–regulation—impairs performance on a subsequent task tapping this same resource (Muraven & Baumeister, 2000; Engle, Conway, Tuholski, & Shisler, 1995). Considerable research attests to whites' and other members of dominant groups' recruitment of central executive processes, including response inhibition, in order to combat the expression of stereotypes and negative attitudes that are often activated automatically and unintentionally (Devine, 1989; von Hippel, Silver, & Lynch, 2000), as well as to modulate the expression of negative affect (Richards & Gross, 1999, 2000). Moreover, Richeson and Trawalter (2005) recently observed that increasing the self–regu-

latory demands of an interracial interaction for a sample of white participants resulted in increased Stroop impairment after the interaction compared to control participants; and, decreasing the self–regulatory demands of an interracial interaction resulted in a reduction in Stroop impairment after the interaction.

Furthermore, research suggests that racially biased white individuals may differentially draw upon resources of the central executive to negotiate interracial interactions, particularly when the norms of the context or their personal values dictate egalitarian behavior. For instance, individuals with more negative explicit racial attitudes have been found to activate negative stereotypes more readily than individuals with less explicitly biased attitudes (Lepore & Brown, 1997; Wittenbrink, Judd, & Park, 1997). Moreover, individuals with greater levels of implicit racial bias have been found to behave in ways reflecting discomfort (e.g., greater blinking) during interracial interactions compared to individuals with lower levels of implicit racial bias (Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; McConnell & Leibold, 2001). Taken together, this work suggests that racially biased white individuals may even rely on resources of the central executive to engage in self–regulation during interracial interactions in order to manage negative thoughts, stereotypes, and/or emotions. According to the resource depletion model, therefore, the Stroop performance of racially biased individuals should be relatively impaired after interracial contact.

One limitation of this previous work is the exclusive focus on the experiences of and consequences for white individuals (Shelton, 2000). It remains unknown whether black individuals will also be depleted of executive attentional resources after interracial contact, and, furthermore, whether the extent of impairment will vary as a function of their racial attitudes. The primary purpose of the present study was to investigate these questions.

BLACKS' RACIAL ATTITUDES & INTERGROUP CONTACT EXPERIENCES

Just as whites' racial attitudes influence their behavior during interracial interactions, so too do blacks' racial attitudes. Indeed, the findings of previous research employing explicit, self–report

measures of attitudes suggest that the more negative black individuals' attitudes are toward whites, the more likely they are to actively avoid white individuals (Patchen, 1983), the less actual contact they have with whites (Brigham, 1993), and the fewer white friends they have (Johnson & Leci, 2003). Similarly, Levin, van Laar, and Sidanius (2003) found that ethnic minorities who exhibited more negative racial attitudes at the end of their first year of college had fewer outgroup friends during their second and third years of college, even after controlling for pre–college friendships and other background variables. Furthermore, Shelton and Richeson (in press) found that ethnic minorities' racial attitudes were positively related to the quality of both voluntary and involuntary contact experiences with white friends and roommates, respectively, as well as with the quality of contact with relative strangers. Employing a measure of implicit racial attitudes, moreover, Ashburn–Nardo, Knowles, and Monteith (2003) found that black participants with less positive attitudes regarding white Americans were more likely to select a black, rather than a white, partner to work with on a project. Considered in tandem, these studies reveal that black individuals' attitudes toward white Americans impact both the quantity and quality of dyadic interactions they have with white individuals.

In addition, some recent work argues that blacks' negative attitudes toward white individuals are generated in part from concerns regarding white Americans' anti–black prejudice (Johnson & Leci, 2003; Monteith & Spicer, 2000; Shelton & Richeson, in press). Thus, black individuals with more negative racial attitudes may be particularly concerned about being the target of prejudice. Recent research has found, furthermore, that ethnic minorities who are concerned about being the target of prejudice during interracial interactions often engage in compensatory strategies designed to facilitate smooth interactions (Shelton, Richeson, & Salvatore, in press). Specifically, ethnic minorities who were primed to expect racial prejudice prior to an interaction with a white partner behaved in a more engaging and involved manner during the interaction—as rated by naïve coders—than participants who were not so primed. These self–regulatory, compensatory efforts seemingly paid off, however; white partners of the primed ethnic minority participants enjoyed the interactions

more than the partners of ethnic minority participants who were not primed to expect prejudice against their group. Despite this positive outcome for their partners, however, the primed ethnic minority participants reported feeling less positively about the interaction than the ethnic minority participants who were not primed to expect prejudice. In other words, concern about being the target of prejudice seemed to motivate participants to engage in self–regulatory effort, that, albeit effective, left them feeling negatively.

Although it was not assessed in the Shelton et al., (in press) study, participants may have also been depleted of executive resources as a consequence of their use of compensatory strategies. Given the link between concerns about anti–Black prejudice and blacks' racial attitudes (Johnson & Leci, 2003; Monteith & Spicer, 2000; Shelton & Richeson, in press), it is possible that blacks with more negative racial attitudes will be particularly likely to engage in self–regulatory strategies designed to facilitate a smooth interaction. In other words, black participants with negative attitudes toward whites may require a greater degree of self–regulatory effort in order to have, or even create, a positive interaction with a white dyadic partner, compared to black participants with more positive attitudes toward whites. According to resource depletion theories of executive function, therefore, black individuals with negative racial attitudes toward whites should be relatively more depleted of executive resources after a dyadic interaction with a white individual, compared to individuals with positive attitudes. That is, racial attitudes should predict the extent to which black individuals are impaired on a task that requires executive resources—such as the Stroop color–naming task—after an interracial dyadic interaction, but not after a same–race dyadic interaction.

STUDY OVERVIEW AND PREDICTIONS

The present study examined whether implicit racial attitudes predict the depletion of inhibitory resources for black individuals after interracial contact. In order to examine this issue, black participants came in to the lab one at a time and completed a computer–based assessment of implicit racial attitudes (i.e., the Im-

plicit Association Test; IAT: Greenwald, McGhee, & Schwartz, 1998) that was described to them as a word categorization task.[1] Afterwards, participants engaged in a brief interaction with either a black or a white a confederate, ostensibly as part of a separate study. After the interaction, participants completed a task that requires the inhibition of pre–potent responses; namely, the Stroop (1935) color–naming task. Based on the research reviewed previously, we expected participants' racial attitudes to predict the extent to which they were impaired on the Stroop task after an interracial dyadic interaction. Specifically the more ingroup favoritism revealed by participants on the IAT, the worse they were expected to perform on the Stroop task after an interracial interaction, but not after a same–race interaction.

METHOD

Participants

Sixty black undergraduates (38 male) consented to participate in this study for monetary compensation of $10. Participants were randomly assigned to engage in either a same–race or an interracial interaction with a confederate.

Measures

IAT. The IAT measures automatic associations, and has been employed in numerous studies to assess automatic evaluations of social groups (see Greenwald, et al., 1998 for details). The IAT employed in the present work required participants to categorize White names, Black names, Positive words, and Negative words as quickly as possible by pressing one of two marked response keys. The order of the double–categorization blocks was counter–balanced across participants, and the task was scored in the pro–White direction. That is, greater numbers indicate greater outgroup favoritism.

Stroop. The Stroop task in the present study was conducted with a color–coded four–button response box. Instructions explained

1. We assessed implicit, rather than explicit, racial attitudes because Richeson and Shelton (2003) revealed that they were a better predictor of Stroop performance after interracial dyads for white participants.

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 "Xs" appeared on the screen one at a time, in one of the following FOUR colors: yellow, red, 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 48 practice trials followed by 6 blocks of 12 trials each, for a total of 72 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

Participants were met by a white experimenter who took them to a laboratory testing room where they began a study presumably examining "Serial Cognition—the influence of one cognitive task on a subsequent task when there is a delay between the two." Similar to the procedures described in Richeson and Shelton (2003), the first cognitive task was the Implicit Association Test (IAT; Greenwald, et al., 1998) that served to assess implicit racial attitudes. After the IAT, participants were reminded that the serial cognition experiment required a delay period, and they were asked whether or not they would be willing to participate in an unrelated study examining impression formation during the delay. All participants agreed, and were taken to a new testing room where they met either a black (same–race) or white (interracial condition) confederate, who posed as the experimenter for this unrelated task.[2]

The confederate explained to participants that the experimenters needed videotaped footage of people talking about controversial topics. Participants were then asked to introduce themselves for one minute, and then were asked to provide their opinions on several controversial topics, one of which was race–related (e.g.,

2. Several black and white individuals (both male and female) served as confederates for this study. Confederate sex was not matched to participant sex.

campus diversity). The confederates asked each question, but did not engage in a discussion of the topics with the participants. All of participants' responses were videotaped and the session lasted approximately 6 minutes. Similar to the methods reported in previous work (Richeson et al., 2003; Richeson and Shelton, 2003; Richeson & Trawalter, 2005) examining the effects of interracial contact on white individuals, this videotaping session served as either a same–race or an interracial contact experience. After the interaction, participants were met by the original experimenter and were informed that the delay period was over and it was time to return to the serial cognition study. Participants were then taken back to the original testing room where they performed the second cognitive task—that is, the Stroop color–naming test that measured inhibitory performance. Last, participants were thoroughly debriefed about the larger aims of the study, probed for suspicion, and then released.

RESULTS

Consistent with the procedures detailed in Richeson and Shelton (2003), all Stroop latencies greater than 2.5 standard deviations above the mean (i.e., times > 1800–ms) were re–coded as 1800–ms, and all latencies less than 200–ms were re–coded as 200–ms. One participant consistently produced extremely long reaction times, and two committed an inordinate number of errors (> 35%) and, thus, were removed from analyses. The trimmed response latencies (RTs) of the remaining participants were then log–transformed[3] order to conform better to normality assumptions of the data–analytic procedures, prior to averaging according to type of trial (i.e. control, incompatible). Stroop interference scores were calculated by subtracting mean transformed RTs for responses to control trials from mean transformed RTs for responses to incompatible trials.[4] Greater values reflect greater Stroop interference, but *worse* task performance. IAT latencies

3. The values in the Figure are the mean Stroop interference differences in ms units.
4. Stroop interference scores ranged from –16.8ms to 249ms (*Mdn* = 92).

were scored according to the recent guidelines detailed in Greenwald, Nosek, and Banaji, (2004) to form the D index of pro–White bias.[5] Consistent with the scoring procedure, the data from 1 participant was excluded from analyses because more than 10% of their trials were less than 300–ms. After removing these and the participants mentioned previously, the remaining sample consisted of 30 participants in the cross–race dyad condition and 26 participants in the same–race dyad condition.

AUTOMATIC OUTGROUP FAVORITISM

We first examined black participants' racial attitude bias. Results revealed that participants, on average, generated a reliable bias in favor of Whites ($M = .69$, $SD = .67$), $t\,(55) = 7.69$, $p < .0001$). In other words, black participants' IAT bias scores revealed outgroup favoritism (see Ashburn–Nardo et al., 2003, Dasgupta, 2004; Rudman, Feinberg, & Fairchild, 2002 for discussion of this phenomenon). Nevertheless, there was considerable variability in these bias scores,[6] and, thus, we examined whether they might predict Stroop performance after interracial contact, consistent with the resource depletion effect found previously for white participants (e.g., Richeson et al., 2003; Richeson & Shelton, 2003). Based on this previous research, we predicted that the more pro–white bias revealed by black participants, the less interference they would show on the Stroop task after interacting with a white partner, but not after interacting with a black partner.

RACIAL ATTITUDES AND RESOURCE DEPLETION

Preliminary analyses revealed that participant sex was not related to Stroop impairment either alone or in interaction with the variables of interest, and thus was not considered further. We, therefore, conducted a regression analysis of participants' Stroop

5. IAT bias scores ranged from D = –1.25 to 1.86 (*Mdn* = .66).

6. IAT bias scores did not, however, differ reliably for participants who participated in same–race ($M = .73$, $SD = .65$) and interracial ($M = .66$, $SD = .70$) dyads, $t(54) = .36$, $p > .7$.

interference scores, entering a dummy code for confederate race (white, black), the centered IAT bias scores, and the interaction between IAT bias and confederate race as predictor variables. Results revealed a main effect for racial bias scores [$b = –0.024$, $p < .008$]. The more pro–white bias participants revealed on the IAT, the less interference they revealed on the Stroop task. Consistent with predictions, however, results suggested that this main effect was moderated by confederate race [interaction $b = 0.023$, $p < .09$]. Analyses of the correlations between IAT bias and Stroop interference revealed the predicted pattern of results. Specifically, the more pro–white attitude bias black participants revealed prior to an interracial dyad, the less depleted they were on the Stroop task afterwards, $r(28) = –.44$, $p = .01$. As depicted in Figure 1, in other words, black participants with more outgroup favoring automatic attitudes were less impaired on the Stroop task, compared to black participants with less outgroup favoring attitudes or with ingroup favoring attitudes. By contrast, for black participants of same–race dyads, IAT bias did not predict Stroop interference, $r(24) = –.004$, $p = ns$. Taken together, these results mirror the findings reported in Richeson and Shelton (2003) for white participants, suggesting that the more ingroup favoritism individuals harbor, the greater the likelihood that they will be depleted of executive attentional resources after interracial contact.

DISCUSSION

In a recent review of the intergroup contact literature, Pettigrew (1998) proposed that the opportunity for stigmatized and nonstigmatized individuals to become friends is a primary route to the reduction of prejudice. In other words, dyadic interaction between members of different groups may be essential for interracial harmony (Pettigrew & Tropp, 2000). Recent research suggests, however, that there may be short–term costs associated with such contact white individuals (Blascovich et al., 2001). For instance, white individuals often contend with inhibiting or suppressing stereotypical beliefs, anxious reactions, or the uncertainty regarding how to behave during interracial interactions (see e.g., Devine & Vasquez, 1998; Vorauer & Kumhyr, 2001), but

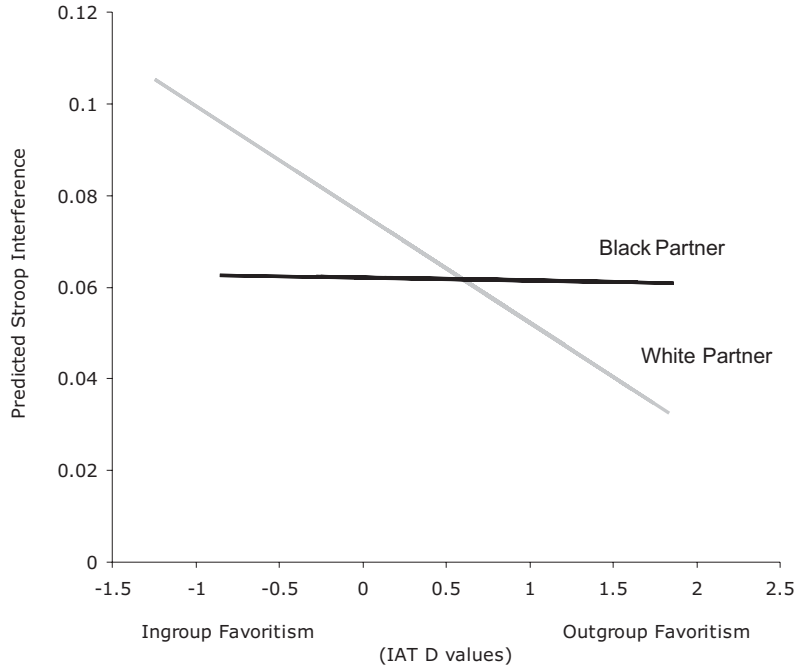

FIGURE 1. Predicted Stroop inference after interracial and same-race dyads.

such self–regulatory efforts temporarily deplete cognitive resources (e.g., Muraven & Baumeister, 2000). Consequently, individuals perform more poorly on tasks that require inhibitory resources after interracial interactions (Richeson & Shelton, 2003). Furthermore, white individuals' attitudes toward blacks predict the extent to which they are cognitively depleted after a dyadic interaction with a black individual (Richeson et al., 2003; Richeson & Shelton, 2003). Presumably, individuals with more negative attitudes needed greater self–regulatory effort to negotiate the interaction, and, thus, were relatively more depleted afterward.

The primary purpose of the present study was to consider whether a parallel effect might be observed in black participants

of interracial dyads. Specifically, do black individuals' racial attitudes predict their performance on inhibitory response tasks after interracial contact? Given that self–regulation during the interaction is the proposed mechanism for the depletion effect, it was predicted that black individuals would also be susceptible to the resource depleting influence of interracial contact. Consistent with predictions, black individuals with more negative attitudes toward whites were relatively more depleted of executive attentional resources than black individuals with less negative (or quite positive) attitudes toward whites. Thus, the findings of the present study suggest that interracial contact can be resource depleting for individuals of both racial groups, as a function of their racial attitudes.

BLACKS' OUTGROUP FAVORITISM

As mentioned previously, the black participants in the present study, on average, revealed a pro–white bias on the IAT. Previous studies have found that black participants often fail to reveal ingroup favoritism on the IAT (Nosek, Banaji, & Greenwald, 2002; Livingston, 2002), and may even reveal outgroup favoritism (Ashburn–Nardo et al., 2003). Drawing upon this work, several hypotheses have recently been offered to account for the tendency for blacks, and members of other minority and low–status groups, not to reveal ingroup favoring attitudes on more implicit or automatic attitude measures. One possible explanation is the internalization of the negative attitudes that white individuals hold about black Americans (Ashburn–Nardo et al., 2003; Livingston, 2002). In other words, similar to many white Americans, black Americans' automatic racial attitudes may reveal the influence of societal indoctrination of the value (or lack thereof) conferred to different racial groups. Consistent with this perspective, Livingston (2002) found the black participants' perceptions of how negatively outgroup members evaluated the black racial group were positively correlated with the extent of implicit outgroup favoritism they revealed. Regardless of its source, implicit outgroup favoritism is an important phenomenon to understand insofar as it may actually reflect a subtle form of ingroup

derogation, which is certainly likely to prove itself unhealthy and worthy of intervention. Consequently, future research should continue to examine the potential moderators of the expression of outgroup favoritism by black individuals and other minorities (e.g., Sylvester, 2005).

LIMITATIONS

One limitation of the present research is the ambiguity regarding the mechanism underlying the depletion of black individuals' executive resources. As mentioned previously, the putative mechanism for the impact of interracial contact on executive function is resource depletion (e.g., Muraven & Baumeister, 2000). In the context of interracial dyads, self–regulatory effort during the interaction is predicted to leave individuals temporarily depleted of executive resources after the interaction. For instance, white individuals' concerns about appearing prejudiced and interracial anxiety during the interaction have both been shown to predict subsequent depletion on the Stroop task (Richeson & Trawalter, 2005). At present, however, it remains unclear as to both what and why black individuals are self–regulating during the interaction. One possibility is that black individuals are attempting to avoid being perceived in a negative manner by their white interaction partners. As mentioned previously, recent work argues that blacks' negative attitudes toward white individuals are generated in part from concerns regarding white Americans' anti–black prejudice (Johnson & Leci, 2003; Monteith & Spicer, 2000; Shelton & Richeson, in press). Furthermore, concerns about being the target of prejudice during interracial interactions have been associated with feelings of anxiety (Shelton, 2000), and found to promote self–regulatory behavior in racial minority participants (Shelton et al., in press). However, the link between concerns about being the target of prejudice and resource depletion after interracial contact was not tested in the present research. Future research should directly examine this possibility, as well as other potential factors that prompt racial minorities to engage in effortful self–regulation during interracial interactions.

Another limitation of the present research is the use of fairly structured interactions with confederates rather than two naïve participants. Additional research is necessary to discern whether interracial interactions that occur more frequently in everyday life yield results similar to those found in the present work. The extant research documenting intergoup anxiety in many intergroup dyads leads us to believe that such dyads are likely to yield similar effects, but the issue merits systematic evaluation. Furthermore, future research should examine strategies to reduce the cognitive depletion effect, while fostering positive intergroup relations for both racial minority and majority group members.

IMPLICATIONS

Despite these limitations, the present results offer several implications. For example, the present work contributes to recent research extending resource depletion theory to the realm of interpersonal and intergroup relations (see also, Gordijn, et al., 2004; Seeley & Gardner, 2003; Vohs & Heatherton, 2000). As mentioned previously, the present work also extends Richeson and Shelton (2003) to a racial minority group. Furthermore, the fact that black participants revealed evidence of resource depletion in the present work warrants particular attention. That is, the black individuals in the present study are all students at a predominantly white college. They engage in contact with white individuals every day, and such contact is relatively unavoidable. If this daily interracial contact is relatively depleting for at least some black individuals (i.e., those with less positive outgroup attitudes), then these individuals may perpetually be at risk. Moreover, perhaps, these processes account, at least in part, for the phenomenon often referred to as "self–segregation"—the tendency for racial minorities to sit together in cafeterias and other community spaces on predominantly white college campuses. Individuals may be attempting to replenish their executive attentional resources. Future research should investigate whether "self–segregation" does indeed serve such a function for racial minorities on predominantly white college campuses, and, furthermore, whether racial minority students may suffer some

form of chronic depletion, relative to white students, simply due to their token status.

CONCLUSION

In conclusion, the present study builds on recent research examining the effect of interracial interactions on executive function (Richeson & Shelton, 2003; Richeson & Trawalter, 2005), revealing that racial minorities are also susceptible to the resource depletion effect. Thus, the present study suggests that the perspectives of both members of dominant and racial minority groups should be considered in the development of interventions designed to foster rewarding rather than depleting interracial interactions.

REFERENCES

Ashburn–Nardo, L., Knowles, M.L., & Monteith, M.J. (2003). Black Americans' implicit racial associations and their implications for intergroup judgment. *Social Cognition, 21*, 61–87.

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.

Brigham, J.C. (1993). College students' racial attitudes. *Journal of Applied Social Psychology, 23*, 1933–1967.

Dasgupta, N. (2004). Implicit ingroup favoritism, outgroup favoritism, and their behavioral manifestations. *Social Justice Research, 17,* 143–169.

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

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 Oakes, CA: Sage.

Dovidio, J.F., Kawakami, K., Johnson, C., Johnson, B., & Howard, A. (1997). On the nature of prejudice: Automatic and controlled processes. *Journal of Experimental Social Psychology, 33*, 510–540.

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

Gordijn, E.H., Hindriks, I., Koomen, W., Dijksterhuis, A., & Van Knippenberg, A. (2004). Consequences of stereotype suppression and internal suppression motivation: A self–regulation approach. *Personality and Social Psychology Bulletin, 30,* 212–224.

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.

Ickes, W. (1984). Compositions in black and white: Determinants of interaction in interracial dyads. *Journal of Personality and Social Psychology, 47*, 330–341.

Johnson, J.D. & Leci, L. (2003). Assessing anti–white attitudes and predicting perceived racism: The Johnson–Leci scale. *Personality and Social Bulletin, 29*(3), 299–312.

Lepore, L., & Brown, R. (1997). Category and stereotype activation: Is prejudice inevitable? *Journal of Personality and Social Psychology, 72*, 275–287.

Levin, S., van Laar, C., & Sidanius, J. (2003). The effects of ingroup and outgroup friendships on ethnic attitudes in college: A longitudinal study. *Group Processes and Intergroup Relations, 6*, 76–92.

Livingston, R.W. (2002). The role of perceived negativity in the moderation of African Americans' implicit and explicit racial attitudes. *Journal of Experimental Social Psychology, 38*, 405–413.

McConnell, A.R., & Leibold, J.M. (2001). Relations between the Implicit Association Test, explicit racial attitudes, and discriminatory behavior. *Journal of Experimental Social Psychology, 37*, 435–442.

Mendes, W.B., Blascovich, J., Lickel, B., & Hunter, S. (2002). Challenge and threat during social interaction with white and black men. *Personality and Social Psychology Bulletin, 28*, 939–952.

Monteith, M.J., & Spicer, C.V (2000). Contents and correlates of Whites' and Blacks' racial attitudes. *Journal of Experimental Social Psychology, 36*, 125–154.

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

Nosek, B.A., Banaji, M.R., & Greenwald, A.G. (2002). Harvesting implicit group attitudes and beliefs from a demonstration website. *Group Dynamics, 6*, 101–115.

Patchen, M. (1983). Students' own racial attitudes and those of peers of both races, as related to interracial behaviors. *Sociology and Social Research, 68*, 59–77.

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.

Richards, J. M., & Gross, J. J. (1999). Composure at any cost? The cognitive consequences of emotion suppression. *Personality and Social Psychology Bulletin, 25*, 1033–1044.

Richards, J. M., & Gross, J. J. (2000). Emotion regulation and memory: The cognitive costs of keeping one's cool. *Journal of Personality and Social Psychology, 79*, 410–424.

Richeson, J.A., Baird, A.A., Gordon, H.L., Heatherton, T.F, Wyland, C.L., Trawalter, S., & Shelton, J.N. (2003). An MRI 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,* 934–947.

Rudman, L.A., Feinberg, J., & Fairchild, K. (2002). Minority members' implicit attitudes: Automatic ingroup bias as a function of group status. *Social Cognition, 20*, 294–320.

Seeley, E.A., & Gardner, W.L. (2003). The "selfless" and self–regulation: The role of chronic other–orientation in averting self–regulatory depletion. *Self & Identity, 2*, 103–117.

Shelton, J.N. (2000). A reconceptualization of how we study issues of racial prejudice. *Personality and Social Psychology Review, 4*, 374–390.

Shelton, J.N., & Richeson, J.A. (in press). Ethnic minorities' racial attitudes and contact experiences with whites. *Cultural Diversity and Ethnic Minority Psychology.*

Shelton, J.N., & Richeson, J.A. (2005). Intergroup contact and pluralistic ignorance. *Journal of Personality and Social Psychology, 88*, 91–107.

Shelton, J.N., Richeson, J.A., & Salvatore, J. (in press). Expecting to be the target of prejudice. Implications for interethnic interactions. *Personality and Social Psychology Bulletin*.

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.

Sylvester, B.P. (2005). *Perceived negativity and the malleability of Blacks' racial attitudes.* Unpublished undergraduate honors thesis. Dartmouth College, Hanover, NH.

Vohs, K.D. & Heatherton, T.F. (2000). Self–regulatory failure: A resource depletion approach. *Psychological Science, 11*, 249–254.

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., & 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.

Wittenbrink, B., Judd, C.M., & Park, B. (1997). Evidence for racial prejudice at the implicit level and its relationship with questionnaire measures. *Journal of Personality and Social Psychology, 72,* 262–274.