

## Cognitive effects of racial diversity: White individuals' information processing in heterogeneous groups<sup>☆</sup>

Samuel R. Sommers<sup>\*</sup>, Lindsey S. Warp, Corrine C. Mahoney

*Department of Psychology, Tufts University, 490 Boston Avenue, Medford, MA 02155, USA*

Received 21 July 2007; revised 1 January 2008

Available online 12 January 2008

### Abstract

Two experiments tested the hypothesis that mere anticipation of membership in a racially heterogeneous group can lead White individuals to exhibit more thorough information processing. In Study 1 White participants who expected to discuss a race-relevant topic with a racially diverse group exhibited better comprehension of topical background readings than did Whites assigned to all-White groups. Study 2 replicated these results and indicated that the processing effects were attributable in part to an increase in race-relevant thought activation among White individuals in a diverse setting. No such anticipatory effects of racial composition were observed for Whites expecting to discuss race-neutral topics. Taken together, these studies render untenable the assumption that the observable effects of racial diversity are wholly attributable to the novel contributions of non-White group members. More generally, they emphasize the need for additional empirical investigation of the cognitive processes through which racial heterogeneity influences individual and group performance.

© 2008 Elsevier Inc. All rights reserved.

*Keywords:* Racial diversity; Group composition; Information processing; Thought activation; Reading comprehension

In an increasingly multicultural society, “diversity” has become a ubiquitous talking point. It is nearly impossible to find a contemporary university administrator, corporate CEO, or political candidate who does not publicly champion diversity, especially with regard to race. Despite this “buzzword” status, however, our understanding of racial diversity’s effects on individual and group performance—and particularly the psychological processes through which such effects occur—is still limited and evolving. The present research addresses this void in the empirical literature by examining one potential cognitive

effect of racial diversity: the impact of membership in a racially heterogeneous group on White individuals’ information processing. This investigation has the potential to further our understanding of one route through which racial heterogeneity exerts influence, as well as to generate practically meaningful implications given the prominent role Whites continue to play in “managing diversity” in American society.

Polarizing public debate concerning the morality and legality of diversity-related practices highlights the importance of an empirical focus on the quantifiable consequences of heterogeneity. Most previous investigations have operationalized diversity in terms of heterogeneous attitudes, experiences, or expertise (see Mannix & Neale, 2005; van Knippenberg & Schippers, 2007). These studies have produced a wide range of findings demonstrating both positive and negative impacts of diversity. Many positive outcomes relate to superior group performance, as group heterogeneity has been linked to increased creativity, information sharing, and flexibility (Nemeth,

<sup>☆</sup> This research was supported by a grant from the Russell Sage Foundation. We thank Angela Anderson, Sarah Bernstein, Sudanë del Valle, Zoë Gibson, Jill Hochstrasser, Shomari Olden, and Rebecca Skolnick for research assistance, and Evan Apfelbaum, Laura Babbitt, Denise Lewin Loyd, Keith Maddox, Kristin Pauker, Nick Rule, and Negin Toosi for comments.

<sup>\*</sup> Corresponding author. Fax: +1 617 627 3181.

E-mail address: [sam.sommers@tufts.edu](mailto:sam.sommers@tufts.edu) (S.R. Sommers).

1995; Phillips, Mannix, Neale, & Gruenfeld, 2004; Triandis, Hall, & Ewen, 1965). With regard to group cohesion, findings have been more mixed, with several studies indicating that diverse groups experience increased conflict (see De Dreu & Weingart, 2003) and decreased morale (e.g., Jackson, 1992; O'Reilly, Caldwell, & Barnett, 1989). However, other studies have reported a positive relationship between diversity—broadly construed—and individuals' satisfaction with their group (e.g., Juvonen, Nishina, & Graham, 2006), while still others demonstrate that threats to morale weaken or disappear over time as members grow accustomed to their group's heterogeneity (Jehn, Northcraft, & Neale, 1999; Watson, Kumar, & Michaelsen, 1993).

Again, though, this literature has focused on non-racial forms of heterogeneity, despite the prominence of race in public discourse regarding diversity (see Norton, Sommers, Apfelbaum, Pura, & Ariely, 2006; Plaut, 2002). Far fewer studies have examined racial heterogeneity. In one such experiment, McLeod, Lobel, and Cox (1996) asked small groups to engage in a brainstorming task to generate ideas for promoting tourism to the United States. Half of the groups were comprised of White participants, and the other half included White, Black, Latino, and Asian participants. Racially diverse groups outperformed homogeneous groups in terms of idea quantity and quality (as rated by naïve coders). Despite these performance advantages, White individuals expressed greater liking for their group when it was all-White as opposed to diverse, findings that parallel the more general conclusions above regarding performance versus morale effects of diversity. More recently, Phillips, Northcraft, and Neale (2006) demonstrated similar performance benefits for racially heterogeneous groups evaluating case materials in a homicide investigation.

But too little remains known regarding the psychological processes underlying the effects of racial diversity. Addressing this issue requires researchers to look beyond simple group-level outcomes, yet most studies of group diversity tend to “assume rather than assess mediating processes,” (van Knippenberg & Schippers, 2007, p. 519). Indeed, traditional conceptualizations of racial diversity—pervasive among laypeople and within organizations—converge on the assumption that diversity is beneficial for performance because heterogeneity of individuals translates into heterogeneity of ideas (see Mannix & Neale, 2005; Sommers, *in press*). In other words, bringing to the table a demographically diverse set of people is presumed to elicit a diverse set of information. Such a perspective attributes the effects of racial diversity to the novel contributions of racial minority group members. Whereas non-White individuals likely are responsible for such informational effects in some instances, recent empirical findings tell a more complicated story, suggesting that White group members' subjective experiences and observable behavior often differ in racially heterogeneous versus homogeneous settings.

For example, racial composition can color the expectations of individual White members, with diversity typically expected to translate into a broader range of information and perspectives. In the Phillips et al. (2006) experiment, each group member was given unique information. Participants perceived this information as being more unique when they were in diverse versus homogeneous groups, even though the information distributed to each group was identical across conditions. Antonio and colleagues (2004) reported the similar finding that Whites assigned to have a discussion in a racially diverse group perceived the contributions of fellow group members as more novel than did Whites assigned to an all-White group, even though diversity was manipulated by using a White or Black confederate following a script.

Beyond these differences in expectations and subjective experiences, little is known regarding the psychological processes through which a group's racial diversity affects its individual members. For starters, do the cognitive processes observed among individuals in racially heterogeneous groups differ from those found in homogeneous groups? Preliminary support for this proposition is provided by a recent mock jury study by Sommers (2006). In this experiment, racially diverse juries deliberated longer, considered a wider range of information, and made fewer inaccurate statements when discussing the trial of a Black defendant than did all-White juries. Contrary to traditional conceptualizations of diversity, these effects were not attributable to the novel informational contributions of Black group members. Rather, White participants contributed more factual information to deliberations and made fewer errors discussing the case when on diverse versus all-White juries, suggesting that racial heterogeneity may have led to more thorough information processing during the trial.

This Sommers (2006) study is noteworthy in that it provides the first evidence—albeit indirect and in a legal context—of a specific cognitive process by which a group's racial diversity may impact its individual members.<sup>1</sup> In the present investigation, we examine this relationship more closely, testing directly the hypothesis that membership in a racially diverse group can impact Whites' information processing. There is previous theoretical and empirical support for such a prediction. Consider White individuals' tendency to anticipate novel information and divergent opinions within diverse groups (Antonio et al., 2004; Phillips et al., 2006). In preparing to interact with such a group, these expectations might very well lead Whites to scrutinize relevant information in the effort to

<sup>1</sup> Notably, the Antonio et al. (2004) experiment discussed above examined the related hypothesis that membership in a racially diverse group would lead Whites to write more complex pre- and post-discussion essays. However, their analyses indicated no effects of racial composition on the integrative complexity of these essays, as only attitudinal—not racial—heterogeneity emerged as a significant predictor.

ensure that they “know what they’re talking about” in a potentially heated discussion. Another motivation that could lead to more thorough information processing in diverse groups (see Petty & Cacioppo, 1986) is the desire of many Whites to avoid appearing racially biased. Indeed, previous studies have found that Whites often guard against prejudice by processing more systematically information conveyed by a Black source (e.g., Petty, Fleming, & White, 1999; White & Harkins, 1994) or about a Black target (e.g., Sargent & Bradfield, 2004). A racially heterogeneous group composition could exert similar effects.

In sum, few experiments have examined the causal impact of racial diversity, much less the psychological mechanisms underlying it. In the present investigation, we do not focus our analyses at the level of group performance, but rather we examine the cognitive effects of membership in a diverse group on White individuals. In this manner, we seek to identify and examine one specific cognitive process by which a group’s racial diversity influences its individual members—a process that therefore potentially impacts group outcomes as well. Specifically, we consider the possibility that simply anticipating interaction as part of a racially heterogeneous group can influence the information processing of Whites (see Kerr, Hymes, Anderson, & Weathers, 1995; Sommers, 2006). That mere awareness of heterogeneity can produce such cognitive effects would challenge traditional assumptions that place the burden for the group-level influence of diversity squarely on the shoulders of non-White individuals. As such, a more general objective of this investigation is to broaden the ways in which researchers conceptualize the effects of diversity, in particular the assumption that a group’s surface-level diversity (e.g., demographics) maps on directly to its deep-level diversity (e.g., attitudes, values; see Harrison, Price, & Bell, 1998; Phillips & Loyd, 2006). We propose that a more complicated interaction between informational, motivational, and cognitive processes must be explored in considering the influence of racial heterogeneity.

In two experiments we conduct the first direct tests of this hypothesis that membership in a racially diverse group can lead Whites to process information more thoroughly. In Study 1, we use a surprise reading comprehension test to examine the information processing of White individuals expecting to participate in a discussion with an all-White versus racially diverse group. This experiment explores boundary conditions for the conclusions implied by Sommers (2006), such as whether these effects are limited to the jury context or to discussions regarding potentially race-relevant issues. In Study 2, we use a similar design to assess cognitive mechanisms underlying such effects. In particular, we examine the possibility that membership in a diverse group leads Whites to demonstrate more sophisticated thinking regarding controversial social issues, as well as activation of general race-related thoughts.

## Study 1

### Method

Fifty-eight White college students (34 female) were recruited for a study in which they expected to discuss a contemporary social issue with fellow students. Individuals were paid \$10 for their participation. Experimental sessions were run in groups ranging in size from 5 to 7. Half of these groups were *all-White*, as they were comprised of only White participants. The other half were *racially-diverse* and were comprised of White participants as well as 2 non-White individuals, naïve to the purpose and hypotheses of the study (either 2 Black students or 1 Black and 1 Latino student). Groups were seated around a table in a seminar room such that all members were visible to one another from the onset of the study.

All groups were instructed that the study’s purpose was to examine the dynamics of group discussion and that they would be given relevant background readings. Unbeknownst to them, individuals were randomly given one of two different reading packets, creating a 2 (group composition)  $\times$  2 (reading topic) between-subjects design for White participants. The *race-relevant* condition included two editorial-style readings concerning affirmative action in college admissions, one in favor of the practice and one opposed. The *race-neutral* packet included a pro- and anti-topic reading about mandatory community service requirements in high school. Across two topic conditions, readings were matched for length (~1800 words), tone, and supporting statistical evidence. Within condition, reading order was counterbalanced.

When every group member had completed these readings, participants were given an ostensible pre-discussion questionnaire that served as a filler task. This questionnaire assessed general perceptions related to group discussion (e.g., “I typically enjoy the opportunity to discuss issues with others”). Participants were then given a surprise, SAT-style reading comprehension test consisting of 20 multiple-choice and true/false questions (10 for the pro-topic reading; 10 for the anti-topic reading), each with just one normatively correct response. Most questions assessed factual retention (e.g., “According to a 2000 poll, what percentage of students would be less likely to volunteer for future community service as a result of their experiences with required service learning?”), while a smaller number assessed higher-level comprehension (e.g., “With which of the following statements would the author be most likely to disagree?”). Finally, debriefing identified the study’s focus on expectations regarding racial composition, and participants were dismissed without a group discussion.

### Results and discussion

Individual participants’ reading comprehension was assessed absent any group interaction, thus constituting independent observations amenable to analysis of variance

(ANOVA). Because of the specific nature of our hypotheses—and because the Black and Latino students in the diverse experimental groups were few in number and only present in two of four experimental cells—our analyses focus on the responses of the individual White participants.<sup>2</sup> With regard to the reading comprehension of these White participants, a significant interaction emerged between group racial composition and reading topic,  $F(1, 54) = 4.07$ ,  $p < .05$ ,  $r = .26$ . As illustrated in Fig. 1, Whites who read about a race-relevant topic exhibited better reading comprehension when they expected a discussion with a diverse group ( $M = 13.4$ ) than when they expected to be part of an all-White group ( $M = 11.1$ ),  $t(54) = 2.94$ ,  $p = .005$ ,  $r = .38$ . No group composition effects were found for White individuals reading about service learning requirements,  $t(54) = 1.38$ ,  $n.s.$ ,  $r = .19$ .<sup>3</sup>

Subsequent analysis revealed that this interaction was driven by White individuals' performance on the pro-topic passage questions (i.e., either pro-affirmative action or pro-service learning). For these questions, the interaction between racial composition and topic was statistically significant,  $F(1, 54) = 5.20$ ,  $p = .03$ ,  $r = .30$ . No interaction emerged for analysis of the anti-passage questions,  $F(1, 54) = 1.06$ ,  $n.s.$ ,  $r = .14$

The results of this study provide direct evidence that mere expectation of interacting with a racially diverse group can lead White individuals to exhibit more thorough information processing. That simple awareness of group composition can produce such effects suggests that the general influence of racial diversity cannot be attributed in whole to the novel informational contributions of non-White group members: under some circumstances at least, White individuals exhibit differentiated cognitive tendencies in racially homogeneous versus heterogeneous groups. Study 1 also identifies a potential boundary condition for such anticipatory effects of racial diversity,

<sup>2</sup> Separate analysis of the reading comprehension of these non-White individuals (Blacks and Latinos combined) indicated no significant difference by reading topic and no significant differences from the responses of White participants in either type of group. The decision to focus the present investigation on White participants was based on theoretical as well as practical considerations, and its implications—as well as the need for future examination of the cognitive tendencies of non-White individuals in racially heterogeneous and homogeneous settings—are considered in General Discussion.

<sup>3</sup> Here, we intentionally present simple effects tests within reading topic but not within racial composition. The latter comparisons are not particularly informative—and, in fact, are potentially misleading—given that participants in the *race-relevant* and *race-neutral* conditions read completely different passages and answered different comprehension questions based on those readings. Though we sought to create comparable sets of passages and questions for the two topics, it would not be surprising for there to emerge different average performances on these disparate question sets. Accordingly, the effects of diversity are best identifiable through a comparison of the diverse and all-White groups within each topic condition. That is, the critical assessment of the impact of racial diversity is whether performance varied among White individuals in heterogeneous versus homogeneous groups who answered the same set of questions.

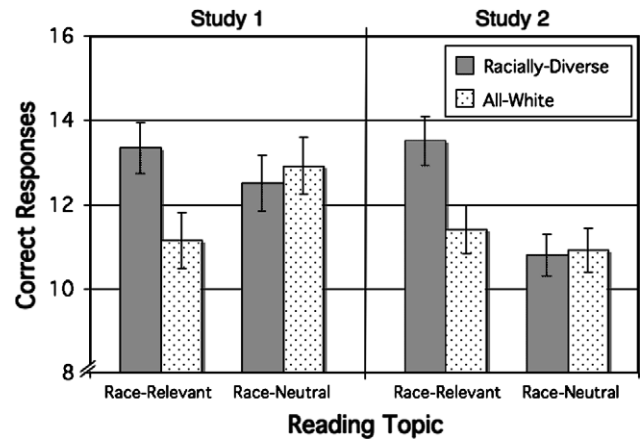


Fig. 1. Whites' reading comprehension scores by group racial composition and reading topic. Error bars represent standard errors. In Study 1 ( $n = 58$ ), race-relevant topic was affirmative action and race-neutral topic was service learning requirements; in Study 2 ( $n = 87$ ), race-relevant topic was affirmative action and race-neutral topic was gay marriage.

namely that they occur only when White individuals expect a race-relevant interaction. In Study 2 we address this possibility and explore the mechanisms underlying the influence of racial diversity on Whites' information processing.

## Study 2

### Method

Eighty-seven White college participants (54 female) were recruited as Study 1. In almost all respects, procedures mirrored the  $2 \times 2$  design of Study 1, as participants were randomly assigned to either an *all-White* or *racially diverse* group, and to either a *race-relevant* or *race-neutral* discussion topic.

One change from Study 1 was that diverse groups were created by the inclusion of 2 Black confederates, thus standardizing our operationalization of diversity. We also changed the topic used in the *race-neutral* condition: whereas participants in the *race-relevant* condition again read about affirmative action, participants in the *race-neutral* condition read pro- and anti-passages about gay marriage. We made this change to address the possibility that the lack of diversity effects observed in the *race-neutral* condition of Study 1 were specific to the topic selected, service learning requirements. Whereas this issue is race-neutral when compared to affirmative action, it is also arguably a less engaging and controversial topic that might therefore elicit less of a motivation to process information thoroughly (Petty & Cacioppo, 1986). Pre-testing among college students indicated that gay marriage was viewed by this population as a race-neutral topic more comparable to affirmative action in terms of potential to be controversial and polarizing.

The other changes to procedure involved addition of two dependent measures to assess potential cognitive

mechanisms underlying the effects of racial diversity on information processing. First, immediately upon learning the discussion topic—but before reading background passages—White participants were asked to write a paragraph capturing their “personal opinions” on the topic. They had no expectation that fellow group members would read these paragraphs, which were later coded for sophistication of thought. This measure was included in light of the hypothesis put forth by Antonio and colleagues (2004) that membership in a diverse discussion group may lead White individuals to exhibit more integrative and complex thoughts about the topic in question. Accordingly, one possible explanation for the findings of Study 1 could be that membership in a diverse group led to a general tendency among White individuals to exhibit more complex thought processes—a tendency that predicted improved reading comprehension for the race-relevant passages.

The second new measure assessed participants’ race-related thought activation. Immediately after writing the open-ended opinion paragraph, participants were given a word stem completion task with 45 stems, 10 of which could—but did not have to—be completed as neutrally-valenced words relevant to the general construct of race (e.g., *racial, black, color, skin, ethnic*). More accessible thoughts regarding race were expected to translate into more target stems completed in a race-relevant manner. To the extent that membership in a racially diverse group leads White individuals to anticipate intragroup disagreement or to become more vigilant about preventing racial bias, we expected this non-reactive measure of thought activation to vary by condition and perhaps predict the relationship between racial diversity and reading comprehension. To determine whether activation of more specific, valenced thoughts about race varied by condition as well, we also included 10 stems that could be completed as words relevant to stereotypes regarding Blacks (e.g., *poor, drugs, crime, rap, gun*).

After completion of these measures, participants were given background readings, a filler questionnaire, and a surprise reading comprehension test, as in Study 1.

### Results and discussion

ANOVA once again indicated a significant interaction for reading comprehension performance,  $F(1, 83) = 4.08$ ,  $p < .05$ ,  $r = .22$ . As illustrated in Fig. 1, White individuals who expected to discuss a race-relevant topic with a diverse group performed better on the comprehension questions ( $M = 13.5$ ) than Whites in all-White groups ( $M = 11.4$ ),  $t(83) = 2.57$ ,  $p = .01$ ,  $r = .27$ . Once again, no difference emerged for Whites expecting to discuss a race-neutral topic, in this case gay marriage,  $t(83) < 1$ ,  $n.s.$ ,  $r = .08$ . As in Study 1, this significant interaction emerged when responses to pro-passage questions were analyzed on their own ( $F(1, 83) = 4.51$ ,  $p = .04$ ,  $r = .23$ ), but not when only the anti-passage questions were analyzed ( $F(1, 83) = 1.53$ ,  $n.s.$ ,  $r = .15$ ).

Two naïve coders used a 1–7 scale to rate how sophisticated the arguments were in participants’ open-ended topic paragraphs (intraclass reliability coefficient = .69). The two coders’ judgments were averaged and no significant main effects or interactions emerged. Though Whites wrote more sophisticated paragraphs regarding affirmative action when in diverse ( $M = 3.84$ ) versus all-White groups ( $M = 3.21$ ), this difference was not statistically significant,  $t(81) = 1.50$ ,  $p = .14$ ,  $r = .16$ ; means for this measure in the *race-neutral* condition were almost identical in the diverse ( $M = 3.48$ ) and all-White groups ( $M = 3.46$ ).

ANOVA indicated two main effects for race-related thought activation. Whites were more likely to complete target stems with race-related words when they were in a diverse ( $M = 3.02$ ) versus all-White group ( $M = 2.04$ ),  $F(1, 83) = 6.51$ ,  $p < .02$ ,  $r = .27$ , and when they expected to discuss a race-relevant ( $M = 2.97$ ) versus race-neutral topic ( $M = 2.09$ ),  $F(1, 83) = 5.23$ ,  $p = .02$ ,  $r = .24$ . The interaction was not significant,  $F(1, 83) = 2.00$ ,  $p = .16$ ,  $r = .15$ . Mediation analyses (Baron & Kenny, 1986) indicated that in the *race-relevant* condition, race-related thought activation was a significant mediator of the influence of racial diversity on reading comprehension (Sobel = 1.99,  $p < .05$ ). As depicted in Fig. 2, expecting to discuss a race-relevant issue with a diverse group led Whites to have more accessible thoughts about race, accounting for a significant portion of the influence of racial diversity on reading comprehension performance.

With regard to stereotype-related thought activation, there was no difference across diverse ( $M = 2.10$ ) and all-White groups ( $M = 2.06$ ),  $F(1, 83) < 1$ ,  $n.s.$ ,  $r = .02$ . A main effect did emerge by topic condition, with Whites in the *race-relevant* condition unexpectedly demonstrating less stereotype activation ( $M = 1.79$ ) than Whites in the *race-neutral* condition ( $M = 2.38$ ),  $F(1, 83) = 4.79$ ,  $p = .03$ ,  $r = .23$ . The interaction term was not significant,  $F(1, 83) = 1.80$ ,  $p = .18$ ,  $n.s.$ ,  $r = .18$ , nor did stereotype-related thoughts mediate the relationship between racial diversity and reading comprehension.

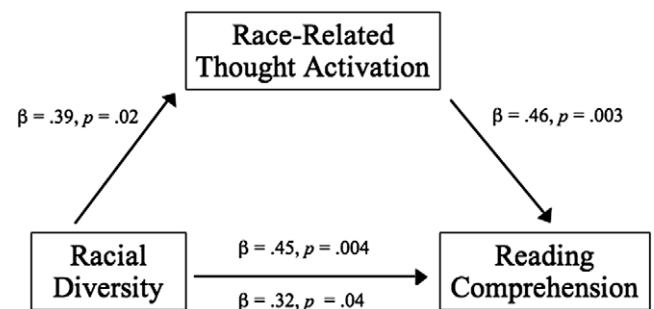


Fig. 2. Mediation model for racial diversity predicting reading comprehension for race-relevant topic in Study 2. Racial diversity was coded as 0 = all-White, 1 = racially diverse; betas are standardized.

## General discussion

The present studies identify one cognitive impact of racial diversity, namely that belonging to a diverse group can lead White individuals to process information more thoroughly. Admittedly, such anticipatory effects emerging before meaningful group interaction are likely not the only or even principal means through which racial heterogeneity is influential. But the present findings clearly render untenable the assumption that the effects of racial diversity on group performance are wholly attributable to the novel informational contributions of non-White members (see also Phillips et al., 2006; Sommers, 2006), and they do so in dramatic fashion: even absent social interaction or exchange of information, mere awareness of a diverse group composition was sufficient to impact the cognitive tendencies of White members.

A glance at Fig. 1 might tempt one to conclude that the effects of diversity were inconsistent across these two studies. That is, one might propose that Study 1 indicated harmful effects of homogeneity—with the mean for the *all-White/race-relevant* condition lower than that of the other three cells—whereas Study 2 indicated beneficial effects of heterogeneity—with the mean for the *diverse/race-relevant* condition greater than that of the other cells. This conclusion would be misleading, however. Participants read totally different passages and answered different questions in the race-relevant and race-neutral conditions within each study (see<sup>3</sup>). Furthermore, the race-neutral passages were different across Studies 1 and 2. Therefore, the critical assessment of the influence of racial diversity is whether performance varied among White individuals who answered the same questions (i.e., within each topic condition). On this count, the results of both studies converge to indicate that a diverse group composition led to improved reading comprehension for race-relevant, but not race-neutral passages. The inappropriateness of using average performance in the *race-neutral* condition as a baseline against which to assess the effect of diversity is illustrated by the fact that simply decreasing the difficulty of two of the race-neutral questions in Study 2 would have made the graph for that study appear identical to that of Study 1, even though the effects of diversity obviously would not have changed.

In both studies, we only found differences in information processing when Whites expected a race-relevant discussion. Of course, this result need not imply that racial heterogeneity lacks observable effects in other circumstances. For one, it is possible that other differences between perceptions of affirmative action and gay marriage besides race-relevance account for the different patterns across topic condition in Study 2. Pre-testing indicated that college students perceived these to be comparably controversial topics, but affirmative action may be a more personally relevant issue than gay marriage for this population. Perhaps mere membership in a racially diverse group does affect information processing for race-neutral

topics that are more relevant and therefore likely to trigger a motivation to scrutinize information (see Petty & Cacioppo, 1986). Moreover, even if the *anticipatory* effects of racial heterogeneity are indeed limited to race-relevant contexts, non-experimental investigations have demonstrated that the relationship between racial diversity and actual group interactions, discussions, and performance is more general (e.g., Ely & Thomas, 2001; Gurin, Dey, Gurin, & Hurtado, 2002; Sawyer, Houlette, & Yeagley, 2006; Watson, Johnson, & Zgourides, 2002).

Why would membership in a racially diverse group affect Whites' cognitive tendencies? Study 2 indicates that such diversity heightens the accessibility of race-related—but not stereotype-related—thoughts for Whites preparing to discuss a race-relevant topic, which in turn predicts more thorough information processing. By itself, it is difficult to know how to interpret this finding, as it implies that simply priming White individuals with race-relevant words would lead to similar information processing effects. But we propose that the thought activation measure in Study 2 serves as a proxy for a more specific set of race-related concerns among Whites, namely the desire to avoid appearing ignorant or biased in a potentially heated discussion.

Specifically, one explanation for these thought activation results would be that in certain circumstances, racial diversity exaggerates many Whites' concerns about avoiding prejudice, leading to more systematic information processing of the sort observed in evaluations of persuasive messages from a Black source (e.g., White & Harkins, 1994) or about a Black target (e.g., Sargent & Bradfield, 2004).<sup>4</sup> To assess this possibility, we presented 32 non-Black students with a questionnaire instructing them to imagine themselves in a study in which they were to engage in a discussion of affirmative action with a “diverse group of 6 other students randomly selected from campus.” Participants then responded to the following statement: “It would be important to me to be open-minded and unprejudiced during the discussion.” Agreement with this question was a significant, positive predictor of participants' number of race-related completions on the Study 2 thought activation task administered subsequently,  $r(n = 32) = .41$ ,  $p = .02$ .

Another—not necessarily unrelated—possibility is that the present thought activation findings reflect Whites' expectation that a racially diverse group is likely to have divergent perspectives and opinions concerning certain topics (see Allen & Wilder, 1975; Antonio et al., 2004). Such

<sup>4</sup> An alternative prediction might have been that concerns about appearing biased would lead White individuals to exhibit *poorer* reading comprehension performance, as previous researchers have reported stereotype threat effects for Whites concerned about appearing prejudiced (e.g., Frantz, Cuddy, Burnett, Ray, & Hart, 2004). The present data are not consistent with this prediction, but perhaps in a subsequent social interaction with a diverse group—public behavior likely viewed as more diagnostic of racial bias (Sommers & Norton, 2006)—such negative outcomes would be observed for Whites concerned about appearing prejudiced (e.g., Vorauer & Turpie, 2004).

expectations would render important a close reading of the background information, particularly the pro-topic passages expected to be endorsed by racial minority individuals in the group. To this effect, the more race-related thought activation Whites in diverse groups in Study 2 exhibited, the more they agreed that their discussion would be tense as assessed by a filler questionnaire item,  $r(n = 43) = .29, p = .05$ . In sum, the present studies provide clear evidence of the potential for a racially diverse group composition to impact White individuals' information processing, and Study 2 implicates race-relevant thought activation in this process. However, the precise nature of this thought activation remains in need of additional empirical examination.

The generalizability of these findings constitutes another open question. With regard to sampling, one might predict that the present effects would be particularly pronounced among individuals motivated to avoid prejudice. Unfortunately, because of the group-based nature of these studies, we were unable to recruit participants from a pool for which pre-screening data were available. Assessment of race-related motivations at the beginning of the experiment would have compromised our manipulation; their assessment at the end of the study would have been biased by that which preceded it. While many studies have considered the impact of interracial contact on the racial attitudes of individuals (see Pettigrew & Tropp, 2000), it remains unclear to what extent and in what ways such individual differences predict cognitive and social tendencies in novel diverse settings. Though in the present studies, no significant effects were observed for participant gender or group gender composition, another important question is whether—under some circumstances at least—surface-level diversity based on non-racial characteristics produces similar anticipatory effects. Furthermore, the present studies focused on the cognitive outcome of information processing, but racial diversity may very well impact other cognitive tendencies as well. For example, does membership in a racially diverse group influence individuals' willingness and ability to take the perspective of those with opposing viewpoints?

It is also worth considering how the present results regarding group racial composition relate to previous findings concerning interracial dyadic interaction; surprisingly, there remains little crosstalk between these two literatures. At first blush, the present data seem to stand in contrast to the well-documented finding that interracial social interactions often produce negative cognitive outcomes for White individuals in the form of depleted executive function (e.g., Richeson & Shelton, 2003; Richeson & Trawalter, 2005). However, there are several important differences between the present paradigm and those examined in many dyadic studies, most notably that the former assessed the cognitive effects of expecting an interracial interaction whereas the latter typically examine cognition after such interactions. This raises the provocative possibility that the more effortful processing captured by

Whites' improved reading comprehension in the present studies reflects the same race-related motivations that leave many Whites cognitively depleted *after* interracial interaction. The enduring impact of the presently observed effects for subsequent group interaction is a question worthy of empirical follow-up.

Finally, it is impossible to weigh the contributions and implications of the present findings without noting that they do not speak to the experiences of minority individuals in diverse settings, nor to the effects of racial heterogeneity on non-White individuals. A long-term, exclusive focus on White participants would be problematic for this research, as for investigations of interracial dyadic interaction and race-related judgment in general (Shelton, 2000; Shelton & Richeson, 2006). We propose that two factors justify our decision to begin this inquiry by studying White participants. First, conceptualizations of racial diversity typically assume that the effects of heterogeneity are attributable to the contributions of non-White individuals (see Sommers, *in press*). As such, the impact of diversity on Whites is actually underexplored and undertheorized. Second, as alluded to in the opening of this article, many debates concerning racial diversity focus on settings that remain predominantly White, such as college campuses and corporate boardrooms. This renders practically and theoretically important a better understanding of how racially heterogeneous settings affect—and even benefit—Whites. More generally, though, the objective of the present work has been to further our understanding of one of the routes through which racial heterogeneity affects individual—and, by extension, group—performance, and to highlight the need for additional study of the cognitive effects exerted by diverse settings. Clearly, such future investigations must broaden the scope of the individuals, contexts, and cognitive outcomes they examine.

## References

- Allen, V. L., & Wilder, D. A. (1975). Categorization, belief similarity, and intergroup discrimination. *Journal of Personality and Social Psychology*, *32*, 971–977.
- Antonio, A. L., Chang, M. J., Hakuta, K., Kenny, D. A., Levin, S., & Milem, J. F. (2004). Effects of racial diversity on complex thinking in college students. *Psychological Science*, *15*, 507–510.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182.
- De Dreu, C. K. W., & Weingart, L. R. (2003). Task versus relationship conflict, team performance, and team member satisfaction: A meta-analysis. *Journal of Applied Psychology*, *88*, 741–749.
- Ely, R. J., & Thomas, D. A. (2001). Cultural diversity at work: The moderating effects of work group perspectives on diversity. *Administrative Science Quarterly*, *46*, 229–273.
- Frantz, C. M., Cuddy, A. J. C., Burnett, M., Ray, H., & 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.
- Gurin, P. Y., Dey, E. L., Gurin, G., & Hurtado, H. (2002). Diversity and higher education: Theory and impact on educational outcomes. *Harvard Educational Review*, *72*, 330–366.

- Harrison, D. A., Price, K. A., & Bell, M. P. (1998). Beyond relational demography: Time and effects of surface- and deep-level diversity on work group cohesion. *Academy of Management Journal*, 41, 96–107.
- Jackson, S. E. (1992). Team composition in organizational settings: Issues in managing an increasingly diverse work force. In S. Worchel, W. Wood, & J. A. Simpson (Eds.), *Group process a productivity* (pp. 138–173). Newbury Park, CA: Sage.
- Jehn, K. A., Northcraft, G. B., & Neale, M. A. (1999). Why differences make a difference: A field study of diversity, conflict, and performance in workgroups. *Administrative Science Quarterly*, 44, 741–763.
- Juvonen, J., Nishina, A., & Graham, S. (2006). Ethnic diversity and perceptions of safety in urban middle schools. *Psychological Science*, 17, 393–400.
- Kerr, N. L., Hymes, R. W., Anderson, A. B., & Weathers, J. E. (1995). Defendant-juror similarity and mock juror judgments. *Law and Human Behavior*, 19, 545–567.
- Mannix, E., & Neale, M. A. (2005). What differences make a difference? The promise and reality of diverse teams in organizations. *Psychological Science in the Public Interest*, 6, 31–55.
- McLeod, P. L., Lobel, S. A., & Cox, T. H. Jr., (1996). Ethnic Diversity and creativity in small groups. *Small Group Research*, 27, 248–264.
- Nemeth, C. J. (1995). Dissent as driving cognition, attitudes, and judgments. *Social Cognition*, 13, 273–291.
- Norton, M. I., Sommers, S. R., Apfelbaum, E. P., Pura, N., & Ariely, D. (2006). Colorblindness and interracial interaction: Playing the political correctness game. *Psychological Science*, 17, 949–953.
- O'Reilly, C., Caldwell, D. F., & Barnett, W. P. (1989). Work group demography, social integration, and turnover. *Administrative Science Quarterly*, 34, 21–37.
- Pettigrew, T. F., & Tropp, L. R. (2000). Does intergroup contact reduce prejudice? Recent meta-analytic findings. In S. Oskamp (Ed.), *Reducing prejudice and discrimination* (pp. 93–114). Mahwah, NJ: Lawrence Erlbaum.
- Petty, R. R., & Cacioppo, J. T. (1986). *Communication and persuasion: Central and peripheral routes to attitude change*. New York: Springer.
- Petty, R. E., Fleming, M. A., & White, P. H. (1999). Stigmatized sources and persuasion: Prejudice as a determinant of argument scrutiny. *Journal of Personality and Social Psychology*, 76, 19–34.
- Phillips, K. W., & Loyd, D. L. (2006). When surface and deep-level diversity collide: The effects on dissenting group members. *Organizational Behavior and Human Decision Processes*, 99, 143–160.
- Phillips, K. W., Mannix, E., Neale, M., & Gruenfeld, D. (2004). Diverse groups and information sharing: The effects of congruent ties. *Journal of Experimental Social Psychology*, 40, 498–510.
- Phillips, K. W., Northcraft, G. B., & Neale, M. A. (2006). Surface-level diversity and decision-making in groups: When does deep-level similarity help? *Group Processes and Intergroup Relations*, 9, 467–482.
- Plaut, V. C. (2002). Cultural models of diversity: The psychology of difference and inclusion. In R. Shweder, M. Minow, & H. R. Markus (Eds.), *Engaging cultural differences: The multicultural challenge in a liberal democracy* (pp. 365–395). New York: Russell Sage Foundation Press.
- 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, 934–937.
- Sargent, M. J., & Bradfield, A. L. (2004). Race and information processing in criminal trials: Does the defendant's race affect how the facts are evaluated? *Personality and Social Psychology Bulletin*, 30, 995–1008.
- Sawyer, J. E., Houlette, M. A., & Yeagley, E. L. (2006). Decision performance and diversity structure: Comparing faultlines in convergent, crosscut, and racially homogeneous groups. *Organizational Behavior and Human Decision Processes*, 99, 1–15.
- 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. (2006). Interracial interactions: A relational approach. *Advances in Experimental Social Psychology*, 38, 121–181.
- Sommers, S. R. (2006). On racial diversity and group decision-making: Identifying multiple effects of racial composition on jury deliberations. *Journal of Personality and Social Psychology*, 90, 597–612.
- Sommers, S.R. (in press). Beyond information exchange: New perspectives on the benefits of racial diversity for group performance. In E. A. Mannix, M.A. Neale, K.W. Phillips (Eds.), *Research on Managing Groups and Teams* (Vol. 11). Elsevier Science Press.
- Sommers, S. R., & Norton, M. I. (2006). Lay theories about White racists: What constitutes racism (and what does not). *Group Processes and Intergroup Relations*, 9, 117–138.
- Triandis, H. C., Hall, E. R., & Ewen, R. B. (1965). Member heterogeneity and dyadic creativity. *Human Relations*, 18, 33–55.
- van Knippenberg, D., & Schippers, M. C. (2007). Work group diversity. *Annual Review of Psychology*, 58, 515–541.
- Vorauer, J. D., & Turpie, C. A. (2004). Disruptive effects of vigilance on dominant group members' treatment of outgroup members: Choking versus shining under pressure. *Journal of Personality and Social Psychology*, 87, 384–399.
- Watson, W. E., Johnson, E., & Zgourides, G. D. (2002). The influence of ethnic diversity on leadership, group process, and performance: An examination of learning teams. *International Journal of Intercultural Relations*, 26, 1–16.
- Watson, W. E., Kumar, K., & Michaelsen, L. K. (1993). Cultural diversity's impact on interaction process and performance: Comparing homogeneous and diverse task groups. *Academy of Management Journal*, 36, 590–602.
- White, P. H., & Harkins, S. G. (1994). Race of source effects in the Elaboration Likelihood Model. *Journal of Personality and Social Psychology*, 67, 790–807.