



## FlashReport

You deplete me: The cognitive costs of colorblindness on ethnic minorities<sup>☆</sup>Deborah Son Holoien<sup>\*</sup>, J. Nicole Shelton

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## ABSTRACT

This study examined how priming Whites with colorblind or multicultural approaches to diversity prior to an interracial interaction affects ethnic minorities' cognitive functioning. Although ethnic minorities did not explicitly know which prime their White partner received, ethnic minorities paired with Whites primed with colorblindness (vs. multiculturalism) showed poorer cognitive performance on the *Stroop (1935)* color-naming task following the interaction. Furthermore, Whites in interracial interactions primed with colorblindness exhibited more behavioral prejudice, which mediated ethnic minorities' decreased cognitive performance. These findings suggest that Whites' exposure to certain ideologies may affect the cognitive performance of the ethnic minorities they encounter.

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## Introduction

Racial diversity is on the rise, with increasing numbers of ethnic minorities in the workplace, schools, and neighborhoods (*U.S. Census Bureau, 2011*). At the same time, intergroup tensions remain high. Interacting with people from different ethnic backgrounds often elicits negative reactions, such as anxiety and threat (*Blascovich, Mendes, Hunter, Lickel, & Kowai-Bell, 2001*). Given increasing diversity, understanding how to smoothly navigate interracial interactions is important for fostering harmonious relationships and well-integrated environments. What is the best way to facilitate positive interracial interactions?

Two ideological perspectives – colorblindness and multiculturalism – have emerged to shed light on this question. Colorblindness downplays the salience and importance of race by focusing on the commonalities people share, such as one's underlying humanity. In contrast, multiculturalism acknowledges and highlights racial differences. Currently, colorblindness is the dominant approach in the United States (*Plaut, 2010*) and pervades legal (*Peery, 2011*), educational (*Pollock, 2004*), and interpersonal (*Apfelbaum, Sommers, & Norton, 2008*) domains. The prevalence of colorblind policies is particularly concerning given psychological findings on the adverse effects of colorblindness. Exposure to colorblind (vs. multicultural) messages predicts negative outcomes among Whites, such as greater implicit and explicit racial bias (*Richeson & Nussbaum, 2004*) and negative affect (*Correll, Park, & Smith, 2008; Vorauer, Gagnon, & Sasaki, 2009*). Given the negative effects of colorblind

messages on Whites, what are the outcomes for ethnic minorities who come into contact with these Whites?

People are oftentimes unaware of the ideologies endorsed by their colleagues and peers, yet these ideologies may influence them in powerful ways. Indeed, the more White employees endorse a multicultural ideology, the more ethnic minority co-workers demonstrate engagement in the workplace; in contrast, ethnic minority co-workers are less engaged the more Whites endorse a colorblind ideology (*Plaut et al., 2009*). In addition to being less engaged, do ethnic minorities perform worse on cognitive tasks in settings where those around them endorse colorblindness? The current study examines ethnic minorities' cognitive performance following interactions with Whites who have been primed with a colorblind or multicultural message prior to the interaction.

We predict that priming Whites with colorblindness (vs. multiculturalism) will lead to adverse outcomes for ethnic minorities. Reading colorblind messages leads to greater explicit and implicit prejudice among Whites (*Richeson & Nussbaum, 2004*), and ethnic minorities may be influenced by the negative attitudes that leak out through Whites' behavior towards them (*Dovidio, Kawakami, & Gaertner, 2002*). Whites may display prejudice by using subtle nonverbal cues or by explicitly making derogatory comments about racial groups. Interacting with someone who may hold unfavorable views about one's ingroup may be particularly effortful for ethnic minorities because they may tax their mental resources by questioning whether Whites' negative behaviors stem from racial prejudice (*Salvatore & Shelton, 2007*). In addition, ethnic minorities may force themselves to regulate their behavior and emotions in order to avoid being a target of prejudice (*Shelton, Richeson, & Salvatore, 2005*). Indeed, *Shelton et al. (2005)* found that ethnic minorities primed with racial prejudice (vs. ageism) engaged in effortful compensatory behaviors during interactions with Whites, such as talking or leaning forward. These strenuous interactions may in turn tax the mental resources needed to perform subsequent effortful activities, leading to a

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state of cognitive depletion (Muraven & Baumeister, 2000). Building on this logic, we predict that Whites' prejudiced behavior will mediate the relationship between the ideological prime they received and ethnic minorities' cognitive depletion.

Although some prior work has shown that Whites who are colorblind by avoiding the mention of race show increased cognitive depletion in interracial interactions (Apfelbaum et al., 2008), we do not predict any differential depletion among Whites regardless of whether they are primed with colorblindness or multiculturalism. The colorblind prime allows Whites to talk about race in a way that downplays the importance of racial categorization instead of instructing participants to avoid talking about race at all. Indeed, a recent study using the same primes revealed that Whites were no more depleted after reading a colorblind vs. multicultural message (Vorauer & Sasaki, 2010). Thus, we predict that priming Whites with either message will not differentially affect their cognitive performance, but that it will indirectly affect ethnic minority partners' cognitive performance via Whites' prejudiced behavior.

## Method

### Participants

Participants included 158 university students (106 women) who completed the study for course credit or \$12 compensation. The sample included 31 White/White, 25 White/Asian, and 23 White/Black same-sex dyads.

### Procedure

Two previously unacquainted university students participated per session in an opinion exchange study. In separate rooms, participants read an editorial that either endorsed colorblindness, multiculturalism, or the importance of using locally grown foods (control), allegedly to practice discussing their opinions on various topics. In interracial dyads, we randomly assigned Whites to read one of the ideological primes whereas ethnic minorities read the control prime. In White/White dyads, we randomly assigned one person to read one of the ideological primes and the other person to read the control prime. Next, participants met and selected two topics from a rigged drawing that assigned them to discuss their thoughts on modern racism and ethnic diversity in schools (order counterbalanced):

Racism has played an influential role in shaping American history, from slavery, anti-immigration laws, and other policies that contributed to racial disparities. Some people argue that racism is a thing of the past, whereas others believe that it continues to exist in the present day. Discuss your thoughts and opinions about the state of racism in modern American society.

Although the population of ethnic minorities continues to grow in the United States, student populations among universities remain ethnically homogeneous. Discuss your thoughts and opinions about how universities can ensure an ethnically diverse student body.

Each discussion lasted 5 min each and was filmed. Afterward, participants returned to their separate rooms to complete the computerized Stroop task as a measure of cognitive performance.

### Materials

#### Ideology prime

The colorblind and multicultural primes were identical to those used in prior research (Wolsko, Park, Judd, & Wittenbrink, 2000). Both primes discussed the importance of interethnic relations and ways to

improve them. The multicultural prime advocated the acknowledgement of ethnic differences (e.g., "validate the identity of each group") whereas the colorblind prime highlighted commonalities between ethnic groups (e.g., "we really are all the same"). The control prime was adapted from a *New York Times* article (Parker-Pope, 2008) and matched the length and tone of the ideological primes. The first page of each prime contained an alleged editorial excerpt and the next two pages reinforced agreement with the prime by instructing participants to elaborate on reasons in favor of the prime.

#### Stroop task

The Stroop task measured cognitive performance. Participants indicated the color of various texts that appeared in the center of the computer screen as quickly and accurately as possible by pressing one of four color-coded keys. Control trials displayed the letter string "XXXX," congruent trials displayed a color word that matched its font color (e.g., "RED" in red font), and incongruent trials displayed a color word that did not match its font color (e.g., "RED" in blue font). Incongruent trials are particularly difficult because participants must inhibit the prepotent response of reading the word and instead report the font color (MacLeod, 1991). Participants completed 8 practice and 84 experimental trials.

#### Prejudice

Two ethnic minority judges blind to the ideological prime condition rated the behavior of the White participant who received the ideological prime. After watching each interaction, judges rated participants for perceived *prejudice* and *offensiveness*. Judges attended to participants' non-verbal and verbal behavior when making these holistic ratings. They also rated the extent to which participants *devalued the importance of racial issues*, as evidenced by comments questioning the value of increasing racial diversity on campus or claiming that racism isn't a significant concern anymore. All items were rated on 1 (*not at all*) to 7 (*very*) scales and had acceptable inter-rater reliability (Cohen's  $k$ appas = .41 to .69). These items were averaged to form a composite measure of *prejudice* ( $\alpha = .70$ ).

## Results

Data were submitted to dyadic data analysis (Kenny, Kashy, & Cook, 2006). Because the sample included White/minority and White/White dyads, participant race is a mixed variable and dyad members are indistinguishable. Because dyad members are indistinguishable – that is, no meaningful dichotomous variable distinguishes them from each other – we estimated a covariance matrix with compound symmetry (CS), which constrained the error variances for both members of a dyad to be equal. Analyses may yield fractional degrees of freedom. Prime was effects coded ( $-1 =$  colorblind,  $1 =$  multicultural) and analyzed as a between-dyad moderator. In addition, we employed two effects-coded contrasts and used Whites with ethnic minority partners as the reference group. When entered simultaneously, the *interracial contrast* (minorities = 2, Whites in interracial dyads =  $-1$ , Whites in same-race dyads =  $-1$ ) compares Whites and ethnic minorities in interracial interactions, whereas the *White contrast* (Whites in same-race dyads = 2, minorities =  $-1$ , Whites in interracial dyads =  $-1$ ) compares Whites with minority vs. White partners.

#### Cognitive depletion

We prepared the Stroop results for analysis using the following procedures. Incorrectly answered trials were removed from analysis. We then calculated the mean latency for each trial type, removing trials that exceeded 3 standard deviations from the mean of that trial type. We used these latencies to compute Stroop interference (mean latency for incongruent trials – mean latency for control trials), with higher numbers indicating greater cognitive depletion. We removed six

dyads with Stroop interference scores beyond 3 standard deviations of the mean, resulting in 73 dyads (45 interracial) primed with colorblindness ( $n = 35$ ) or multiculturalism ( $n = 38$ ) for analysis.

As predicted, only the interracial contrast  $\times$  prime interaction reached significance,  $B = -13.11$ ,  $SE B = 5.34$ ,  $t(71) = -2.45$ ,  $p = .016$  (see Fig. 1). Ethnic minorities were more depleted after interacting with a White partner primed with colorblindness ( $M = 155.59$ ,  $SD = 95.01$ ) compared to multiculturalism ( $M = 106.48$ ,  $SD = 64.81$ ),  $B = -49.11$ ,  $SE B = 23.89$ ,  $t(136.69) = -2.06$ ,  $p = .042$ . Additionally, ethnic minorities in the colorblind condition were marginally more depleted than their White partners ( $M = 109.72$ ,  $SD = 94.80$ ),  $B = -45.87$ ,  $SE B = 23.59$ ,  $t(70.20) = -1.94$ ,  $p = .056$ . The main effect of the interracial contrast was non-significant,  $B = 2.18$ ,  $SE B = 5.34$ ,  $t(71) = 0.41$ ,  $p = .685$ , *ns*.

We did not find significant effects for the White contrast,  $B = -1.50$ ,  $SE B = 5.41$ ,  $t(109.54) = -0.28$ ,  $p = .782$ , *ns*, prime,  $B = -5.69$ ,  $SE B = 6.91$ ,  $t(69) = -0.82$ ,  $p = .413$ , *ns*, or their interaction,  $B = -7.36$ ,  $SE B = 5.41$ ,  $t(109.54) = -1.36$ ,  $p = .176$ , *ns*. Consistent with predictions, the effect of the ideological primes on cognitive performance was comparable for Whites but differed significantly for ethnic minorities.

### Prejudice

What caused ethnic minorities to become more depleted following interactions with Whites primed with colorblindness (vs. multiculturalism)? We tested our prediction that Whites' prejudiced behavior would mediate the prime Whites received and ethnic minorities' cognitive performance. Because only interracial dyads differed in their Stroop interference scores by prime, we conducted regressions on Whites paired with ethnic minorities. Consistent with predictions, judges rated Whites primed with colorblindness ( $M = 1.85$ ,  $SD = 0.14$ ) as more prejudiced than Whites primed with multiculturalism ( $M = 1.43$ ,  $SD = 0.08$ ),  $\beta = -.286$ ,  $t(43) = -1.96$ ,  $p = .057$ . To test for mediation, regressing ethnic minorities' Stroop interference scores on Whites' prejudice and prime revealed that Whites' prejudice predicted ethnic minorities' Stroop interference,  $\beta = .276$ ,  $t(42) = 1.87$ ,  $p = .068$ , and that prime no longer predicted Stroop interference when accounting for the mediator,  $\beta = -.219$ ,  $t(42) = -1.48$ ,  $p = .146$ , *ns*, (see Fig. 2). We used the asymmetric distribution of products test (Mackinnon, Lockwood, Hoffman, West, & Sheets, 2002) to compute a confidence interval around the intervening variable effect (i.e., the path through the mediator). Mediation occurs if the interval falls outside of zero. Results revealed a 95% confidence interval ranging from  $-1.70$  to  $-11.31$ , indicating mediation.

### Discussion

Although colorblindness and multiculturalism are two different avenues to attaining intergroup harmony, our findings suggest that

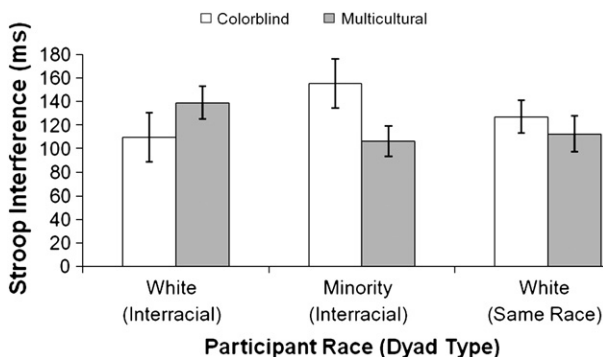


Fig. 1. Mean Stroop interference (ms) with  $\pm 1$  standard errors of the mean.

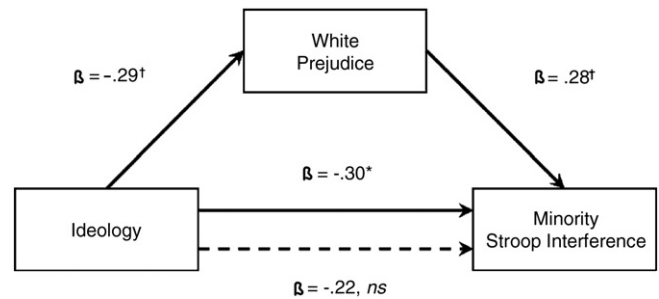


Fig. 2. Whites' prejudice mediates the relationship between the prime that Whites received and ethnic minorities' Stroop interference.

in short-term interracial interactions, colorblindness may hurt ethnic minorities' cognitive functioning. Priming Whites with colorblindness depleted ethnic minority interaction partners by causing Whites to act more prejudiced. The primes did not differentially affect Whites' cognitive functioning, perhaps because both ideologies provided a script (Avery, Richeson, Hebl, & Ambady, 2009) for Whites to use in order to mitigate the difficulties of discussing potentially uncomfortable racial topics (Johnson, Olson, & Fazio, 2009). Our findings contribute to the growing research examining the merits of multiculturalism over colorblindness for ethnic minorities' outcomes in intergroup settings. Not only do minorities prefer multiculturalism (Ryan, Hunt, Weible, Peterson, & Casas, 2007; Verkuyten, 2006), they benefit when others around them endorse multiculturalism (Plaut et al., 2009).

The present study opens up several areas of future exploration. First, priming Whites with a control condition would clarify whether exposure to colorblindness exacerbates cognitive demands on already taxing interracial interactions for ethnic minorities or whether multiculturalism buffers ethnic minorities from depletion. Given the prevalence of colorblind endorsement in American society, however, we believe that our findings are still informative despite the lack of an explicit baseline condition. Second, participants only discussed topics related to race, raising the intriguing possibility that priming Whites with colorblindness may not deplete ethnic minorities when race is not salient. People in the workplace are likely to discuss topics unrelated to race, yet Plaut et al. (2009) found that Whites' colorblind beliefs predicted ethnic minority co-workers' psychological disengagement. Nevertheless, there may be settings in which colorblindness may be beneficial.

In summary, the present research illustrates the powerful influence that ideologies can exert on one's own and others' cognition and behavior. Schools, workplaces, and other institutions may want to carefully consider the ideologies they endorse, as exposure to certain ideologies may impede minorities' cognitive performance and hinder positive interracial interactions.

### References

- Apfelbaum, E. P., Sommers, S. R., & Norton, M. I. (2008). Seeing race and seeming racist? Evaluating strategic colorblindness in social interaction. *Journal of Personality and Social Psychology*, 95(4), 918–932.
- Avery, D. R., Richeson, J. A., Hebl, M. R., & Ambady, N. (2009). It does not have to be uncomfortable: The role of behavioral scripts in Black–White interracial interactions. *Journal of Applied Psychology*, 94(6), 1382–1393.
- 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(2), 253–267.
- U.S. Census Bureau (2011). Overview of race and Hispanic origin: 2010. Retrieved from the U.S. Census Bureau. <http://www.census.gov/prod/cen2010/briefs/c2010br-02.pdf>
- Correll, J., Park, B., & Smith, J. A. (2008). Colorblind and multicultural prejudice reduction strategies in high-conflict situations. *Group Processes & Intergroup Relations*, 11(4), 471–491.
- Dovidio, J. F., Kawakami, K., & Gaertner, S. L. (2002). Implicit and explicit prejudice and interracial interaction. *Journal of Personality and Social Psychology*, 82(1), 62–68.

- Johnson, C. S., Olson, M. A., & Fazio, R. H. (2009). Getting acquainted in interracial interactions: Avoiding intimacy but approaching race. *Personality and Social Psychology Bulletin*, 35(5), 557–571.
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. New York, NY: Guilford.
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, 7(1), 83–104.
- MacLeod, C. M. (1991). Half a century of research on the Stroop effect: An integrative review. *Psychological Bulletin*, 109(2), 163–203.
- Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin*, 126(2), 247–259.
- Parker-Pope, T. (2008, June 6). Boosting health with local food. *The New York Times*. Retrieved from <http://well.blogs.nytimes.com/2008/06/06/boosting-health-with-local-food>.
- Peery, D. (2011). The colorblind ideal in a race-conscious reality: The case for a new legal ideal for race relations. *Northwestern Journal of Law and Social Policy*, 6, 473–495.
- Plaut, V. C. (2010). Diversity science: Why and how difference makes a difference. *Psychological Inquiry*, 21(2), 77–99.
- Plaut, V. C., Thomas, K. M., & Goren, M. J. (2009). Is multiculturalism or color blindness better for minorities? *Psychological Science*, 20(4), 444–446.
- Pollock, M. (2004). *Colormute: Race talk dilemmas in an American school*. Princeton, NJ: Princeton University Press.
- Richeson, J. A., & Nussbaum, R. J. (2004). The impact of multiculturalism versus color-blindness on racial bias. *Journal of Experimental Social Psychology*, 40(3), 417–423.
- Ryan, C. S., Hunt, J. S., Weible, J. A., Peterson, C. R., & Casas, J. F. (2007). Multicultural and colorblind ideology, stereotypes, and ethnocentrism among Black and White Americans. *Group Processes & Intergroup Relations*, 10(4), 617–637.
- Salvatore, J., & Shelton, J. N. (2007). Cognitive costs of exposure to racial prejudice. *Psychological Science*, 18(9), 810–815.
- Shelton, J. N., Richeson, J. A., & Salvatore, J. (2005). Expecting to be the target of prejudice: Implications for interethnic interactions. *Personality and Social Psychology Bulletin*, 31(9), 1189–1202.
- Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology*, 18(6), 643–662.
- Verkuyten, M. (2006). Multicultural recognition and ethnic minority rights: A social identity perspective. *European Review of Social Psychology*, 17, 148–184.
- Vorauer, J. D., Gagnon, A., & Sasaki, S. J. (2009). Salient intergroup ideology and intergroup interaction. *Psychological Science*, 20(7), 838–845.
- Vorauer, J. D., & Sasaki, S. J. (2010). In need of liberation or constraint? How intergroup attitudes moderate the behavioral implications of intergroup ideologies. *Journal of Experimental Social Psychology*, 46(1), 133–138.
- Wolsko, C., Park, B., Judd, C. M., & Wittenbrink, B. (2000). Framing interethnic ideology: Effects of multicultural and color-blind perspectives on judgments of groups and individuals. *Journal of Personality and Social Psychology*, 78(4), 635–654.