“WHAT’S THE BIG DEAL?”: RECOGNITION OF RACISM AND IMPAIRMENT OF COGNITIVE FUNCTIONING

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Abstract

Resource depletion theories posit that cognitive resources exist in a limited pool. Thus, stressful stimuli can produce impairment on subsequent cognitive tasks, as limited resources (e.g., attentional or regulatory processes) are directed toward managing this initial stressor or task. Using experimental methodology, the study applied resource depletion theories to examine the effects of recognizing the existence of racism in American society in a White American undergraduate sample. The investigation examined impairments in cognitive functioning (i.e., executive functioning in Study 1 and creative mental processes in Study 2) and psychological functioning that were presumed to occur because racism acts as a stressor with the potential to arouse strong emotional responses and deplete resources. Study results suggested recognition of racism had some effects on cognitive and psychological functioning, but the results were limited and inconsistent. Of primary interest, recognizing racism only had a marginal effect on creativity in the form of ideational fluency, whereas recognizing discrimination resulted in *fewer* errors on a computerized Stroop task in one experimental procedure, thus contradicting predictions and a resource depletion perspective.

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CHAPTER 1: INTRODUCTION

A growing body of research has found that experiencing discrimination or bias is linked to negative mental health, physical health, and behavioral health outcomes (Williams, Neighbors, & Jackson, 2003; Paradies, 2006). Certainly, personal experiences of racism have detrimental effects on an individual (e.g., Mays, Cochran, & Barnes, 2007; see Carter, 2007 for review). However, few empirical investigations have considered the impact of recognizing the existence of racism as a viable sociocultural phenomenon. That is, it is unclear what occurs for an individual at cognitive, emotional, and behavioral levels when considering and contemplating the existence of a sensitive sociocultural phenomenon like racism. This knowledge gap is surprising given that a number of intervention and prevention strategies advocate promoting diversity and reducing bias by discussing and recognizing racism, as well as its manifestations and persistence (e.g., Adams, Bell, & Griffin, 1997; American Psychological Association, 2003; Sue, 1991; Vera & Speight, 2003).

In this investigation, I argue that the recognition of racism serves as a stressor and, therefore, has the power to elicit strong cognitive, emotional, and behavioral responses from White individuals. The effects of recognizing racism on cognitive functioning is the primary focus of this investigation. Drawing on resource depletion theories (Muraven & Baumeister, 2000; Norman & Bobrow, 1975), I specifically argue that managing one's aroused cognitive, emotional, and behavioral responses when one

recognizes the existence and persistence of racism in U.S. society draws on limited higher-order cognitive resources. As these cognitive resources are temporarily depleted, it results in impairments in other tasks requiring higher-order cognitive functioning. As a stressor, recognizing racism's existence also likely results in negative behavioral and psychological outcomes. The current research addresses two critical issues related to the application of resource depletion theories to race-related stimuli:

- *Breadth of effect – Broadening the range of race-related stimuli under consideration*: The majority of the research in this area has applied resource depletion theories to interracial interactions, primarily between Black and White individuals. This predominant focus on interracial interactions begs the question: *What other race-related stimuli evoke similar cognitive and psychological effects?* The present research broadens extant research by examining if impairments in cognitive functioning and adverse psychological responses result when an individual must recognize that racism exists.
- *Extent of the effect – Exploring effects on multiple forms of cognitive functioning*: Research examining the cognitive correlates of racial stimuli has been considered a novel extension of previous research, which has generally relied on behavioral and self-report of personal and intrapsychic outcomes (American Psychological Association, 2006). To date, research in this area has primarily focused on executive functions, almost exclusively operationalized by the Stroop task, as the primary cognitive index that is affected by race-related stimuli. The assumption has been that regulatory

processes draw resources away from higher-order cognitive abilities, such as cognitive inhibition and attention, as measured by the Stroop task. It is uncertain if the cognitive effects of race-related stimuli extend beyond a portrayed as a victim, per contemporary conceptualizations—provides another example of the powerful social discourse and reactions surrounding the awareness of racism (Williams, 2002). For instance, the charge of playing the "race card" was invoked during the O.J. Simpson trial in critique of the Simpson defense team for presenting evidence of police detective Mark Furhman's potential racism (Williams, 2002). The notion that the race card was "played" led to ongoing controversies and debates that the evocation of racism and cultural legacies of racial disadvantage enabled an African American man to allegedly "get away with murder" (Higginbotham, Francois, & Yuek, 1997, p. 36).

CHAPTER 2: LITERATURE REVIEW

Within the profession of psychology, there is anecdotal evidence of the controversy surrounding the recognition or awareness of racism. In his 2005 American Psychological Association (APA) Division 17 (Society of Counseling Psychology) Presidential Address, D.W. Sue provided a personal account of giving a national testimony about race and racism that was met with public outcry. According to Sue, public responses included that he was a "racist of a different color," most White Americans are decent people who are against racism, racism no longer presented a social problem, Sue and his colleagues were doing a disservice to minorities by providing them

with an excuse for their own failings, and White Americans were the ones who were being discriminated against (p. 102). He recounted that he even received a message that implied a physical threat on his life. This personal account provides a qualitative appraisal of the American public reactions to racism.

A debate between psychologists provides yet another example of the heated discourse and sense of arousal that erupts when the topic of racism is broached within the profession. In a 2007 *American Psychologist* article, D.W. Sue and his colleagues drew on ideas from Pierce (1970) and an earlier award address by Sue at APA's 2004 annual meeting. Sue and colleagues argued that racial/ethnic minorities are subject to racial microaggressions—"brief and commonplace daily verbal, behavioral, and environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative racial slights and insults to the target person or group" (Sue, Capodilupo, Torino, Bucceri, Holder, Nadal, & Esquilin, 2007; p. 273). An example of a microaggression includes the statement, "You are a credit to your race," communicating to a minority individual the message that people of color are not as intelligent as Whites (Sue et al., 2007; p. 276). Inherent to the argument is that the racism against minorities persists in modern social experiences and has a negative effect on minorities. Sue et al.'s (2007) remarks on microaggressions as modern forms of racism proved incendiary, sparking a heated discourse among the readership of *American Psychologist*—Sue's professional peers and audience. For instance, Harris (2008) questioned Sue's personal account of a perceived microaggression (see Sue et al., 2007, p. 275), providing alternatives and rationales for what might have happened, aside from racism. In another

comment entitled, “Macrononsense in Multiculturalism,” Thomas (2008) offered a more scathing refutation of Sue’s arguments regarding microaggressions, making the statement that the microaggressions cited by Sue’s team included “…an array of clearly irrational reasons for experiencing emotional turmoil” (p. 274). This debate highlights the strong reactions that can occur for many individuals, psychologists included, when they must recognize or consider the existence of racism.

Adding to these anecdotal accounts, there is theoretical and empirical support that racism is a sensitive and arousing topic for many individuals. There is empirical evidence that simply acknowledging and highlighting race is considered socially inappropriate, suggesting a norm toward silence regarding race and racial issues (Apfelbaum, Sommers, & Norton, 2008a; Norton, Sommers, Apfelbaum, Pura, & Ariely, 2006; Sue, 2005). Research also suggests that individuals who attribute failure to discrimination are devalued (Kaiser & Miller, 2001). Specifically, racial/ethnic minority individuals charging bias, regardless of the how much discrimination was experienced, are rated less favorably and are viewed as complainers by predominantly White samples. Moreover, they are characterized as emotional, hypersensitive, argumentative, irritating, and trouble-making. For those who are charged with racial bias, it appears that racism stands out as a particularly potent form of bias. Being charged with racism evokes more guilt, apologetic-corrective responses, and concern about being offensive than allegations of gender bias (Czopp & Monteith, 2003). Other perspectives postulate that many White individuals may be aroused to the point of experiencing White guilt related to the historical legacies of racism (Swim & Miller, 1999). This White guilt may extend into

negative evaluations of Whiteness and White racial identity. Models of White and non-White racial identity development further theorize that being confronted with a reality of racism can elicit discomfort and changes in cognitive worldviews for both groups, leaving some to prefer to adopt a color-blind orientation to race-related issues (e.g., school admissions, employment decisions), which minimizes the consideration or willingness to address issues of race and racism (e.g., Helms, 1990). Thus, there is preliminary theoretical and empirical support that racism is a sensitive topic area that has the power to elicit strong emotional, behavioral, and cognitive responses from individuals.

Some may question, "Do we expect that White individuals experience any motivational, affective, behavioral, or cognitive responses to recognizing racism at all?" Although White individuals may view racism as an aversive, concerning social issue, many may not see it as personally relevant to themselves or their life experiences. One may argue that, for many White individuals, the recognition of racism may not have the same qualitative or long-term implications or effects as it does with non-White minorities. One may posit, then, that racism is not a relevant or stressful issue for White individuals. In fact, theorists suggest that many White individuals are "'meant' to remain oblivious" to racial privilege and inequities (McIntosh, 1989, p. 10).

Drawing on resource depletion perspectives, this research challenges these notions by exploring the potency of being presented with the "reality" of racial issues within American society. In doing so, this study highlights that being presented with the existence of racism and having to consider the reality that racism exists has the potential

to elicit aversive cognitive responses among White individuals. In contrast to studying acts of racism or personal experiences of racism, this study focuses on the cognitive processes that occur when a White individual is provoked to recognize that racism exists as a persisting and viable sociocultural phenomenon.

General Overview: Racism-Related Stimuli and Cognitive Functioning

The effects of racism-related stimuli on cognitive functioning and processing have received growing research attention. Understanding effects on cognition would highlight the potency and diffuse effects of race issues for many individuals and provide insight into the cognitive processes that guide and shape our personal intergroup and intragroup interactions. In addition, because of the sensitive nature of race issues, the tendency to rely on self-report measures alone in the research on psychological and behavioral effects may not provide a comprehensive picture of the subtle and deep effects of recognizing race issues. Social desirability and biases related to self-presentation (or self-preservation) may limit the information gleaned from subjective report. The researcher proposes that both cognitive measures and psychological reports may capture the profound and broad effects that recognizing racism can have on White individuals.

Classic research on the concept of *stereotype threat* provides initial evidence that impairment in performance on cognitive tasks occurs following the priming of race or race stereotypes about intelligence for a number of minority groups, including African Americans, Asian Americans, Latino Americans, and women (Steele & Aronson, 1995; see Steele, 1997 for review). For example, priming African American students to think about stereotypes about African Americans' intellectual abilities by telling them a task is

diagnostic of intellectual ability has been associated with underperformance on a verbal aptitude test (relative to performance when the task is described as nondiagnostic or when compared to the performance of White American students in the same condition (see Steele, 1997). Moreover, underperformance occurs when African American students record their race on a demographic questionnaire prior to completing a cognitive task (in contrast to not recording race information and in comparison to White American students; Steele & Aronson, 1995). This finding highlights that merely priming race can activate powerful intrapsychic processes that impact cognitive functioning.

Other research on White American adults has revealed that problem solving and cognitive Stroop task performance were hindered when individuals acknowledged race in a photo identification task—a finding that has been replicated in a predominantly White American middle-childhood-aged sample (Apfelbaum et al., 2008a; Apfelbaum, Pauker, Ambady, Sommers, & Norton, 2008b). Taken together, the research suggests that, race-related stimuli—even in the slightest—can affect cognitive functioning more generally.

Executive Functioning and Racism

One specific type of cognitive functioning, *executive functioning*, has drawn increasing attention in the study of race, racism, and cognition. A consistent, unified framework for conceptualizing executive functions has yet to be developed, but, broadly considered, executive functions entail higher-order mental processing such as attention, inhibition, self-monitoring, working memory, planning, or organizational strategies (Phillips, 1997; Royall et al., 2002; Zelazo, Qu, & Müller, 2005). Executive functions are conscious and effortful, rather than automatic, cognitive processes that allow for flexible

behavior (Gilbert & Burgess, 2007; Phillips, 1997). Research on three of the most commonly proposed executive functions—*shifting* (i.e., shifting between tasks or mental sets), *updating and monitoring* (e.g., working memory—storing, integrating, and mentally manipulating information), and *inhibiting* (i.e., inhibiting prepotent, dominant, or automatic responses)—has revealed that executive functions are separate but related (Miyake, Friedman, Emerson, Witzki, & Howerter, 2000).

Research suggests that the frontal cortical regions, most especially those associated with the prefrontal cortex, are central to executive functioning, as impairments in planning, judgment, decision-making, working memory, and so forth occur with prefrontal cortical damage (see Funahashi, 2001 and Royall et al., 2002 for reviews). Although executive functioning often has been associated with the frontal lobe, frontal lobe functioning and executive functioning are not synonymous, and theorists have distinguished "frontal lobe" as an anatomical term, whereas "executive" has been characterized as a functional term (Miyake et al., 2000). To this point, research reveals that some frontal lobe patients do not demonstrate impairment on executive functioning tasks, whereas some patients with lesions outside of the frontal lobe demonstrate significant important on such tasks (see Miyake et al., 2000 for review).

Research supports that executive functions are affected by racism-related stimuli. A recent study explored cognitive interference on the Stroop task—a commonly-used executive functioning measure requiring executive control, interference control, and inhibition of prepotent responses—following exposure to nonprejudiced, ambiguously prejudiced, or blatantly prejudiced hiring recommendations (Salvatore & Shelton, 2007).

Black subjects were found to experience the greatest impairment in executive functioning in the ambiguous prejudice condition, whereas White subjects were found to experience the greatest impairment when they saw blatant evidence of prejudice. These findings provide support that racism-related material can impair executive functioning, as well as support that racism-related stimuli may be arousing to White individuals.

Applications of Resource Depletion Theories to Cognition, Race, and Racism

Researchers and theorists have drawn on *theories of resource-limited processes* and *resource depletion* from the area of cognitive psychology to link interracial interactions and the depleting effects of self-regulation of automatic biases on executive functioning capacity. Initial theories on limited resources and resource depletion proposed that *processing resources* (e.g., processing effort, working memory capacity, communication channels) exist in a general pool and are limited (Norman & Bobrow, 1975). When increasing the amount of processing resources available results in improved performance on a task, the task or performance on the task is considered *resource-limited*. In other words, resource-limited tasks and task performance are affected by the availability of cognitive resources within a common pool. An interfering cognitive task can affect the availability of resources for a primary task; thus, when several processes compete for these same resources, process resources become depleted, resulting in impaired task performance. In short, resource depletion models propose that cognitive functions entail limited resources, and impairment in task performance can occur when competing processes concurrently draw on the same cognitive resources.

Relevant to these theories is the distinction between automatic and controlled

processes. Devine (1989) articulated the distinction between automatic and controlled processes as applied to stereotypes. In this model, *automatic processes* are conceptualized as unintentional or spontaneous activation of well-learned associations or responses that have been developed through repeated activation in memory. They do not require conscious effort and are prompted by the presence of the stimulus. Stereotypes are examples of automatic processes or heuristics. By contrast, *controlled processes* are intentional and require active attention. Unlike automatic processes, controlled processes require active effort from an individual. They are limited by capacity but are more flexible than automatic processes. In the context of resource depletion theories and race-related stimuli, therefore, immediate responses to racial cues, such as stereotyping and prejudice, are automatic, whereas efforts to regulate or apply personal beliefs are controlled and effortful.

In more recent applications of resource depletion theories, self-regulatory processes, including emotional and behavioral regulation, have been considered as a source of possible competition for limited cognitive resources. *Self-regulation* (often used interchangeably with *self-control*; e.g., Barkley, 2001; Vohs & Baumeister, 2004) occurs when an individual attempts to override or inhibit urges, behaviors, desires, or emotions—that is, when the individual exercises control over the self by the self (Muraven & Baumeister, 2000). Self-regulation is enabled by executive functions, such as behavioral inhibition (Banfield, Wyland, Macrae, Munte, & Heatherton, 2004; Barkley, 1997; Barkley, 2001; Muraven & Baumeister, 2000). Muraven and Baumeister (2000) articulate a *limited strength model* in which the resource needed for self-regulation

(i.e., executive functions) is a limited, consumable "strength" that is depleted in the process of self-regulation (see also Engle, Conway, Tuholski, & Shisler, 1995). As with other resource-limited theories, Muraven and Baumeister also postulate that all self-regulation operations, regardless of type, draw on the same source (Banfield et al., 2004; Barkley 2001). Though the depletion is not permanent, it is manifested in decrements to subsequent self-regulation. Indeed, after experiencing stressors (e.g., uncontrollable or unpredictable noise, crowding, noxious odors, electric shocks, unpleasant experiences dealing with bureaucracy, being the target of discrimination, or a negative mood induction) that require an individual to override automatic responses and conform to standards—that is, to self-regulate—decrements in subsequent self-regulation are manifested in performance related to frustration tolerance, proof-reading, task persistence, unhealthy behavioral urges and choices, and delay of gratification (see Muraven & Baumeister, 2000 for review).

A critical argument in Muraven and Baumeister's theory is that exposure to stress draws on self-regulation strength, as an individual must monitor the stressful situation, inhibit the tendency for attention to wander, and inhibit or alter negative emotions and arousal during the coping process. Thus, self-regulation may be prompted by a stressor, requires effortful activation, and draws resources away from other executive processes, including subsequent self-regulation. In short, self-regulation is a controlled process. Because self-regulation is believed to be sourced by executive functions (Barkley, 1997; Barkley, 2001), it is plausible that engaging in self-regulation in the face of stress draws resources away from other executive functioning tasks.

Drawing on these theories, social psychologists have argued that *interracial interactions* deplete executive attentional capacity, as resources are directed toward behavioral and emotional self-regulation in the interaction instead (Richeson & Trawalter, 2005). At the core of this research is the argument that self-regulation and inhibition are key processes that are occurring for individuals when they encounter race-related stimuli, as individuals are motivated by social convention to avoid appearing prejudiced. Drawing on the views of researchers outside of this area, the behavioral inhibition that is likely necessary for interracial interactions include inhibition of prepotent responses, stopping an ongoing response, and interference control, or resisting distraction from competing events and responses (Barkley, 1997).

Indeed, research has found that high-prejudice White individuals experience greater impairment on an executive functioning task (the Stroop task; see below) when interacting with a Black experimenter than when interacting with a White experimenter. Presumably this effect is due to interracial contact acting as a stressor that redirects cognitive resources toward behavioral control, self-regulation, and thought suppression (Richeson & Shelton, 2003; Richeson et al., 2003). Similar research has found that racial attitudes predict Stroop task impairment for Black individuals following an interracial interaction with a White confederate, suggesting the processes may not be unique to White individuals (Richeson, Trawalter, & Shelton, 2005). Also in support of this argument, fMRI research has demonstrated that higher racial bias is associated with greater activation in the anterior cingulate cortex and dorsolateral prefrontal cortex—brain regions implicated in executive functioning—when White participants viewed

pictures of Black faces but not when they viewed photos of White faces (Richeson et al., 2003). This latter study implies two closely-related considerations: 1) distinct processes related to executive functioning are not restricted to interracial interactions alone—such cognitive processes occur when one encounters an even more subtle racial stimulus, such as a photograph of an outgroup member; and 2) neuroanatomical correlates become active when one is prompted with these relatively unobtrusive racial cues.

In support of the assumption that self-regulation is the underlying mechanism behind cognitive interference in interracial interactions, researchers have found less executive functioning interference results when participants are given pre-scripted responses for interracial interactions focusing on race-related topics (e.g., racial profiling; Richeson & Trawalter, 2005). Researchers using this paradigm argue that scripts reduce self-regulatory demands in an interracial interaction and allow more resources to go towards the executive functioning task. There is also some evidence that other indices of self-regulation (i.e., coded response modulation and behavioral control) are related to impairments in Stroop performance, even when discussing a race-related topic (i.e., racial profiling) or when interacting in an interracial context (Richeson & Shelton, 2003).

One of the major limitations in this research is the need to understand if applications of resource depletion theories extend to other race-related triggers beyond interracial interactions. Involuntary negative affective responses, frontal lobe activation, or impairments in task performance are prompted by stimuli as relatively "unobtrusive" or "slight" as being presented with photographs of Black faces (e.g., Richeson et al., 2003), imagining an interracial encounter (e.g., Vanman, Paul, Ito, & Miller, 1997), and

indicating one's race on a demographic questionnaire (Steele & Aronson, 1995). In actuality, some of the research exploring cognitive interference subsequent to "interracial interactions" do not entail substantive interaction between Black experimenters and White participants (e.g., being videotaped by Black experimenters while White participants provide their opinions on a given topic). These findings suggest that a range of race-related stimuli may have the potential to induce emotional stress and draw on limited cognitive resources. Based on previous research and theories highlighting the arousing nature of racism-related stimuli, the researcher argues that the mere cognitive evocation of racism is a stressor that has the potential to elicit notable emotional, cognitive, and behavioral responses requiring self-regulation and cognitive inference among White individuals. Thus, to the extent that the recognition of racism on its own is stressful, having to confront and grapple with the cognitive awareness will require executive resources, such as inhibition, attention, and self-regulation of emotions and behaviors, taxing an individual cognitively and leading to subsequent impairments in executive functioning.

The Stroop Task

Research on race-related issues and cognitive functioning has generally focused on executive functioning, most often measured by the *Stroop Color-Word task* (henceforward referred to as the Stroop task; see MacLeod, 2005). Among the most commonly used executive function measures, the Stroop task is an *interference and inhibition task* involving attentional processes, including resistance to interference and inhibition of prepotent, stronger, dominant, or automatic responses (Friedman & Miyake,

2004; MacLeod, 1991; MacLeod, 2005; Miyake et al., 2000). The Stroop task is considered a classic executive functioning measure that entails attention to stimuli and suppression of inappropriate verbal responses (Cabeza & Nyberg, 1997). The Stroop task appears to involve processes within the parietal and frontal lobes (Cabeza & Nyberg, 1997). The anterior cingulate cortex (ACC) specifically appears to be involved in the processes related to the Stroop task, as Pardo and colleagues (1990) have argued that "the ACC is involved in the selection process between competing processing alternatives on the basis of some preexisting internal, conscious plan" (p. 259). The ACC generally is considered key to initiation, motivation, and information processing, as well as to motor and affective functioning (Devinsky, Morrell, & Vogt, 1995).

An individual completing a prototypical, modern Stroop task for the purpose of research is generally asked to identify the color of ink in which a word or series of symbols or letters are presented either vocally or with a keypress (MacLeod, 1991; MacLeod, 2005). In a typical Stroop task, word stimuli include the names of colors. Thus, in *congruent color-word combination* trials, the color word corresponds to ink color (e.g., the color name, *red*, presented in red ink); and in *incongruent color-word combination* trials, the color word and ink color would not match (e.g., *red* in green ink), with participants most typically instructed to identify the color of the ink. In his initial synthesis of the literature and observations of these phenomena, Stroop remarked that identifying ink color takes more time than reading color names, suggesting that more attention and effort would go towards naming ink color that is incongruent to text (Stroop, 1935). A number of stimuli for the *control conditions* have been considered,

including using the congruent color-word trials, black ink, a string of non-word symbols (e.g., ***** or xxxxx in one of the target colors), nonwords (e.g., “dral”), or neutral or noncolor words (e.g., “ship”). The difference between performance on the incongruent condition and a control condition represents *Stroop interference*. Advantages of the Stroop task are its ease in administration and its wide acceptance as an index of cognitive abilities, which probably motivate its heavy usage in research on race-related effects on cognition.

Creativity – Considerations and Potential Applications

Theories of resource depletion suggest that an alternative measure of cognitive functioning may be similarly affected by exposure to a race-related stressor. In the case of executive functions, most specifically as they relate to the Stroop task, an index of higher-order cognition that draws on similar cognitive and neural resources would be a worthwhile index to understand the multitude of cognitive impairment resulting from the presentation of race-related stimuli. Thus, while this study aims to consider an alternative cognitive index that is conceptually and psychometrically distinct from the Stroop task, such a task should still be related in order to test a theory of resource depletion as applied to the presentation to a race-related stimulus. *Creative mental processes* may provide an opportunity to examine if the effects of race-related stimuli extend beyond impairment on the Stroop task—that is, impairment in interference control or inhibition of dominant or prepotent responses. Here I discuss the similarities and distinctions between creativity and the Stroop task and other executive functions and consider the possibility that creativity may be another index of cognitive functioning affected by race-related stimuli.

Though subject to debate, creativity is defined here as "the ability to produce work that is novel (that is, original or unique), useful, and generative" (Fink, Benedek, Grabner, Staudt, & Neubauer, 2007, p. 68; Sternberg & Lubart, 1996). The novelty that is traditionally associated with creativity is an integral component of the definition, but novelty alone is not enough to deem something creative. There must also be an aspect of utility. Across the literature, the idea of creativity has been used to refer to achievement, mental processes, a personality trait or combination of traits, and novel products or outputs (see Plucker & Renzulli, 1999 for a review; see also Carson, Peterson, & Higgons, 2003 and Ward, Smith, & Finke, 1999). For this study, the focus is on creativity as a cognitive process (also referred to as divergent thinking; Ward et al, 1999).

The conceptualization of creativity as a performance or ability construct that generally results in ideas, products, or works implies that creativity can be assessed with measures of performance, including creative thinking tasks (Fink et al., 2007). The application of psychometric methods to creative processes has yielded a number of standardized test batteries that can be administered with relative ease and has implicated creativity as a part of common, normative human cognitive experience (Ward, Smith, & Finke, 1999). Creative processes have been measured in various ways, with emphases placed on a number of different factors, including but not limited to quantity of production (i.e., fluency), statistically unusual or original responses (i.e., originality), the ability to depart from old ways of thinking and produce different ideas (i.e., flexibility), and the ability to fill in details or elaborate ideas beyond what is required or specified in a prompt (Guilford, 1959; Plucker & Renzulli, 1999). A prototypical divergent-thinking

task emphasizing fluency, as an example, would require a respondent to provide several responses to a specific prompt, in contrast to achievement or ability tests that specify one answer (Plucker & Renzulli, 1999). More specifically, an individual might be required to name as many uses for a common object (e.g., a basket) as possible or might be asked to name as many nouns that start with a specified letter in an ideational fluency task.

The similarities between creativity and executive functions such as the Stroop task make it suitable for research applying a theory of resource depletion to the examination of the cognitive effects of race-related stimuli. Similar to executive functions, creativity is considered a higher-order cognitive function, requiring individuals to diverge from conventional or obvious patterns of thinking and make novel associations (Cropley, 1999; Deitrich, 2004). The issue of whether or not creativity is itself an executive function (e.g., Delis, Kaplan, & Kramer, 2001; Golden, 1975), draws on or requires executive functions (e.g., Dietrich, 2004; Fink et al., 2007), or is distinct or is excluded from executive functions (see Jurado & Rosselli, 2007 for review) remains unclear, as researchers have generally only alluded to or assumed the relation of executive functions to creativity (e.g., Carlsson, Wendt, & Risberg, 2000). As with the Stroop task, the role of attention has been considered in conceptualizing creativity, and theorists have argued that a greater attentional capacity supports the ability to combine ideas and make novel associations (Martindale,1999). As such, the attentional resources available for creativity are limited, as they are with cognitive processing related to the Stroop task (Deitrich, 2004). Similar to neuroanatomical findings on the Stroop task, the prefrontal cortex is also implicated in creative processing (Carlsson, Wendt, & Risberg,

2000; Dietrich, 2004). At the very least, executive functions and creativity appear to be related, suggesting that creativity measures may provide new inroads on the cognitive effects of race-related stimuli.

At the same time, conceptual and psychometric divergence exists between creativity and the Stroop task, suggesting that each taps different cognitive processes. Although some (e.g., Gamble & Kellner, 1968; Golden, 1975) have argued that the Stroop task may itself represent an index of creativity, the correlations between the Stroop task and objective measures of creativity that have been used to support these claims are modest (*r*'s = .15-.30; Golden, 1975), suggesting that executive functions and creativity are related but distinct constructs. Other research suggests that the Stroop task and measures of creativity relate differently to other constructs. For instance, there is evidence that positive mood impairs or has no effect on performance on a Stroop switching condition, whereas it results in improved performance on a creativity task (Kuhl & Kazen, 1999; Phillips, Bull, Adams, & Fraser, 2002).

Conceptually, there are possible differences between creativity and executive functioning, specifically as measured by the Stroop task. Many have argued that inhibition of dominant or prepotent responses characterize the Stroop task (e.g., Miyake et al., 2000), suggesting that the Stroop task requires cognitive inhibition and the ability to focus attention by screening out extraneous information and suppressing non-targeted responses. By contrast, some have argued that a lack of inhibition and a widely focused attention support creative processes (Dellas & Gaier, 1970; Martindale, 1999). In fact, Martindale (1999) stated, "Creative people are characterized by a lack of both cognitive

and behavioral inhibition" (p. 143). Indeed, research has found that reduced latent inhibition, or the ability to screen out irrelevant stimuli, is associated with greater divergent thinking, especially originality (Carson et al., 2003). Others have used this line of thinking to explain the potential link between creativity and psychopathology presumed to be marked by frontal lobe dysfunction (e.g., Attention Deficit/Hyperactivity Disorder), with the intimation that the common mechanism is reduced inhibition (White & Shah, 2006; Stavridou & Furnham, 1996). In short, although both tasks benefit from a greater attentional capacity, the Stroop task involves focusing attention to screen out extraneous details, whereas creativity involves defocusing attention and being aware of the potentially irrelevant (Martindale, 1999). Suffice it to say, measures of creativity and the Stroop task are not measuring the same construct.

Altogether, these considerations imply that creativity is a worthwhile and distinct alternative cognitive index to pursue in exploring the nature of cognitive impairment resulting from exposure to race-related stimuli. Measures of creativity appear to tap a higher-order form of cognition that does not directly entail cognitive inhibition. In the effort to examine multiple forms of cognitive functioning, the exploration of creativity will help to elucidate more precisely the nature of the effects resource depletion on cognitive resources. Study 2 considers the effects of recognizing racism on creativity.

Psychological Effects of Recognizing Racism

There is theoretical and empirical support for the argument that White individuals should be motivated to engage in cognitive, affective, and behavioral processing when they must recognize racism. According to System Justification Theory, for instance, the

mention of racism and subsequent recognition may challenge beliefs of a just and fair social system (see Jost, Banaji, & Nosek, 2004 for a review). According to this perspective, individuals may experience a social and psychological need to legitimize the status quo and to see it as good, fair, natural, desirable, and inevitable. Members of the dominant group may be especially motivated to legitimize current social systems and to perpetuate the belief that those in higher social positions deserve their status (Sidanius, Levin, Federico, & Pratto, 2001). The recognition of racism and systematic bias stands in conflict of these motivations because they force White individuals to acknowledge the inequity, unfairness, and illegitimacy of the social system and to recognize that their social power and privileged status may be undeserved. Such realizations may be quite aversive and emotionally arousing to a White individual. Furthermore, there is evidence that White participants' endorsements of system justifying beliefs are associated with increased negativity toward Black individuals who make attributions to discrimination (Kaiser, Dyrenforth, & Hagiwara, 2006).

Another possibility is that the existence of racism perpetually threatens White individuals with the possibility of being charged with being racist, so recognizing racism may trigger strong cognitive and psychological responses. Research supports that when a charge of racism is delivered by an outgroup Black individual, participants report less guilt and greater discomfort and are more likely to perceive the confrontation as an overreaction compared to when the charge of racial bias is delivered by a White individual (Czopp & Monteith, 2003). It may be that a charge of racism from a minority individual symbolizes a realistic threat of being considered a racist, making such charges

more aversive. Complementing this possibility, theories of aversive racism argue that, even among those who may be well-intentioned or value egalitarianism, the idea that they may be prejudiced is aversive (Dovidio & Gaertner, 2004). This perspective maintains that aversion to racism stems from the view that prejudice contrasts and is dissonant to the egalitarian values that aversive racists espouse. Thus, a charge of racism stands as dissonant to one's view of one's self. Recognizing racism may act as a threat of such a possibility. The aversion sparked by recognizing racism may prompt feelings of White guilt and negative ingroup orientation about being a member of the socially advantaged racial groups (Steele, 1990). Indeed, White participants with unfavorable personal evaluations of Whites also report more White guilt; however, White guilt is not widely pervasive (Swim & Miller, 1999). The potential to be charged with racism can evoke arousal in White individuals, which again supports the possibility that the existence of racism represents a threat or arousing stressor.

In addition to the primary focus on the effects of recognizing racism on cognitive functioning, this study tests the hypothesis that recognizing racism yields aversive psychological outcomes for White individuals. Specifically, this study examines effects for affect, group identification, outgroup orientation, stigma consciousness, and issue appraisal. In addition to sparking feelings of guilt, research supports that there are other, primarily negative, affective consequences to facing social disparities, such as feeling shame, embarrassment, empathy, sympathy, and even pride, depending on the nature of the bias and disparity (Harth, Kessler, & Leach, 2008; Iyer, Leach, & Crosby, 2003; Spanierman, Oh, Poteat, Hund, McClair, Beer, Clarke, 2008; Swim & Miller, 1999).

There is also the possibility that White individuals may experience defensiveness when having to recognize racism, such that some White individuals may go through a process of distortion and denial of the nature of racism (Spanierman et al., 2008). When prompted with the topic of racism, some White individuals may be motivated to recognize how their own racial group has suffered from racism, perhaps citing affirmative action as racism against White individuals (Spanierman et al., 2008). Recent research suggests that White individuals view racism as a zero-sum game in which decreases in anti-minority racism is associated with increases in anti-White racism (Norton & Sommers, 2011). As such, being presented with the idea of racism may prompt White individuals to consider their own perceived risk for unfair treatment. It is plausible, then, that recognizing racism prompts White individuals to become more aware or conscious of stigma perpetrated against their own group. Further, when one has to recognize racism as a conceptual idea, rather than a personal experience, the aversion to claims of racism may transcend minority targets and may instead result in less affinity to outgroup members more generally.

Secondary to the goal of exploring the effects of recognizing racism on cognitive functioning, this study also aims to uncover the affective and attitudinal consequences of recognizing racism. Specifically, the researcher aims to uncover if recognizing racism negatively affects attitudes toward ingroup and outgroup members, awareness of group-based stigma, and affect. Additionally, the study considers the appraisal of racism as personally and nationally relevant to understand the weight that participants place on the topic relative to others.

CHAPTER 3: STUDY 1

Goals and Hypotheses

Using IRB-approved experimental designs, the proposed project seeks to address the research question, "What is the impact of recognizing the existence of racism on cognitive and psychological functioning among White individuals?" Consistent with a resource depletion theory, it is expected that the recognition of racism requires additional higher-order cognitive resources, as individuals direct energy towards self-regulation and inhibition.

It is postulated that recognizing racism is a stressor or trigger of arousal that draws cognitive resources away from functioning and leads to impairment on an executive functioning task, namely the Stroop task. In addition, the aversive effects of recognizing racism are expected to carry over into attitudinal, affective, and psychological well-being self-report measures, thereby demonstrating the breadth of potential impairment that stems from recognizing racism.

To highlight the potency of the topics of race and racism, specifically, the study explored reactions to recognizing racism versus discrimination more generally. In other words, the study examined differences in contemplating about racism and unspecified discrimination to isolate that it is racism and the topic of race-related bias specifically in isolation that tax one's resources. The control condition presented participants with the issue of bullying. This topic was selected because racism, discrimination, and bullying entail victimization but bullying is not necessarily a group-based bias. In addition, recognizing bullying has the potential to trigger similar psychological processes as racism

or discrimination, such as the belief that disparate treatment may be an overreaction on the part of the claimant or that the claimant may have a role in the bullying (e.g., Mishna, Scarcello, Pepler, & Judith Wiener, 2005). Study 1 hypotheses include:

Hypothesis 1: It is expected that greater impairment on an executive functioning task will result for individuals in the racism and discrimination recognition conditions relative to the control condition but this impairment is expected to be greatest for individuals in the racism recognition condition, highlighting the arousing nature of the concept of racism itself.

Hypothesis 2: In addition to impairment on executive functioning, recognition of racism and discrimination will further be associated with notable psychological outcomes. Again, the greatest effects are expected in the racism recognition condition. Specific expectations are as follows:

a) *Affect*: Participants in the racism and discrimination recognition conditions will demonstrate more negative affect, such as guilt or shame, relative to the control condition. No specific expectations are being made at this time about positive affect.

b) *Group identification*: Participants in the racism and discrimination recognition condition are expected to react with a lower sense of identity and esteem for their racial ingroup.

c) *Outgroup orientation*: Based on the aforementioned research from Czopp and Monteith (2003) and Kaiser and colleagues (2001; 2006), racism and discrimination recognition participants are expected to report lower levels of

outgroup orientation.

d) *Stigma consciousness*: Recognizing racism and discrimination will increase consciousness or awareness of stigma against one's own racial/ethnic group to a higher degree than recognizing bullying.

e) *Issue importance/relevance*: Participants in the racism and discrimination recognition conditions will view the issues as important at a national level, but not relevant at a personal level.

Study 1 explores these hypotheses in two parts that use different mechanisms of recognizing racism (i.e., Study 1a and Study 1b).

STUDY 1A

Method

Recruitment and Sample

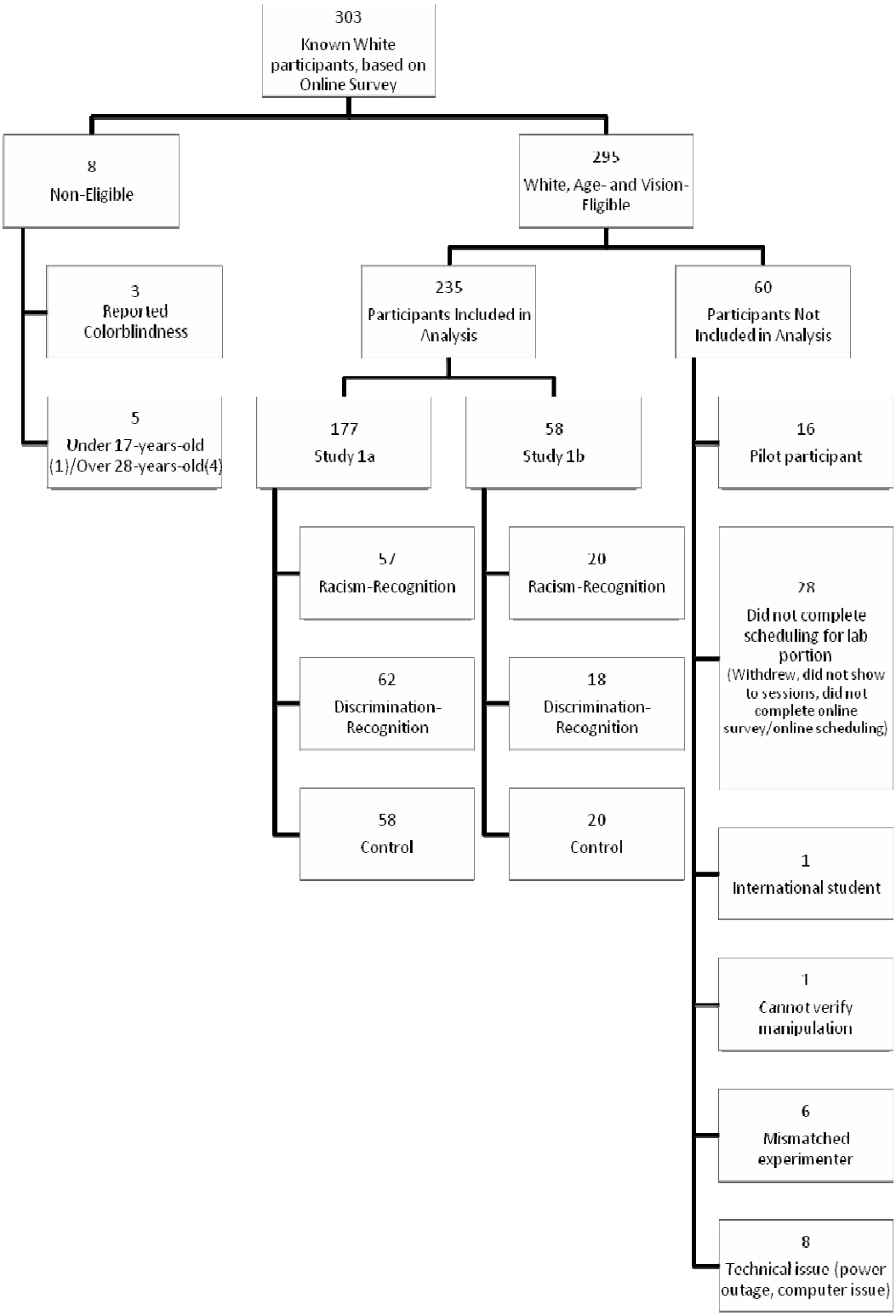
The targeted sample included White American undergraduate students participating in the research experience participation (REP) program for extra credit through the Psychology Department at a large, Midwestern public university. *A priori* inclusion criteria included a) being between the ages of 18- to 28-years of age in order to restrict age as a confound, b) being English-speaking, and c) not being visually color-blind. The study was entitled, "A Combination of Research Studies in Psychology," in postings and was advertised as a combination of separate studies being conducted by independent researchers from the areas of cognition, social psychology, and counseling psychology (see Appendix A). Recruitment materials specified that participants would complete an initial questionnaire online prior to attending a face-to-face session in the

Psychology department building. Specific recruitment strategies included announcements to REP-participating courses, the generation of a mailing list, and flyers around the university campus and departmental research bulletin boards. Compensation for participation included three REP points that counted towards extra credit for REP-participating psychology courses.

The online survey was open to all REP-participating students. Participants who identified as White in their survey data were the focus of analysis. Based on the available survey data, 303 participants identified as White. Based on *a priori* exclusion criteria, eight were excluded from further analysis because of self-reported visual color-blindness and age, yielding in a sample of 295 eligible White participants. One international/foreign student was excluded from analysis because of the possibility of non-comparable social experiences and understandings of racism and discrimination due to insufficient time in the United States. Figure 1 provides more detailed information about the sample included in analyses, and reasons for inclusion and exclusion from experimental analysis are discussed further in later sections as relevant. A total of 235 participants were included in the final analyses. The final sample of 235 participants included in the analysis was comprised of 177 participants who participated in Study 1a procedures and 58 participants who participated in Study 1b.

Of the 177 participants included in Study 1a, 120 (67.8%) identified as female, 56 (31.6%) identified as male, and one (0.6%) did not indicate a gender identification. The mean age of the sample was 19.5 years. The majority of the sample reported being born in the United States (U.S.-born $N = 173$, 97.7%; not U.S.-born $N = 2$, 1.1%; no response

Figure 1. Diagram of participants included in analyses



N = 2, 1.1%).

The racism recognition condition of Study 1a consisted of 57 participants, the discrimination recognition condition consisted of 62 participants, and the bullying condition consisted of 58 participants. The conditions were similar in terms of age [$F(2, 174) = .26$, $p > .05$] and gender distribution [$\chi^2(4) = 2.61$, $p > .05$].

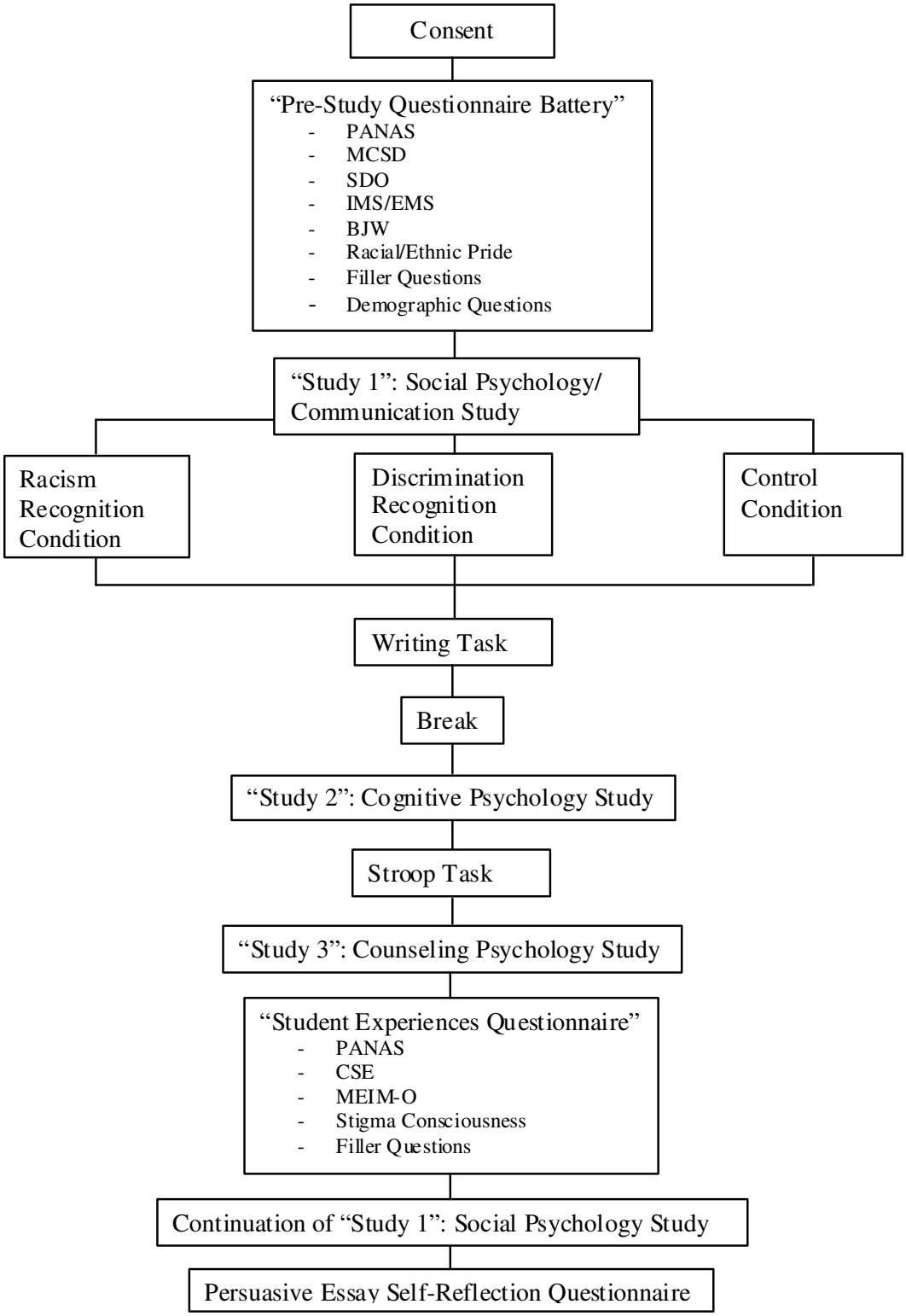
Measures and Materials

Demographic Questionnaire. A questionnaire was included in an online "pre-study questionnaire battery" (see Figure 2) to obtain standard biographical data, including age, gender, race/ethnicity, primary language spoken, parents' races/ethnicities, generation/ immigration status, time in the U.S., college major/intended major, and color-blind vision status.

Affect. Items from the *Positive and Negative Affect Schedule* (PANAS; Watson, Clark, & Tellegen, 1988) measured 10 positive (*interested, excited, strong, enthusiastic, alert, proud, inspired, determined, attentive, active*) and 10 negative (*distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, afraid*) types of affectivity before the manipulation in the "pre-study questionnaire battery," as well as similar affective states after the manipulation on the "student experiences questionnaire." In psychometric studies with student, non-student, and clinical samples, the PANAS has demonstrated adequate reliability, as well as concurrent validity with other reputed mood scales (Watson, Clark, & Tellegen, 1988).

In the pre-study questionnaire, participants indicated on a 5-point scale (1 = *Very slightly*, 5 = *Extremely*) the extent to which they *generally* felt each mood state.

Figure 2. Outline of Study 1 and questionnaire procedures



Cronbach's α was .85 for positive items and .83 for negative items. In the "student experiences questionnaire," participants responded to the same items but were asked to rate how they felt right then. Cronbach's α was .88 for positive items and .79 for negative items for the present sample.

Group Identification. Two indices of racial/ethnic identification were administered before and after the study manipulation in the "pre-study questionnaire packet" and the "student experiences questionnaire," respectively. In the "pre-study questionnaire," participants responded on a 6-point scale (1 = *Strongly disagree*, 6 = *Strongly agree*) to three questions adapted from the White racial identification measure developed by Branscombe, Schmitt, and Schiffhauer (2007). These items included, "*I feel good about being a member of my racial/ethnic group*," "*Being a member of my racial/ethnic group is important to my identity*," and "*I believe that members of my racial/ethnic group have a lot to be proud of*." These items were selected on theoretical grounds for their generalizability to other groups in reflecting group identification, affiliation, and pride. Cronbach's α was .81 for the present sample.

After the manipulation, group identification was assessed with the *Collective Self Esteem Scale* (CSES; Luhtanen & Crocker, 1992) administered in the "student experiences questionnaire." The CSES includes 16 items measuring value placed on one's social group across four subscales, each consisting of four items: Membership (perceptions of oneself as a worthy member of one's social groups; e.g., "*I am a worthy member of my racial/ethnic group;*" Cronbach's α = .69), Private (personal view of how positive one's social group is; e.g., "*I feel good about the race/ethnicity I belong to*;"

Cronbach's α = .86), Public (judgments of how others evaluate one's social group, e.g., "*Overall, my racial/ethnic group is considered good by others*;" Cronbach's α = .71), and Identity (importance of one's social group membership to one's self-concept; e.g., "*The racial/ethnic group I belong to is an important reflection of who I am*;" Cronbach's α = .79). Participants provided responses on a 7-point scale (1 = *Strongly disagree*, 7 = *Strongly agree*). To reduce family-wise error due to multiple comparisons, the full scale mean score was entered in analyses as a dependent variable (Cronbach's α = .86), as has been done in other studies (e.g., Lee & Robbins, 1998) and is appropriate in the present study given the focus of interest on racial/ethnic identification and esteem. In previous research using student samples, the full scale reliability was also adequate, and validity of the fully scale was supported by significant relations to other measures of esteem and identity (Luhtanen & Crocker, 1992).

Outgroup Orientation. Phinney's (1992) *Multigroup Ethnic Identity Measure-Other-Group Orientation* scale (MEIM-O) measured outgroup (or other-group) orientation following exposure to the manipulation. The MEIM-O consists of six items on the same 4-point scale (1 = *Strongly disagree* to 4 = *Strongly agree*) that measures the subjective degree of one's attitudes and willingness to interact with other ethnic groups (e.g., "*I often spend time with people from racial/ethnic groups other than my own*"). The MEIM-O has demonstrated good internal reliability in diverse samples as well (e.g., Cronbach α = .76-.80; Lee, 2003). In the current sample, Cronbach's α was .71.

Stigma Consciousness. To assess participants' sense of bias against their racial/ethnic group after the manipulation, a modified version of the *Stigma*

Consciousness Questionnaire (*SCQ*; Pinel, 1999) was administered in the "student experiences questionnaire." The *SCQ* was initially developed to assess the extent to which individuals expect bias from others, with the first studies looking at bias against women and homosexuals. However, the questions of the *SCQ* have been modified for use with diverse samples and demonstrated good reliability (e.g., Brown & Lee, 2005, Cronbach's $\alpha = .79$). A sample item includes, "*People question my abilities because of my race/ethnicity*" (0 = *Strongly disagree*, 6 = *Strongly agree*). In the present sample, reliability was adequate (Cronbach's $\alpha = .74$).

Filler questions. A number of filler questions were included in the "pre-study questionnaire" and the "student experiences questionnaire" in an effort to reduce awareness of study hypotheses. Filler questions addressed attitudes regarding such topics as nutrition attitudes, university and public policies, and personal experiences and attitudes about the university (e.g., "*Voting in student elections is important to me*," "*The University of Minnesota could do more to promote physical activity*," "*The University of Minnesota dining options support healthy nutrition*," "*Technology has been entirely positive for human progression*," etc.). Additionally, a 14-item version of the Kruglanski, Webster, and Klem's (1993) Need for Closure Scale (NFCS; Critcher, Huber, Ho, & Koleva, 2009) provided filler items. A sample item includes, "*Any solution to a problem is better than remaining in a state of uncertainty*." Items were presented with a 6-point scale (1 = *Strongly disagree*, 6 = *Strongly agree*). These items were interspersed among covariate items (see below), racial/ethnic identification, and two social desirability items.

Stroop Color-Word Task. A computerized Stroop task developed and administered through E-Prime version 2.0 was used as an index of executive functioning, with a focus on color-naming. The program was administered on a Dell Latitude D620 laptop. Participants were instructed to report the color in which a stimulus (word or string of asterisks) appeared on a computer monitor. They were instructed to indicate their responses as quickly and accurately as they could by pressing one of four color-coded response keys on the computer keyboard. On each trial, a color word ("red," "yellow," "green," or "blue") or a series of four x's (xxxx) were presented briefly on the screen in one of four colors (red, yellow, green, blue), with a white cross (+) and blank screen presented in between each stimulus, resulting in a 500 millisecond delay in between each stimulus. On compatible trials, the color word and the color in which it appeared were consistent in terms of semantic meaning (e.g., the word "blue" presented in blue type). On incompatible trials, a color word appeared in a color that was not consistent with its semantic meaning (e.g., the word "blue" presented in red type). Control trials included the four x's randomly presented in one of the four colors. Trials were randomly drawn from 36 possible stimuli that included three compatible trials for each color (12 compatible possibilities), three control trials for each color (12 control possibilities), and three incompatible trials for each color (12 incompatible possibilities). Each participant completed 20 practice trials followed by seven blocks of 12 experimental trials with a maximum duration of 2000 milliseconds each, resulting in a total of 84 experimental trials. Response errors made during the practice phase were pointed out to the participant but no feedback was given during the seven blocks of the experimental phase.

Stroop reaction time scores were log-transformed to better approximate normality (scores were not trimmed because only one score was below 200ms and no scores exceeded 2000ms). Stroop interference scores were calculated by subtracting the mean latencies of the control trials from those of the incompatible trials. Non-responses were recorded as a missing value for a given trial. Ranges and available central tendencies of untransformed Stroop interference scores for the current study and a sampling of other studies are presented in Appendix J. A total error score was calculated by summing all erroneous responses and nonresponses provided by the participant during the duration of the Stroop task.

Public Health Survey Data Sheets, Writing Task, and Post-Manipulation Questionnaire. See Appendix B for a copy of the Public Health Survey Data Sheets and Appendices C and D for samples of the Writing Task instructions.

Participants completed a brief questionnaire about their perspectives on the Writing Task prior to completing the study. This partly served as a manipulation check to ensure that participants could identify and recall the topic after the brief delay and interference. A number of exploratory questions were asked to assure comparability in effort across conditions. Participants were queried on the challenge in writing on the issue/topic ("*How challenging was it for you to write on this issue/topic?*;" 1 = *Not at all challenging*, 4 = *Very challenging*); self-perceived persuasiveness of essay (i.e., "*On a scale of 1 to 10, how persuasive do you think your essay was?*;" 1 = *Not persuasive*, 10 = *Very persuasive*); self-assessed quality of essay (i.e., "*How would you rate the overall quality of your essay?*;" 1 = *Well below average*, 9 = *Well above average*); and effort in

writing the essay (i.e., "*How much effort did you put into your essay?*;" 1 = *Very little effort*, 4 = *All or almost all the effort I could*). As well, the number of words in each essay was calculated using the Word Count function of Microsoft Word 2007.

Two items were of interest as dependent variables. Participants were questioned on the personal relevance of the topic (i.e., "*How relevant is this issue to your own life or personal experiences?*;" 1 = *Not at all relevant*, 4 = *Very relevant*); and perceived national importance of the topic (i.e., "*In your opinion, how important or unimportant is this issue for the nation?*;" 1 = *Very unimportant,* 4 = *Very important*).

Procedures

Figure 2 illustrates the overall study procedures. Recruitment materials and the consent form provided information about the two parts of the study procedures to participants (i.e., the pre-study online questionnaire and the face-to-face laboratory-based session). Interested participants were directed to an online survey website during which they first indicated their agreement to participate in the study on an electronic consent form. The consent form stated that participants would complete a combination of multiple but brief studies being conducted by different researchers, with diverse focuses including cognition, persuasion in communication, and student perspectives and experiences. To reinforce that the session was comprised of multiple studies, the recruitment materials and consent form indicated that participants would receive partial credit for the pre-study questionnaire battery, administrative procedures, and the three independent studies (0.5 REP point for each part of the study and one point for the administrative procedures; up to three REP points total). Following the online consent

process, participants completed a "Pre-Study Questionnaire Battery" online which was described as basic questionnaires assessing standard demographic and personal background information that would be used by all researchers involved. Included in the pre-study questionnaire battery were the basic demographic questionnaire, covariate items (i.e., Marlowe Crowne Social Desirability items, Social Dominance Orientation items, Internal and External Motivations to Respond Without Prejudice items, and Beliefs in a Just World), three pre-experimental ethnic/racial identity items, and the pre-experimental PANAS affectivity measure. The racial/ethnic identity and Belief in a Just World items were presented among filler items. Based on the ethnic/racial information provided by participants during this initial assessment, participants who identify as non-Hispanic European or White American were provided with scheduling information for this specific study, while non-White and Hispanic individuals were redirected to a different study.

Subsequently, individual participants came to a research lab in the campus Psychology building where they were met by an experimenter who led them through the experimental procedures and whose verbal instructions complemented written instructions. All experimenters were White undergraduate students, so as to reduce the confounding of results due to interracial interactions (Richeson & Shelton, 2003; Richeson et al., 2003). In six cases, participants could not be matched to a White experimenter due to scheduling issues and were not included in analyses. Upon arrival, participants were given and asked to sign a paper copy of the consent form, reiterating the same information from the electronic form. In addition, the experimenter emphasized to

the participants that the study was comprised of separate studies from multiple independent researchers in cognitive, social, and counseling psychology and the participant would receive partial credit for each study they completed.

The first study was introduced as a social psychology study investigating persuasive writing and communication. Participants were randomly assigned based on a random number generator to one of three conditions. In the experimental condition (*Racism Recognition Condition*), participants were instructed to review a data sheet from a recent public health survey outlining the prevalence of racism as reported by adults in the country (see Appendices B, C, and D for visual aid and essay task instructions). They were then instructed to write a persuasive short essay explaining the persistence of racism to an audience who does not realize or recognize that racism continues to exist as an issue in contemporary society. The data sheet was described as a visual aid, and participants were encouraged to use their own knowledge and arguments to write the essay. In addition, the participants were asked to keep key points of their argument in mind because the essay would be reviewed by a coder who would rate the essay for its degree of persuasiveness and ask questions for clarification at the end of the session. This directive was meant to encourage participants to take the task seriously and to strengthen the manipulation. The second condition (*Discrimination Recognition Condition*) was similar but participants were presented with data regarding nondescript discrimination to highlight that it is racism itself that is particularly potent as a form of bias. The third condition was a *Control Condition*, in which participants instead reviewed statistics about the persistence of bullying in the country.

After drafting their essays, the participants were informed that the experimenter would deliver the completed essay to another room where it would be coded for persuasiveness by the coder and that the rest of the study on persuasive writing would be continued at the end of the session when the coder was ready to ask questions.

Upon the experimenter's return, the participants were told that they would complete the second study, which was described as a cognitive psychology study. The participants received instructions on completing the computerized Stroop Task described above.

Upon completion of the Stroop Task, the participants were informed that they would have a brief stretching break before moving onto the next study, which was described as a counseling psychology study looking at student experiences. Participants then completed the "Student Experiences Questionnaire" packet with measures assessing affect and racial/ethnic ingroup and outgroup beliefs and attitudes interspersed with filler items. These data were used to complement executive functioning performance data but participants were not told this and were instead informed that the research question was about student views and experiences at this particular academic institution.

Upon completion of the "Student Experiences Questionnaire," the participants were instructed that they would be returning to the persuasion in communication study. They were asked to complete the persuasive essay self-reflection questionnaire that would not be shared with the coder. After, they were informed that they would not actually be meeting with the coder and that the study would be concluding. Instead, they went through a brief study feedback survey probing their thoughts and hypotheses about

the research and debriefing (i.e., "Post-Manipulation Questionnaire"). During debriefing, participants learned the purpose of the study, and the minor forms of deception were explained to them. It was reiterated that there would be no follow-up regarding the persuasive writing task. Upon learning the study purposes, they were asked to sign the debriefing form to indicate their willing to release their data for analyses. Finally, they were thanked for their participation.

Analyses

Pilot Testing

Pilot testing was completed before the experiment with 16 participants. The goals of piloting the procedures were to a) ensure clarity and soundness of instructions and procedures, b) compare and select between two possible control conditions, and c) test procedures involving candy intake as a behavioral indicator of self-regulation. Based on pilot testing and a review of the available data, the researcher selected bullying over financial difficulty as a control condition with greater statistical and theoretical potential to contrast the racism and discrimination recognition conditions. Pilot testing also was used to consider whether the number of pieces of candy (i.e., M&M's, Skittles) eaten by participants after writing the essay would be a viable measure of self-regulation. Surveying of participants after completion of the study procedures revealed that participants had positive feelings about being offered candy. This finding was considered a possible confound to the primary goal of the study to understand executive functioning and more general aspects of psychological functioning since the candy could possibly act as a positive mood inducement that could counter the effects of the manipulation and

could affect subsequent cognitive performance and psychological self-report. Because of this concern, the researcher decided to exclude the measurement of candy intake as index behavioral regulation from the study procedures.

Independent and Dependent Variables

Condition served as the three category independent variable (racism recognition, discrimination recognition, bullying control conditions). Log transformed Stroop interference (i.e., Difference between incompatible trials and control trials) and total error (number of inaccurate responses across compatible, incompatible, and control trials, including non-responses) scores were entered as dependent variables to index cognitive performance. Positive and negative affect (mean PANAS scores), controlling for pre-experimental positive and negative affectivity scores, respectively; stigma consciousness (mean SCQ scores); collective identity/self-esteem (mean CSES scores), controlling for pre-study identity scores; and outgroup orientation (mean MEIM-O score) were entered as dependent variables indexing psychological functioning. Post-writing-task ratings of personal and national relevance/importance of the assigned topic provided additional information about how participants responded to the experimental manipulation (see Methods). For all dependent variables, mean scale scores were allowed only one missing value.

Pre-Assessed Variables

As mentioned previously, positive and negative affectivity were controlled in analyses with post-manipulation positive and negative affect scores, respectively, and pre-experimental racial/ethnic identity scores were controlled in analyses with collective

identity/self-esteem scores. These variables were not considered theoretical covariates but, rather, pre-experimental or "baseline" estimates of affectivity and group identity.

Supplementary analyses with covariates are included Appendix H. Both theoretical and statistical considerations influenced the decision to include additional covariates in analyses. First, a number of variables were considered *a priori* as possible confounds based on theoretical grounds, including just world beliefs, internal and external motivations to respond without prejudice, and social dominance orientation. These variables were measured then entered into correlational analyses with the aforementioned dependent variables to determine covariates to include in all analyses by confirming their statistical relevance to outcome variables of interest. As was the case with dependent variables, mean scale scores for covariates were allowed only one missing value. Results are presented in Appendix H, Table H1. Internal motivation to respond without prejudice was related to a number of dependent variables, including Stroop error scores, post-manipulation negative affect, outgroup orientation, personal relevance rating, and national importance rating. Social dominance orientation also was related to a number of dependent variables, including post-manipulation positive and negative affect, collective self-esteem, outgroup orientation, and national importance rating. Belief in a just world was related to collective self-esteem and national importance rating. Social dominance orientation, internal motivation to respond without prejudice, and belief in a just world were included as covariates in analyses. By contrast, external motivation was not related to any key dependent variables, thus it was excluded as a covariate.

Because parsimony was a priority for the study, results of analyses without covariates were emphasized. Although a form of secondary analysis, results with covariates did provide evidence of the robustness of the findings. The ANCOVA results for analyses with social dominance orientation, just world beliefs, and internal motivation to respond without prejudice covaried are provided in Appendix H, Table H2.

Missing Values and Excluded Participants

Missing values analysis on items and scale scores were completed and revealed that missing items and scale scores did not exceed 5% of cases. Statistical experts recommend a range of a 5-20% cutoff for missing data, above which analyses are likely to be biased (see Schlomer, Bauman, & Card, 2010 for review). For this study, a conservative 5% was considered acceptable.

Figure 1 outlines the participants included and excluded from analyses. Independent samples *t*-tests and chi-squared analyses revealed that participants who completed only the online portion of the study and did not proceed to the face-to-face portion ($N = 28$) did not differ from participants included in Study 1a and Study 1b analyses ($N = 235$) in terms of demographic characteristics (age, gender, and sexual orientation) and key pre-assessed and dependent variables.

In comparing the participants excluded from analysis with those included in Study 1a and Study 1b analyses, the groups were generally comparable, except for CSE scores and Stroop errors. In analyses with the 31 excluded participants who completed the lab portion of the study, those who were excluded demonstrated significantly higher CSE mean scores relative to participants included in analyses, $t(52.08) = -3.43$, $p = .001$

(included participants: $M = 4.95$, $SD = 0.78$, $N = 226$; non-included participants: $M = 5.31$, $SD = .51$, $N = 31$; Cohen's $d = .55$).

Again in analyses with the 31 excluded participants who completed the lab portion of the study, those who had been excluded from analysis ($M = 7.65$, $SD = 12.51$, $N = 31$) demonstrated significantly more total Stroop errors than those who were included in analyses ($M = 2.71$, $SD = 2.76$, $N = 234$), $t(30.39) = -2.19$, $p = .036$ (Cohen's $d = .55$). A review of the raw data suggests that this difference may largely be due to four pilot participants who received an incorrectly-programmed version of the Stroop task that included 588 experimental trials (rather than 84 trials), resulting in a different experience in terms of chance for inaccuracy and fatigue [the average number of errors for these four participants was 36.75 ($SD = 10.28$), in contrast to 3.33 ($SD = 4.33$, $N = 27$) for other participants not included in analysis and 2.71 ($SD = 2.76$, $N = 234$) for participants included in analysis]. The difference in total number of Stroop errors became nonsignificant when those four pilot participants were removed from comparisons, $t(28.49) = -.73$, $p = .471$ (Cohen's $d = .17$).

Manipulation Check

To ensure that participants successfully understood and recalled the public health topic they reviewed throughout the study tasks, participants were prompted to provide the public health topic they had reviewed and written their essays on in an open-ended response in the "Post-Manipulation Questionnaire." One participant assigned to the discrimination recognition condition left the item blank, and additional open-ended responses in the "Post-Manipulation Questionnaire" did not provide sufficient

information to suggest the participant recalled and retained the topic sufficiently. This participant's data were excluded from analyses.

A number of other indices provided insight as to whether participant effort was comparable across conditions. There were no differences across conditions in relation to length of essays (i.e., number of words), reported challenge in writing on the issue/topic, self-perceived persuasiveness of essay, self-assessed quality of essay, and reported effort in writing the essay based on univariate analysis of variance results.

Plan of Analysis

All dependent variables were continuously scaled and were entered in analyses of variance [ANOVAs; analyses of covariance (ANCOVAs) were used in the case of racial/ethnic identity and affect, controlling for pre-experimental racial/ethnic identity and affectivity, respectively] with condition as the independent variable (three levels: racism recognition, discrimination recognition, control). Planned contrasts were the primary focus because of *a priori* stated comparisons but results for the full models are presented for the reader's knowledge.

The first hypothesis was that greater impairment on a cognitive Stroop task would result for individuals in the racism and discrimination recognition conditions, with greatest impairment seen for individuals in the racism condition. A significant effect was expected in which Stroop interference and error scores would be, on average, significantly higher in the discrimination and racism recognition conditions, with the greatest effect sizes resulting for the racism recognition condition. Simple planned contrasts and Cohen's *d* were used to test this hypothesis in which racism and

discrimination were each compared to the bullying condition.

In support of the second hypothesis that recognizing racism also would be associated with other adverse psychological outcomes, significant effects of condition were tested with planned contrasts. Specifically, participants in the racism and discrimination recognition conditions were anticipated to demonstrate greater negative affect, lower affiliation toward outgroup members, lower collective self-esteem, and greater stigma consciousness, with the greatest effect sizes expected for the racism recognition condition. As well, participants in the racism and discrimination recognition conditions were anticipated to rate the issues as more relevant at a national level than participants in the bullying control condition, but no differences in rated personal relevance were expected. Although there was no specific hypothesis regarding positive affect, the relation was explored.

Results

Descriptive Statistics

Scale correlations and descriptive statistics are presented in Table 1. The mean number of days between online and face-to-face participation was 7.04 days (*SD* = 5.44), with the most common delay being six days. The average word count for essays was 273.42 words (*SD* = 125.05). Descriptive statistics on additional variables by condition are presented in Appendix I.

Hypothesis 1: Executive functioning

ANOVA and relevant ANCOVA results are presented in Table 2.

Contrary to hypotheses, contrast estimates regarding Stroop interference scores

Table 1. Study 1a Scale Descriptive Statistics and Correlations

	Cronbach's α	Mean	SD	N		Stroop Interference	Stroop errors	Positive affect	Negative affect	Collective self esteem	Outgroup orientation	Stigma consciousness	Personal relevance	National relevance	Positive affectivity [a]	Negative affectivity [a]	Racial/ethnic pride [a]
Stroop	n/a	0.039	.036	176	*Pea*	1	.082	-.116	.016	-.031	.065	-.033	.035	.082	-.064	.041	-.085
Interference					*rson*												
					r												
					Sig.		.281	.132	.841	.685	.397	.673	.648	.278	.400	.592	.264
					(p)												
					N	176	176	169	170	169	172	171	176	176	176	176	175
Stroop errors	n/a	2.682	2.784	176	*r*	.082	1	.055	.063	-.148	-.166*	.006	-.053	-.040	-.047	-.090	-.055
					Sig.	.281		.478	.414	.055	.029	.941	.487	.597	.533	.237	.472
					N	176	176	169	170	169	172	171	176	176	176	176	175
Positive affect	.880	2.784	.728	170	*r*	-.116	.055	1	.194*	.129	.118	-.057	.126	.017	.423**	-.022	.147
					Sig.	.132	.478		.011	.096	.126	.465	.101	.825	.000	.773	.056
					N	169	169	170	170	167	170	169	170	170	170	170	169

Negative	.787	1.408	.413	171	*r*	.016	.063	.194*	1	.044	-.186*	.136	.178*	-.018	-.047	.460**	.010
affect					*Sig.*	.841	.414	.011		.568	.015	.076	.020	.817	.539	.000	.902
					N	170	170	170	171	168	171	170	171	171	171	171	170
Collective self	.855	4.954	.748	170	*r*	-.031	-.148	.129	.044	1	-.167*	-.037	-.065	-.136	.264**	-.083	.668**
esteem					*Sig.*	.685	.055	.096	.568		.029	.630	.398	.078	.001	.281	.000
					N	169	169	167	168	170	170	170	170	170	170	170	169
Outgroup	.709	3.422	.422	173	*r*	.065	-.166*	.118	-.186*	-.167*	1	-.101	.125	.143	.064	-.053	-.197**
orientation					*Sig.*	.397	.029	.126	.015	.029		.187	.102	.061	.405	.488	.009
					N	172	172	170	171	170	173	172	173	173	173	173	172
Stigma	.741	3.135	.726	172	*r*	-.033	.006	-.057	.136	-.037	-.101	1	.248**	.071	-.176*	.140	-.129
consciousness					*Sig.*	.673	.941	.465	.076	.630	.187		.001	.352	.021	.066	.094
					N	171	171	169	170	170	172	172	172	172	172	172	171
Personal	n/a	2.201	.802	177	*r*	.035	-.053	.126	.178*	-.065	.125	.248**	1	.324**	.013	.160*	-.120
relevance					*Sig.*	.648	.487	.101	.020	.398	.102	.001		.000	.865	.033	.112
					N	176	176	170	171	170	173	172	177	177	177	177	176
National	n/a	3.356	.577	177	*r*	.082	-.040	.017	-.018	-.136	.143	.071	.324**	1	-.038	.088	-.072
relevance					*Sig.*	.278	.597	.825	.817	.078	.061	.352	.000		.615	.244	.339
					N	176	176	170	171	170	173	172	177	177	177	177	176

Positive affectivity [a]	.849	3.424	.584	177	*r*	-.064	-.047	.423**	-.047	.264**	.064	-.176*	.013	-.038	1	-.040	.232**
					Sig.	.400	.533	.000	.539	.001	.405	.021	.865	.615		.598	.002
					N	176	176	170	171	170	173	172	177	177	177	177	176
Negative affectivity [a]	.827	1.837	.538	177	*r*	.041	-.090	-.022	.460**	-.083	-.053	.140	.160*	.088	-.040	1	-.129
					Sig.	.592	.237	.773	.000	.281	.488	.066	.033	.244	.598		.088
					N	176	176	170	171	170	173	172	177	177	177	177	176
Racial/Ethnic pride [a]	.808	4.259	1.048	176	*r*	-.085	-.055	.147	.010	.668**	-.197**	-.129	-.120	-.072	.232**	-.129	1
					Sig.	.264	.472	.056	.902	.000	.009	.094	.112	.339	.002	.088	
					N	175	175	169	170	169	172	171	176	176	176	176	176

Note. ** $p < .01$, * $p < .05$, [a] pre-experimental

Table 2. Study 1a ANOVA and ANCOVA Results with Condition as the Independent Variable

	Omnibus Test Results				Racism vs. Bullying			Discrimination vs. Bullying		
Dependent variable	*F*	*df*	*p*-value	Partial η^2	Contrast estimate	*p*-value	Cohen's *d*	Contrast estimate	*p*-value	Cohen's *d*
Stroop interference	1.060	2,173	.349	.012	0.001	.842	0.039	0.009	.180	0.242
Stroop errors	1.653	2,173	.195	.019	-0.722	.165	0.263	0.154	.762	0.052
Positive affect (controlling for pre-experimental positive affectivity)	0.423	2,166	.656	.005	-0.015	.902	0.027	-0.106	.395	0.192
Negative affect (controlling for pre-experimental negative affectivity)	0.028	2,167	.972	.000	-0.017	.813	0.120	-0.009	.898	0.040
Collective identity/self-esteem (controlling for pre-experimental racial/ethnic identity)	0.941	2,165	.392	.011	-0.138	.195	0.219	-0.028	.792	0.050
Outgroup orientation	5.137**	2,170	.007	.057	-0.134	.087	0.327	-0.243**	.002	0.648
Stigma consciousness	0.004	2,169	.996	.000	0.012	.928	0.017	0.006	.966	0.008
Personal relevance	0.412	2,174	.663	.005	-0.023	.877	0.028	0.102	.489	0.128
National importance	5.180**	2,174	.007	.056	0.214*	.044	0.379	0.328**	.002	0.596

Note. ** $p < .01$, * $p < .05$

were non-significant, and there were no main effect differences across conditions, $F(2,173) = 1.06$, $p = .35$, partial $\eta^2 = .012$ (Cohen's $d_{RacismBullying} = 0.04$, Cohen's $d_{DiscriminationBullying} = 0.24$). There were also no significant contrasts or main effect differences across conditions in terms of Stroop total error scores, $F(2,173) = 1.65$, $p = .20$, partial $\eta^2 = .019$ (Cohen's $d_{RacismBullying} = 0.26$, Cohen's $d_{DiscriminationBullying} = 0.05$).

Hypothesis 2: Psychological functioning

Affect. There were no significant contrasts or main effect differences in positive or negative affect across conditions, controlling for positive and negative affectivity, respectively, in terms of planned contrasts and ANCOVA main effects [Positive: $F(2,166) = 0.42$, $p = .66$, partial $\eta^2 = .005$ (Cohen's $d_{RacismBullying} = 0.27$, Cohen's $d_{DiscriminationBullying} = 0.19$). Negative: $F(2,167) = 0.03$, $p = .97$, partial $\eta^2 = .000$ (Cohen's $d_{RacismBullying} = 0.12$, Cohen's $d_{DiscriminationBullying} = 0.04$).].

Group identification. Contrary to hypotheses, there were no significant contrasts nor main effects for collective-self esteem scores, controlling for pre-racial/-ethnic identification, $F(2,165) = 0.94$, $p = .39$, partial $\eta^2 = .011$ (Cohen's $d_{RacismBullying} = 0.22$, Cohen's $d_{DiscriminationBullying} = 0.05$).

Outgroup orientation. In partial support of hypotheses, the contrast between the discrimination recognition condition and the bullying recognition condition in terms of outgroup orientation was significant ($p < .005$). The test of a main effect was also significant, $F(2,170) = 5.14$, $p = .007$, partial $\eta^2 = .057$ (Cohen's $d_{RacismBullying} = 0.33$, Cohen's $d_{DiscriminationBullying} = 0.65$). Specifically, those in the discrimination recognition condition ($M = 3.31$, $SD = .42$) reported less affiliation to outgroup members (i.e., lower

positive attitudes, less willingness to interact with outgroup members) relative to those in the bullying condition (M = 3.55, SD = .32), with a medium to large effect size. Contrary to hypotheses, this difference was not found when comparing the racism recognition condition to the bullying condition.

Stigma consciousness. Contrary to hypotheses, there were no significant contrast estimates or main effect differences for stigma consciousness, $F(2,169) = 0.00$, $p = .996$, partial $\eta^2 = .000$ (Cohen's $d_{RacismBullying} = 0.02$, Cohen's $d_{DiscriminationBullying} = 0.01$).

Issue importance/relevance. There were no significant contrasts or omnibus differences across condition with respect to personal relevance, $F(2,174) = 0.41$, $p = .663$, partial $\eta^2 = .005$ (Cohen's $d_{RacismBullying} = 0.03$, Cohen's $d_{DiscriminationBullying} = 0.13$). By contrast, there were significant racism-bullying ($p < .05$) and discrimination-bullying ($p < .005$) contrasts and a main effect for condition when examining ratings of national relevance, $F(2,174) = 5.18$, $p = .007$, partial $\eta^2 = .056$ (Cohen's $d_{RacismBullying} = 0.38$, Cohen's $d_{DiscriminationBullying} = 0.60$). Both those in the racism recognition (M = 3.39, SD = .59) and discrimination recognition (M = 3.50, SD = .57) conditions believed the issues (i.e., racism and discrimination, respectively) to be more nationally important than those in the control condition (M = 3.17, SD = .53). Unexpectedly, though, the effect size was medium-large and greater when contrasting the discrimination recognition condition to the bullying condition, compared to a small-medium effect size when contrasting the racism recognition condition to the bullying condition.

STUDY 1B

Methods

Data were collected for a subsequent study that aimed to replicate the results of Study 1a's procedures while reducing the potential effects of functional literacy (i.e., ability to read the data presented in the public health data sheet used as a visual aid). In general, participants received similar online and laboratory-based procedures as the experimental procedures stated above for Study 1a, except they were asked to write on the topics of racism, discrimination, and bullying. The mention of a "public health topic" and the presentation of a visual aid were excluded.

Sample

Study 1b's sample consisted of 38 (65.5%) females, 19 (32.8%) males, and one (1.7%) gender non-identified participant. The mean age of the sample was 19.78 years. The majority of the sample reported being born in the United States (U.S.-born $N = 57$, 98.3%; not U.S.-born $N = 1$, 1.7%). The racism recognition condition consisted of 20 participants, the discrimination recognition condition consisted of 18 participants, and the bullying condition consisted of 20 participants. The conditions were similar in terms of age [$F(2,55) = .41$, $p > .05$] and gender distribution [$\chi^2(4) = 2.95$, $p > .05$]. Two participants assigned to the racism condition did not complete paper questionnaires due to lack of time following the essay task. In these cases, the participant's essay was used as verification of the manipulation, such that the participant's Stroop data were included in analyses.

Results[1]

Hypotheses and analyses were the same as those of Study 1a with one exception: Negative affect was excluded as a dependent variable in analyses because of poor reliability (Cronbach's α = .62; the results are presented in Tables 3 and 4 for the reader's knowledge).

Scale descriptive statistics are presented in Table 3. ANOVA and relevant ANCOVA results are presented in Table 4. Descriptive statistics on additional variables by condition are presented in Appendix I. There were no significant contrasts or main effects for conditions in terms of cognitive Stroop interference, positive affect (controlling for pre-experimental positive affectivity), racial/ethnic group identity/esteem (controlling for pre-experimental racial/ethnic identity), outgroup orientation, stigma consciousness, personal relevance, and national importance. There was one significant contrast estimate: There were significantly fewer Stroop errors for the discrimination recognition condition (M = 1.83, SD = 1.54) when contrasted with the bullying recognition control condition (M = 3.60, SD = 3.50), though the main effect was not significant ($p > .10$). The effect size was within the medium-large range (Cohen's d = 0.65).

Study 1 Brief Discussion

The experimental procedures of Studies 1a and 1b largely failed to support the primary hypotheses, most notably that recognizing racism impairs cognitive functioning. However, in terms of psychological variables under question, individuals within the

[1] ANCOVA results for Study 1b including BJW, SDO, IMS, and EMS as covariates are reported in Table H4 in Appendix H. In contrast to Study 1a, EMS was included in the set of covariates for Study 1b because it correlated with group identification (see Table H3).

Table 3. Study 1b Scale Descriptive Statistics and Correlations

	Cronbach's α	Mean	SD	N		Stroop Inteference	Stroop Total Error	Positive affect	Negative affect	Collective self esteem	Outgroup orientation	Stigma consciousness	Personal relevance	National relevance	Positive affectivity [a]	Negative affectivity [a]	Racial/ethnic pride [a]
Stroop	N/A	.042	.043	58	*Pearson r*	1	.093	.070	-.180	-.022	.044	-.194	-.112	-.234	-.145	.005	-.178
Inteference					*Sig. (p)*		.488	.614	.188	.872	.748	.152	.412	.083	.278	.968	.181
					N	58	58	55	55	56	56	56	56	56	58	58	58
Stroop Total	N/A	2.793	2.719	58	*r*	.093	1	-.046	-.186	-.177	.087	-.219	-.032	.069	.066	-.005	-.086
Error					*Sig.*	.488		.738	.175	.192	.521	.104	.816	.613	.624	.970	.521
					N	58	58	55	55	56	56	56	56	56	58	58	58
Positive	0.88	2.557	.688	55	*r*	.070	-.046	1	.089	.349**	.165	-.152	.362**	.191	.443**	-.117	.134
Affect					*Sig.*	.614	.738		.517	.009	.228	.267	.007	.162	.001	.394	.329
					N	55	55	55	55	55	55	55	55	55	55	55	55

Negative	0.62	1.350	.291	55	*r*	-.180	-.186	.089	1	-.141	-.205	-.059	.016	-.010	.041	.266*	-.179
Affect					*Sig.*	.188	.175	.517		.304	.133	.669	.910	.940	.768	.050	.190
					N	55	55	55	55	55	55	55	55	55	55	55	55
Collective	0.90	4.943	.892	56	*r*	-.022	-.177	.349**	-.141	1	.050	.013	-.116	.013	.321*	-.154	.702**
Identity/					*Sig.*	.872	.192	.009	.304		.717	.926	.395	.924	.016	.256	.000
Esteem					*N*	56	56	55	55	56	56	56	56	56	56	56	56
Outgroup	0.68	3.461	.407	56	*r*	.044	.087	.165	-.205	.050	1	-.155	.158	.209	.235	-.228	.227
orientation					*Sig.*	.748	.521	.228	.133	.717		.253	.246	.122	.081	.092	.093
					N	56	56	55	55	56	56	56	56	56	56	56	56
Stigma	0.74	3.203	.726	56	*r*	-.194	-.219	-.152	-.059	.013	-.155	1	.236	-.004	-.239	.087	.021
consciousness					*Sig.*	.152	.104	.267	.669	.926	.253		.080	.978	.076	.522	.875
					N	56	56	55	55	56	56	56	56	56	56	56	56
Personal	N/A	2.348	.899	56	*r*	-.112	-.032	.362**	.016	-.116	.158	.236	1	.536**	.060	-.115	.017
relevance					*Sig.*	.412	.816	.007	.910	.395	.246	.080		.000	.660	.401	.901
					N	56	56	55	55	56	56	56	56	56	56	56	56
National	N/A	3.357	.699	56	*r*	-.234	.069	.191	-.010	.013	.209	-.004	.536**	1	.198	-.113	.146
importance					*Sig.*	.083	.613	.162	.940	.924	.122	.978	.000		.143	.405	.284
					N	56	56	55	55	56	56	56	56	56	56	56	56

Positive affectivity [a]	0.92	3.471	.742	58	*r*	-.145	.066	.443**	.041	.321*	.235	-.239	.060	.198	1	-.080	.121
					Sig.	.278	.624	.001	.768	.016	.081	.076	.660	.143		.552	.366
					N	58	58	55	55	56	56	56	56	56	58	58	58
Negative affectivity [a]	0.81	1.813	.496	58	*r*	.005	-.005	-.117	.266*	-.154	-.228	.087	-.115	-.113	-.080	1	-.362**
					Sig.	.968	.970	.394	.050	.256	.092	.522	.401	.405	.552		.005
					N	58	58	55	55	56	56	56	56	56	58	58	58
Racial/Ethnic pride [a]	0.85	4.391	1.098	58	*r*	-.178	-.086	.134	-.179	.702**	.227	.021	.017	.146	.121	-.362**	1
					Sig.	.181	.521	.329	.190	.000	.093	.875	.901	.284	.366	.005	
					N	58	58	55	55	56	56	56	56	56	58	58	58

Note. ** $p < .01$, * $p < .05$

Table 4. Study 1b ANOVA and ANCOVA Results with Condition as the Independent Variable

	Omnibus Test Results				Racism vs. Bullying			Discrimination vs. Bullying		
Dependent variable	*F*	*df*	*p*-value	Partial η^2	Contrast estimate	*p*-value	Cohen's *d*	Contrast estimate	*p*-value	Cohen's *d*
Stroop interference	1.073	2,55	.349	.038	-0.019	.155	0.429	-0.007	.639	0.145
Stroop errors	2.082	2,55	.134	.070	-0.750	.378	0.247	-1.767*	.046	0.653
Positive affect (controlling for pre-experimental positive affectivity)	1.544	2,51	.223	.057	-0.184	.366	0.328	-0.359	.085	0.683
Negative affect (controlling for pre-experimental negative affectivity)	0.012	2,51	.988	.000	-0.014	.881	0.090	-0.003	.971	0.070
Collective identity/self-esteem (controlling for pre-experimental racial/ethnic identity)	0.380	2,52	.686	.014	-0.185	.389	0.405	-0.102	.630	0.175
Outgroup orientation	0.572	2,53	.568	.021	0.009	.945	0.022	0.130	.335	0.337
Stigma consciousness	0.677	2,53	.512	.025	0.211	.378	0.292	0.257	.284	0.328
Personal relevance	0.248	2,53	.781	.009	-0.022	.940	0.022	0.172	.563	0.184
National importance	0.897	2,53	.414	.033	0.189	.410	0.257	0.300	.193	0.430

Note. * $p < .05$

discrimination recognition condition of Study 1a reported less affiliation to racial/ethnic outgroup members relative to those in the bullying recognition condition, which suggests that recognizing discrimination may spark a possible aversion to outgroup members and is consistent with research that people have negative responses to those who report bias (Kaiser et al., 2006; Kaiser & Miller, 2001). Additionally, although Study 1a participants did not see the issues of racism and discrimination as personally relevant to them, they did identify those issues as ones of national importance.

When procedures excluded the presentation of data on racism and discrimination and a smaller sample in Study 1b, there was a surprising result in which those in the discrimination recognition condition made significantly fewer errors on the Stroop test. This result is incompatible with the resource depletion perspective applied to this research and the idea that recognizing racism or discrimination would have a detrimental effect on cognitive performance. Furthermore, the results on psychological functioning for Study 1a failed to be replicated in Study 1b. The lack of correspondence between the two analyses may be due, in part, to the small Study 1b sample size or the different stimulus used in each investigation. Considerations for the differences in findings are discussed further in the General Discussion.

CHAPTER 4: STUDY 2

Goals and Hypotheses

The methods of Study 1 largely failed to find a meaningful effect of recognizing racism on executive functioning as indexed by Stroop performance. Study 2 continued to explore the viability of a resource depletion hypothesis in the context of recognizing

racism by considering a different index of cognitive functioning: creativity. Specifically, this research investigated if impairments in cognitive functioning extended to performance on an Alternate Uses Task. As a higher-order cognitive function, a resource depletion perspective would predict that creative performance also would suffer as one's cognitive resources are redirected to self-regulation of arousal based the recognition of racism. Study 2 also sought to replicate the limited psychological findings of Study 1. Based on the findings of Study 1, no *a priori* differences were expected in terms of the effect sizes for the racism and discrimination recognition conditions as contrasted with the bullying control condition. Using a sample of White American undergraduate students and a different, more emotionally evocative stimulus, the following hypotheses for Study 2 were proposed:

Hypothesis 1: Greater impairment in creativity in the forms of reduced ideational fluency (i.e., number of creative responses generated), self-reported creativity, and coder-rated creativity will result for individuals in the racism recognition and discrimination recognition conditions relative to those in the control condition.

Hypothesis 2: Based on the large number of non-significant results of Study 1, aversive effects on only a limited number of areas of psychological functioning are expected to be replicated in Study 2 in the racism and discrimination recognition conditions. Specifically:

a) *Affect*: Given the use of more emotionally evocative stimuli, participants in the racism and discrimination recognition conditions are expected to demonstrate more negative affect relative to the control condition. They will

also report being more emotionally affected by the stimuli.

b) *Outgroup orientation*: Similar to Study 1a, lower levels of outgroup orientation are expected for participants in the racism recognition and discrimination recognition conditions relative to the control condition.

c) *Issue importance/relevance*: As was the case in Study 1a, participants in the racism and discrimination recognition conditions are expected to view the issues as important at a national level, but not relevant at a personal level.

Method

Recruitment and Sample

The targeted sample included White American undergraduate students, again participating in the research experience participation (REP) program for extra credit through the Psychology Department at the same large, Midwestern public university used in Study 1. Exclusion criteria included a) being younger than 18-years-old and above 28-years-old and b) being in the country less than five years. The study continued to be entitled, "A Combination of Research Studies in Psychology" so participants from Study 1 could not participate. The study was again advertised as a combination of separate studies being conducted by independent researchers from the areas of cognitive and counseling psychology. Recruitment materials and procedures were similar to those described for Study 1.

The online survey was open to all students who had not previously participated. Participants who identified as White in their survey data were the focus of analysis. Based on the available survey data, 133 participants identified as White during the online

survey. Based on *a priori* exclusion criteria, four participants were excluded from further analysis because of age (i.e., one 17-year-old, two 39-year-olds, one participant lacked age information), and one participant was excluded because of insufficient time in the United States (i.e., an international student who reported being in the U.S. less than one year), yielding a sample of 128 eligible White participants. Six participants did not complete the scheduled face-to-face session times (i.e., cancellation/withdrawal, did not complete scheduling process, missed sessions). A total of 122 participants were included in the final analyses.

Of the 122 participants included in the final analyses, 81 (66.4%) identified as female, 41 (33.6%) identified as male. The mean age of the sample was 19.7 years. The majority of the sample reported being born in the United States (U.S.-born $N = 118$, 96.7%; not U.S.-born $N = 4$, 3.3%, with an average of 16 years in the U.S.). The racism recognition condition consisted of 35 participants, the discrimination recognition condition consisted of 41 participants, and the bullying condition consisted of 43 participants. The conditions were similar in terms of age [$F(2,116) = .34$, $p > .05$] and gender distribution [$\chi^2(2) = .065$, $p > .05$].

Measures and Materials

Demographic Questionnaire. The same demographic questionnaire from Study 1 was included in an online "pre-study questionnaire battery" to obtain standard biographical data.

Affect. Positive and negative items from the *PANAS* (Watson et al., 1988) again indexed general affectivity before the manipulation in the "pre-study questionnaire

battery" and corresponding affective states after the manipulation on the "student experiences questionnaire." Cronbach's α was .84 and .85 for negative items administered in the "pre-study questionnaire battery" of the present sample. When administered in the "student experiences questionnaire" after the manipulation, Cronbach's α was .85 for positive items and .75 for negative items in the current sample.

Outroup Orientation. The *MEIM-O* (Phinney, 1992) was administered after the manipulation in the "student experiences questionnaire" and demonstrated good, albeit relatively low, internal reliability in the current sample (Cronbach's α = .69).

Filler questions. Filler questions similar to those in Study 1 were again included in the "pre-study questionnaire" and the "student experiences questionnaire" in an effort to reduce awareness of study hypotheses.

Creativity. Alternate Uses Tasks represent a long-standing approach to measuring creativity, or divergent thinking (see Silvia et al., 2008). An Alternative Uses Task in which participants were asked to list creative uses for a common object was used as the primary mechanism to index creativity in the present study. Specifically, participants were asked to identify uses for a common object, with procedures largely mirroring those of Silvia et al. (2008). Participants received the following verbal and written instructions:

"For this task, you will be asked to write down all of the original and creative uses for an object that you can think of. Certainly, there are common, unoriginal ways to use the object. For this task, write down all of the *unusual, creative, and uncommon uses you can think of*."

Participants then received the instructions that they would have three minutes to write down all of the original and creative uses for a brick that they could think of. Based on the procedures of the Top 2 scoring method advocated by Silvia et al. (2008), participants were subsequently instructed to select the two most creative ideas they generated. Consistent with Silvia et al.'s (2008) methodology, each response was typed into a spreadsheet then sorted alphabetically, with spelling errors corrected prior to rating. If a person had only one complete response, the value for that response was used and if a person had no responses, the data were labeled as missing, as had also been done by Silvia et al. (2008).

Each of the top two choices selected by participants was coded by three undergraduate student coders using a 5-point scale. Coders were asked to rate their overall impressions of how creative a response was (Overall Creativity score; intraclass correlation, or ICC, was .757, $p < .001$). Ratings for each of the top two responses were averaged across raters to create a single Overall Creativity score for each participant.

In addition to top two ratings, the total number of responses listed during the Alternate Uses Task served as an index of ideational fluency. Interspersed with PANAS items, participants also were asked how *creative* they felt to discreetly assess the participant's perceptions of their creativity in general and after the manipulation (i.e., *self-rated creativity*).

News Article, Memory Task, and Post-Manipulation Questionnaire. See Appendix E for a copy of the mock online news articles and Appendices F and G for samples of the memory questions used as manipulations in the study. A mock online

news article detailed the results of a recent public health survey indicating that racism, discrimination, or bullying persisted. To improve on Study 1, the news article for Study 2 included a personal account of racism, discrimination, or bullying and expert statements to create a stronger, emotionally evocative manipulation. Participants were subsequently given a brief memory test on the information presented in the article immediately after reviewing the article and after completing the student experiences questionnaire. The purpose of the initial memory test was to encourage participants to attend to specific key points, and purpose of the second was to provide a manipulation check.

After completing the delayed memory task, participants responded to questions related to the specific news topic they had reviewed. As a manipulation check, participants were queried on their self-assessed memory for the information (i.e., "*How would you rate your ability to remember the informational content from the article?*;" 1 = *Well below average*, 9 = *Well above average*).

Of interest as dependent variables, two items questioned the personal relevance of the topic ("*How relevant is the main issue in the article to your own life or personal experiences?*;" 1 = *Not at all relevant*, 4 = *Very relevant*) and the perceived national importance of the topic ("*In your opinion, how important or unimportant is this issue for the nation?*;" 1 = *Very unimportant,* 4 = *Very important*). Additionally, participants were queried on the emotional effect of reviewing the article and reflecting on the issue more generally (Emotional effect of article: "*How much of an emotional effect did the news article have on you?*" and General emotional effect: "*When reflecting on the issue brought up in the news article, how much does it generally affect you emotionally?*;" 1 =

No effect, 5 = *Very large effect*). The average of these two scores comprised a composite score for emotional effect of the topic ($r = .679$, $p < .001$).

Procedures

Similar to Study 1, the study was set up as a two-part study with online and face-to-face laboratory components. The recruitment material and initial online consent form stated that participants would complete a combination of multiple but brief studies being conducted by different researchers, with diverse focuses including cognition and student perspectives and experiences. After consenting online, participants completed the "pre-study questionnaire battery" also used in Study 1.

White undergraduate experimenters who were kept unaware of the study hypotheses and the news article and memory test topics led small groups of one to seven participants through the face-to-face laboratory procedures. Upon arrival, each participant received a bundled set of questionnaire packets consisting of the paper consent form, a mock online news article and corresponding memory questions, the "student experiences questionnaire," and the follow-up questions to the news article. The news article focused on either racism (*Racism Recognition Condition*), discrimination (*Discrimination Recognition Condition*), or bullying (*Control Condition*) as described above and included in Appendix E. The questionnaire packet bundles were arranged such that the included news article in each was randomly ordered based on a random number generator, and each participant was given the top questionnaire packet in order of their participation. Participants were strategically seated by the experimenter so there was distance between each participant, and interaction between each participant was discouraged. The

experimenter's verbal instructions were complemented by written instructions presented in a Powerpoint and within the questionnaire packets. The consent form, experimenter, and instructions reiterated to participants that the study was comprised of separate studies from multiple independent researchers in cognitive and counseling psychology, with each study worth partial credit.

The first study was introduced as a cognitive psychology study investigating memory. No references to the specific news article or memory test question topics were made by the experimenter or in the verbal or Powerpoint instructions since participants in each group did not have the same news articles or corresponding memory tests. Participants were given five minutes to review "a randomly-assigned brief newspaper article." They were encouraged to focus on the main points of the article. They were then told to turn the page to complete a brief test of memory on the information they had reviewed. After, they were provided with the correct answers and were given 1.5 minutes to review the correct answers and news article information again (all memory questions were multiple choice, and the correct answer order was the same regardless of condition). Because the researcher wanted the effect of the articles to extend into the remainder of the session, participants were told to retain as much of the informational content of the article as possible.

Participants were given a brief stretching break before continuing to the second study, which was described as a cognitive psychology study on creativity. All participants completed the Alternate Uses Task (i.e., creative uses for a brick) then were asked to indicate their two most creative ideas.

Participants then began the third study, which was characterized as a counseling psychology study on student experiences. They also received instructions that they could pace themselves through the remainder of the session by reading the instructions in their packets. After the student experiences questionnaire, the packet's written instructions indicated that they were returning to the first study on memory. The participants completed the delayed memory test (the correct answers were not given to them) and questions on the specific topic. The debriefing process included a brief study feedback survey probing their effort in completing the research tasks ("*On a scale of 1-10 (1= "Very little" and 10= "A lot"), how much effort did you put into completing the research tasks?*"; results discussed under Manipulation Check section) and written debriefing form.

Analyses

Independent and Dependent Variables

Condition served as the three category independent variable (racism recognition, discrimination recognition, bullying control conditions). Self-rated creativity scores, creativity ratings, and number of creative responses on the Alternate Uses Task were used to index creativity. Psychological functioning was measured by positive and negative affect (mean PANAS scores), controlling for positive and negative affectivity scores, respectively; emotional effect of the topic; outgroup orientation (mean MEIM-O score); and personal and national relevance/importance. For all dependent variables, mean scale scores were allowed only one missing value.

Pre-Assessed Variables

As before, positive and negative affectivity was controlled in analyses with post-manipulation positive and negative affect scores, respectively. Self-reported creativity also was measured prior to the manipulation and included in an ANCOVA model with respect to self-reported creativity. Again, these were considered estimates of pre-experimental functioning, rather than covariates theoretically linked to outcomes.

Covariates again were considered for theoretical reasons first then their actual inclusion in analyses was based on correlations with dependent variables. Belief in a just world, social dominance orientation, and external and internal motivation to respond without prejudice were considered as possible theoretically relevant covariates. Results of correlational analyses are presented in Appendix H, Table H5. External motivation to respond without prejudice was related to ideational fluency, making it a relevant variable to include in analyses. Internal motivation to respond without prejudice was related to a number of dependent variables, including outgroup orientation, emotional effect of the topic, and national importance rating. Social dominance orientation also was related to a number of dependent variables, including emotional effect, outgroup orientation, and national importance rating. Belief in a just world was related to outgroup orientation and self-rated creativity. Social dominance orientation, external and internal motivations to respond without prejudice, and belief in a just world were included as covariates in analyses. Results with the full set of covariates are included in Appendix H, Table H6.

Missing Values

Missing values analysis on items and scale scores were completed. Missing items

and scale scores did not exceed 5% of cases.

Manipulation Check

Three participants did not provide the correct responses for the delayed memory test (two participants in the racism recognition condition and one in the bullying condition). These participants were excluded from analyses.

Other indices provided insight as to whether participant effort was comparable across conditions. Specifically, there were no differences across conditions in relation to self-rated ability to remember the information from the article nor in self-rated effort in completing research tasks.

Plan of Analysis

All dependent variables were continuously scaled and were entered in analyses of variances (or analyses of covariance in the case of affect and self-reported creativity) with condition as the independent variable (three levels: racism recognition, discrimination recognition, control). Planned contrasts were used to compare the racism recognition condition relative to the bullying control condition, as well as the discrimination recognition condition relative to the bullying condition.

The first hypothesis was that greater impairment in creativity would result for individuals in the racism and discrimination recognition conditions. Such impairment was expected to be demonstrated by a lower number of creative responses generated on the Alternate Uses Task, lower overall creativity ratings, and lower self-reported creativity responses for participants in the racism recognition and discrimination recognition conditions relative to the control conditions. Given the potency of the discrimination

condition demonstrated by Study 1a and Study 1b, it was not expected that the effects of the racism recognition condition relative to the control condition would be greater or less than the discrimination recognition condition.

In support of the second hypothesis, participants in the racism and discrimination recognition conditions were anticipated to demonstrate greater negative affect, greater reported emotional effect of the topics, and lower affiliation toward outgroup members. As well, participants in the racism and discrimination recognition conditions were anticipated to rate the issues as more relevant at a national level than participants in the bullying control condition, but no differences in rated personal relevance were expected.

Results

Descriptive Statistics

Scale correlations and descriptive statistics are presented in Table 5. The mean number of days between online and face-to-face participation was 5.46 days (SD = 8.01), with the most common delay being one day. Descriptive statistics on additional variables by condition are presented in Appendix I.

Hypothesis 1: Creativity

Study 2 ANOVA and relevant ANCOVA results are presented in Table 6. Contrary to predictions, contrast estimates for ideational fluency, or number of creative responses generated, were non-significant, though there was a trend of fewer creative responses in the racism recognition condition relative to the bullying recognition condition (contrast estimate = -1.16, p = .052). The main effect was non-significant, $F(2,116) = 2.30$, $p = .11$, partial $\eta^2 = .04$ (Cohen's $d_{RacismBullying} = 0.46$, Cohen's

Table 5. Study 2 Scale Descriptive Statistics and Correlations

	Reliability	Mean	SD	N		Overall creativity rating	Ideational fluency	Positive affect	Negative affect	Self-rated creativity	Outgroup orientation	Emotional effect of topic	Personal relevance	National Importance	Positive affectivity [a]	Negative affectivity [a]	Self-rated creativity [a]
Overall	ICC =	2.621	0.697	118	*r*	1	.148	-.011	-.022	.204*	-.027	.084	.274**	.100	-.131	.158	.039
creativity	.757				*Sig.*		.109	.903	.815	.028	.774	.364	.003	.282	.158	.088	.676
rating					*N*	118	118	117	116	116	118	118	118	118	118	118	118
Ideational	n/a	7.160	2.626	119	*r*	.148	1	-.071	.097	.206*	.048	-.172	-.014	-.157	-.028	.108	.010
fluency					*Sig.*	.109		.444	.297	.026	.606	.062	.877	.087	.761	.241	.912
					N	118	119	118	117	117	119	119	119	119	119	119	119
Positive	α = .838	2.705	0.668	118	*r*	-.011	-.071	1	-.059	.482**	.200*	.168	.075	.212*	.478**	-.073	.230*
affect					*Sig.*	.903	.444		.525	.000	.030	.069	.420	.021	.000	.432	.012
					N	117	118	118	117	117	118	118	118	118	118	118	118
Negative	α = .747	1.364	0.372	117	*r*	-.022	.097	-.059	1	-.005	-.055	.089	-.040	.117	-.175	.388**	-.057
affect					*Sig.*	.815	.297	.525		.958	.557	.341	.672	.207	.059	.000	.540
					N	116	117	117	117	116	117	117	117	117	117	117	117

Self-rated	n/a	2.359	0.995	117	*r*	.204*	.206*	.482**	-.005	1	.178	.043	.038	.071	.213*	-.021	.461**
creativity					*Sig.*	.028	.026	.000	.958		.056	.648	.687	.445	.021	.823	.000
					N	116	117	117	116	117	117	117	117	117	117	117	117
Outgroup	α = .686	3.352	0.393	119	*r*	-.027	.048	.200*	-.055	.178	1	.122	.047	.289**	.273**	-.008	.080
orientation					*Sig.*	.774	.606	.030	.557	.056		.186	.611	.001	.003	.927	.386
					N	118	119	118	117	117	119	119	119	119	119	119	119
Emotional	r = .679	4.143	1.536	119	*r*	.084	-.172	.168	.089	.043	.122	1	.322**	.368**	.078	.111	.125
effect of					*Sig.*	.364	.062	.069	.341	.648	.186		.000	.000	.399	.229	.175
topic					*N*	118	119	118	117	117	119	119	119	119	119	119	119
Personal	n/a	2.017	0.748	119	*r*	.274**	-.014	.075	-.040	.038	.047	.322**	1	.339**	-.004	.034	.111
relevance					*Sig.*	.003	.877	.420	.672	.687	.611	.000		.000	.968	.712	.229
					N	118	119	118	117	117	119	119	119	119	119	119	119
National	n/a	3.168	0.557	119	*r*	.100	-.157	.212*	.117	.071	.289**	.368**	.339**	1	.095	.022	.077
Importance					*Sig.*	.282	.087	.021	.207	.445	.001	.000	.000		.307	.810	.408
					N	118	119	118	117	117	119	119	119	119	119	119	119
Positive	α = .843	3.492	0.561	119	*r*	-.131	-.028	.478**	-.175	.213*	.273**	.078	-.004	.095	1	-.211*	.286**
affectivity[a]					*Sig.*	.158	.761	.000	.059	.021	.003	.399	.968	.307		.021	.002
					N	118	119	118	117	117	119	119	119	119	119	119	119

Negative affectivity [a]	α = .847	1.912	0.588	119	*r*	.158	.108	-.073	.388**	-.021	-.008	.111	.034	.022	-.211*	1	.023
					Sig.	.088	.241	.432	.000	.823	.927	.229	.712	.810	.021		.803
					N	118	119	118	117	117	119	119	119	119	119	119	119
Self-rated creativity [a]	n/a	3.151	0.988	119	*r*	.039	.010	.230*	-.057	.461**	.080	.125	.111	.077	.286**	.023	1
					Sig.	.676	.912	.012	.540	.000	.386	.175	.229	.408	.002	.803	
					N	118	119	118	117	117	119	119	119	119	119	119	119

Note. ** $p < .01$, * $p < .05$

Table 6. Study 2 ANOVA and ANCOVA Results with Condition as the Independent Variable

	Omnibus Test Results				Racism vs. Bullying			Discrimination vs. Bullying		
Dependent variable	*F*	*df*	*p*-value	Partial η^2	Contrast estimate	*p*-value	Cohen's *d*	Contrast estimate	*p*-value	Cohen's *d*
Ideational fluency	2.296	2, 116	.105	.038	-1.163†	.052	0.458	-0.096	.866	0.036
Overall creativity rating	0.768	2, 115	.466	.013	0.195	.224	0.283	0.060	.695	0.087
Self-rated creativity (controlling for pre-experimental self-rated creativity)	0.827	2, 113	.440	.014	-0.256	.216	0.336	-0.055	.779	0.047
Positive affect (controlling for pre-experimental positive affectivity)	0.347	2, 114	.708	.006	-0.108	.427	0.119	-0.075	.564	0.240
Negative affect (controlling for pre-experimental negative affectivity)	0.183	2, 113	.833	.003	0.001	.991	0.014	0.042	.588	0.047
Other group orientation	0.536	2, 116	.587	.009	0.016	.863	0.038	0.085	.328	0.210
Personal relevance	2.901†	2, 116	.059	.048	0.397*	.020	0.523	0.115	.475	0.157
National importance	2.787†	2, 116	.066	.046	0.291*	.022	0.541	0.172	.154	0.297
Emotional effect	0.224	2, 116	.799	.004	0.068	.848	0.044	0.222	.513	0.152

Note: * $p < .05$, † $p < .10$

$d_{DiscriminationBullying}$ = 0.04). There were also no significant contrasts or model differences across conditions in terms of overall creativity score ratings as assessed by coders, F(2, 115) = 0.77, p = .47, partial η^2 = .013 (Cohen's $d_{RacismBullying}$ = 0.28, Cohen's $d_{DiscriminationBullying}$ = 0.09). As well, no significant differences resulted for self-rated creativity in terms of both contrast estimates and the overall model, when controlling for pre-reported creativity, F(2, 113) = 0.83, p > .05, partial η^2 = .014 (Cohen's $d_{RacismBullying}$ = 0.34, Cohen's $d_{DiscriminationBullying}$ = 0.05).

Hypothesis 2: Psychological functioning

Affect. Contrasting predictions, there were no significant contrasts or main effect differences in positive or negative affect across conditions, when controlling for pre-experimental positive and negative affectivity, respectively [Positive: F(2,114) = 0.35, p = .71, partial η^2 = .01 (Cohen's $d_{RacismBullying}$ = 0.12, Cohen's $d_{DiscriminationBullying}$ = 0.24). Negative: F(2,113) = 0.18, p = .83, partial η^2 = .00 (Cohen's $d_{RacismBullying}$ = 0.01, Cohen's $d_{DiscriminationBullying}$ = 0.05)]. There also were no significant contrasts or main effect differences in the emotional effect of the topic across conditions, F(2, 116) = 0.22, p = .80, partial η^2 = .00 (Cohen's $d_{RacismBullying}$ = 0.04, Cohen's $d_{DiscriminationBullying}$ = 0.15).

Outgroup orientation. In contrast to expectations and the results of Study 1a, there was no significant contrasts or main effect differences for outgroup orientation in analyses, F(2, 116) = 0.54, p = .59, partial η^2 = .02 (Cohen's $d_{RacismBullying}$ = 0.04, Cohen's $d_{DiscriminationBullying}$ = 0.21).

Issue importance/relevance. In terms of personal relevance of the respective topic, the contrast estimate for racism relative to bullying was significant, such that those

in the racism recognition condition (M = 2.26, SD = .74) reported greater relevance of the topic compared to those whose topic was bullying (M = 1.86, SD = .75), yielding a medium effect size (Cohen's d = 0.52). There was a marginal main effect for condition with respect to personal relevance of the respective topic, $F(2, 116) = 2.90$, $p = .06$, partial $\eta^2 = .05$ (Cohen's $d_{RacismBullying} = 0.52$, Cohen's $d_{DiscriminationBullying} = 0.16$). These results were surprising given the non-significant effects found for personal relevance in Studies 1a and 1b.

In the case of national importance, the contrast estimates suggested a significant difference between the racism recognition condition (M = 3.31, SD = .47) and the control condition (M = 3.02, SD = .60), such that racism was rated as a more important issue at a national level than bullying, with a medium effect size between conditions (Cohen's d = 0.54). Of note, tests of the omnibus model yielded only a marginal effect for condition, $F(2, 116) = 2.79$, $p = .07$, partial $\eta^2 = .05$ (Cohen's $d_{RacismBullying} = 0.54$, Cohen's $d_{DiscriminationBullying} = 0.30$).

Study 2 Brief Discussion

Unfortunately, the findings of Study 2 did not lend themselves to a clear, consistent, and cohesive picture of the cognitive and psychological effects of recognizing racism. Consistent with Study 1's finding of only a limited effect of recognizing bias on cognitive functioning, there was only a trend in which recognizing racism yielded worse performance relative to the control condition on only one index of creativity, specifically ideational fluency. In contrast to Study 1's findings, participants in this study were more likely to report racism as a personally relevant topic compared to bullying. Whereas

participants in Study 1a identified both racism and discrimination as an important issue at a national level, the participants in Study 2 found only racism to be a nationally important topic. Furthermore, Study 2 failed to replicate the finding from Study 1a that recognizing discrimination results in lower racial/ethnic outgroup affiliation. It also did not replicate significant differences between discrimination and bullying in terms of Stroop errors, as found in Study 1b.

CHAPTER 5: GENERAL DISCUSSION AND IMPLICATIONS

This study applied perspectives on resource depletion to understand the cognitive and psychological effects of recognizing racism. Contrary to expectations, recognizing racism was limited in its effects on executive functioning, creativity, and psychological functioning. Results, in general, appeared to vary based on experimental manipulations or stimuli and cognitive index.

Recognizing bias and cognitive impairment

The primary goal of this investigation was to demonstrate the effects of recognizing racism on cognition, as supported by resource depletion theories. The first study (i.e., Study 1a) found that neither recognizing racism nor discrimination had an effect on executive functioning, as indexed by Stroop impairment scores and total number of errors across all Stroop trials, thus failing to support applications of resource depletion theory to the recognition of racism. Another study (i.e., Study 1b) using a smaller sample and a less detailed, more open experimental stimuli demonstrated a surprising effect in which those in the discrimination recognition condition exhibited *fewer errors* on the computerized Stroop task compared to those in the bullying

recognition condition, suggesting facilitation rather than impairment due to discrimination recognition. It may be that the topic of discrimination is more accessible to White Americans and therefore easier to recognize, consider, and explore in the experimental writing task because of the wide applicability of the concept to identities extending beyond race, such as gender identities, sexual identities, or socioeconomic standing to name a few.

In approaching the interpretation of the latter finding for Study 1b, a number of immediate considerations arise. First, although errors on the Stroop task index cognitive performance, Stroop errors do not necessarily index inhibition of a prepotent or dominant response, as errors can be made across all trials of the Stroop task, including the compatible and control trials.[2] Thus, the limits of interpreting differences in Stroop errors must carefully be considered. Second, the findings may reflect difficulty with writing on the topic of bullying without supplementary data or information more than facilitation of Stroop performance after recognizing discrimination. The instructions within Study 1b's

[2] Indeed, separate ANOVAs and planned contrast done with compatible trial errors, incompatible trial errors, and control trial errors as the dependent variables indicated that the significant finding was driven by a significant difference between discrimination recognition and control conditions when examining errors made on Stroop control trials specifically [Contrast estimate = -0.91, SE = .426, p = .038, Cohen's $d_{DiscriminationBullying}$ = .749, $F(2,55) = 2.57$, p = .086, partial η^2 = .085]. This finding suggests that the results may be indicative of impulsivity (i.e., anticipatory errors), rather than inhibition of a prepotent, dominant, or automatic response. While impulsivity is considered a manifestation of a lack of behavioral inhibition (Congdon, Lesch, & Canli, 2008), the procedures of the study cannot adequately test or make a conclusive statement about the effect of recognizing discrimination or bullying on impulsivity.

Also of note to the reader, an independent samples t-test indicated a nonsignificant difference between the discrimination recognition (M = 1.83, SD = 1.54) and racism recognition (M = 2.85, SD = 2.50) conditions in terms of total errors, $t(36) = 1.489$, p = .145. However, the comparison the discrimination recognition (M = 0.44, SD = 0.51) and racism recognition (M = 1.20, SD = 1.44) conditions in terms of errors made on Stroop control trials was significantly different, $t(24.19) = 2.20$, p = .037, Cohen's d = 0.70. Together, the results support that cognitive functioning suffered in the form of greater errors on the Stroop control trials when participants recognized racism and bullying compared to participants who recognized discrimination, or that there was some sort of facilitation in cognitive performance when recognizing discrimination.

procedures were relatively open and the participants essentially had to "free write" on the topic assigned to them without any additional information. Research suggests that, despite the high prevalence and increasing concerns around the issue of bullying, even scholarly knowledge of bullying is lagging in the United States relative to European nations (Nansel et al., 2001; see also Bauman & Del Rio, 2005 for review). Difficulty in cognitive performance when recognizing bullying may reflect limited knowledge and beliefs formed regarding bullying at this age (Bauman & Del Rio, 2005). This knowledge gap may trickle down to nonscholarly arenas and to the individual level, as a unified body of awareness of the issue is still developing. Thus, it may have been particularly difficult or stressful for participants to write about a potentially unfamiliar topic, such as bullying, and this may have manifested as subsequent difficulty with cognitive functioning. That the contrast was specifically related to recognizing discrimination rather than recognizing racism was especially surprising. It suggests that, perhaps, recognizing racism induces at least some level of difficulty in accurate performance on the Stroop task that makes it at least somewhat similar to the effects observed when recognizing bullying.

Despite the aforementioned lone finding, the overall results of the investigation as a whole were insufficient in providing compelling and consistent evidence for the cognitive effects of recognizing racism. At best, one set of procedures (Study 2) found marginal impairment on ideational fluency for those in the racism recognition condition, whereas another set of procedures (Study 1a) found that effects on cognitive performance (i.e., Stroop errors) were related to recognizing discrimination rather than racism, as previously discussed above. A simple interpretation of the findings as a whole may be

that recognizing racism does not result in notable cognitive impairment. There is evidence that White individuals have different reference points on social equality compared to non-Whites. In the simplest terms, non-White individuals tend to perceive how far we have to go, whereas White individuals tend to focus on how far we have come in terms of race and social equality (Brodish, Brazy, & Devine, 2008; Eibach & Ehrlinger, 2006). Thus, views of racism may be more positive or less stressful for White individuals, and the subsequent effects on cognition may be less potent than expected. Yet another interpretation would be that the limited findings are spurious and dampened by methodological limitations. However, the few significant and marginal findings suggest that there is some potential for recognizing racism and bias more generally to have aversive effects on cognitive functioning. The results suggest that further investigation is warranted to understand both the direct effects and underlying mechanisms of the associations.

Recognizing bias and psychological functioning

One interesting but isolated finding was that recognizing discrimination in the first study resulted in lower reported affiliation to racial/ethnic outgroup members. However, similar findings were not borne out for participants in the racism recognition condition, which contrasted predictions that the greatest effect would be observed when individuals recognized racism. The finding of an effect of recognizing discrimination on outgroup orientation is consistent with research findings that claimants and claims of bias are received with aversion, hostility, and general sense of distance or discrepancy from the claimant or biased act (e.g., Czopp & Monteith, 2003; Kaiser & Miller, 2001; Kaiser

et al., 2006; Spanierman & Heppner, 2004; Spanierman, Poteat, Beer, & Armstrong, 2006; Spanierman, Todd, & Anderson, 2009). Presumably, recognizing discrimination prompted participants to feel lower affiliation and perhaps less positive feelings specifically towards racial/ethnic outgroup members. Discrimination may be a more potent stressor for White individuals, who may feel more strongly that they could be discriminated against on grounds besides race/ethnicity. It may also be that recognizing discrimination resulted in greater awareness of differences with other racial/ethnic groups that manifested as reported lower outgroup affiliation, interaction, and orientation. Research has identified one of the psychosocial costs of racism for White individuals as "White fear of others," which includes fear and distrust of people of other racial groups (Spanierman & Heppner, 2004; Spanierman et al., 2006; Spanierman et al., 2009). It is also possible that recognizing discrimination prompted participants to feel guilt (i.e., Czopp & Monteith, 2003; Iyer et al., 2003; Spanierman & Heppner, 2004; Spanierman et al., 2006; Spanierman et al., 2009; Swim & Miller, 1999) about not having more racially/ethnically diverse relationships, resulting in reports of lower outgroup orientation and affiliation. It was surprising that this resulted with recognizing discrimination but not racism. However, it may be that recognizing racism prompted individuals to identify more strongly with having diverse relationships and interactions, perhaps in a compensatory way that assuages possible guilt about White roles in historical legacies of racism. Interpretations of the significant finding for outgroup orientation among the Study 1a sample are further complicated and limited by the lack of a pre-experimental measure of levels of outgroup orientation.[3] Given the failure to replicate the finding in

[3] Unfortunately, pre-experimental levels of racial/ethnic outgroup affiliation were not assessed. However,

Study 1b and Study 2, further investigation of this relationship and possible mediating factors is warranted to be able to make more clear conclusions.

Another set of notable findings related to how participants understood the presented social issues in relation to themselves personally and to society more widely but the results across the three analyses do not present a cohesive picture. Although participants in both the racism and discrimination recognition conditions of Study 1a's procedures did not view the respective topics as any more or less personally relevant than those in the bullying condition, they identified the issues of racism and discrimination as more important at a national level compared to those who appraised the issue of bullying for personal relevance. However, the latter finding was not replicated in Study 1b, in which there were no differences in ratings of the personal relevance or national importance across conditions. Furthermore, in Study 2 on creativity, recognizing racism, but not discrimination, resulted in reports of the topic as having greater importance at a national level *and* personal relevance compared to the appraisals made by participants in the control condition.

Regarding Study 1a's finding (i.e., perceived national relevance but not personal relevance), the finding suggests that White individuals likely find the issue of bias as aversive and concerning (Dovidio & Gaertner, 2004), though they may not personally feel they have direct, personal experiences of racism or discrimination. This perspective is compatible with research supporting a disconnect for White individuals in terms of their awareness of themselves as racial and cultural beings affected by such issues as

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this difference does not appear to be accounted for by any differences across condition in reported social dominance orientation prior to the experimental manipulation, $F(2,174) = .011$, $p > .05$, which provides some insights into the comparability of feelings about intergroup relations.

culture or systems of oppression (Helms, 1990; McIntosh, 1989; Spanierman et al., 2008). It was an especially surprising finding that the White student sample did not identify discrimination as a personally relevant issue for them, given their at least complicit participation in all systems of oppression (e.g., race, gender, sexuality, socio-economic status, age, etc.) and the large proportion of participants identifying as female in our sample (Adams et al., 1997; Applebaum, 2004).

Furthermore, this finding is somewhat akin to a personal/group discrimination discrepancy perspective (PGDD), which has traditionally been found in minority samples (i.e., non-Whites and women; Ruggiero & Taylor, 1997; Taylor, Wright, & Porter, 1993). A PGDD perspective specifies that individuals have a tendency to report more discrimination against their group than towards themselves (see Taylor, Wright, & Porter, 1993 for review). In this case, it may be that White individuals see racial and discrimination issues as concerns relevant to the whole nation as a singular group, but they do not feel that it is personally relevant to their lived experiences. It is also possible that these results mirror a statistical reality perceived by White students. Research on college students reveals that White students recognize racial harassment at similar rates to non-White students but do not personally report experiences of harassment at the same level as non-White students (Rankin & Reason, 2006). Thus, White individuals may recognize the presence of the issue outside of their own personal experiences.

By contrast, Study 2 found that recognizing racism, but surprisingly not discrimination, resulted in appraisals of the topic as having greater importance at a national level compared to the appraisals made by participants in the control condition.

However, in contrast to Study 1a, recognizing racism also resulted in reports that racism was a topic of personal relevance to participants in Study 2, which may suggest that the White participants in Study 2's sample perhaps had greater awareness of their roles within racial systems. It may be that participants in this sample recognized that everyone is affected by a system that involves oppression based on race (e.g., Applebaum, 2004; McIntosh, 1989), or it may be that the study's more detailed stimuli (i.e., newspaper reports) prompted White individuals to reflect on how they have experienced racism on the basis of being White (Spanierman et al., 2008).

The differences in reports of personal relevance and national importance of the topic of racism—as well as the other inconsistent findings—may possibly be reconciled by considering the different stimuli and experimental manipulations across the three different analyses. Study 1a procedures involved a public health fact sheet presenting a number of statistics about the status of racism, discrimination, and bullying for the nation. Although the stimuli referenced each of the issues as a "public health concern for a large portion of the population," the mock fact sheets were relatively dispassionate and emphasized statistics. By contrast, the mock online newspaper articles used in Study 2 included conceptual elaborations, expert testimonial, and personal and emotional appeals regarding the given issues, in addition to statistical data. The differences between the public health fact sheet and the newspaper article may have resulted in a "that's not my problem" contrast situation. News and media appeals tend to "reduce health issues to individual-level concerns" and confer "the legitimacy of health issues," whereas public health messages tend to be more educationally, rather than personally, appealing (Atkin

& Arkin, 1990, p. 20). The addition of narratives and personal testimonials in the news articles may have been effective in creating strong stimuli that resulted in participants considering the effects of each the topics on their own lives, if only indirectly. In other words, the emotionally arousing nature of a message may contribute to the sense that the issues were worthwhile personally for an individual and others more generally, whereas an educational appeal may allow people to feel distance with the issue. Indeed, research highlights that health messages involving narrative evidence are effective in eliciting a sense of personal concern from individuals (de Wit, Das, & Vet, 2008). Furthermore, research supports that messages that arouse emotions, such as fear, result in personal behavioral and attitudinal changes (see Witte & Allen, 2000 for review). The more emotional nature of the newspaper stimuli may have contributed to the sense of both personal and national relevance and importance of the issue of racism.

In a similar vein, the lack of findings of national or personal importance or relevance for Study 1b's sample may have been due to the very open and broad nature of the prompt and lack of visual aid, which may have allowed for less investment or perceived importance of the topics more generally. The stimuli of this study were personally or nationally relevant only to the extent that the participant personally felt they were. Furthermore, these feelings were not independently supported or validated by any other given information in the study procedures (i.e., a visual aid), possibly resulting in lower perceived meaning of the issues at the personal and national levels.

Implications, limitations, and future directions

The initial hypotheses of this study were consistent with a resource depletion

theory of cognitive resources, such that the anticipated results would have supported that the effects of racism run deep—so much so as to suggest that recognizing racism is enough to distress and impair White individuals at cognitive and psychological levels. The theoretical underpinnings of this study and the anticipated results would have had strong meaning for practical settings (e.g., diversity training, counseling, cultural teaching/training) by identifying a specific stressor that may affect clinical outcomes and cognitively-related behaviors. For instance, stronger findings of cognitive impairment following the recognition of bias and discrimination would be rendered more meaningful when considering research findings that reactions to race-related stressors affect the ability to effectively communicate, which would have meanings to interracial interactions (e.g., Dovidio, Kawakami, & Gaertner, 2002; Norton et al., 2006). Unfortunately, the actual results did not provide strong support for these arguments. Nonetheless, the very limited finding that recognizing racism resulted in a trend of impairment and medium effect size in terms of creativity in the form of ideational fluency affords the possibility that recognizing racism can take a toll on cognition and subsequent behavioral, affective, and cognitive processes under different circumstances. Speaking to the major objectives of this study, this trend being found with respect to creativity (i.e., ideational fluency) rather than executive functioning (i.e., Stroop interference) suggests that it is worthwhile to extend this research into other areas of cognitive functioning (e.g., working memory versus more basic or rote forms of memory). It would also be worthwhile to alter the procedures of this study by considering different comparison or control conditions and different embodiments of recognizing racism.

The results supported some psychological effects of recognizing racism and discrimination. That recognizing discrimination resulted in lower affiliation with racial/ethnic outgroup members suggests that the topic may spark some aversion to others. The result encourages being sensitive to the possibility that the topics of discrimination and more general bias may create intergroup strife or a sense of distance with racial/ethnic outgroup members. The question might arise, "Does this mean that we should not talk about bias in order to promote harmony?" The researcher argues that these results actually give us more to talk about when discussing bias and could improve interpersonal discussions on topics such as discrimination and specific forms of bias. The clinical value of these results is that it can provide White individuals with knowledge and insight into the normality of reacting negatively to the topic of bias. Having prior knowledge of the adverse reactions that may occur when broaching the topics of bias may preclude individuals from completely "shutting down" or "closing off" to others when they are asked to talk about issues such as disparity and race, gender, sexuality, or socioeconomic status. This awareness may ultimately facilitate and maintain discussions. In other words, the findings could lend themselves to psychoeducational messages that these reactions are normal and are in themselves worth discussing and processing, as are their implications for our intergroup attitudes and interactions.

Certainly, the results, albeit limited, did not completely fail to demonstrate the potency of the concept of racism as a topic matter for White individuals to broach and consider, and they actually highlighted the potential of discrimination more broadly as a worthwhile area of consideration. Given the varied results found for recognizing

discrimination, it would certainly be worthwhile to focus specifically on that as a variable of interest in the future.

There are a number of points of merit for the continuation of this line of research. It is possible that viewing the information from this study and understanding the aversive cognitive and psychological responses to the topics of racism and discrimination as typical and arguably uncontrolled reactions beforehand may contribute to the activation of more controlled processing about racial or status information, which may counteract potential automatic biases and stereotyping. As discussed earlier, Devine (1989) proposed and found support for a model in which stereotypes are automatically activated in the presence of a member of a stereotyped group, but low prejudice responses require controlled inhibition of the automatically activated stereotype. Such a theory and findings are in line with resource depletion models and are congruent with findings that controlling automatic biased responses require more cognitive resources (e.g., Richeson & Shelton, 2003).

The ideas of controlled versus automatic processing are useful in thinking about this study and future directions because they suggest that controlled processing and behavioral regulation of automatic racial responses, though potentially taxing to our resources, may have beneficial outcomes in terms of intergroup interactions and moderating and challenging our biases. Research on color-blind approaches may provide some additional support that acknowledging racism may have such an effect. Under a color-blind approach, racial/ethnic group differences are minimized and an emphasis is placed on the universal or "human" aspects of behavior (Wolsko, Park, Judd, &

Wittenbrink, 2000). The theoretical argument against this perspective is that ignoring intergroup differences in this way perpetuates existing inequalities and maintains the status quo (Bonilla-Silva, 2003, p. 2). A color-blind approach stands in contrast to multiculturalism in which it is believed that group differences and memberships should be acknowledged, considered, and celebrated. Research evidence suggests that adopting a color-blind approach is associated with a larger automatic pro-White bias on the Implicit Association Test and greater explicit biases towards Blacks and Asians (Richeson & Nussbaum, 2004). Thus, at a practical level, if the alternative is not to recognize the persistence and aversive nature of racism at all, the aversive outcomes associated with recognizing racism may at least be counterbalanced by the potential that automatic stereotyping processes may be reduced and we may not be "ruled by" our biases.

As a limitation, the study did not provide empirical support for the possible relationships affecting the given results and lack thereof. It may be that some of the psychological effects outlined in the present study (i.e., stigma consciousness, ethnic identification, affect, etc.) actually underlie the assumed cognitive effects as indirect or moderating factors but that was not the focus of this study, as the primary objective was to demonstrate the effects of recognizing racism on cognition and psychological functioning. Future research might explore mediating and moderating relationships that affect significant and nonsignificant findings of the effects of recognizing racism and discrimination on cognition.

There are a number of additional caveats related to this study that have not yet been outlined. First, participants were restricted to undergraduate university students in

the Midwest, which may affect the generalizability of the results. Second, this study only examined two types of cognitive functioning—inhibition and creativity—and it is possible that other types may be affected. In expanding research on cognitive functioning, it is important to consider that this study utilized a keyboard to record Stroop responses. Researchers debate the advantages and disadvantages of various technologies to record Stroop interference (e.g., computer keyboards, external keypresses, vocal recording; see MacLeod, 2005 for review). As previously stated, future research will be needed to examine the full extent of the impairment on cognitive functioning that occurs when presented with race-related material. Similarly, research might directly test for the roles of behavioral regulation and emotional regulation to provide stronger support for a resource depletion theory. Furthermore, this research does not explore all of the mechanisms underlying cognitive depletion in the context of racism-related situations. Other processes, such as negative affect or processes related to feelings of defensiveness or guilt, may be occurring while individuals recognize racism but these were not explored in the present study. Finally, it is possible that the varying results of the findings reflect a cohort effect, so replication of findings will be important to make more conclusive statements about the effects of racism and discrimination on cognitive and psychological functioning.

As one of the few studies examining the effect of race-related materials on higher-order cognitive processes, this study is informative to how we shape discussions on the topic of race. The findings provide a springboard for the continued exploration of how individuals are affected when they broach the issues of bias.

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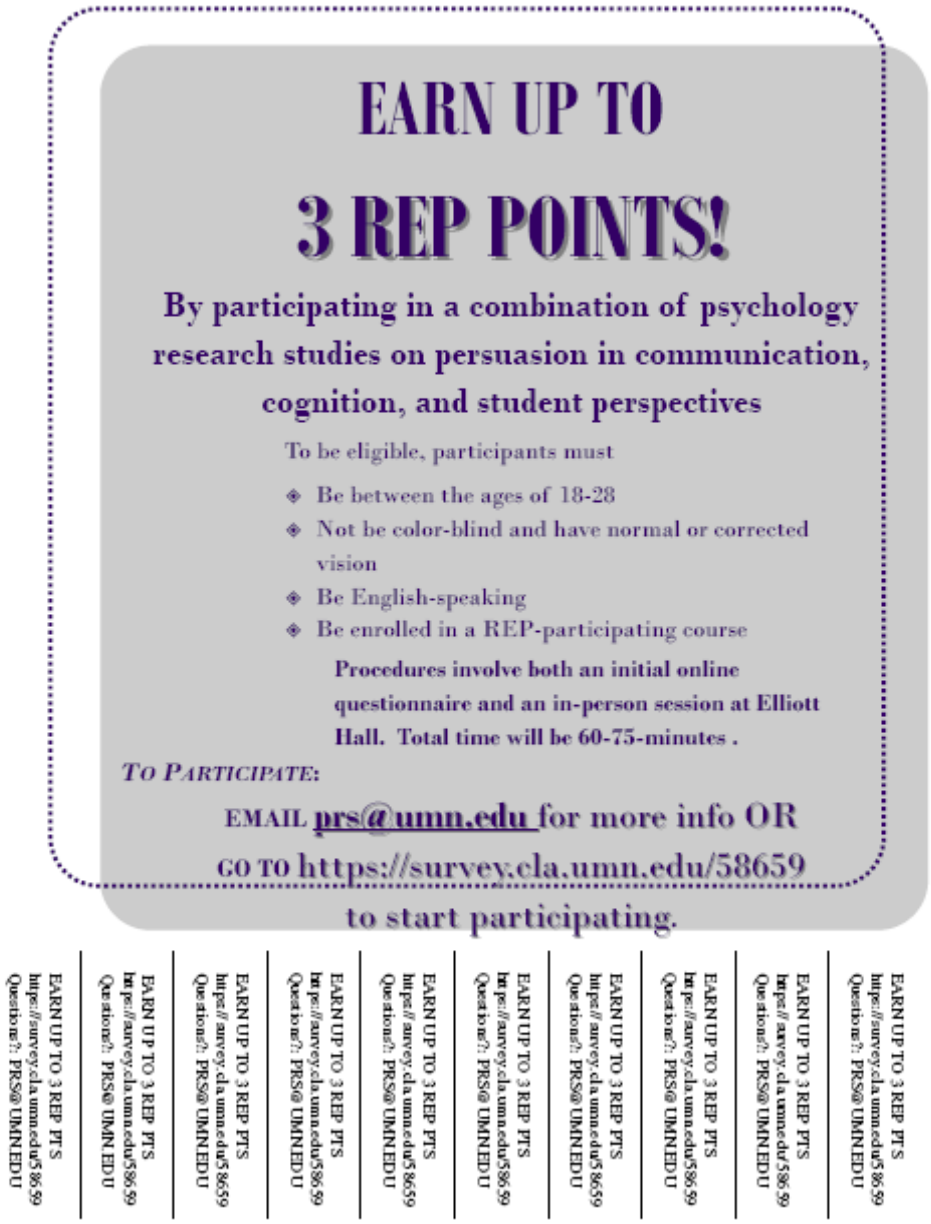
Appendix A. Recruitment Flyer



Appendix B. Study 1a Public Health Fact Sheets

Data Sheet #14: Racism

THE PHONE REVIEW

The 2009 PHONE (Public Health of Our Nation & Environment) Review is a biannual public health survey of the nation's population.

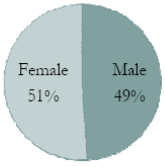
PHONE Review Sample Quick Facts

*The PHONE Review is a survey of **10,052 adults** in the United States. The PHONE Review sample generally matches the U.S. population in major demographic characteristics. The following are basic characteristics of the full PHONE Review sample:*

Age

18-34	59.5%
35-44	18.9%
45-64	15.9%
65+	5.7%

Gender

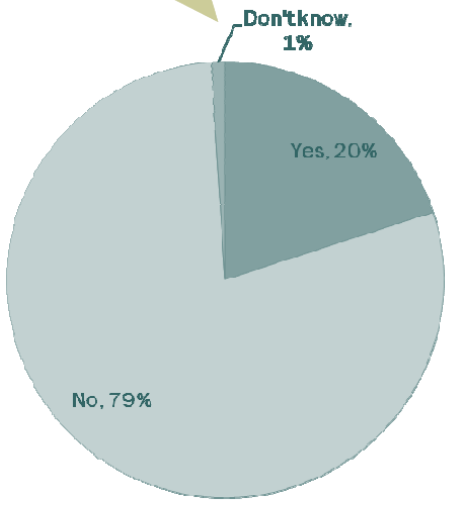


Race

Amer Indian/ Alaska Native	1.1%
Asian	5.2%
Black	13.2%
Pac Islander	1.4%
White	77.9%

See page 2 to learn how to obtain more information about the PHONE Review, its sample, and its findings.

"In the last 12 months, have you experienced racism?"



The 2009 PHONE Review asked all respondents if they had experienced racism in the last year. Results are presented above.

Results indicate that racism is a public health concern for a large portion of the U.S. population, affecting approximately 1 in 5 adults in the last year. Previous PHONE Review data suggests **(continued on page 2)**

Data Sheet #14: Discrimination

THE PHONE REVIEW

The 2009 PHONE (Public Health of Our Nation & Environment) Review is a biannual public health survey of the nation's population.

PHONE Review Sample Quick Facts

*The PHONE Review is a survey of **10,052 adults** in the United States. The PHONE Review sample generally matches the U.S. population in major demographic characteristics. The following are basic characteristics of the full PHONE Review sample:*

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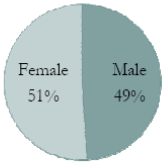
Gender



Race

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Asian	5.2%
Black	13.2%
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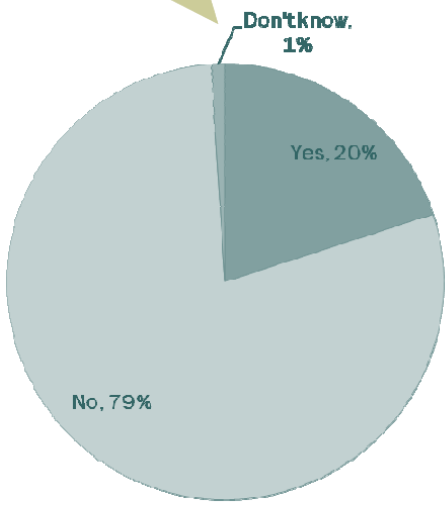
White	77.9%

See p. 2 to learn how to obtain more information about the PHONE Review, its sample, and its findings.

"In the last 12 months, have you experienced discrimination?"



The 2009 PHONE Review asked all respondents if they had experienced discrimination in the last year. Results are presented above.

Results indicate that discrimination is a public health concern for a large portion of the U.S. population, affecting approximately 1 in 5 adults in the last year. Previous PHONE Review data suggests **(contin. on p. 2)**

Data Sheet #14: Bullying

THE PHONE REVIEW

The 2009 PHONE (Public Health of Our Nation & Environment) Review is a biannual public health survey of the nation's population.

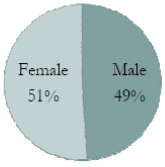
PHONE Review Sample Quick Facts

*The PHONE Review is a survey of **10,052 adults** in the United States. The PHONE Review sample generally matches the U.S. population in major demographic characteristics. The following are basic characteristics of the full PHONE Review sample:*

Age

18-34	59.5%
35-44	18.9%
45-64	15.9%
65+	5.7%

Gender

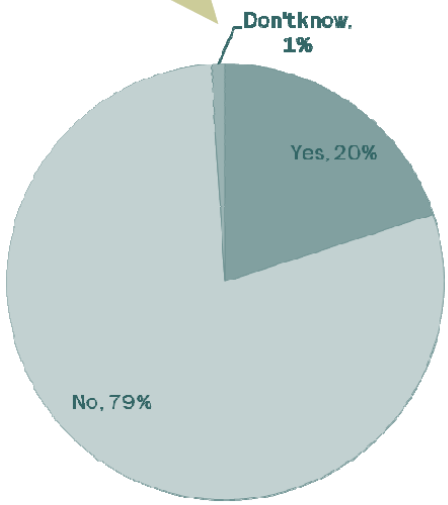


Race

Amer Indian/ Alaska Native	1.1%
Asian	5.2%
Black	13.2%
Pac Islander	1.4%
White	77.9%

See p. 2 to learn how to obtain more information about the PHONE Review, its sample, and its findings.

"In the last 12 months, have you experienced bullying?"



The 2009 PHONE Review asked all respondents if they had experienced bullying in the last year. Results are presented above.

Results indicate that bullying is a public health concern for a large portion of the U.S. population, affecting approximately 1 in 5 adults in the last year. Previous PHONE Review data suggests **(continued on p. 2)**

Appendix C. Study 1a Sample Writing Task Paper Instructions (Racism)

Persuasion and Communication

Thank you for participating in our study on communication. **Please carefully read the following instructions**.

- Please carefully review the accompanying datasheet about the existence of racism in our modern society (only the first page of the datasheet is included as a visual aid).
- Your task is to write a persuasive short essay on the existence of racism to someone who does not realize or recognize that racism exists as an issue in modern society.
- You can use the information from the datasheet but you can also add other arguments, information, thoughts, opinions, quotes, examples, statistics, etc. that you might know of to help make your short essay more persuasive.
- There is no minimum or maximum length/time for your short essay.
- Once completed, your short essay will be reviewed by a coder who will rate the essay for its degree of persuasiveness.
- Later, you will meet with this coder, who may ask you to clarify what you wrote.

You will be completing the essay on the computer. You will not be able to use the internet. Scratch paper is provided if you would like to use it.

TO START WRITING THE ESSAY: When you have reviewed the materials and instructions, please let the experimenter know so you can get started on the essay.

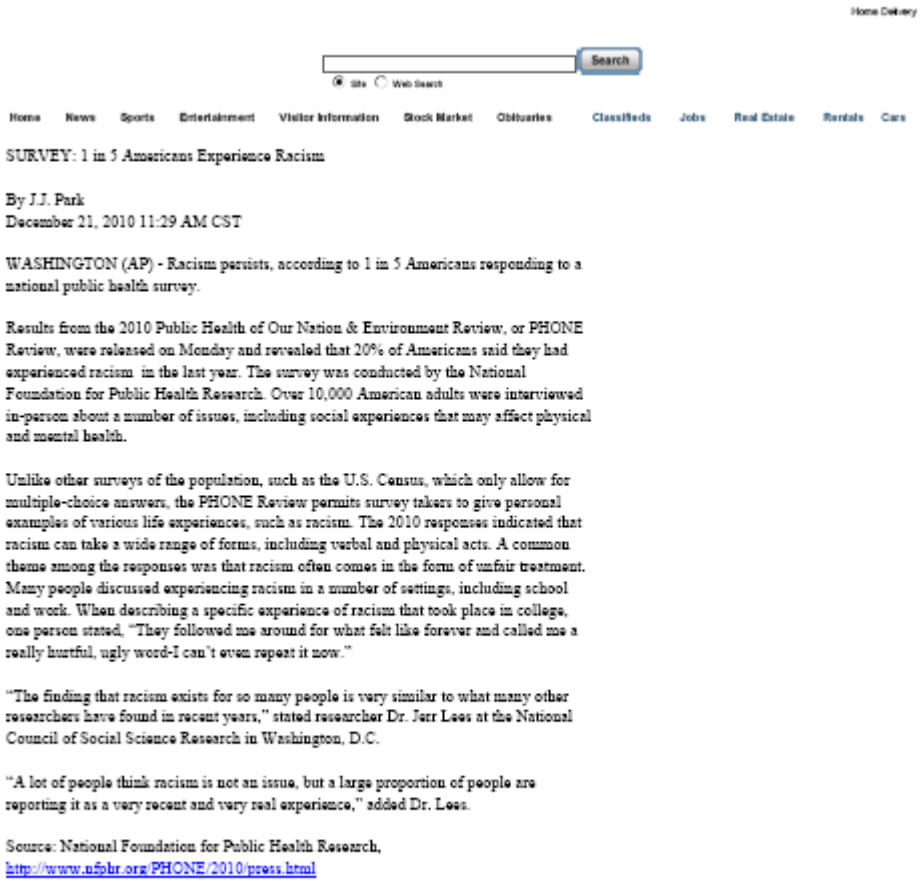
Appendix D. Study 1a Sample Writing Task Computer Instructions (Racism)

Please review the accompanying sheets of instructions before beginning.

Again, recall that you are writing a persuasive short essay to someone who does not realize or recognize the existence of racism in our modern society. Once completed, your essay will be reviewed by a coder for its degree of persuasiveness. Later, the coder may ask you questions for clarification or about the topic.

Enter your brief essay below. Please let the experimenter know when you're done with the writing task.

Appendix E. Study 2 Online Newspaper Articles



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Home News Sports Entertainment Visitor Information Stock Market Obituaries Classifieds Jobs Real Estate Rentals Cars

SURVEY: 1 in 5 Americans Experience Racism

By J.J. Park
December 21, 2010 11:29 AM CST

WASHINGTON (AP) - Racism persists, according to 1 in 5 Americans responding to a national public health survey.

Results from the 2010 Public Health of Our Nation & Environment Review, or PHONE Review, were released on Monday and revealed that 20% of Americans said they had experienced racism in the last year. The survey was conducted by the National Foundation for Public Health Research. Over 10,000 American adults were interviewed in-person about a number of issues, including social experiences that may affect physical and mental health.

Unlike other surveys of the population, such as the U.S. Census, which only allow for multiple-choice answers, the PHONE Review permits survey takers to give personal examples of various life experiences, such as racism. The 2010 responses indicated that racism can take a wide range of forms, including verbal and physical acts. A common theme among the responses was that racism often comes in the form of unfair treatment. Many people discussed experiencing racism in a number of settings, including school and work. When describing a specific experience of racism that took place in college, one person stated, "They followed me around for what felt like forever and called me a really hurtful, ugly word-I can't even repeat it now."

"The finding that racism exists for so many people is very similar to what many other researchers have found in recent years," stated researcher Dr. Jarr Lees at the National Council of Social Science Research in Washington, D.C.

"A lot of people think racism is not an issue, but a large proportion of people are reporting it as a very recent and very real experience," added Dr. Lees.

Source: National Foundation for Public Health Research,
http://www.nfphr.org/PHONE/2010/press.html

SURVEY: 1 in 5 Americans Experience Discrimination

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December 21, 2010 11:29 AM CST

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Unlike other surveys of the population, such as the U.S. Census, which only allow for multiple-choice answers, the PHONE Review permits survey takers to give personal examples of various life experiences, such as discrimination. The 2010 responses indicated that discrimination can take a wide range of forms, including verbal and physical acts. A common theme among the responses was that discrimination often comes in the form of unfair treatment. Many people discussed experiencing discrimination in a number of settings, including school and work. When describing a specific experience of discrimination that took place in college, one person stated, "They followed me around for what felt like forever and called me a really hurtful, ugly word-I can't even repeat it now."

"The finding that discrimination exists for so many people is very similar to what many other researchers have found in recent years," stated researcher Dr. Jerr Loss at the National Council of Social Science Research in Washington, D.C.

"A lot of people think discrimination is not an issue, but a large proportion of people are reporting it as a very recent and very real experience," added Dr. Loss.

Source: National Foundation for Public Health Research,
http://www.nfphr.org/PHONE/2010/press.html

SURVEY: 1 in 5 Americans Experience Bullying

By J.J. Park
December 21, 2010 11:29 AM CST

WASHINGTON (AP) - Bullying persists, according to 1 in 5 Americans responding to a national public health survey.

Results from the 2010 Public Health of Our Nation & Environment Review, or PHONE Review, were released on Monday and revealed that 20% of Americans said they had experienced bullying in the last year. The survey was conducted by the National Foundation for Public Health Research. Over 10,000 American adults were interviewed in-person about a number of issues, including social experiences that may affect physical and mental health.

Unlike other surveys of the population, such as the U.S. Census, which only allow for multiple-choice answers, the PHONE Review permits survey takers to give personal examples of various life experiences, such as bullying. The 2010 responses indicated that bullying can take a wide range of forms, including verbal and physical acts. A common theme among the responses was that bullying often comes in the form of unfair treatment. Many people discussed experiencing bullying in a number of settings, including school and work. When describing a specific experience of bullying that took place in college, one person stated, "They followed me around for what felt like forever and called me a really hurtful, ugly word-I can't even repeat it now."

"The finding that bullying exists for so many people is very similar to what many other researchers have found in recent years," stated researcher Dr. Jerr Lees at the National Council of Social Science Research in Washington, D.C.

"A lot of people think bullying is not an issue, but a large proportion of people are reporting it as a very recent and very real experience," added Dr. Lees.

Source: National Foundation for Public Health Research,
http://www.nfphr.org/PHONE/2010/press.html

Appendix F. Study 2 Sample Initial Memory Task (Racism)

Please circle the best answer to each question (please make your final answers very clear):

1. **How many people experienced racism in the last year?**

a) 1%
b) 5%
c) 20%
d) 52%

2. **What was the main point of the article?**

a) Racism is not an issue in the U.S.
b) Racism is only experienced by a small proportion of people.
c) Although racism was common decades ago, it is no longer an issue.
d) Many people experienced racism in the last year.

3. **The expert quoted (Dr. Lees) made which of the following points?**

a) Although people may believe racism is not an issue, PHONE Review data suggest that that racism persists.
b) The results of the PHONE Review mirror what most people in the population would expect about the prevalence of racism.
c) The PHONE Review finding that racism is not an issue for the U.S. population was surprising based on previous research.
d) The PHONE Review is an effective intervention to stop racism.

Please also write the letters of your <u>final</u> answers here:

1. _____

2. _____

3. _____

Appendix G. Study 2 Sample Delayed Memory Task (Racism)

Earlier for Study 1, you reviewed a news article and were asked to remember information from the article. Please answer the following questions based on the information you were presented.

Please clearly circle the best answer to each of the following questions (please make your final answer very clear):

1. **What percentage of people experienced racism in the last year?**

a) 5%
b) 20%
c) 25%
d) 52%

2) **What was the main point of the article?**

a) Racism is expected to increase over the next 20 years.
b) Many people believe that racism is an outdated issue in the U.S.
c) Many people experience racism in today's society.
d) Racism costs $52 million in social and political resources every year.

3) **The expert quoted (Dr. Lees) made which of the following points?**

a) The PHONE Review findings are surprising because they indicate that racism is not an issue for the U.S. population.
b) Although people may believe racism is not an issue, PHONE Review data suggest that that racism persists.
c) Most people in the U.S. population will be pleased to learn about the state of racism today.
d) Continuing the use of the PHONE Review will eliminate racism within the next 5 years.

Please also write the letters of your <u>final</u> answers here:

1. _____

2. _____

3. _____

Appendix H. Supplemental Covariate Analysis Literature Review, Measures, and Results Tables

Factors that May Affect Cognition and Psychological Functioning: The Case for Covariates

To recapitulate, in investigating the effects of recognizing racism, the cognitive variables of interest are executive functioning and creativity. Indices of psychological functioning that serve as outcome variables of interest include affect, group identification, outgroup orientation, stigma consciousness, and issue appraisal. A number of variables may be related to these outcomes and they have relevance as possible covariates for this study. Specifically, variations in internal and external motivations to respond without prejudice, socially desirable responding, just world beliefs, and social dominance orientation are considered for their possible relation to cognitive and psychological functioning. The decisions behind their inclusion in supplementary analyses are as stated in-text in the Analyses sections.

As Devine (1989) argued, inhibiting automatic responses to racial-stimuli is a controlled process (cf. automatic process) that is effortful and requires active attention. In support, there is evidence that racial responding (i.e., performance on the Implicit Association Test, or IAT) is adversely affected by concurrent completion of a cognitive "busyness" or inhibition task (Devine, Plant, Amodio, Harmon-Jones, & Vance, 2002). Plant and Devine (1998) characterized reports of racial attitudes as "strategic" (p. 812) and argued that people differ in the degree to which they are motivated to put effort towards responding without prejudice. This motivation may be internally imposed (i.e., internal motivation to respond without prejudice) or may be derived from external social norms and pressures (i.e., external motivation to respond without prejudice). As such, the individual differences in motivation to regulate and control prejudicial responses when recognizing racism likely results in variation in cognitive resources available for other cognitively-demanding tasks. As well, the motivation to respond without prejudice likely also results in differences within a number of the areas of psychological functioning that are of interest to this study, such as outgroup affiliation, ingroup identification, and affect. For example, motivations to respond without prejudice have been found to be related to various types of negative affect (Plant & Devine, 1998). Based on these considerations, internal and external motivations to respond without prejudice and external motivation to respond without prejudice were considered as potential covariates. Along the same lines, socially desirable responding also was considered a worthwhile covariate to consider.

Belief in a just world also was considered as a potential covariate because variations in such beliefs may engage cognitive and affective processes. Endorsing system justifying beliefs, such as beliefs in a just world, have been found to be related to positive and negative affect, ingroup and outgroup favoritism, and behavioral and attitudinal choices, including perspectives on social and policy decisions (see Jost & Hunyady, 2005 for review). At a theoretical level, just world beliefs could plausibly affect cognitive functioning when an individual recognizes racism because the individual

is motivated to go through a process of cognitive assimilation to reconcile the incongruencies between a reality in which racism exists and beliefs about justice and fairness (Dalbert, 2009). Assimilating an incongruent racial reality might manifest as blaming the victim or minimizing the unfairness, as examples (see Dalbert, 2009 for review). As an individual goes through these internal processes, it may draw away limited cognitive resources, resulting in cognitive impairment elsewhere. Research supports that the ability to maintain beliefs when faced with incongruent information is affected by available cognitive resources (Yzerbyt, Coull, & Rocher, 1999).

Another related variable, social dominance orientation, which represents individual differences in preferences for group-based hierarchical or unequal relationships (Pratto, Sidanius, Stallworth, & Malle, 1994). Strengths of social dominance motives differ across individuals (Jost, Glaser, Kruglanski, & Sulloway, 2003). Individual variability in terms of social dominance orientation would likely affect reports of other group-related variables, such as outgroup affiliation, ingroup appraisal and identity, and stigma consciousness. In support, research finds that social dominance orientation relates to social policy attitudes, including racial equality (see Jost et al., 2003 for review). As a motivated social cognition and source of heuristic information, individual differences in social dominance orientation may affect cognitive processing and therefore available cognitive resources when an individual is presented with information on the existence of racism. Variability in social dominance orientation suggests variations in preferences for equality and openness, and, thus, how aversive the idea of racism is, as well as the regulatory resources put toward processing information (Jost et al., 2003). In support, changes in beliefs (i.e., stereotypes) are negatively related to social dominance orientation in the face of inconsistent information, suggesting that group-based informational processing may be affected by social dominance (Tausch & Hewstone, 2010).

Study 1 Covariate Measures

Belief in a Just World. System-justifying beliefs were assessed in the "pre-study questionnaire," as operationalized by the six *General Belief in a Just World* (BJW) items from Dalbert and colleagues (1987; also, Dalbert, 1999). Sample items include, "*I believe that, by and large, people get what they deserve*," and, "*I am convinced that, in the long run, people will be compensated for injustices*." Previous research across multiple samples has revealed reliability in the range of α = .68-.78 (Dalbert, 1999). In this sample, reliability fell within this range (Cronbach's α = .68).

Motivation to Respond Without Prejudice. Ten items from the *Internal Motivation (IMS) and External Motivation (EMS) to Respond Without Prejudice Scales* measured participant's internal and external attitudes and efforts to appear nonprejudiced, respectively, during the "pre-study questionnaire battery" (Plant & Devine, 1998). Items measuring internal motivation to respond without prejudice represent self-imposed nonprejudiced standards (e.g., "*I attempt to act in nonprejudiced ways toward members of other racial/ethnic groups because it is personally important to me*;" Cronbach's α =.84), whereas external motivation items represent nonprejudiced motivation based on

standards imposed by significant others (e.g., "*I attempt to appear nonprejudiced toward members of other racial/ethnic groups in order to avoid disapproval from others*;" Cronbach's α = .75). Participants responded on a 9-point scale (1 = strongly disagree, 9 = strongly agree). The scale scores were considered as possible covariates to include in analysis.

Social Dominance Orientation. To control for individual differences in *Social Dominance Orientation (SDO),* SDO was assessed in the "pre-study questionnaire" and scores were reviewed as a potential covariate in analyses. The original SDO scale includes 16 items and a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*) assessing attitudes about hierarchical relations between social groups, such as "*It's probably a good thing that certain groups are at the top and other groups are at the bottom*" (Pratto, Sidanius, Stallworth, & Malle, 1994). The current study uses a shortened, eight-item version of the SDO scale used in other research (e.g., Federico & Levin, 2004). Reliability was adequate in the current sample (Cronbach's α = .88).

Social Desirability. Socially desirable responding was assessed with the *Marlowe-Crowne Social Desirability Scale* (MCSD; Crowne & Marlowe, 1960). Ten items were selected based on previous psychometric research supporting short forms of the MCSD (Fischer & Fick, 1993; Strahan & Gerbasi, 1972). The abbreviated scale previously had been found to be reliable with an undergraduate student sample (Kuder Richardson, or KR-20, = .88; Fischer & Fick, 1993). For the present sample, KR-20 was .53. Because of the poor reliability with the given sample, the MCSD was omitted from all analyses.

Study 1 Covariate Results Tables

Table H1. Study 1a Scale Descriptive Statistics and Correlations

	Cronbach's α	Mean	SD	N		1. Stroop Interference	2. Stroop errors	3. Positive affect	4. Negative affect	5. Collective self esteem	6. Outgroup orientation	7. Stigma consciousness	8. Personal relevance	9. National relevance	10. Belief in a just world	11. Internal motivation to respond without prejudice	12. External motivation to respond without prejudice	13. Social dominance orientation	14. Positive affectivity (pre-experimental)	15. Negative affectivity (pre-experimental)	16. Pre-experimental ethnic pride
1	n/a	.039	.036	176	*r*	1	.082	-.116	.016	-.031	.065	-.033	.035	.082	.084	.052	-.037	.034	-.064	.041	-.085
					p		.281	.132	.841	.685	.397	.673	.648	.278	.268	.491	.625	.656	.400	.592	.264
					N	176	176	169	170	169	172	171	176	176	176	176	176	176	176	176	175
2	n/a	2.682	2.784	176	*r*	.082	1	.055	.063	-.148	-.166*	.006	-.053	-.040	.074	-.184*	.009	.142	-.047	-.090	-.055
					p	.281		.478	.414	.055	.029	.941	.487	.597	.328	.014	.906	.060	.533	.237	.472
					N	176	176	169	170	169	172	171	176	176	176	176	176	176	176	176	175
3	.88	2.784	.728	170	*r*	-.116	.055	1	.194*	.129	.118	-.057	.126	.017	.122	.011	-.001	.156*	.423**	-.022	.147
					p	.132	.478		.011	.096	.126	.465	.101	.825	.112	.889	.987	.042	.000	.773	.056
					N	169	169	170	170	167	170	169	170	170	170	170	170	170	170	170	169
4	.79	1.408	.413	171	*r*	.016	.063	.194*	1	.044	-.186*	.136	.178*	-.018	-.059	-.242**	.036	.214**	-.047	.460**	.010
					p	.841	.414	.011		.568	.015	.076	.020	.817	.446	.001	.638	.005	.539	.000	.902
					N	170	170	170	171	168	171	170	171	171	171	171	171	171	171	171	170
5	.86	4.954	.748	170	*r*	-.031	-.148	.129	.044	1	-.167*	-.037	-.065	-.136	.256**	-.100	.073	.189*	.264**	-.083	.668**
					p	.685	.055	.096	.568		.029	.630	.398	.078	.001	.194	.342	.014	.001	.281	.000
					N	169	169	167	168	170	170	170	170	170	170	170	170	170	170	170	169
6	.71	3.422	.422	173	*r*	.065	-.166*	.118	-.186*	-.167*	1	-.101	.125	.143	-.125	.484**	-.041	-.312**	.064	-.053	-.197**
					p	.397	.029	.126	.015	.029		.187	.102	.061	.101	.000	.588	.000	.405	.488	.009
					N	172	172	170	171	170	173	172	173	173	173	173	173	173	173	173	172
7	.74	3.135	.726	172	*r*	-.033	.006	-.057	.136	-.037	-.101	1	.248**	.071	-.143	-.059	-.025	-.108	-.176*	.140	-.129
					p	.673	.941	.465	.076	.630	.187		.001	.352	.061	.443	.743	.158	.021	.066	.094
					N	171	171	169	170	170	172	172	172	172	172	172	172	172	172	172	171

8	n/a	2.201	.802	177	*r*	.035	-.053	.126	.178*	-.065	.125	.248**	1	.324**	-.082	.168*	-.022	.001	.013	.160*	-.120
					p	.648	.487	.101	.020	.398	.102	.001		.000	.279	.025	.771	.988	.865	.033	.112
					N	176	176	170	171	170	173	172	177	177	177	177	177	177	177	177	176
9	n/a	3.356	.577	177	*r*	.082	-.040	.017	-.018	-.136	.143	.071	.324**	1	-.180*	.311**	.071	-.317**	-.038	.088	-.072
					p	.278	.597	.825	.817	.078	.061	.352	.000		.016	.000	.349	.000	.615	.244	.339
					N	176	176	170	171	170	173	172	177	177	177	177	177	177	177	177	176
10	.68	3.382	.728	177	*r*	.084	.074	.122	-.059	.256**	-.125	-.143	-.082	-.180*	1	-.174*	.179 *	.314**	.243**	-.029	.293**
					p	.268	.328	.112	.446	.001	.101	.061	.279	.016		.021	.017	.000	.001	.701	.000
					N	176	176	170	171	170	173	172	177	177	177	177	177	177	177	177	176
11	.84	7.198	1.271	177	*r*	.052	-.184*	.011	-.242**	-.100	.484**	-.059	.168*	.311**	-.174*	1	.057	-.537**	.007	-.054	-.123
					p	.491	.014	.889	.001	.194	.000	.443	.025	.000	.021		.455	.000	.925	.472	.103
					N	176	176	170	171	170	173	172	177	177	177	177	177	177	177	177	176
12	.75	5.773	1.462	177	*r*	-.037	.009	-.001	.036	.073	-.041	-.025	-.022	.071	.179*	.057	1	.019	-.076	-.032	.284**
					p	.625	.906	.987	.638	.342	.588	.743	.771	.349	.017	.455		.805	.317	.674	.000
					N	176	176	170	171	170	173	172	177	177	177	177	177	177	177	177	176
13	.88	2.522	1.002	177	*r*	.034	.142	.156*	.214**	.189*	-.312**	-.108	.001	-.317**	.314**	-.537**	.019	1	.099	.084	.215**
					p	.656	.060	.042	.005	.014	.000	.158	.988	.000	.000	.000	.805		.192	.268	.004
					N	176	176	170	171	170	173	172	177	177	177	177	177	177	177	177	176
14	.85	3.424	.584	177	*r*	-.064	-.047	.423**	-.047	.264**	.064	-.176*	.013	-.038	.243**	.007	-.076	.099	1	-.040	.232**
					p	.400	.533	.000	.539	.001	.405	.021	.865	.615	.001	.925	.317	.192		.598	.002
					N	176	176	170	171	170	173	172	177	177	177	177	177	177	177	177	176
15	.83	1.837	.538	177	*r*	.041	-.090	-.022	.460**	-.083	-.053	.140	.160*	.088	-.029	-.054	-.032	.084	-.040	1	-.129
					p	.592	.237	.773	.000	.281	.488	.066	.033	.244	.701	.472	.674	.268	.598		.088
					N	176	176	170	171	170	173	172	177	177	177	177	177	177	177	177	176
16	.81	4.259	1.048	176	*r*	-.085	-.055	.147	.010	.668**	-.197**	-.129	-.120	-.072	.293**	-.123	.284**	.215**	.232**	-.129	1
					p	.264	.472	.056	.902	.000	.009	.094	.112	.339	.000	.103	.000	.004	.002	.088	
					N	175	175	169	170	169	172	171	176	176	176	176	176	176	176	176	176

Note. ** p < .01, * p < .05

Table H2. Study 1a ANCOVA Results with Condition as the Independent Variable[†]

	Omnibus Test Results				Racism vs. Bullying			Discrimination vs. Bullying		
Dependent variable	*F*	*df*	*p*-value	Partial η^2	Contrast estimate	*p*-value	Cohen's *d*	Contrast estimate	*p*-value	Cohen's *d*
Stroop interference	1.049	2,170	.353	.012	0.001	.867	0.039	0.009	.187	0.242
Stroop errors	1.998	2,170	.139	.023	-0.808	.119	0.263	0.138	.785	0.052
Positive affect with full set of covariates and pre-experimental positive affectivity	0.431	2,163	.650	.005	0.002	.986	0.027	-0.098	.427	0.192
Negative affect with full set of covariates and pre-experimental negative affectivity	0.029	2,164	.972	.000	-0.016	.812	0.120	-0.009	.895	0.040
Collective identity/self-esteem with full set of covariates and pre-experimental racial/ethnic identity	1.068	2,162	.346	.013	-0.148	.172	0.219	-0.024	.816	0.050
Outgroup orientation	6.287**	2,167	.002	.070	-0.104	.133	0.327	0.244*	.001	0.648
Stigma consciousness	0.009	2,166	.991	.000	0.016	.910	0.017	0.000	.998	0.008
Personal relevance	0.426	2,171	.654	.005	0.025	.868	0.028	0.126	.387	0.128
National importance	6.665**	2,171	.002	.072	0.244*	.014	0.379	0.342**	.000	0.596

[†] Covariates = BJW, SDO, IMS

Note. ** $p < .01$, * $p < .05$

Table H3. Study 1b Scale Descriptive Statistics and Correlations

	Cronbach's alpha	Mean	SD	N		1. Stroop Interference	2. Stroop errors	3. Positive affect	4. Negative affect	5. Collective self esteem	6. Outgroup orientation	7. Stigma consciousness	8. Personal relevance	9. National relevance	10. Belief in a just world	11. Internal motivation to respond without prejudice	12. External motivation to respond without prejudice	13. Social dominance orientation	14. Positive affectivity (pre-experimental)	15. Negative affectivity (pre-experimental)	16. Pre-experimental ethnic pride
1	n/a	.042	.043	58	*r*	1	.093	.070	-.180	-.022	.044	-.194	-.112	-.234	-.018	-.108	-.027	-.005	-.145	.005	-.178
					p		.488	.614	.188	.872	.748	.152	.412	.083	.893	.419	.839	.973	.278	.968	.181
					N	58	58	55	55	56	56	56	56	56	58	58	58	58	58	58	58
2	n/a	2.793	2.719	58	*r*	.093	1	-.046	-.186	-.177	.087	-.219	-.032	.069	-.104	.204	-.145	.071	.066	-.005	-.086
					p	.488		.738	.175	.192	.521	.104	.816	.613	.436	.124	.277	.597	.624	.970	.521
					N	58	58	55	55	56	56	56	56	56	58	58	58	58	58	58	58
3	.88	2.557	.688	55	*r*	.070	-.046	1	.089	.349**	.165	-.152	.362**	.191	.282*	.031	.125	.204	.443**	-.117	.134
					p	.614	.738		.517	.009	.228	.267	.007	.162	.037	.822	.362	.135	.001	.394	.329
					N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
4	.62	1.350	.291	55	*r*	-.180	-.186	.089	1	-.141	-.205	-.059	.016	-.010	-.092	-.134	-.045	.165	.041	.266*	-.179
					p	.188	.175	.517		.304	.133	.669	.910	.940	.505	.330	.745	.229	.768	.050	.190
					N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
5	.90	4.943	.892	56	*r*	-.022	-.177	.349**	-.141	1	.050	.013	-.116	.013	.408**	-.107	.378**	.184	.321*	-.154	.702**
					p	.872	.192	.009	.304		.717	.926	.395	.924	.002	.432	.004	.174	.016	.256	.000
					N	56	56	55	55	56	56	56	56	56	56	56	56	56	56	56	56
6	.68	3.461	.407	56	*r*	.044	.087	.165	-.205	.050	1	-.155	.158	.209	.377**	.279*	-.004	-.145	.235	-.228	.227
					p	.748	.521	.228	.133	.717		.253	.246	.122	.004	.037	.979	.285	.081	.092	.093
					N	56	56	55	55	56	56	56	56	56	56	56	56	56	56	56	56
7	.74	3.203	.726	56	*r*	-.194	-.219	-.152	-.059	.013	-.155	1	.236	-.004	-.212	-.298*	.029	.135	-.239	.087	.021
					p	.152	.104	.267	.669	.926	.253		.080	.978	.116	.026	.831	.321	.076	.522	.875
					N	56	56	55	55	56	56	56	56	56	56	56	56	56	56	56	56
8	n/a	2.348	.899	56	*r*	-.112	-.032	.362**	.016	-.116	.158	.236	1	.536**	-.019	.192	.021	-.139	.060	-.115	.017

					p	.412	.816	.007	.910	.395	.246	.080		.000	.890	.157	.881	.307	.660	.401	.901
					N	56	56	55	55	56	56	56	56	56	56	56	56	56	56	56	56
9	n/a	3.357	.699	56	*r*	-.234	.069	.191	-.010	.013	.209	-.004	.536**	1	.068	.455**	.135	-.317*	.198	-.113	.146
					p	.083	.613	.162	.940	.924	.122	.978	.000		.617	.000	.321	.017	.143	.405	.284
					N	56	56	55	55	56	56	56	56	56	56	56	56	56	56	56	56
10	.74	3.385	.849	58	*r*	-.018	-.104	.282*	-.092	.408**	.377**	-.212	-.019	.068	1	-.068	.140	.207	.337**	-.331*	.530**
					p	.893	.436	.037	.505	.002	.004	.116	.890	.617		.613	.294	.118	.010	.011	.000
					N	58	58	55	55	56	56	56	56	56	58	58	58	58	58	58	58
11	.84	7.110	1.311	58	*r*	-.108	.204	.031	-.134	-.107	.279*	-.298*	.192	.455**	-.068	1	.199	-.444**	-.013	-.048	.046
					p	.419	.124	.822	.330	.432	.037	.026	.157	.000	.613		.133	.000	.921	.719	.732
					N	58	58	55	55	56	56	56	56	56	58	58	58	58	58	58	58
12	.84	5.610	1.702	58	*r*	-.027	-.145	.125	-.045	.378**	-.004	.029	.021	.135	.140	.199	1	.014	-.231	-.066	.382**
					p	.839	.277	.362	.745	.004	.979	.831	.881	.321	.294	.133		.915	.081	.623	.003
					N	58	58	55	55	56	56	56	56	56	58	58	58	58	58	58	58
13	.88	2.845	1.093	58	*r*	-.005	.071	.204	.165	.184	-.145	.135	-.139	-.317*	.207	-.444**	.014	1	.049	.012	.096
					p	.973	.597	.135	.229	.174	.285	.321	.307	.017	.118	.000	.915		.715	.929	.474
					N	58	58	55	55	56	56	56	56	56	58	58	58	58	58	58	58
14	.92	3.471	.742	58	*r*	-.145	.066	.443**	.041	.321*	.235	-.239	.060	.198	.337**	-.013	-.231	.049	1	-.080	.121
					p	.278	.624	.001	.768	.016	.081	.076	.660	.143	.010	.921	.081	.715		.552	.366
					N	58	58	55	55	56	56	56	56	56	58	58	58	58	58	58	58
15	.81	1.813	.496	58	*r*	.005	-.005	-.117	.266*	-.154	-.228	.087	-.115	-.113	-.331**	-.048	-.066	.012	-.080	1	-.362**
					p	.968	.970	.394	.050	.256	.092	.522	.401	.405	.011	.719	.623	.929	.552		.005
					N	58	58	55	55	56	56	56	56	56	58	58	58	58	58	58	58
16	.85	4.391	1.098	58	*r*	-.178	-.086	.134	-.179	.702**	.227	.021	.017	.146	.530**	.046	.382**	.096	.121	-.362**	1
					p	.181	.521	.329	.190	.000	.093	.875	.901	.284	.000	.732	.003	.474	.366	.005	
					N	58	58	55	55	56	56	56	56	56	58	58	58	58	58	58	58

Note. ** $p < .01$, * $p < .05$

Table H4. Study 1b ANCOVA Results with Condition as the Independent Variable[†]

	Omnibus Test Results				Racism vs. Bullying			Discrimination vs. Bullying		
Dependent variable	*F*	*df*	*p*-value	Partial η^2	Contrast estimate	*p*-value	Cohen's *d*	Contrast estimate	*p*-value	Cohen's *d*
Stroop interference	0.965	2,51	.388	.036	-0.020	.175	0.429	-0.007	.630	0.145
Stroop errors	2.210	2,51	.120	.080	-1.102	.190	0.247	-1.745*	.044	0.653
Positive affect with full set of covariates and pre-experimental positive affectivity	1.171	2,47	.319	.047	-0.117	.565	0.328	-0.309	.134	0.683
Negative affect with full set of covariates and pre-experimental negative affectivity	0.029	2,47	.971	.001	-0.018	.857	0.090	0.006	.952	0.070
Collective identity/self-esteem with full set of covariates and pre-experimental racial/ethnic identity	0.183	2,48	.833	.008	-0.129	.550	0.405	-0.071	.741	0.175
Outgroup orientation	0.448	2,49	.642	.018	0.017	.888	0.022	0.106	.119	0.337
Stigma consciousness	0.969	2,49	.387	.038	0.239	.303	0.292	0.295	.198	0.328
Personal relevance	0.210	2,49	.812	.008	-0.048	.876	0.022	0.147	.632	0.184
National importance	0.843	2,49	.437	.033	0.190	.368	0.257	0.257	.219	0.430

[†] Covariates = BJW, SDO, IMS, EMS

Note. * $p < .05$

Study 2 Covariate Measures

Belief in a Just World (covariate). As before, the six Dalbert et al.'s (1987) *General Belief in a Just World* items measured system justifying beliefs. In this sample, reliability was adequate (Cronbach's $\alpha = .71$).

Motivation to Respond Without Prejudice (covariate). The IMS and EMS (Plant & Devine, 1998) were administered during the "pre-study questionnaire battery" (Cronbach's $\alpha = .75$ and .85, respectively).

Social Dominance Orientation (covariate). The shortened, eight-item version of the SDO scale was again used as a covariate measured during the online survey (Cronbach's $\alpha = .86$).

Study 2 Covariate Results Tables

Table H5. Study 2 Scale Descriptive Statistics and Correlations

	Reliability	Mean	SD	N		Overall creativity rating	Ideational fluency	Positive affect	Negative affect	Self-rated creativity (post-manipulation)	Outgroup orientation	Emotional effect of topic	Personal relevance	National relevance	Positive affectivity (pre-experimental)	Negative affectivity (pre-experimental)	Self-rated creativity (pre-experimental)	Belief in a just world	Social dominance orientation	Internal motivation to respond w/o prejudice	External motivation to respond w/o prejudice
Overall creativity rating	ICC = .757	2.621	0.697	118	*r*	1	.148	-.011	-.022	.204*	-.027	.084	.274**	.100	-.131	.158	.039	-.029	-.178	-.062	.114
					p		.109	.903	.815	.028	.774	.364	.003	.282	.158	.088	.676	.756	.053	.506	.220
					N	118	118	117	116	116	118	118	118	118	118	118	118	118	118	118	118
Ideational fluency	n/a	7.160	2.626	119	*r*	.148	1	-.071	.097	.206*	.048	-.172	-.014	-.157	-.028	.108	.010	-.002	.047	-.044	.204*
					p	.109		.444	.297	.026	.606	.062	.877	.087	.761	.241	.912	.983	.609	.631	.026
					N	118	119	118	117	117	119	119	119	119	119	119	119	119	119	119	119
Positive affect	α = .838	2.705	0.668	118	*r*	-.011	-.071	1	-.059	.482**	.200*	.168	.075	.212*	.478**	-.073	.230*	.239**	-.017	.094	.035
					p	.903	.444		.525	.000	.030	.069	.420	.021	.000	.432	.012	.009	.856	.312	.706
					N	117	118	118	117	117	118	118	118	118	118	118	118	118	118	118	118
Negative affect	α = .747	1.364	0.372	117	*r*	-.022	.097	-.059	1	-.005	-.055	.089	-.040	.117	-.175	.388**	-.057	-.049	-.052	.024	.099
					p	.815	.297	.525		.958	.557	.341	.672	.207	.059	.000	.540	.601	.578	.799	.291
					N	116	117	117	117	116	117	117	117	117	117	117	117	117	117	117	117
Self-rated creativity (post-manipulation)	n/a	2.359	0.995	117	*r*	.204*	.206*	.482**	-.005	1	.178	.043	.038	.071	.213*	-.021	.461**	.189*	-.118	.107	.012
					p	.028	.026	.000	.958		.056	.648	.687	.445	.021	.823	.000	.042	.205	.252	.895
					N	116	117	117	116	117	117	117	117	117	117	117	117	117	117	117	117
Outgroup orientation	α = .686	3.352	0.393	119	*r*	-.027	.048	.200*	-.055	.178	1	.122	.047	.289**	.273**	-.008	.080	-.181*	-.382**	.266**	-.142
					p	.774	.606	.030	.557	.056		.186	.611	.001	.003	.927	.386	.049	.000	.003	.123
					N	118	119	118	117	117	119	119	119	119	119	119	119	119	119	119	119
Emotional effect of topic	r = .679	4.143	1.536	119	*r*	.084	-.172	.168	.089	.043	.122	1	.322**	.368**	.078	.111	.125	.051	-.344**	.219*	.024
					p	.364	.062	.069	.341	.648	.186		.000	.000	.399	.229	.175	.585	.000	.016	.793
					N	118	119	118	117	117	119	119	119	119	119	119	119	119	119	119	119
Personal	n/a	2.017	0.748	119	*r*	.274**	-.014	.075	-.040	.038	.047	.322**	1	.339**	-.004	.034	.111	-.099	-.076	.048	-.094

relevance					*p*	.003	.877	.420	.672	.687	.611	.000		.000	.968	.712	.229	.286	.409	.602	.308
					N	118	119	118	117	117	119	119	119	119	119	119	119	119	119	119	119
National relevance	n/a	3.168	0.557	119	*r*	.100	-.157	.212*	.117	.071	.289**	.368**	.339**	1	.095	.022	.077	-.160	-.446**	.206*	-.124
					p	.282	.087	.021	.207	.445	.001	.000	.000		.307	.810	.408	.083	.000	.025	.178
					N	118	119	118	117	117	119	119	119	119	119	119	119	119	119	119	119
Positive affectivity (pre-experimental)	α = .843	3.492	0.561	119	*r*	-.131	-.028	.478**	-.175	.213*	.273**	.078	-.004	.095	1	-.211*	.286**	.090	-.057	.320**	.024
					p	.158	.761	.000	.059	.021	.003	.399	.968	.307		.021	.002	.331	.539	.000	.795
					N	118	119	118	117	117	119	119	119	119	119	119	119	119	119	119	119
Negative affectivity (pre-experimental)	α = .847	1.912	0.588	119	*r*	.158	.108	-.073	.388**	-.021	-.008	.111	.034	.022	-.211*	1	.023	.053	.060	-.200*	.015
					p	.088	.241	.432	.000	.823	.927	.229	.712	.810	.021		.803	.564	.515	.030	.871
					N	118	119	118	117	117	119	119	119	119	119	119	119	119	119	119	119
Self-rated creativity (pre-experimental)	n/a	3.151	0.988	119	*r*	.039	.010	.230*	-.057	.461**	.080	.125	.111	.077	.286**	.023	1	.053	-.132	.165	-.189*
					p	.676	.912	.012	.540	.000	.386	.175	.229	.408	.002	.803		.567	.152	.072	.039
					N	118	119	118	117	117	119	119	119	119	119	119	119	119	119	119	119
Belief in a just world	α = .710	3.457	0.798	119	*r*	-.029	-.002	.239**	-.049	.189*	-.181*	.051	-.099	-.160	.090	.053	.053	1	.214*	-.052	.344**
					p	.756	.983	.009	.601	.042	.049	.585	.286	.083	.331	.564	.567		.019	.575	.000
					N	118	119	118	117	117	119	119	119	119	119	119	119	119	119	119	119
Social dominance orientation	α = .857	2.718	0.966	119	*r*	-.178	.047	-.017	-.052	-.118	-.382**	-.344**	-.076	-.446**	-.057	.060	-.132	.214*	1	-.454**	.097
					p	.053	.609	.856	.578	.205	.000	.000	.409	.000	.539	.515	.152	.019		.000	.295
					N	118	119	118	117	117	119	119	119	119	119	119	119	119	119	119	119
Internal motivation to respond w/o prejudice	α = .754	7.102	1.233	119	*r*	-.062	-.044	.094	.024	.107	.266**	.219*	.048	.206*	.320**	-.200*	.165	-.052	-.454**	1	.084
					p	.506	.631	.312	.799	.252	.003	.016	.602	.025	.000	.030	.072	.575	.000		.366
					N	118	119	118	117	117	119	119	119	119	119	119	119	119	119	119	119
External motivation to respond w/o prejudice	α = .850	5.988	1.683	119	*r*	.114	.204*	.035	.099	.012	-.142	.024	-.094	-.124	.024	.015	-.189*	.344**	.097	.084	1
					p	.220	.026	.706	.291	.895	.123	.793	.308	.178	.795	.871	.039	.000	.295	.366	
					N	118	119	118	117	117	119	119	119	119	119	119	119	119	119	119	119

Note. ** $p < .01$, * $p < .05$

Table H6. Study 2 ANCOVA Results with Condition as the Independent Variable**

	Omnibus Test Results				Racism vs. Bullying			Discrimination vs. Bullying		
Dependent variable	*F*	*df*	*p*-value	Partial η^2	Contrast estimate	*p*-value	Cohen's *d*	Contrast estimate	*p*-value	Cohen's *d*
Ideational fluency	2.258	2, 112	.109	.039	-1.130†	.058	0.458	-0.059	.919	0.036
Overall creativity rating	1.055	2, 111	.352	.019	0.219	.163	0.283	0.051	.740	0.087
Self-rated creativity with full set of covariates and pre-experimental self-rated creativity	0.745	2, 109	.477	.013	-0.205	.321	0.336	0.033	.868	0.047
Positive affect with full set of covariates and pre-experimental positive affectivity	0.157	2, 110	.855	.003	-0.074	.586	0.119	-0.019	.886	0.240
Negative affect with full set of covariates and pre-experimental negative affectivity	0.128	2, 109	.880	.002	0.004	.965	0.014	0.037	.641	0.047
Outgroup orientation	0.194	2, 112	.824	.003	0.008	.922	0.038	0.048	.557	0.210
Personal relevance	2.721†	2, 112	.070	.046	0.382*	.027	0.523	0.082	.624	0.157
National importance	3.332*	2, 112	.039	.056	0.292*	.011	0.541	0.123	.268	0.297
Emotional effect	0.368	2, 112	.693	.007	0.127	.704	0.044	0.280	.393	0.152

** Covariates = EMS, IMS, BJW, SDO

Note: * $p < .05$, † $p < .10$

Appendix I. Descriptive Statistics by Condition

Table I1. Study 1a Dependent Variable Scale Descriptive Statistics by Condition

	Racism	Discrimination	Bullying	Total
Stroop interference				
Mean	.0365	.0439	.0352	.0386
SD	.03436	.03866	.03305	.03551
N	57	61	58	176
Stroop errors				
Mean	2.1404	3.0164	2.8621	2.6818
SD	2.27124	2.81361	3.15366	2.78381
N	57	61	58	176
Positive affect				
Mean	2.8182	2.6971	2.8380	2.7835
SD	.72216	.73234	.73370	.72791
N	55	58	57	170
Negative affect				
Mean	1.3840	1.4115	1.4278	1.4082
SD	.33576	.50310	.38508	.41318
N	55	58	58	171
Group identity/self-esteem				
Mean	4.8269	5.0323	4.9945	4.9544
SD	.72537	.70877	.80381	.74791
N	54	59	57	170
Other group orientation				
Mean	3.4152	3.3056	3.5489	3.4220
SD	.48099	.42427	.31992	.42245
N	55	60	58	173
Stigma consciousness				
Mean	3.1417	3.1350	3.1292	3.1352
SD	.69890	.68317	.80220	.72601
N	55	59	58	172
Personal relevance				
Mean	2.1491	2.2742	2.1724	2.2006
SD	.82356	.75029	.84059	.80174
N	57	62	58	177
National importance				
Mean	3.3860	3.5000	3.1724	3.3559
SD	.59023	.56540	.53436	.57691
N	57	62	58	177

Table I2. Study 1a Additional Variable Descriptive Statistics by Condition

	Racism	Discrimination	Bullying	Total	*F(df)*	*p*
Age					.258 (2,174)	.773
Mean	19.53	19.32	19.53	19.46		
SD	2.062	1.744	1.698	1.831		
N	57	62	58	177		
Positive affectivity (pre-experimental)					.180(2,174)	.836
Mean	3.4175	3.3774	3.4414	3.4113		
SD	.60063	.60284	.57033	.58890		
N	57	62	58	177		
Negative affectivity (pre-experimental)					.506(2,174)	.604
Mean	1.7702	1.8548	1.8603	1.8294		
SD	.44359	.61342	.54417	.53908		
N	57	62	58	177		
Pre-experimental ethnic pride					.199(2,174)	.820
Mean	4.1754	4.3011	4.2241	4.2354		
SD	.99024	1.13515	1.15704	1.09312		
N	57	62	58	177		
Belief in a just world					1.029(2,174)	.359
Mean	3.4708	3.3360	3.2787	3.3606		
SD	.68002	.68052	.84142	.73708		
N	57	62	58	177		
Internal motivation to respond without prejudice					.384(2,174)	.681
Mean	7.0877	7.1839	7.2966	7.1898		
SD	1.41169	1.22504	1.19487	1.27427		
N	57	62	58	177		
External motivation to respond without prejudice					.311(2,174)	.733
Mean	5.7404	5.8871	5.6828	5.7729		
SD	1.53575	1.16316	1.67794	1.46247		
N	57	62	58	177		
Social dominance orientation					.011(2,174)	.989
Mean	2.5044	2.5141	2.5323	2.5169		
SD	.95196	.94904	1.11915	1.00314		
N	57	62	58	177		
Challenge in writing on the issue/topic					1.643(2,174)	.196
Mean	2.2982	2.0645	2.1724	2.1751		
SD	.75510	.74374	.59642	.70538		
N	57	62	58	177		
Self-perceived persuasiveness of essay					2.541(2,174)	.082

Mean	5.5614	6.0806	6.0948	5.9181		
SD	1.59259	1.41767	1.33593	1.46369		
N	57	62	58	177		
Self-assessed quality of essay					.784(2,174)	.458
Mean	5.1579	5.4677	5.2759	5.3051		
SD	1.50937	1.26384	1.32179	1.36416		
N	57	62	58	177		
Effort in writing the essay					.737(2,174)	.480
Mean	2.4912	2.3548	2.3966	2.4124		
SD	.73492	.54613	.58308	.62337		
N	57	62	58	177		
Length of essays					1.341(2,174)	.264
Mean	280.92982	286.83871	251.68966	273.41808		
SD	134.93025	122.00433	117.21029	125.05410		
N	57	62	58	177		

Table I3. Study 1b Dependent Variable Scale Descriptive Statistics by Condition

	Racism	Discrimination	Bullying	Total
Stroop Interference				
Mean	.0315	.0444	.0510	.0422
SD	.03588	.03617	.05330	.04284
N	20	18	20	58
Stroop Errors				
Mean	2.8500	1.8333	3.6000	2.7931
SD	2.49789	1.54349	3.50038	2.71938
N	20	18	20	58
Positive Affect				
Mean	2.5222	2.3529	2.7622	2.5572
SD	.81425	.55803	.63771	.68789
N	18	17	20	55
Negative Affect				
Mean	1.3389	1.3448	1.3650	1.3502
SD	.31462	.30864	.26611	.29058
N	18	17	20	55
Group identity/self-esteem				
Mean	4.7394	4.9549	5.1156	4.9430
SD	.83249	.80805	1.01435	.89214
N	18	18	20	56
Other group orientation				
Mean	3.4259	3.5463	3.4167	3.4613
SD	.46168	.40747	.36072	.40700
N	18	18	20	56
Stigma consciousness				
Mean	3.2639	3.3102	3.0530	3.2035
SD	.59426	.73643	.82939	.72634
N	18	18	20	56
Personal relevance				
Mean	2.2778	2.4722	2.3000	2.3482
SD	.82644	.69604	1.12858	.89909
N	18	18	20	56
National importance				
Mean	3.3889	3.5000	3.2000	3.3571
SD	.69780	.61835	.76777	.69879
N	18	18	20	56

Table I4. Study 1b Additional Variable Descriptive Statistics by Condition

	Racism	Discrimination	Bullying	Total	*F(df)*	*p*
Age					0.405(2,55)	.669
Mean	19.65	20.11	19.60	19.78		
SD	1.785	1.711	2.186	1.892		
N	20	18	20	58		
Positive affectivity (pre-experimental)					0.231(2,55)	.794
Mean	3.4150	3.4278	3.5200	3.4552		
SD	.82224	.70444	.75505	.75211		
N	20	18	20	58		
Negative affectivity (pre-experimental)					0.111(2,55)	.895
Mean	1.8300	1.7444	1.8500	1.8103		
SD	.54493	.53051	.43103	.49690		
N	20	18	20	58		
Pre-experimental ethnic pride					0.580(2,55)	.563
Mean	4.1833	4.4444	4.5500	4.3908		
SD	1.11594	1.03532	1.15609	1.09782		
N	20	18	20	58		
Belief in a just world					0.410(2,55)	.665
Mean	3.2250	3.4352	3.4417	3.3649		
SD	.90041	.68394	.93857	.84492		
N	20	18	20	58		
Internal motivation to respond without prejudice					0.702(2,55)	.931
Mean	7.1900	7.1111	7.0300	7.1103		
SD	1.21131	1.26718	1.49705	1.31131		
N	20	18	20	58		
External motivation to respond without prejudice					0.504(2,55)	.607
Mean	5.3200	5.6556	5.8600	5.6103		
SD	1.85971	1.53210	1.72425	1.70177		
N	20	18	20	58		
Social dominance orientation					0.379(2,55)	.686
Mean	2.9063	2.6528	2.9438	2.8405		
SD	1.28751	1.06460	.94371	1.09719		
N	20	18	20	58		
Challenge in writing on the issue/topic					0.183(2,53)	.834
Mean	2.2222	2.0556	2.1750	2.1518		
SD	.87820	.80237	.87772	.84164		
N	18	18	20	56		
Self-perceived persuasiveness of essay					0.566(2,53)	.571

Mean	5.9444	5.5556	6.1250	5.8839		
SD	1.86207	1.29352	1.79088	1.65966		
N	18	18	20	56		
Self-assessed quality of essay					0.089(2,53)	.915
Mean	5.0000	5.0000	5.1500	5.0536		
SD	1.64496	.90749	1.18210	1.25654		
N	18	18	20	56		
Effort in writing the essay					3.169(2,53)	.050
Mean	2.3889	2.1389	2.6500	2.4018		
SD	.60768	.47914	.74516	.64961		
N	18	18	20	56		
Length of essays					0.235(2,55)	.791
Mean	349.5000	307.9444	330.4500	330.0345		
SD	244.9966	163.7773	128.7672	183.9068		
N	20	18	20	58		

Table I5. Study 2 Dependent Variable Scale Descriptive Statistics by Condition

	Racism	Discrimination	Bullying	Total
Ideational fluency				
Mean	6.371428571	7.43902439	7.534883721	7.159663866
SD	2.509812675	2.702302541	2.566717723	2.626408237
N	35	41	43	119
Overall creativity rating				
Mean	2.737857143	2.6035	2.543255814	2.621398305
SD	0.724750754	0.726715653	0.649383301	0.697473427
N	35	40	43	118
Self-rated creativity				
Mean	2.151515152	2.414634146	2.465116279	2.358974359
SD	0.795346313	1.071811778	1.054442692	0.995347266
N	33	41	43	117
Positive affect				
Mean	2.70751634	2.618699187	2.786046512	2.70527307
SD	0.597949612	0.679562491	0.713669723	0.668272381
N	34	41	43	118
Negative affect				
Mean	1.366666667	1.354742547	1.372093023	1.364482431
SD	0.393435721	0.375765804	0.359300484	0.371737946
N	33	41	43	117
Personal relevance				
Mean	2.257142857	1.975609756	1.860465116	2.016806723
SD	0.741336517	0.688759932	0.774024589	0.747687886
N	35	41	43	119
National importance				
Mean	3.314285714	3.195121951	3.023255814	3.168067227
SD	0.471008216	0.557651871	0.597150858	0.557222649
N	35	41	43	119
Emotional effect				
Mean	4.114285714	4.268292683	4.046511628	4.142857143
SD	1.745101187	1.61282966	1.29013636	1.536481311
N	35	41	43	119

Table I6. Study 2 Additional Variable Descriptive Statistics by Condition

	Racism	Discrimination	Bullying	Total	*F(df)*	*p*
Age					.338(2,116)	.714
Mean	19.6857	19.8537	19.5116	19.6807		
SD	1.9216	1.8650	1.9318	1.8953		
N	35	41	43	119		
Self-rated creativity, general (pre-experimental)					.223(2,116)	.801
Mean	3.0571	3.1951	3.1860	3.1513		
SD	.9375	1.0775	.9576	.9884		
N	35	41	43	119		
Positive affectivity (pre-experimental)					1.640(2,116)	.198
Mean	3.5892	3.3683	3.5302	3.4918		
SD	.54641	.56055	.56465	.56096		
N	35	41	43	119		
Negative affectivity (pre-experimental)					1.935(2,116)	.149
Mean	1.9663	1.7683	2.0047	1.9120		
SD	.60160	.48859	.64879	.58839		
N	35	41	43	119		
Belief in a just world					2.876(2,116)	.060
Mean	3.4857	3.2358	3.6450	3.4571		
SD	.73655	.78614	.82394	.79848		
N	35	41	43	119		
Internal motivation to respond without prejudice					.092(2,116)	.912
Mean	7.1743	7.0549	7.0872	7.1017		
SD	1.20180	1.23692	1.28021	1.23311		
N	35	41	43	119		
External motivation to respond without prejudice					.649(2,116)	.524
Mean	5.9829	5.7756	6.1953	5.9882		
SD	1.55402	1.77944	1.70181	1.68267		
N	35	41	43	119		
Social dominance orientation					.271(2,116)	.763
Mean	2.7750	2.6280	2.7575	2.7180		
SD	.96244	.91755	1.02944	.96635		
N	35	41	43	119		
Self-assessed memory for the information						
Mean	7.2571	7.3902	6.9302	7.1849		
SD	1.19663	1.24254	1.36966	1.28199		
N	35	41	43	119		
Effort in completing the research tasks					1.097(2,116)	.337

Mean	7.8857	8.2927	7.8140	8.0000
SD	1.62284	1.41852	1.67979	1.57846
N	35	41	43	119

Appendix J. Stroop Interference in Sample Studies

Table J. Untransformed Stroop Interference Score Descriptive Statistics for Current and Sample Studies

	Range		Mean	Median
Current study				
Study 1a	-94.8ms	+290.2ms	66.9ms	61.3ms
Study 1b	-44.0ms	+337.0ms	72.7ms	54.5ms
Apfelbaum, Sommers, & Norton, 2008	-47.4ms	+195.6ms	48.0ms	N/A
Johnson, Richeson, & Finkel, 2011				N/A
Study 3	-154ms	+340ms	89ms	N/A
Study 4	-92ms	+397ms	104ms	N/A
Richeson et al., 2003	-29ms	+212ms	85ms	N/A
Richeson & Shelton, 2003	+17ms	+413ms	N/A	69.2ms
Richeson & Trawalter, 2005				
Study 1	-40.3ms	+376ms	109ms	N/A
Study 2	-42.3ms	+409ms	103ms	N/A
Study 3	-26ms	+352.9	112ms	N/A
Richeson, Trawalter, & Shelton, 2005	-16.8ms	+249ms	N/A	92ms
Trawalter & Richeson, 2006	-46.9ms	+192.4ms	70.1ms	N/A